



UNIVERSITI PUTRA MALAYSIA

**DETERMINANTS OF ENTRY AND EXIT IN THE MALAYSIAN
MANUFACTURING SECTOR**

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FEP 2005 5

DETERMINANTS OF ENTRY AND EXIT IN THE
MALAYSIAN MANUFACTURING SECTOR

By
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Thesis submitted to the School of Graduate Studies,
Universiti Putra Malaysia, in Fulfilment of the Requirement for the
Degree of Doctor of Philosophy

June 2005



Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfillment of the requirements for the degree of Doctor of Philosophy

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This study highlights the determinants of entry and exit of firms in the Malaysian manufacturing sectors. The findings from this study will assist policy makers in formulating effective competition policy and draw more interests for future research in this area. Entry and exit are crucial determinants of market structure and performance. The existence of barriers to entry will impede the process of creating more competitive market structure and hence, lead to inefficient resource allocation. In the process, entry and exit of firms are directly measured. Determinants of entry and exit are then grouped based on incentives and impediments to entry and exit. Initially the determinants of entry and exit separately considered. Next, symmetric relationship between the two was examined since barriers to entry can also be barriers to exit. Finally, simultaneous relationship between entry and exit whereby entry forces exit and exit attracts entry was also examined. The evidence on entry and exit of firms shows that entry and exit in the Malaysian manufacturing sectors are very intense, however they occur at the bottom of the industry structure.



Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Doktor Falsafah

**PENENTU MASUK DAN KELUAR DI DALAM
SEKTOR PEMBUATAN DI MALAYSIA**

Oleh

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Jun 2005

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Kajian ini menyorot penentu masuk dan keluar firma dalam sektor pembuatan di Malaysia. Hasil daripada kajian ini akan membantu penggubal polisi menggubal polisi persaingan yang efektif dan menarik minat penyelidik untuk mengkaji bidang ini pada masa akan datang. Masuk dan keluar ada penentu yang penting kepada struktur pasaran dan prestasi. Kewujudan halangan kemasukan akan menghalang proses pembentukan struktur pasaran yang lebih kompetitif dan dengan itu menyebabkan ketidakcekapan didalam penempatan sumber. Untuk itu, ukuran masuk dan keluar diukur secara langsung. Penentu masuk dan keluar dikumpulkan berdasarkan kepada insentif dan halangan kepada masuk dan keluar. Pada mulanya penentu masuk dan keluar dikira secara berasingan. Kemudian hubungan simetri diantara keduanya ditentukan oleh kerana halangan masuk juga boleh menjadi halangan keluar. Akhirnya, hubungan serentak antara masuk dan keluar diteliti dimana masuk memaksa keluar dan keluar menarik masuk. Bukti masuk dan keluar firma menunjukkan masuk dan keluar firma dalam sektor pembuatan di Malaysia adalah intensif tetapi ianya berlaku pada struktur industri yang dibawah.

ACKNOWLEDGEMENTS

Alhamdulillah, with the grace of Allah I am able to complete this thesis. I would like to express sincere appreciation to the members of my thesis Supervisory Committee, Professor Dr Zakariah Abdul Rashid, Professor Dr Ahmad Zubaidi Baharomshah and Dr Suhaila Abdul Jalil for their helpful advise and counsel during the course of completing this research. I am especially indebted to Professor Dr Zakariah Abdul Rashid for his indispensable role as the Chairman of my thesis committee.

My sincere gratitude is due to the Universiti Putra Malaysia for granting my study leave and financial support respectively, without either of which this study could not have materialized. Also, my thanks to the officers of the Department of Statistics for providing me access to their records during the course of the study.

I am also indebted to Dr Zainul Abidin Hasan of Physics Department, Universiti Putra Malaysia for providing assistance and guidance in preparing Visual Basics programming during the data analysis stage of this study.

To my dear wife, Salina Shaari, I wish to thank her for the constant support and encouragement that she has so patiently given throughout the course of the research. As for my children, Ahmad Ibrahim, Ahmad Zaki, Mohammad Ariff, Riduan Haniff, Nur Adlin Syafiqah and Khairul Muaz, I hope their sacrifice for my much needed attention has been worthwhile.

Last, but not least, to my parents who have given me the care and confidence in the pursuit of life.

