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MONOPOLY AND COMPETITION IN THE REAL ESTATE BROKERAGE
INDUSTRY: THEORY AND EVIDENCE

by

© M. ANISUL ISLAM

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH
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Date.. May 23, 1985 ....

DEDICATION

This dissertation is dedicated to my beloved uncle, Shah Jalal, for giving me love and affection since my childhood and constant encouragement and support for my education, and to my mother, late Momena Akhtar Begum, for giving me inspiration from the heavens.

ABSTRACT

The objective of this dissertation has been to undertake a comprehensive theoretical and empirical analysis of the state of competition in a typical Canadian real estate brokerage industry. This industry provides agency services to homeowners and potential buyers. Among many interesting features of the industry (eg. informational advantages of the MLS (Multiple Listing Service)), one which deserves special attention is the temporal stability of brokerage commission rates in spite of cyclical and long-term changes occuring in the upstream housing market and the recent extension of combines laws. An explanation of this and other related phenomena (eg. non-price rivalry) is sought within competing models.

The main focus of the study is thus to determine how and to what extent the brokerage industry conforms to a model of collusion rather than competition. The collusive version of the model provides richer insights into such phenomenon as price stability, price discrimination, excessive non-price rivalry, and continuing high rates of entry in spite of excess capacity. It is argued that oligopolistic coordination is readily achieved and maintained (in spite of a large number of firms, easy entry, and excess capacity) by the successful use of the institutional arrangements inherent in and various restrictive practices associated with the MLS. Recognizing the role of the latter factors, this study also seeks to

determine the effectiveness of the extension in 1976 of the Combines Investigation Act to this (and other services) industry in stimulating competition and discouraging undesirable behaviour and performance.

Various predictions of the model are subjected to empirical testing using primary data (eg. questionnaire survey and MLS sales summaries) collected for the Edmonton market. The predictions of the collusive model are in general borne out. On brokerage market structure, it is observed that the industry has been increasingly dominated by a few large firms and has experienced recent and substantial increases in concentration (through mergers), especially since 1976. On brokerage conduct, it is observed that formal collusion prevailed prior to 1976 and possibly informal collusion thereafter; commission rate discounts were less frequent in MLS transactions than the ELS (Exclusive Listing) transactions; large firms were less likely to discount than small firms; the commission rate and the "split" remained unchanged over time; and price discrimination and excess capacity persisted. Excessive non-price rivalry, especially by large firms, may have been used to create brand loyalty and to erect entry/mobility barriers against new/small firms.

The Act has potentially (and inadvertently) contributed to the transformation of the industry from a loose oligopoly (low concentration) with overt collusion into a tight oligopoly (moderate concentration) with tacit coordination.

Major policy recommendations include stricter enforcement of
the Act (e.g. investigations, indictments, and convictions
for tacit collusion/mergers) accompanied by regulatory
measures to change the current MLS institutions/practices.
The latter include the following: allowing
non-members/homeowners to list their properties in MLS
listing catalogues purchasable by potential home buyers;
prohibiting the publication of the commission rate and the
"split" in the listing/sales catalogues; and prohibiting the
listing broker from setting the fee for the selling broker.

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Data collection was a difficult part in preparing the thesis. In accomplishing this task, I received valuable assistance from J. Arthur Jones of the Edmonton Real Estate Board (in allowing me access to MLS sales summaries and other publications) and from my personal friends Amar Singh and Gurvinder Tuly, to whom I owe special thanks. I would also like to thank the many real estate companies who gave their valuable time in responding to my mail-return questionnaires.

I am also indebted to the University of Dhaka for providing me with study leaves, and the University of Alberta for Scholarships (Miame M. Simpson Memorial Fellowship and the University of Alberta Dissertation Fellowship), departmental teaching assistantships, and computing facilities. I am also grateful to Professors M. McMillan and B. Scarfe for providing me with sessional

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1. INTRODUCTION

The purpose of this dissertation is to shed some light into how and to what extent the real estate brokerage industry (henceforth called the brokerage industry) conforms to a model of collusion rather than competition in a typical Canadian urban centre. It is a particularly timely purpose in view of the recent extension of Canadian anti-combines laws to cover this and other service industries.

The brokerage industry is a service industry. It provides agency services to buyers and sellers of real properties.[1] The size and importance of the industry has been rapidly growing in recent years. In terms of employment, a total number of 1,991 practitioners (316 brokers and 1,675 salesmen) were licensed to operate (see Table 4.12 in Chapter 4) in the Edmonton brokerage market in 1983.[2] This constitutes approximately 0.4 percent of Edmonton population and 1 percent of the labour force.[3] More

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[1] The existence and viable operation of firms in this industry can be ascribed to incomplete and often costly information in the housing market (see Bartlett (1981) for details).

[2] For Alberta, the corresponding number is 7,082 (1,128 brokers and 5,954 salesmen) in 1983 and 7,198 (1,178 brokers and 6,020 salesmen) in 1984. The number of practitioners in 1974 was reported to be 3,860 (480 brokers and 3,380 salesmen) (see Table 4.12 in Chapter 4). The number of practitioners in 1984 represents an increase of about 87 percent over the last 10 years. The distribution of the number of brokers and salesmen for Canada and the provinces for 1974 is reported in Appendix E, Table E.6. This table indicates that about 5,364 brokers and 30,659 salesmen were operating in Canada in 1974.

[3] The Statistics Canada reports that about 4.4 percent of the Edmonton labour force was employed in the Finance, Insurance and Real Estate sector in 1971 (see Edmonton Statistical Review (1979, p 62). A similar percentage is also reported for Canada and the provinces.

importantly, this figure implies roughly one practitioner (broker or salesmen) for every 250 people in Edmonton (or equivalently one practitioner for every 90 households).

