CHAPTER 2
OVERVIEW OF LITERATURE

There are number of studies which address the issue of market concentration and performance in the developed and developing countries. Overview of literature is organized in three sections; first concentrates on the studies done in developed countries; second section presents the studies completed in developing countries. Studies related to Indian manufacturing sector are presented in section-3.

2.1. Studies Concerning Developed Countries:

The pioneering work in structure-conduct-performance relationship was done by Bain (1951). He estimated this relationship on few American industries and obtained almost significant relationship between 8-firm concentration ratio and weighted average of the rate of return on equity for each industry. He related industry performance to its structure via conduct of firms within it.

Baumol (1962) pointed out that a firm, with market power as a consequence of concentration, may prefer to maintain its high rate of profit by restricting the output and charging high price. It was able to grow only after sacrificing some of its profit margin and lowering prices which might not be in its interest. Moreover, there were all kinds of restrictions imposed by the government to stop further growth of such firms. Furthermore, static diseconomies of scale and numerous dynamic factors and bottlenecks, all adversely affected the ability of such firms to grow. Thus, higher the monopoly power, the lower was its growth. The few firms in the concentrated industry were dominant enough to restrict the growth of the other firms and to stop
the entry of new ones, because of various barriers to entry at their disposal. There was, therefore, very little prospective for the firms’ growth in a concentrated industry, consequently, the industry itself.

Stigler (1964) tried to test the hypothesis that oligopoly firms indulge in collusive practices in order to maximize their profits. While using the data of seventeen industries during the period of 1953-57, he found that market concentration more than 80 percent bears considerable relationship with rate of returns. He, however, was very cautious to draw any conclusion from this data as he indicated that there was no relationship between profitability and concentration if share of four largest firms was less than about 70 percent. Moreover, hypothesis of collusive practices also proved true.

Scherer (1965) investigated relationship between firm size, inventive activity, technological opportunity, diversification and monopoly power. The sample consisted of 448 U.S industrial corporations for the base year 1955. Independent variables included three measures of firm size – profit for 1955, liquid assets for 1955 and index of diversification. The depended variable was the number of U.S. invention patents issued to the sample firms in 1959. Patenting was found to be an increasing function of firm size. Small firms were having strong incentives to product differentiation and research and development. The expected profitability of speculative research was greater for highly diversified firms.

Collins and Preston (1966) analyzed the relationship between average industry price-cost margin and degree of concentration and found this relationship positive and continuous. Increase in concentration above a certain level was found to be associated with successively larger increase in price-cost margins. Structure of
variables like concentration, capital-output ratio, geographical dispersion of manufacturing facilities etc. included in the analysis, statistically explained 80 percent of variation in price-cost margin among the 32 food manufacturing industries and concentration alone accounted for nearly 50 percent of the variations.

Mann (1966) used 1950-60 data to study the relation between four-digit industry concentration ratios and accounting rates of return. The sample was drawn from 30 industries where barriers of entry could be eliminated. His results were similar to the Bain’s findings. He revealed that twenty one industries with more than 70 percent eight-firm concentration ratios earned an average return of 9 percent. He attributed the difference in profitability of industries to entry barriers.

In another study Collins and Preston (1969) presented some results based on food manufacturing segment of American industry in 1958. It confirmed the importance of structural variables (concentration, regional market, capital-output ratio and industry growth) in an explanation of the difference in market concentration. In 32 food industries, there was positive relationship between price-cost margin and concentration. Those industries for which concentration was under 30 percent price-cost margin averaged about 12 percent, increases in concentration were systematically associated with increase in price-cost margin. With 60 percent concentration price-cost margin was about 25 percent and at 85 percent concentration, margin about 45 percent. There was also positive relationship between price-cost margin and capital-output ratio. These structural variables, explained some 80 percent of variation in price cost margin among the 32 food industries. Concentration alone accounted for nearly 50 percent variations.
Miller (1969) attempted to relate industry performance with market structure in the U.S. manufacturing sector by regressing profit rate on measures of market structure for 106 minor manufacturing industries. The dependent variable was profit rate and independent variable reflecting market structure were – four firm ratio, eight firm ratio, advertising intensity and degree to which firms classified in the industry specialize in the product of that industry or were diversified into four industries concentration, marginal concentration, advertising and diversity were statistically significant and together these accounted for about half of the variance in the profit rates.