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CHAPTER 1

AN OVERVIEW OF THE MALAYSIAN MANUFACTURING SECTOR: 1986 - 1990

This study focuses on the determinants of firms' entry and exit and will shed some light on the intensity of the dynamics of competition in the Malaysian manufacturing sector. Studies done in Malaysia (Gan and Tham, 1977; Gan, 1978; Rugayah, 1992) indicate that barriers to entry play an important role in determining industry profitability. Broadly defined, barriers to entry is a measure of the extent to which established firms, in the long run, can elevate price above minimum average costs without attracting potential entrants to enter the industry (Bain, 1956:p.252). However, to our knowledge no past studies have directly measured the impact of these barriers on entry or exit of firms in the Malaysian manufacturing sector. This study will fill this gap by providing some evidence on the impact of barriers on the extent of entry and exit in a developing country. Due to data availability, this study focuses on entry and exit phenomenon during the Fifth Malaysia Plan. In this chapter, industrialization policies will be reviewed, followed by structure-conduct-performance paradigm, objectives of the study and finally organization of the study.

1.1 Industrialization Process in Malaysia

British that colonized Malaya the then Malaysia, in the last quarter of the nineteenth century help the early formation of the country's economic structure. The emphases in the early stage of industrial development of the country were through export-oriented primary commodity production and favoring British imported products (Jomo, 1990). These policies have effectively discouraged growth of local

industries. In order to develop and modernize the country, the World Bank in the mid 1950s proposed industrialization without protection. However, by late 1950s, government, overtaken by infant industry arguments, opted for heavily protected import substituting industrialization.

Import-substitution policy attracted foreign investors to Malaysia. This is further encouraged through Government subsidies that assist in setting up of new establishments to produce previously imported products. Through this encouragement, many foreign firms set up their plants in Malaysia. This has benefited the industrial sectors whereby manufacturing output recorded an average annual increase of 17.4 percent between 1959 and 1968. In terms of employment, the number of workers employed rose from 135 000 to 214 800 workers, recording an increase of 6.4 percent of the labor force in 1957 to 8.4 percent in 1965 (Jomo, 1990). Compared to agriculture sector, the number of workers employed was still low. However, the inherent problem at the time was small domestic market to cater for mass industrial production. Among the reasons for this constraint were small population and uneven income distribution that shaped the pattern of domestic demand. This reflects the limit of import-substitution strategy and thus requires a more equitable economic development strategy to transform the prevalent economic structure of low effective demand. Since import-substitution strategies are more capital intensive, it too contributes less to employment creation. Furthermore, there was a weak linkage with the domestic economy due to foreign technology utilization.

In the mid 1960s, government through Raja Mohar committee recommended measures that could accelerate industrial growth through the introduction of Investment Incentives Act in 1968. This Act proposed diversification into new

industries with emphasis on export-oriented industrialization not limited to raw material exports. This has resulted in an increase of local participation, including state, in industrial production. The establishment of free-trade zones has further encouraged export-oriented industries. Relocating production capacity into these zones by multinational corporations (MNCs) helped reduced MNC's production cost. Two types of export-oriented industries that emerged from this process were resource-based and non-resource based industries. In terms of performance, non-resource based industries were far more successful in creating employment as well as contributing to the economic growth. In particular, the remarkable contribution of the electrical and electronic products that accounted for 15 percent of manufacturing output in 1981 to 23 percent in 1986 (Jomo, 1990). However, by 1985, production of electrical and electronic products declined by 24 percent and export declined by 5%. As a consequence, a total of 40000 workers were retrenched from 1983 to 1985 (Sundram and Sivananthiran, 1987).

The two import-substitution and export-oriented industries continued to rely heavily on import with import bill in 1987 alone was RM11.6 billion. This shows considerable potential to develop import-substitution industries. However, in early 1980s Malaysia embarked on heavy industrialization with emphasis on steel, car, cement, petrochemicals, and shipbuilding and repair industries. Government introduced measures to heavily protect the intended industries. Meanwhile, investments in these projects were massive requiring about RM8 billion by 1983 (Jomo, 1990). The intended objectives of heavy industrialization were dampened by the world economic recession in the mid 1980s. As a result, the government introduced Industrial Master Plan in early 1986 to correct apparent structural

imbalances in the industrial sectors. According to this plan, manufacturing sector is tipped to be the leading sector for economic growth.

Manufacturing sector recorded tremendous growth in output during 1986-88 periods far surpassing the target set under the Fifth Plan¹. However, the manufacturing sector is still narrowly based concentrating more on the traditional electrical and electronics and textile sub-sectors as the main contributors for export earnings. Various measures were undertaken to stimulate broader base industrial development, which has resulted in significant contribution to manufacturing output growth from the rubber products and oil and fats sub-sectors. The creation of a conducive economic environment, the expansion of opportunities for private sector participation through privatization, deregulation, and liberalization and strengthening of the money and capital markets not only make the country attractive to foreign investors in traditional sectors but also encourage investment into resource-based sectors such as wood and wood products, chemical and chemical products, basic metal and non-metallic products.

