CHAPTER 3

LITERATURE REVIEW

3.1 Introduction

Up to the early 1920s the classical price theory revolved around two extreme models, namely pure competition and monopoly. By the late 1920s economists became increasingly dissatisfied with the use of pure competition as an analytical model of business behaviour partly because very few markets exhibited pure competition in reality. This dissatisfaction lead to the formulation of theories of imperfect competition.

Two pioneers in the theory of imperfect competition or monopolistic market structure were Edward Chamberlin and Joan Robinson. In 1933 Chamberlin argued that almost all markets in modern economies are imperfectly competitive. In the same year and independently, Robinson expounded similar views in her *The Economics of Imperfect Competition*. Both Chamberlin and Robinson's work constituted one the most important turning point in the history of neo-classical price theory:

"Chamberlin's work seems to have been by all odds the most important......It related the theory of pricing specifically to the institutional framework and practice of the real economy - to concentration, product differentiation and its legal framework, collusive activities, trade practices, and barriers to entry......"

Bain (1949, p.130)

The work of Chamberlin and Robinson has since been substantially extended and refined, both theoretically and empirically. On the empirical front, investigation of the relationship between market structure and firm performance has been undertaken under the research programme or paradigm widely known as Structure-Conduct-Performance (SCP). The literature of Structure-Conduct-Performance relationship can be divided into four overlapping phases starting from 1951[1,2].

The period from 1951 to 1968 was a period of elementary statistical analysis of small cross-section samples of industry-level data, with a subjective evaluation of various aspects of market structure. Econometric empirical work during the period between 1967 and 1977 were undertaken large cross-section samples of industry-level data[3]. During this time, there was a more objective evaluation of many aspects of market structure such as the importance of advertising expenditure and absolute capital requirements in explaining firms' performance. An increasing attention to issues of specification of profitability equation in a structure-conduct-performance model were also raised during this period[4]. Some studies used firm-level data for large cross-sections analysis. General disenchantment with many of empirical work took place during the

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[1] See Martin (1993), p.447.

[2] This period began with Bain's work in 1951.

[3] This period began with Comanor and Wilson's work in 1967.

[4] One example was Cowling and Waterson (1976) who pointed out that the omission of industry price elasticity of demand will lead to meaningless result in cross-section analysis.

period between 1974 and 1983[5]. Large cross-sections of industry-level data was used in most of the studies conducted during this period. By 1983, the empirical industrial economics experienced yet another "renaissance" with the increasing usage of firm-level panel data, time series and pooled cross-section time series data[6,7]. More recently, price and long-run rates of return issues have received extensive attention from researchers in the field.

Most of the recent empirical studies have also been substantially motivated by formal theoretical models. This is a departure from the methodology employed in the past. In fact, for many years industrial economics was generally viewed as an intellectually isolated empirical field without much scope for formal theory:

".......there was frequently a lack of close or extended analysis of price-output results, or of how observed market structure and competitive behavior affected the determination of prices and outputs.....These limitations......arose primarily from a general lack of rapport with the corresponding field of 'economic theory'.....".

Bain (1949, p.130)

Under this approach, the role of theory was limited to merely defining the relevant questions. For example, it was suggested that answers would have to come from empirical research,

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[5] The work of Goldschmid et al. (1974) was the first study for this period.

[6] Porter's (1983) work characterises this period.

[7] See Bresnahan and Schmalensee (1987).

".....Theory could be useful in identifying the relevant structural and performance variables. But the relationship between variables would have to be established by empirical analysis."

Phillips and Stevenson (1974, p.337)

Therefore, in the past, empirical researchers in industrial economics sought a solid theoretical paradigm for their work in the form of the structure-conduct-performance (SCP). However, because they rejected contemporary microeconomics as simply not up to the task of analysing real-world markets, the theoretical framework they developed evolved on its own path, largely independent of ongoing refinements of formal models of imperfectly competitive markets. As a result, researchers in industrial economics used informal theoretical arguments to explore the relationships between market structure, firm conduct, and market performance.