Gale (1972) examined the effect of market shares on the rate of return of selected firms operating in different market environments. Large market share in general was expected to yield high profitability: (1) By giving the firm based product different advantages (2) by providing opportunities to the firm to operate in oligopolistic group for some joint strategies and increase in bargaining power and (3) by allowing the firm to take advantages of economies of scales.

Shepherd (1972) conducted a company based cross-section study on structure and profitability relationship in large US firms for 1960-69. He formed a sample of 237 firms and also made certain subsets within these firms. The subsets were made for ‘young industry firms’, ‘old industry firms’, ‘consumer goods firms’ and producer goods firms’. The variables included in the study were market share, advertising to sales ratio, four-firm concentration ratio and revenue growth. The market share was found positively and strongly related consistently to all variables in all equations except for ‘consumer goods firms’. The growth was also positive and significant.
Rhoades (1973) conducted a study to examine the relationship between industry profitability and diversification. His study is based on a sample of 241 four-digit manufacturing industry from 1963 Census of Manufacturer. He also took concentration, growth in demand and capital-output ratio as another control variable in the structure framework to examine the impact of diversification on profits. All regression equations produced expected results in respect of concentration, growth and capital-output ratio by revealing positive and significant co-efficients. However, in respect of one of the two diversification variables, the results were contrary to expectations. One diversification variable demonstrated a systematic relationship with industry profitability and this relationship was linked to barriers to entry. On the other hand, the other diversification variable appears to be a measure of the ease of entry.

Holterman (1973) fitted 20 regression equations that estimated the association between market structure and economic performance with eight different measures of performance. She included measures of entry barrier, advertising intensity and investment/sales ratio among the explanatory variables, dependent variables being gross and net price-cost margin. The partial regression coefficient of the concentration had a negative sign but was not significantly different from zero. The entry barrier variable also had no significant effect on these margins but the other variables had positive and significant effect for all 113 three-digit industries.

Rhoads and Cleaver (1973) found positive association between profit and concentration only when concentration was high. In another study, they repeated Collins and Preston study with 1967 US data of 352 manufacturing industries. They examined relationship between price-cost margin and different ranges of four-firm concentration ratio below 50 percent and found no clear association between concentration ratio and price-cost margins. However, the relationship was found
positive for the concentration range from 50 to 80 percent. Beyond this limit, again there was no association between them.

**Meehan and Duchesneau** (1973) found that discontinues, non-linear form represented the appropriate nature of association between concentration and profit rates. They concluded that the critical values were 0.55 for the four firm levels and 0.70 for the eight firm levels.

**Hurdle** (1974) attempted to analyze the relationships between financial leverage, market structure, risk and profitability for 228 U.S. manufacturing corporations. He used three simultaneous equations model to test the hypothesis of his study. Risk and leverage factors were significantly related to profitability. Large demand functions were associated with large profit variation. Firm with a large market share with large advertising expenditure and with high assets tended to stabilize their high level profits overtime. Growing firms had higher leverage than slowly growing and dying firms.

**Khalidzadeh** (1974) investigated the influence of some of the major market structure elements on one aspect of performance-price cost margins in U.K. for 900 manufacturing companies and the impact on these relations of foreign trade and direct foreign investment. Price-cost margin (dependent variable) was defined as the percent gross return on sales for the industry. Concentration ratio had no significant effect on price-cost margins whereas the capital-output ratio had a strong effect. The export variable was positively related to price cost margins. Product differentiation variable, positive and statistically significant indicated that that industry whose output was relatively differentiated had, on the average, price cost margin higher by 2.97 percent.
Asch and Seneca (1976) compared the profit performance of 51 U.S. firms, condemned for collusion activities, with a sample of non-colluding firms. They regressed profit rates on structural variables and a dummy variable, which took the value of one for collusion firms. They found that collusion had a negative coefficient; all other variables were behaving as expected. Hence, collusion was a response to low profitability.

Bothwell and Keeler (1976) introduced risk as an explanatory variable for price-cost margin in his sample 138 U.S. firms (for 1960-67) and found risk to be significant variable. For measure of risk they introduced degree to which their return varies with the returns on other assets overtime. High risk in a firm implied the presence of high barriers to entry in it, which further implied that the potential entrepreneurs were having difficulty in penetrating area. Therefore, existing entrepreneurs could earn high profits.