The evolution of these industrial policies not only influences market structure but also the performance of the industry. An important element of market structure is the entry and exit of establishments or firms, which is the focus of this study.

1.2 Structure-Conduct-Performance Paradigm

The usual approach in conducting empirical research in industrial organization is to use the structure-conduct-performance (SCP) paradigm developed

¹ See Mid-term review of the Fifth Malaysia Plan 1986-1990, pp 177-202.

by Mason (1939) and Bain (1951, 1956). Although it is widely credited to Mason and Bain, many economists have subsequently added and enriched what is now used as the standard in classifying competitive process in antitrust or competition policy cases. The hypothesis that link these three concepts in industrial organization is that market structure variables such as concentration ratio determine or strongly influence market conduct such as advertising to sales ratio, which in turn determines certain important dimension of market performance such as profit rates or growth rates. Bain (1968) stated:

We look initially to the characteristics of market structure and market conduct as primary determinants of the market performance of enterprises, or of groups, or industries of business firms. p. 8

There have been a limited number of studies testing SCP paradigm in Malaysia. In a pioneering study, Gan and Tham (1977), by using 42 4-digit MIC (Malaysian Industrial Classification) industries data taken from the Survey of Manufacturing Industries, tested the structure-performance paradigm, comprising conventional element of market structure, foreign trade variables and direct foreign investment. They found a weak association between market structure variable, measured by CR8 and performance. However, the association improved and became statistically significant at 10 percent level when direct foreign investment variable was removed from the regression equation. The influence of barriers to entry on concentration was found to be significant at the 5% level. Gan (1978) further tested the hypothesized relationship between concentration and profitability in 1971 by utilizing concentration ratio of four establishments and the result indicated a strong relationship.

Lall (1979) tested the determinants of industrial concentration in Malaysia emphasizing on the impact of the entry of foreign firms on market concentration. He utilized 46 manufacturing sectors data at 4 digit levels in 1972. Results indicated that foreign presence has an important impact on market concentration.

A similar test on SCP paradigm in the Malaysian manufacturing sector was conducted by Rugayah (1992) for 31 manufacturing industries over a period between 1978 and 1986. Individual establishments data were collected from the Malaysian Statistics Department for both publicly and privately owned firms. For the purpose of calculating concentration index for the 31 industries studied, a total of 1,492 establishments information were utilized, which enabled her to calculate the Herfindahl index. The study reported a high concentration for ten of the industries under study². Prefabricated wooden houses (33114) reported the highest concentration with a value of 71 percent while the lowest concentration value was reported for saw milling industry (33111) at 0.7 percent³. A weighted Herfindahl index by using industry value added as weight was also reported where the value was found to be 0.31 for the 31 industries. Based on this index, she concluded that industries which publicly owned firm exists, concentration is generally high and the industries considered were oligopolistic in nature. Besides this, Rugayah (1992) also considered factors that determined market structure and among others, had included measures of entry barriers. She postulated that concentration would be higher with the existence of entry barriers through either capital requirements, product differentiation or economies of scale. Indeed, these variables and other variables that could possibly influence market structure such as direct foreign investment, exports

² Rugayah (1992) employed the method suggested by Stigler (1964) in distinguishing concentrated industries from non-concentrated industries by using an index of 0.25 as a cut-off point.

³ Figure in parentheses are 5-digit MIC (Malaysian Industrial Classification).

and imports variables, vertical integration and output growth were reported to be statistically significant. These determinants of market structure were then utilized to jointly determine the hypothesized relationship between concentration and profitability. Results indicated that concentration, based on the Herfindahl index as a measure for market structures, significantly explained profitability, i.e. an increase in concentration by one hundred percent will increase profit by 130 percent.

Gan (1978) tried to characterize the structure of the market into either perfectly competitive or oligopolistic in the Malaysian manufacturing sector by looking at the critical level of concentration as the benchmark. A market or an industry that has a concentration level above the critical level of concentration is considered tight oligopoly in which collusive behavior is more stable and profits are higher. A market is considered perfectly competitive in which, collusive behavior is unstable and profits approaching to perfect competition's outcome when the concentration measure is below the critical level. Gan (1978) reported a higher critical level of concentration at 55% for CR4 (largest four firms in the industry) and 85% for CR8 (largest eight firms in the industry) compared to what was found in the United States' manufacturing industries. Oligopoly theory suggests that viability of maintaining higher profit through collusive price setting depends on market share and the competitive advantage of the small competitive fringe sellers. In the same study, Gan (1978) also tested the impact of second largest four producers on industry performance by including marginal concentration ratio in his regression equation. He found that the next largest four establishments did not significantly influence industry profitability. This shows that there exists similar firms at the top of the industry structure exercising market power on other firms and enjoy persistent profit.