In current research on industrial economics, most studies are based on formal models of oligopoly markets and not so much on the structure-conduct-performance framework. Oligopoly theory seemed to have replaced structure-conduct-performance as the organizing framework for industrial economics. However, structure-conduct-performance paradigm still remains as one of the most influential approach among various theories.

3.2 Empirical Studies on the SCP

Bain's Contributions

One of the earliest empirical work on the Structure-Conduct-Performance (SCP) was carried out by Bain in 1951. Bain tested the SCP relationships in 42 US manufacturing industries using 1935 data. He found a positive relationship between seller concentration and average profit rates on sales. Using industries profit data from 335 firms, he found a positive linear relationship between concentration and profitability although the results were not significant. When he ran a regression on the average profitability in industries to eight firm concentration ratios with the critical level of concentration at 70 per cent, more explanatory power was obtained. Bain's findings supported with Chamberlin's argument that market performance is discrete rather than continuous:

There is no gradual descent to a purely competitive price with increase of numbers, as in Cournot's solution. The break comes when the individual's influence upon price becomes so small that he neglects it.......as soon as the sellers begin to neglect their direct influence upon the price, it will fall at once to the competitive level..... regardless of their numbers.

(Chamberlin, 1933, p.48)

However, Bain's work (1951) omitted some relevant explanatory variables such as the condition of entry, direct foreign investment, export opportunities, and import competition. Five years later, Bain improved on his earlier work by taking into account the importance of entry conditions as a determinant of market performance[8]. He defined entry conditions in terms of the cost

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[8] See Bain (1956).

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advantages that incumbent firms enjoyed. Economies of large scale, product differentiation and absolute cost advantages were among the important determinants of entry barriers. Bain found a positive relationship between entry barriers and concentration and profitability of industries (1956, p.191).

Subsequent Empirical Work After Bain

Being a pioneer in testing out the SCP relationships, Bain employed a relatively small sample and a limited number of independent explanatory variables in his studies. Subsequent work on the subject by other economists were carried out using larger samples to explore the determinants of market structure. These include studies by Comanor and Wilson (1967), Collins and Preston (1969), and Caves, et al. (1975). There were also some studies done in developing countries such as House (1973), Chou (1986) and Willmore (1989). Gan and Tham (1977), Gan (1978), Lall (1979), Rugayah (1992 and 1993) and Zainal and Phang (1993) have carried out the similar studies for the Malaysian manufacturing industries.

Comanor and Wilson (1967) employed a sample of 41 industries to analyse the simultaneous impact of advertising, market concentration, economies of scale, and other factors on industry profitability. Their hypothesis was essentially the same as those of Bain. Their results indicated that advertising expenditure and absolute capital requirements were important determinants of

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profitability, even more important than market concentration. These two market structure variables have positive effects on profitability. Their results were consistent with Bain's argument that both concentration and barriers to entry raise the profitability of large firms. Comanor and Wilson (1974) further showed that advertising intensity was a stronger and more significant determinant of profitability than market concentration.

In a series of studies, Collins and Preston (1966, 1968, 1969) found a positive relationship between market concentration and price-cost margins. They also found a large and significant impact of concentration on the price-cost margins of large firms compared to small firms due to cost advantages acquired by large firms.

One of the earliest study at the firm-level was conducted by Shepherd (1972). In Shepherd's paper, market share and concentration appeared as variables explaining profitability or price-cost margins. Shepherd found a modestly significant negative effect of bigger firm size on the rate of return, which he interpreted as evidence of inefficiency of large-scale firms. The positive and significant effect of the advertising-sales ratio was consistent with the findings of Comanor and Wilson (1967). Besides, firms with rapidly growing sales and firms in high-barrier industries were also found to be more profitable. The size of the positive impact of market share on the rate of return was found to be

declining as market share rises. Another important finding of Shepherd's study was that market share has a significant positive effect on firm profitability.