Cowling and Waterson (1976) examined the relationship between changes in market structure and performance measured through price-cost margin for U.K. industries covering the period 1958-68. Price-cost margin was related directly to the Herfindahl index of concentration in the industry and inversely to the industry's price elasticity of demand. They admitted that in the model, cyclical effects would work through the industry price elasticity of demand or through the divergence of short-run marginal cost from the average cost with changing capacity utilization if they considered the industries to be in equilibrium.

Two groups of industries were formed by McEnally (1976) to represent the degree of competitiveness to study the association between concentration and profitability. He did this for 16 industries comprising 179 companies over the period
1950-65. He divided the industries into two groups i.e. ‘high barriers to entry industries’ and ‘low barriers to entry industries’ to represent monopolistic industry by the former and competitive industry by the latter group. The results of the study indicated categorically that competition lowered profitability differentials among industries. The monopolistic industries earned higher profits. Moreover, industries with higher average return observed larger inter-firm rates of return variations.

Using a sample data of 97 large food manufacturing firms Dalton and Penn (1976) empirically examined the concentration-profitability relationship. Profitability was taken as the function of product differentiation, industry growth, absolute firm size, market share and concentration. The empirical results of the study indicated that there was a critical level of concentration. The profit rates were found to be higher when four-firm concentration was at or above 45 percent and when eight-firm concentration was at or above 60 percent. The coefficient of market share variable was positive and significant in high concentration group. However, the relationship between size and profitability was positive and significant in low concentration group.

Hart and Morgan (1977) tried to answer, if there was a positive correlation between an industry’s profitability and its concentration ratio. Was this to be attributed to monopolistic practices? Or was it due to larger firms gaining more of the market by their superior efficiency as reflected in there higher profitability? They took a sample of 113 industries, using 3-digit industry employment concentration ratios for the year 1968. A series of linear and log-linear regressions of profit rate, on other variable like employment concentration, the ratio of gross capital expenditure to labour, the ratio of advertising to sales, the ratio of imports to domestic production, number of enterprises in the industry etc. were estimated. Although higher concentration was associated with higher profitability, it contributed less than 10
percent of variation of gross profits. Entry barriers variable had no significant effect on profits. The sales variable reflecting demand conditions also had no significant effect. The important variable appeared to be the capital/output ratio and advertising sales ratio. The number of enterprises had a significantly negative effect on profits. Oligopolistic structure had some influences on profitability. Other conclusion was that the economic relationship between market structure and economic performance was highly complex, complex to be estimated accurately enough by the usual equation, ordinary least squares regression analysis.

Jones, Laudadio and Percy (1977) tried to explore whether the same structure-performance model was as appropriate to other economies as it seemed to be for U.S.A. On the basis of comparison between Canada and U.S.A of the same structural variables gave rise to difference in performance between the two countries in general, however same basic structural performance model was seen to be appropriate to both economies. The data was derived from cross section samples of 64 Canadian manufacturing industries from 1963 to 1965. Profits were considered to be a function of national and regional concentration, barriers to entry, diversification, demand and foreign competition.

Both countries did not observe significant concentration in consumer goods industry; however it was highly significant in producer goods industries. The product differential variable was strongly significant in the total sample for both countries. In U.S.A demands did not show up as significant in the total sample although it was significant for two specifications of consumer goods. In Canada, for total sample it was also not significant except with producer goods. With respect to diversification, Canadian and U.S results were similar. In Canada, for produced goods sign was positive, reporting domestic firms more efficient.
Neumann, Bobel and Haid (1979) explained mean rates of return of the period from 1965 to 1973 of 334 West German joint stock companies by risk and market structure. Other explanatory variable were concentration ratio, the export and import ratios, absolute and relative firm size and the rate of differentiation. Risk and market structure on the size of supply accounted for a considerable part of the rate of return of these companies. The results suggested that investors were risk averters but risk bearing was accordingly compensative by a higher rate of return. Degree of concentration and product differentiation were positively related to profit, while export and import ratio exerted an adverse impact on profit. As regards size and profit, smaller firms tended to be more profitable. Smaller firms were being more flexible tended to take chances of growth more easily than the bigger ones. So there was inverse relationship between growth and profitability.

Nakeo (1980) attempted to find out the relationship of the top firm profit rates to its market share in a fast growing economy of Japan. Total of 32 top firms out of 171 were chosen; 16 were of consumers’ goods and 16 of producers’ goods during the period 1964-69. The four elements of market structure: market share, demand growth, good-will and product differentiation, accounts for about three quarters of the variance in the top firm profit rates, with market shares, product differentiation and barriers to entry were in secondary roles.