The apparent evidences from the two empirical studies in Malaysia indicate that the problem facing the country's industries might not be due to oligopoly problem but rather to the classic monopoly problem of the firm with market power. Market power is defined as the ability to set price above average costs so that firms with market power earn supernormal profit. This set the stage for looking at other explanations for the observed positive association between structure and performance⁴.

One possible explanation for the above observed phenomenon is the existence of entry barriers. For example, Rugayah (1991) noted that there is always an incentive for the established firms to increase one percentage point in concentration as it will bring with it an increase in profitability. Increase in concentration in this case could occur whenever established firms with market power exercise their authorities either through increasing structural barriers or through engaging in conducts that are disadvantageous to actual or potential entrants, which include among others, output expansion (limit pricing), excess capacity, predatory pricing, research and development, technology choices, and control of strategic raw materials. Similarly, we expect that the same firms would occupy the top of each industry structure as indicated by the insignificant influence of the competitive fringe firms on profitability if the established firms with market power successfully erect entry barriers (Gan, 1978). The existence of barriers in any market essentially

⁴ In the US, Mueller (1986) studied 551 companies of which he found 82 companies were earning average return of between 4-20 percent above the competitive return. Further observation indicated that similar set of companies settle at the top of the distribution of profit rates. Mueller (1991) explained that this observed phenomenon neither can be attributed to the stochastic view of competition neither based on a string of good lucks nor based on chance, as a large fraction of the most profitable firms that remains persistently profitable are so large. Mueller (1991) observed that

".....the phenomenon of some firms earning above normal profits, and some industries having several firms earning above normal profits so that the industry's profit are above the average, does not seem to be so much a manifestation of oligopoly power, the capacity of firms acting in consort to raise prices, but of monopoly power in its classic sense" (p.7-8)

provides the freedom for firms to exercise their market power. Despite the fact that Gan and Tham (1977), Gan (1978) and Rugayah (1992) indicated that entry conditions affect industry profitability, they fail to measure directly the entry or exit of firms in the Malaysian manufacturing sector. In this study, we seek to address this very issue, as the importance of entry or exit of firms in microeconomic theory is well known.

1.3 Market Structure: Perfect Competition, Oligopoly and Monopoly

In the microeconomic theory of the firm, there are basically two polar cases of market structure namely, perfect competition and monopoly. In between these two extremes, description of market structure is provided by imperfect competition. Characteristics or significant features of these market structures will affect the conduct and performance of firms operating in these markets.

Perfectly competitive market with many buyers and sellers, product homogeneity and free entry and exit assumptions provide the benchmark of an ideal solution to economic performance problem. Firms or sellers organizing production or distributing goods and services in this market environment consider price as a parameter and in one way or another can influence market price or quantity in short run static situation. Even though firms can earn positive profit in the short-run, this is however, short lived as it will be competed away and eventually competitive sellers only earn normal profit in the long run. Conducts of the firms are severely limited, as advertising expenditure, for example, to influence sales cannot be incurred.

While perfectly competitive market provides the ideal market structure as it allocates resources efficiently, monopoly at the other extreme, is condemned because it leads to misallocation of resources. The basic difference between these two extreme market structures is that the demand curve facing a monopoly is downward sloping, which allows the firm with monopoly power, the ability to increase its revenue by selling additional unit of output through reducing its price when demand is elastic. This ability enables a monopolist to have a high degree of market power, which also then affects its performance. Profitability or price-cost-margin, as a measure of performance will then be, no doubt, high in monopolistic environment compared to that in competitive ones.

In reality, markets that subscribe to these two polar structures are a rare phenomenon. What one observes in most of the countries are markets dominated by oligopolistic sellers who recognize their interdependence. In this market, any firm that take unilateral action to set price or quantity has to take into account possible reactions of its rivals thus affecting their behavior or conduct.

Formal theory of the oligopoly model was first developed by Cournot (1834) in his path breaking book that remains a benchmark model in oligopoly (Shapiro, 1989). Cournot assumed that each firm maximizes its profit by choosing output and taking its rival's output as fixed. From this simple assumption, Cournot found an inverse relationship between the number of sellers and industry price. Single seller results in monopoly price and as the number of seller increases, perfectly competitive outcome sets in where price is equal to marginal cost. Thus, as the number of sellers