In the work of Cowling and Waterson (1976), they included in their model an important variable, namely, the price elasticity of demand. Many of the previous studies have omitted the price elasticity of demand based on the assumption that different industries have same price elasticity of demand. However, the omission of price elasticity of demand is less serious if the focus of study is shifted to changes in structure affecting changes in performance. This is because the assumption of constant industry price elasticities over time made in such a study is more reasonable compared to assuming that they are constant across industries. Taking this into account, Cowling and Waterson focused their study on the relationship between *changes* in price-cost margins and *changes* in concentration instead of between price-cost margins and levels of concentration. They tested for the significance of the relationship between the two variables by applying a combination of cross-section and time-series regression using a sample of 94 disaggregated industries over the period 1958-63. They found a positive and statistically significant relationship between changes in concentration and changes in price-cost margins.

House (1973) employed a sample of 38 industries to test the market structure-performance relationship in Kenya. He found a positive relationship between

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price-cost margins and monopoly power. Although exports was found to be inversely related to price-cost margins, the relationship appeared insignificant. There was however, no significant influence of capital requirements on net price-cost margins[9]. Nevertheless, when gross price-cost margins was regressed on capital requirements, capital requirements variable became significant.

A bi-directional causality between concentration and profitability was carried out by Chou (1986) in Taiwan. The results revealed that public enterprises have a stronger impact on market structure and performance. As a result, this raised the concentration and price-cost margins. On the other hand, exports and imports have no influence on the level of concentration and performance of the Taiwanese industries.

Empirical Studies on SCP in Malaysia

Gan and Tham (1977) tested the structure-performance relationship on forty-two industries in Malaysia between 1968-71. They found a weak relationship between eight-firm concentration ratio and industry profitability. They measured profitability by using price-cost margins which is similar to Collins and Preston's approach. In their study, economies of scale (which can be regarded as a form of entry barrier) appeared to be the most significant variable followed by advertising intensity. International trade also had a considerable impact on industrial profitability. In a separate study, Gan (1978) tested for a continuous

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[9] The net price-cost margins excludes depreciation charges and normal profits.

versus a discontinuous relationship between concentration and profitability. He found that the relationship was not linear. There was a critical level of concentration at 85 per cent for eight-establishment concentration ratio and a critical level of 55 per cent for the four-establishment concentration ratio.

Lall (1979) carried out a study to test the relationship between the presence of multinational companies and the market structure in Malaysia. The study showed that the market variables which had affected concentration in advanced industrial countries appeared to have similar impact for the Malaysian case. Foreign investment was an important variable in affecting concentration and its impact on non-consumer goods industries was significant.

Rugayah's study (1992) supported the influence of market structure on market performance by using individual establishment data for selected five-digit manufacturing industries between 1978-1986. Unlike Gan and Tham (1977), Gan (1978) and Zainal and Phang (1993), she utilised the more discriminating Herfindahl index to measure industrial concentration. Her result showed that the conventional determinants of market structrure such as seller's concentration, minimum efficient scale, minimum capital requirements, product differentiation and international linkages (export opportunities, import competition and direct foreign investment) significantly explain the performance of manufacturing sector in Malaysia. In addition, taking into account

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endogeneity of structure, conduct and performance, she employed simultaneous equations to test for the two-way non-dichotomous relationship. Her findings supported the endogeneity of the elements of market structure.

Zainal and Phang (1993) calculated the concentration ratio, CR4 for 1979, 1985 and 1990. Their study was based on three sets of data: (a) a sample of 121 industries in 1979; (b) a sample of 128 industries in 1985; and (c) a sample of 128 industries in 1990. Like Rugayah (1992) and Lall (1979), their study also found market concentration a significant determinant of performance. They concluded that most of the industries in Malaysia are highly oligopolistic in nature with less than 5 per cent of the industries being competitive. Finally, their study indicated that the factors that affect market concentration may have different impact on consumer goods and producer goods industries.