Gale and Branch (1982) examined a sample of 106 firms for 1963-67 operating in four-digit standard industrial classification industry to investigate the impact of market share on profitability. The influence of growth on profits was also examined. The findings indicated that high market share led to superior performance and the impact of market share on performance depended on firm and industry features. The share-profitability relationship was stronger in large firms operating in
highly concentrated industries growing at moderate rates. The relationship between profitability and risk was positive and significant. As per expectations; leverage, firm’s growth as well as industry growth bore positive signs and were significant in all equations. The effect of concentration on profit was positive and significant for high concentration industries and it was non-significant for medium concentration industries.

**Meehan and Duchesneu** (1983) focused their study to examine whether the association between concentration and profitability was discontinues at some critical levels. Their sample consists of 186 firms classified into 32 four-digit industries. They reported that the relationship between concentration and profitability was discontinuous at specific critical level. The critical level was found to exist at 55 percent at four-firm level and 70 percent at the eight-firm level. The findings suggested that when concentration had reached the critical level it ceased to raise profitability.

Sample data for 197 industries for the years 1963, 1967 and 1972 was analyzed by **Levy** (1985) to conduct a study to examine if the profit-concentration relation is homogenous over industries. He employed a standard market structure-performance model with entry barriers. The study rejected the hypothesis that the concentration-profit relationship was homogenous across industries. His results suggested that the effect of concentration on profit varied substantially in different industries. He indicated that past studies which has assumed the relationship between concentration and profitability to be homogeneous across industries, might be biased.

**Clarke and associates** (1984) showed that there is no evidence that difference between smaller and larger firms’ profitability tends to be larger in high concentration
industries. This study confirms that without collusion, a positive profitability concentration relation might still be expected while there are also evidences of market power effects.

**Smirlock and others** (1984) tested the structure performance hypothesis and efficiency hypothesis using OLS regression of the firm’s profitability against the traditional hypothesis with a proxy for relative efficiency. The firm’s profitability was measured by Tobin’s q which is the firm’s market value divided by replacement costs of its assets, the variables used to represent the traditional hypothesis of concentration, entry barriers, and growth rates, and the proxy used for relative efficiency was the firm’s market share. It was found that there is no discernable positive relationship between concentration and profitability.

**Bothwell, Cooley and Hall** (1984) used a sample of 156 large U.S. manufacturing firms over the period 1960-67. For determining the relationship between profit rate and other variable like sales, concentration, advertising intensity, economies of scale, absolute capital requirements, leverage, profit variability, firm growth, firm size and market share etc. positive correlation between sales concentration market share, growth of demand, business risk, advertisement expenditure and profit rate was found. Profits rates were negatively related with the extent of scale economies and capital requirements.

**Clarke, Davies and Watterson** (1984) Stated that many industrial economists while studying the relationship between profitability and concentration have conclude that both are positively correlated and others suggested that, rather than concentration, all market power leading to higher prices and profit, the direction in fact is from greater efficiency to both higher profit and then to pose of their study was to subject
these higher conflicting hypotheses to cross-industry empirical test using U.K. data. A model was developed to allow for both alternative explanations of a positive concentration-profitability correlation. The results favoured traditional market power explanation of market-concentration relationship at the industry level. No evidence for U.K. data was found that differences between small and large firm profitability tend to be lesser in high concentration industries. Their model confirmed that without any collusion, a positive profitability concentration relationship might still be expected. Once the twin assumptions of product homogeneity and constant costs were relaxed, there was no certainty that large firms would achieve higher profit rates in industries without collusion.

**Newmann Bobel and Haid**’s (1985) study comes up with two important results. First, a given degree of industrial concentration brings about higher market power during business cycle upswings compared to time of lower economic activity; and secondly, the study found that price-cost margin increased during business cycle upswing and decreased during depression even in the highly concentrated industries.

**Scott and Pascoe** (1986) using the federal trade commission’s (FTC’s) Line of Business (LB) data found firm and industry effects to be significant to explain concentration. The industry characterizing variables used were - concentration, minimum efficient scale, import competition, geographic size of the market served by the industry, growth of market demand and cost of capital. Firm specific variables used by them were diversification and leverage. Two other variables used were advertising to sales ratio and ratio of assets to sales. While concluding their paper they pointed emphatically that industry and firm variables were not independent of each other.
Glenn and Bruce (1986) by using a panel database found that there had been a substantial difference in the price-cost margin of concentrated and un-concentrated industries. Including measures of macro-economic fluctuations into standard price-cost margin regression, they find significant differences in cyclical behavior across market structure.