A summary of the findings of the above studies is found in Table 3.1.

3.3 Inflation and Market Structure

In the past, industrial market structure and inflation were regarded as two traditionally distinct areas in economics. However, recent developments in the form of the micro-foundational movement in macroeconomics (i.e. New Keynesian and New Classical macroeconomic theory) has bridged the gap

Table 3.1: Studies of S-C-P Models In Developing Countries

Country	Author(s)	Dependent variable	Market variables	Important Findings
Kenya (38 ind)	House(73) 1963 Data	Profitability	Three-firm concentration (CR3), Capital Requirement, Foreign Competition	-positive relationship between PCM - concentration -do not support the distinct break hypothesis of an independent influence of barrier to entry on PCM
Phillipines (2-digit ind)	Lindsey(77) 1970 Data	Four-firm ratio (CR4)	Min.Eff.Scale (MES), Cap.-Lab. Ratio, Growth, Size	-MES directly associated with concentration level -coefficient of capital labour ratio negative implying excess capacity -size is an important determinant of concentration
Malaysia (42 ind)	Gan and Tham(77) 1968-71 Data	Price-Cost Margin (PCM)	8-estab. ratio (CR8), Absolute Cap.Req., Capital-Output Ratio, Prod.Diff., Export, EPR, Foreign Direct Invest., Growth, MES	-positive relationship between PCM and concentration -coefficient of FDI significant on performance of consumer goods industries
Malaysia (42 ind)	Gan(78) 1968-71 Data	Price-Cost Margin (PCM)	4-estab.ratio (CR4), Cap.-Output Ratio	-support the concentration-performance hypothesis -critical concentration level of 85%
Malaysia (46 four-digit ind)	Lall(79) 1972 Census Data	Four-establishment ratio (CR4)	Foreign presence, Cap.Inten., Min.Cap. Req., Min.Eff.Scale, Growth, Market Size	-foreign investment increases concentration -high correlation between foreign presence and minimum efficient scale -market growth negatively related to concentration
Brazil (150 local & TNCs Elect ind)	Newfarmer & Marsh(81)	Profitability (RoE, RoA & RoS)	CR4, Size, Cap.Inten., Imports, Exports, Foreign Invest., Ownership	-negative ownership dummy implying TNCs more profitable than local firms -concentration is positively related with profitability -TNCs are more capital intensive -increase in vertical integration has an adverse effect on TNCs profitability

Cont :

Table 3.1: Studies of S-C-P Models In Developing Countries

Country	Study	Measure	Variables	Findings
Brazil (119 4-digit ind)	Willmore(89)	Four-firm ratio (CR4)	Ownership, MES, Cap.Int., Product Diff., Growth, Ownership, EPR, Geographic conc.	-Ownership has an independent effect on concentration -Capital intensity important determinant of concentration level
Mexico (Mfg.ind)	Blomstrom(86)	Herfindahl index, Four-firm ratio (CR4)	Mkt size, Growth, Scale Econ., Capital Inten., Advertising Inten., Share of Foreign Firms	-Foreign presence raises concentration
Taiwan (Mfg.ind)	Chou(86)	Price-Cost Margin (PCM)	Herfindahl Index, Import, Export, Foreign Invest, Cap.-Lab. Ratio, MES	-shows two-way relationship between concentration and profitability -international linkages (import/export) do not influence concentration and performance -existence of public enterprises improve manufacturing sector performance
Greece (2-digit 200 largest ind)	Petrochilos(88) Census Data 1973	Five-firm ratio (CR5)	Product Diff., Foreign Presence, Capital Inten., Cost-Advantage-Ratio, Size, Growth of Value-Added	-strong relationship between foreign presence and concentration level -foreign firms use modern capital intensive tech.
Korea (4-digit ind)	Kimenyi (90) Data 1981 & 1986	Price-Cost Margin (PCM)	Market Share, Capital Inten., Advertising Inten., R&D, Growth	-international more important than domestic competition -capital intensity an important determinant
Malaysia (31 5-digit ind)	Rugayah (92)	Herfindahl index(Hf), PCM	Hf, Min.Cap.Req., MES, Advertising Inten., FDI, Exports, Imports, Cap. Inten., Vertical Integration, Growth	-international linkages influence concentration -two-way relationship between performance and concentration -most market variables are important determinant of industrial structure
Malaysia (121 5-digit ind)	Zainal and Phang (93)	Four-firm ratio (CR4), Eight-firm ratio (CR8), PCM	MES, Advertising Inten., Cap.Out Ratio, Cap.Lab.Ratio, Min.Cap.Req., Market Size, Foreign Presence,Exports, Imports, Min.Optimal Scale, Market Growth	-highly oligopolistic market -foreign presence promotes concentration -market variables have distinct impact on produc and consumer goods inds