Schmalensee’s (1987) study is the first cross section study which aimed squarely at the decomposition of profitability variation into various effects. He used data of 456 large M-form (multi-divisional) firms in 242 FTC manufacturing industries for 1975 and decomposed the profitability variation into industry, corporate, and market share components. The study revealed that 75 percent of profitability variation was accounted by industry effect, however, the firm and market share effect were negligible.

Capon et al. (1988) carried out a study based on market structure variables. They related the superior performance to the specialization by market type. Different types of markets require different type of skills for success. Therefore, firms should concentrate by market type for superior performance, they suggested.

Coate and Uri (1988) examined the relationship between industry structure and economic performance via equation model of profitability, concentration, advertisement expenditure and R&D expenditure. Data for 285 four-digit industries was used for this purpose. Advertising intensity was found significantly higher in consumer goods industries. Profitability as well as concentration was also found to be positively related to higher advertising level. However, concentration did not tend to increase advertising efforts across industries. Besides, the study revealed that concentration and imports tended to exert high positive effects on research and development activities.
**Coate** (1989) examined the temporal behaviour of profitability in oligopoly industries. His sample included 48 highly concentrated four-digit industries. He classified the data into consumer goods and producer goods industries and also subdivided the sample into increasing, constant and decreasing concentration industries. The result of the study suggested that above normal profit would rather disappear when persist overtime. Concentration tended to increase profits in few industries. Concentration effect was found only in those industries where concentration was changing. Moreover, concentration effect was more in consumer goods industries as compared to producers’ goods industries.

**Kessides** (1990) using data of 456 large multi-divisional firms for 1975, conducted a study of decomposition of variation in firm’s profitability across industries into firm, industry and market share effects. He showed that all of these were both statistically significant and quantitatively important and accounted for a major portion of dispersion of rates of return.

**Amato and Wilder** (1990) conducted a comprehensive cross-section study using data for the year 1966 and 1975 with a sample of 40 manufacturing industries. They included risk, elasticity, business cycle effects, firm size, market share, concentration, advertising intensity, minimum efficient scale, import ratio and capital intensity in the model. They captured the industry effect by employing industry dummy variables and found industry effects to be significant in explaining cross-sectional variation in profitability.

**Alley, Wilson A.** (1993) tested the hypothesis that Japanese banking performance is a result of efficiency and should be identified by the efficiency structure hypothesis instead of the SCP hypothesis. In the model, he estimated the
degree of collusion in the Japanese banking industry and found that there is a significant degree of collusion. The finding of his analysis supports the structure conduct performance hypothesis as a better means of describing the Japanese banking industry rather than efficiency structure hypothesis.

Maudos (1998) analyzed the relationship between market structure and performance within the Spanish banking industry. The results obtained support the efficient structure hypothesis and showed that market share was an inadequate proxy for efficiency.

Kari, Jaafar, Allen, and Couvillion (2002) investigated the relationship between profitability and market power in the trucking industry that transported agricultural commodities. The aim of that investigation was to determine if the Motor Carrier Act of 1980\(^8\) had produced the desired market structure. The research method was based on the SCP paradigm. Results of this study indicated that efficiency is the driving force behind performance of firms. These results suggest that Motor Carrier Act of 1980 had produced its intended purpose of enhanced competition in the agricultural commodities transport industry.

The general objective of a study by Allen, Shaik, Myles, and Muhammad (2005) was to estimate whether the market structure, market share, and profits of the agribusiness commodity and refrigerated food products truck carriers in the South were based on the traditional SCP hypothesis or the efficient structure hypothesis.

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\(^8\) The Act prohibited rate bureaus from interfering with any carrier's rights to decide its own rates, and, as implemented, removed most rate making from the rate bureaus, eliminated most restrictions on commodities that could be carried, and deregulated the routes that motor carriers could use and the geographic regions they could serve. The law authorized truckers to price freely within a “zone of reasonableness,” meaning that truckers could increase or decrease rates from current levels by 15 percent without challenge. Promoting independent pricing and open entry were critical to achieving a level of competition. The law had far-reaching consequences, causing price competition and lower profit margins.
Overall, results reveal that the profits made by the carriers were based on them being more efficient than their competitors rather than them participating in collusive activities. Thus, the results of this study support the efficient structure hypothesis and reject the SCP hypothesis. Therefore, both public and private market evaluators and watchers of the trucking industry can use the results of this analysis to find the basic economic forces that affect profits of the various firms that comprise the industry at the conduct level. Also, managers and owners of the various firms can formulate strategies to take advantage of the weaknesses of their competitors and the strengths of their firms to make profits. Therefore, the results of this study provide users with information that can be used to take advantages of opportunities in the trucking industry to meet unmet needs of shippers.

Byeongyong and Weiss (2005) tested the traditional structure conduct-performance model and the efficiency structure hypothesis to examine the relationship among market structure and performance in property-liability insurers. The efficiency terms in this analysis were estimated using a stochastic frontier analysis. This analysis supported the efficiency structure hypothesis. The results found that efficient firms charged lower prices than competitors causing them to capture larger market shares consequently increased market concentration.

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9 Stochastic frontier analysis is a method of economic modeling. It has its starting point in the stochastic production frontier models simultaneously introduced by Aigner, Lovell and Schmidt (1977) and Meeusen and Van den Broeck (1977).

The production frontier model without random component can be written as:

\[ Y_i = f(x_i; \beta) \cdot T E_i \]

where \( y_i \) is the observed scalar output of the producer \( i, i=1..I \), \( x_i \) is a vector of \( N \) inputs used by the producer \( i, f(x_i, \beta) \) is the production frontier, and \( \beta \) is a vector of technology parameters to be estimated.
Some studies in USA and other developing countries have already used stock returns as variable of performance. **Kewai Hou and David T. Robinson (2006)** by using the data of all NYSE-, AMEX- and NASDAQ listed securities, analyzed and tried to establish a relationship between market concentration, performance and stock returns in different industries of USA. They found that the firms in more concentrated industries earn lower returns in stock market. Firms in higher concentrated industries are insulated from undiversifiable distress risk. Hence, they are less risky, hence, command lower stock returns. This, they established by using the popular measures of concentration and profitability through regression analysis.

**Fama and French (2005)** while studying the relationship between profitability, investment and average return by using data available in different studies for industries of USA have established (i) firms within higher book-to-market equity have higher expected stock returns (ii) higher expected investment, higher expected profitability implies higher expected returns. (iii) Faster expected rates of investment are associated with lower expected returns.

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### 2.2. Studies Conducted in Developing Countries:

A few researchers have attempted to study this topic in some developing countries other than India. Here is reference of such studies;

**Amjad** (1977) studied the data for 17 industries to consider the affect of foreign trade, protection of domestic industry, capacity utilization and concentration ratios on average industry profit margins in Pakistan. He concluded that there was a significant positive relationship between concentration ratios and industry profit
margin. The relationship was also positive between capacity utilization and profit margins. However, there was no significant relationship between capital-output ratios, foreign competition and profit margins.

Lindsey (1979) studied the extent of concentration on manufacturing sector of the Philippine economy. He ranked the firms according to the size of total assets and estimated that the 60 largest manufacturing firms accounted for approximately 57 percent of the total assets of the 500 largest manufacturing firms in 1970 and 45 percent of the total sales of 500 largest firms, but in case of profits 20 of the 60 firms reported negative profits. Considering only the firms making positive profits, the 60 largest manufacturing firms accounted for 63 percent of the total profits of the 500 largest firms.

Chou (1986) studied the role of foreign trade in the analysis of market structure and performance in Taiwan. In this context he also considered the determinants of trade intensity to estimate his equation system. His results show that public enterprises influence both structure and performance significantly. He however finds that trade intensity is explained by comparative advantage rather than market forces (concentration and profitability).

Kaluwa and Reid (1991) examined the structure-performance relationship for 16 manufacturing industries of East African country The Republic of Malawi for the period 1967-72. They regressed to price cost margins on import-export intensities, skill, diversification, raw material availability, advertising intensity and the value of total domestic sales. The results showed that scarce factors like working capital and imported raw material turned out to be significant determinant of profitability. However, concentration had a negative impact on inter-industry price cost margin.
2.3. Studies Related to India:

This topic has not been studied comprehensively in India. Some researchers have attempted to study in a fractured manner. Here is reference of such studies;

Katric (1960) examined the influence of the industry concentration, foreign trade and protection on price-cost margin in Indian manufacturing industries. Export oriented and protective industries had shown positive influence on price-cost margins.