between the two areas of study[10]. Related to this trend is the relatively new area of research on the relationship between industrial market structure and macroeconomic variables for example, the link between industrial market power and inflation rate.

Macro Theories of Inflation

In conventional macroeconomic models inflation occurs when there is excess aggregate demand. In these models, the rate of increase in price level is even higher once an economy has reached the full-employment level of output. One simple way to illustrate this is to decompose the nominal GNP (Y) into prices (P) and quantities (Q). Thus, given that $Y \equiv PQ$, changes in Y will be reflected by changes in Q and P below full-employment level ($\bar{Q}$). Once the full-employment level of output ($\bar{Q}$) has attained, further increases in nominal income will be the result of increases in P only. This is because when there is full-employment, firms face difficulty in employing new workers and as a result they will begin to bid up wages in an effort to attract more workers. The net result is that these higher labour costs are passed on to the consumers (via a mark-up formula) which subsequently leads to higher output prices.

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[10] See Romer (1993), Greenwald and Stiglitz (1993).

In the monetarist approach, inflation is regarded to be a monetary phenomenon (Friedman, 1970, p.24)[11]. Friedman, for example, argues that the demand-for-money function is a stable one, such that the velocity of circulation (V) is fixed in the short-run and its long-run changes can be predicted. At equilibrium levels of output ($\overline{Q}$), any increases in money stock (M) can only lead to increases in the price level.

Linking Inflation to Market Structure

Another set of argument concerning the causes of inflation was highlighted during the 1970s. The argument focused on the link between industrial market power and rising prices. Earlier, Means's (1935) observation of the existence of market power in many key sectors of the US economy motivated him to propose the 'administered prices hypothesis'. Essentially, his argument was that firms with market power had a considerable degree of discretion over the price that they set (or 'administer') even in times of recession. Market power is usually measured in terms of high levels of industrial concentration.

Means (1959) identified two factors which relate administered prices to inflation. First, he postulated a cost-induced inflation arising from a unilateral attempt by either management or unions to increase their income share through

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[11] MV=PQ, where M represents the money stock, V is the velocity of circulation, P indicates price level and Q is quantity.

a 'profit or wage push'. He designated this as the 'level hypothesis'. The ability of firms or unions to raise their profit or income levels comes from the market power they possess and is unrelated to the level of aggregate employment and economic activity at that time. Second, in the 'lag hypothesis', the process of adjustment of 'administered prices' is linked to changes in economic conditions:

"In the beginning of a demand inflation, market-dominated prices tend to rise more rapidly while administration-dominated prices lag well behind. Then in a period of readjustment, market-dominated prices fall back while administration-dominated prices continue to rise until the two groups are more nearly in balance...."

(Means, 1959, p.9)

However, since this hypothesis implies a mere shift in the distribution of price increase away from current and towards future periods with no impact on the size of the overall increase, it is difficult to see how such behaviour can be inflationary in the long run. Moreover, Means did not provide a strong rationale for the existence of such lags. It was Galbraith, Ackley, and Blair who suggested some theoretical underpinnings to the hypothesis and its possible implications for the inflationary process[12].