An attempt to measure product-wise concentration in India was made by the Monopolies Inquiry Commission set up in 1964. It considered the extent of concentration in about 100 selected products and found considerable levels of concentration.

Gupta (1968) is one of the pioneers to conduct a study to examine the relationship between structure and performance in India. He tested the hypothesis of positive relationship between profitability, barriers to entry and concentration ratio on 29 Indian manufacturing industries for 1958. The three indicators of barriers to entry used were relative market size of the minimum optimal plant size, coefficient of steepness of the average cost curve, and capital requirement for the minimum optimal plant-size. The concentration ratio was defined as the percentage of total industrial employment accounted for by the four largest units in the industry. The profit rate of 1958 was used as an indicator of profitability but its definition was not given. No significant relationship was found between height of barriers to entry, profitability and concentration. However, he refrained from accepting or rejecting the hypothesis of a
positive and significant relationship between the rate of return, height of barriers to
entry and concentration ratio.

Walgreen (1971) critically analyzed Gupta’s (1968) data with a different
methodology and unlike him, produced results which were in line with the results
produced by Bain and Mann in their studies with US industry data. For the sake of
compatibility with earlier studies, he arranged Gupta’s data according to Bain’s
classification to test the relationship between scale economies and profitability.
Concentration ratios were also rearranged to examine the relationship between
congestion and profitability. Both the relationships turnout to be positive and
significant when alternative methodology was used. He attributed the changes in
results to certain flaws in Gupta’s study. The chief among them was the use of short-
run data to test a long-run relationship.

Sawhney and Sawhney (1973) carried out a study on inter-industry
profitability variations. He used a sample of 25 Indian manufacturing industries and
employed OLS regression technique and step-wise regression procedure to study the
impact of various variables on profit rates. The explanatory variables used were -
concentration ratio, capital-output ratio and capacity utilization. Non-linear
relationship between profitability and concentration was also tested. The ratio of price
to average variable cost averaged over six years (1953-58) was used as measure of
profitability. Besides this, an alternative indicator of profitability was also used to
analyze the results, viz. return on sales (ROS). The impact of all variables employed
was positive and significant on all measures of profitability at 5 percent level except
the capital-output variable in respect of which the coefficient was not significant.
Gosh (1974) by using the data for the period of 1948-68 for 22, 2-digit Indian industries has found that 4-firm and 8-firm concentration ratios have declined overtime. He also found that initial concentration and the change in number of firms in each industry were significant determinant of the change in CRs overtime.

Sandesara (1979) in his study analyzed the variation in size and concentration in firm sector during the period 1951-70 in India. The number of workers is taken as a measure of size of firm. Concentration was calculated by using 4-firm and 20-firm concentration ratio, Herfindahl index and Entropy measures. The levels of concentration vary across the industries. The four firm concentration ratios have a range of variation from 2 percent to 46.77 percent. Similarly the 20-firm concentration ratio has a range of variation from 5.4 percent to 82.48 percent.

Sidharthan (1981) while considering the determinants of profitability in Indian industry, calculated concentration ratios using a sample of 300 public limited companies for which data was obtained from Reserve Bank of India. His major concern was the extent to which aggregate concentration, especially as related to the position of two major industrial houses- Tatas and Birlas, can explain the variation of industrial profits. He concludes that profits fluctuate more in oligopolistic industries, reflecting rivalry rather than collusion in oligopolistic industries.

A study of Apte and Vaidyanathan (1982-83) broadens the framework and provides a list of factors peculiar to Indian industry that might affect profit rates. They concluded that concentration has a significant impact on profitability and the relationship seems to be discontinuous. Economies of scale and capital-output ratios have little effect. Product-mix controls have a significant adverse impact on profitability, while price and licensing controls have no significant and clear impact on profitability.
Maharatna (1983) examined the variation of concentration over time, as well as the impact of concentration on industrial growth. His sample consisted of 66 industries and it covered the period 1964-80. To study the changes over time, he analyzed the data for two sub-periods i.e. 1964-75 and 1975-80. The study was based on only 2-firm and 3-firm production concentration ratios. The study fails to reveal any association between initial level of concentration and its subsequent change over time. However, the analytical results of two sub-periods suggested that this relationship was negative in sub-period 1964-75 during which excessive restriction and control were imposed in the Indian manufacturing sector. The relationship was positive for the sub-period 1975-80 which enjoyed rather liberal environment. In other words, this finding suggested that high initial concentration would not exert negative impact on the subsequent rise in concentration in the absence of restrictions and control. Additionally, a positive but weak association was found between initial concentration and growth.

Siddharthan and Dasgupta (1983) conducted study on market structure and profitability. Their sample contained medium and large-scale public limited companies operating in 30 industries for the three-year period 1975-76 to 1977-78. Profit after tax as percentage of net worth was employed as dependent variable. The independent variables in the regression equation were -growth of sales, advertising expenditure, R&D expenditure, size, skill, exports and concentration. In all the regression equations, export variable had consistently negative coefficients while all other variables were related to profitability. Skill variable turned out to be the main determinant of profitability. Concentration has no significant relationship with profitability.
Gupta (1985) attempted to explain the nature of relationship between profit-margin and industrial structures for a large sample of Indian manufacturing industries. He used concentration ratio, size ratio, scale economies and entry barriers as market structure variables. All the selected variables explained approximately half of the variations in profit margin extending support to SCP hypothesis.

Kumar (1990) tried to examine the determinants of profit margins of affiliates of multinational enterprises and local firms in 43 Indian manufacturing industries so as to find out the superiority of the former over the latter. The findings of the study were consistent with the theoretical hypothesis that the multinational enterprises enjoy superiority as far as knowledge intensity is concerned. The degree of vertical integration and better utilization of capital turned out to be positively related with profitability of multinational enterprises. The local firms, however, did not seem to have an edge over the multinational firms despite the seller concentration and protection from imports accorded to them.

Aggarwal (1992) carried out a study of performance variation across industries. The study was based on 42 large manufacturing industries and the results were taken for 1974-78, 1982-86 and 1973-86. Performance was operationalised in terms of physical, financial and economic indicators. Price-cost margin (PCM) and return on capital employed (ROCE) were employed as indicators of financial performance. The study reported the existence of inter-industry performance differentials. The independent variables employed in the study were – effective protection rates, concentration ratio, export intensity, skill levels, wages rates, scale economies, growth ownership etc. As regarding PCM, concentration and skill levels had positive and significant impact while export intensity was negatively and significantly related. Ownership, growth and protection did not show up significant
relationship. For ROCE, concentration and protection were not found significant. Ownership had negative impact in both periods, i.e. 1974-78 and 1982-86. Scale economies were important for only 1970s, while export intensity, skill levels and wage rates had significant impact on ROCE for 1980s only.

**Uma S. Kambhampati** (1996) has studied market structure-conduct-performance relationship in Indian industries. His sample included 974 firms of different industries. He took RBI data to get firm level and ASI data to get industry level information. He used CRN as the measure of concentration in his study. He found a positive relationship between market concentration and performance of firms through various conduct variables.

**Suma Athreye and Sandeep Kapur** (2004) studied market concentration in India between 1970 to1999 by using RBI data for 53, 3-digit industries. They used 4-firm concentration ratio and Herfindahl Index to measure the level of concentration. They found that concentration levels fell in some sectors while in others they rose overtime. However, overall trend was of rising concentration.

### 2.4. Concluding Remarks

The findings of the selected studies on market concentration-performance relationship have been summarized above. These studies pertain to both developed countries like U.S.A., U.K., Canada, Japan etc and developing countries like Taiwan, Pakistan, Philippins and India. Most of the studies have their findings similar as that of Bains. Scherer (1985), Collins and Preston (1966, 1969), Mann (1966), Gale (1972), Shephered (1972), Hurdle (1974), McEnally (1976), Dalton and Penn (1976), Neumann, Bobel and Haid (1979, 1985), Nakeo (1980), Clarke, Davies and Watterson (1984), Capon (1988), Alley (1993) and Byeongyong and Weiss (2005) have found
positive and significant relationship between market concentration and performance of a firm. Some of them have the result that market power is the main cause of their better performance. Other found collusion as the factor which improved their performance. Some studies have found that the efficient firm has both larger market share and better performance (Allen, Shaik, Myles and Muhammad (2005), Byeongyong and Weiss (2005)).

On the contrary, Boumol (1962), Miller (1969) and Levy (1984) found the relationship between variables representing performance and market concentration to be negative. There are other studies which calculated that there is no significant relationship between concentration and performance (Rhoades (1973), Khalilzadeh (1974), Scott and Pascoe (1986)). Stigler (1964), Rhoades and Cleaver (1973) and Meehan and Duchesneau (1973, 1983) have concluded that concentration has a significant effect on performance only if it is above a certain level.