Galbraith (1957) argued that the behaviour of highly concentrated, oligopolistic industries are uncertain and therefore firms' response to economic conditions are non-instantaneous. Firms can only respond to such changes with a time lag. This implies that a slow pace of (oligopolistic) price increase during

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[12] Galbraith (1957), Ackley (1959), and Blair (1959).

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the initial inflationary process, but the price increases will still continue in these sectors once the inflationary conditions have subsided.

Ackley (1959), on the other hand, argued that industrial prices are not generally set at 'market-clearing' levels but are fixed according to some mark-up pricing rule. With a rise in demand, firms will attempt to acquire greater quantities of inputs, such as raw materials, and will also try to hire greater quantities of labour. Only when the excess demand for final output is translated into excess demand for inputs in auction markets, will the administered or mark-up-determined prices begin to rise. Therefore, in this instance the lag arises not from the slow adjustment of oligopolists' prices to rises in costs, but because it takes time for those costs to rise following an upturn in economic activity. To the extent that manufacturers and wholesalers hold large stocks of material inputs, the price adjustment process is slowed down.

Blair (1959, 1975) attempted to explain the 'administered inflation' phenomenon in a different way. According to Blair, administered prices are determined by a given mark-up on labour, material and fixed costs of production which are associated with a predetermined level of capacity utilization[13]. When capacity utilization falls below the standard volume, unit costs rise, and when the minimum acceptable profit margin is reached, price will increase. Conversely,

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[13] Blair calls this level of capacity utilization as 'standard volume' where standard volume is achieved at 80% of full capacity.

when capacity utilization rises above standard volume and unit costs fall correspondingly, the producer will not lower his price due to the fear of oligopolistic retaliatory price reductions. Hence, it ensures that administered prices never fall and, in the long run, will only move upwards.

To sum up, both the level hypothesis of autonomous cost-push and the lag hypothesis has no clear-cut implications for inflation. In the case of the former, the result would be a one-step increase in the price level, whereas in the latter case, the distribution of price increases that would take place becomes noticeably skewed towards future periods, suggesting an implausibly long lag of price adjustment. None of these hypotheses, by themselves, suggest that industrial market power makes a significant contribution to inflation (Domberger, 1983).

Some economists argued that the administered inflation hypothesis is inconsistent and ambiguous at the theoretical level. At the empirical level a number of studies have also indicated its weakness. More recently, there are some studies on price adjustment and market structure which suggest that more concentrated industries are able to raise their prices more quickly than less concentrated industries and if concentration does speed up price adjustment, it can causes inflation. However, many economists find it difficult to conceive any plausible link between concentration and inflation because the theoretical

models upon which their analysis are based are static in nature and therefore yield static predictions. As a result they are not appropriate for dynamic analysis of inflation. Another reason is that they are partial-equilibrium models (i.e. they focus on individual sectors) and as such are not able to distinguish between changes in relative prices versus movements in the general price level.

Empirical Work on Administered Inflation[14]

The first major econometric test of administered inflation was conducted by Depodwin and Selden in 1963. They regressed an index of price change for the period 1953-59 on four and eight-firm concentration ratios for 322 US product groups. Their results showed that only 9 per cent of the variation in price changes across industries was explained by the level of concentration. This implied that similar price changes would occur even in the absence of concentration effects, contrary to the postulates of the 'administered prices hypothesis'.

Results of other independent studies on administered inflation are summarised in Table 3.2.

Weiss (1966) employed both time-series and cross-section regression functions and found a positive and significant impact of concentration on prices for the 1953-59 period but not for 1959-63. His results indicated that direct cost

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[14] Administered inflation refers to inflation which is related to administered prices (see p.38).

(material and labour costs) was the major determinant of price movements (instead of demand influences).

Phlips (1971) found a negative and significant coefficient on concentration when unweighted cost variables were used for the countries Benelux (Belgium and Netherlands) between 1958 and 1964. However the relationship was found to be insignificant when weighted cost variables were used.

Similar to Weiss's second study, Dalton (1973) also found a large positive and significant impact of concentration on price changes when tested on US data between 1958 and 1963. A year later, Weston and Lustgarten (1974), extended the estimation period by two years to cover 1958-65. They found an almost negligible effect of concentration levels on price changes.

Lustgarten (1975) proceeded further to test the relationship between concentration and price changes for individual years during 1958-63 . He found that the impact of concentration on price changes was consistently insignificant and the coefficients showed positive signs at both the beginning and at the end of the estimation period.

Table 3.2 Summary of Studies on Administered Inflation Hypothesis

Author(s)	Period of Study	Countries
Weiss (1966)	1953-59 1959-63	US
Phlips (1971)	1958-64	Benelux
Dalton (1973)	1958-63	US
Weston and Lustgarten (1974)	1958-65	US
Lustgarten (1975)	1958-59 1959-60 1961-62 1962-63	US

Source: Domberger, 1983.

Empirical Work on Market Structure and Pricing

A summary of studies on market structure and pricing are reported in Table 3.3. In Hart and Clarke's (1980) study, price movements over a five-year period (1968-73) in an industrial cross-section of 121 industries was regressed on changes in costs and changes in concentration. The statistical relationship between concentration and price change was positive but not statistically significant.

Domberger (1983), based on Cowling and Waterson's (1976) work did some calculations to reveal the quantitative impact of increases in concentration on rising prices. His results showed that concentration was positively related to price level but the impact was very small. Domberger suggested that industrial

concentration, by raising the speed with which firms react to cost increases, could contribute to the inflationary problem in the United Kingdom.

In West Germany, Neumann et al. (1983) examined the changes in market structure-performance relationship over thirteen years (1965-77) which included different economic conditions such as business cycle upswings and downturns. He found that the concentration coefficient was larger and more significant during boom years than during recession years and that the coefficient of the import-sales ratio was larger (in magnitude) and more significant during recessions than during boom period (see Table 3.4). He observes that,

During business cycle upswings concentration of domestic production enabled producers to exercise market power ......Imports did not rise to such an extent that domestic market power could have been checked. In recessions, however, imports contributed to excess supply and thus effectively diluted market power entailed by domestic concentration. This finding supports the hypothesis that concentration reflects market power.

(Neumann et al., 1983, pp.191-2)

Table 3.3 Summary of Studies on Market Structure and Pricing

Author(s)	Period of Study	Countries
Hart and Clarke (1980)	1968-73	UK
Domberger (1983)	1963-74	UK
Neumann et al. (1983)	1965-77	Germany

Sources: Hart and Clarke,1980; Domberger, 1983 and Neumann et al., 1983.

Table 3.4   Market Power during the Business Cycles

	Up-Swings 1965	1970	1973	1976	Down-Swings 1967	1971	1975
CR3	1.12 (3.3)	0.76 (2.5)	1.01 (3.7)	0.99 (3.6)	0.23 (0.7)	0.73 (2.5)	0.53 (1.8)
IMSR	-0.21 (0.7)	-0.31 (1.0)	-0.58 (1.7)	-0.39 (1.9)	-0.56 (1.8)	-0.80 (2.2)	-0.69 (2.5)

CR3 - the three-firm seller concentration ratio
IMSR - Import-sales ratio

Source: Neumann et al., 1983, Table II

3.4 Summary

In the first part of this chapter the empirical studies on the structure-conduct-performance paradigm were reviewed. In general, the findings from these studies indicated a close relationship between market structure and performance. The second part of this chapter reviewed the exisiting studies on the relationship between market structure and industrial pricing. Most of these studies found a positive relationship between concentration and price changes. However, the impact of concentration on price changes varied among these studies. For most of these studies, the relationship between concentration and price changes were not significant.