In terms of brokerage commissions, estimated brokerage fees from Multiple Listing Services (MLS) sources alone, for example, in Edmonton have increased from $0.66 million in 1956 to $77.3 million in 1979[4] and, for Canada, from $242 million in 1973 to $885 million in 1982.[5] For the United States, brokerage fees are estimated to be $12 billion for 1974.[6] The size and rapid growth[7] of this industry suggest that the level of competition and related pricing efficiency in the industry are matters of significant policy concern. Pricing efficiency is important because of the fact that brokerage fees constitute a significant portion of the closing costs in any real estate transaction.[8] A competitive (relative to a collusive) brokerage market may reduce brokerage fees and thereby reduce the cost of transacting in real properties.

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[4] The 1979 commission represents, for Edmc   with a population of 500,000 persons, about 4 5%   amily. disposable income or $150 per capita. Note   at the commission income in 1982 dropped to $36   due to recession in the Edmonton housing market s   98C
[5] Brokerage fees are estimated by applying a   sion rate to the the total dollar value of MLS sale   The _ tter data are collected from the CREA Report (198 .
[6] See Bartlett (1981), p 79.
[7] The rapid growth of this industry can be attribute to such factors as increasing population, greater geograph al an occupational mobility of the labour force, increasing urbanisation, and a growing proportion of resale properties for sale in the real estate market place.
[8] Assuming a 7% commission rate, a home owner, using brokerage services, would have to pay $7,000 as brokerage fees on a $100,000 house.

The brokerage industry has a number of interesting features with important implications for brokerage market structure, behaviour and performance. Some of these features which are of considerable interest are as follows: the usual practice of homeowners (not buyers) paying for brokerage services; fees being expressed as a uniform fixed percentage of the property value; fees being paid only after successful completion of a transaction (fees are not be paid until a buyer is found even though the broker might have incurred search costs); and the informational advantages of the MLS vis-a-vis ELS (Exclusive Listing) transacting; among others. In addition, it will be shown that the institutional arrangements, especially cooperative listing services (MLS), underlying the transactions process have important implications for brokerage market structure and related collusive behaviour.'

Historically the Canadian brokerage industry has been characterised by collusive arrangements (formal collusion prior to 1976 and possible informal collusion after that). Similar collusive arrangements seem to have arisen in the United States (see Owen (1977) and Owen and Grundfest (1976)). It is important to understand how collusion might be successful in spite of a large number of firms,

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'The methodology developed to study the brokerage industry may also be helpful in understanding the pricing and related behaviour of firms in other intermediate markets such as brokers in the stock/foreign exchange market, banks and other financial intermediaries. Note that the stock brokerage market has been studied by Baxter (1970), Epps (1976), Porter (1979), and West and Tinic (1971).

relatively easy entry, excess capacity and other features (which make collusion less feasible). This study will try to shed light on the underlying factors contributing to the stable collusive behaviour of brokerage firms. The results of the study may also be utilised to suggest policies which would achieve improved industry performance.

It is to be noted that the brokerage industry has received some attention in the past. Certain aspects of the industry have recently been studied by Bartlett (1981), Owen (1977), Rosenbluth (1976) and Yinger (1981). Yinger discussed the equilibrium search-and-match behaviour of brokers within the framework of profit maximization. While his pioneering work is useful in many respects, it does not pay attention to important aspects of brokerage market structure and related behaviour (eg. the level of collusion). The Rosenbluth study is primarily a descriptive study of the Vancouver brokerage market. While concentrating primarily on various organizational and institutional features of the industry (eg. government regulation or industry self-regulation), turnover of brokers and salesmen, their earning profiles, his analysis of brokerage pricing and related behaviour (eg. advertising) is quite inadequate.

Bartlett, on the other hand, provides some discussion of brokerage pricing behaviour, but it is doubtful whether his analysis can be accepted as a viable explanation of brokerage price stability over the business cycle and the longer term behaviour of the upstream housing market

(details in Chapter 2 and Appendix B). Unlike other studies, Owen emphisizes the collusive nature of the industry. Note that neither his analysis nor those of Yinger and Bartlett provide any rigorous empirical evidence to support their hypotheses.[10] These studies rely more on intuitive reasoning and casual observation.

Recognizing the growing size of the industry, its history of formal collusion, its institutionalization of practices facilitating collusion and other developments, this study seeks to determine the current level and nature of industry collusion and the effects, if any, of the recent revision of the Combines Investigation Act of 1976 (henceforth called the Act) upon collusion and related behaviour. It also intends to provide theoretical and empirical insights into related advertising and search behaviour, excess capacity, and patterns of entry. It then outlines policy recommendations which would reduce the level of collusion and improve overall performance in the industry. Thus, unlike previous studies, this study undertakes a rigorous empirical analysis of the Canadian brokerage market.

Various hypotheses and predictions developed in this study are subjected to empirical testing using micro (firm level) data, particularly with a view to assessing the competitiveness of the industry. The data are mainly collected from primary sources. An extensive questionnaire

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[10]These studies are examined in greater detail in Chapter 2.

survey of the brokerage firms in the Edmonton Metropolitan
housing market was conducted in 1979. Additional data were
collected from the MLS sales summaries (monthly issues)
published by the Edmonton Real Estate Board. Other relevant
data were obtained from the publications of the Edmonton
Real Estate Board, the publications and annual reports of
the Canadian Real Estate Association, and the Department of
Consumer and Corporate Affairs of Alberta.

The scheme of the study is as follows. Chapter 2
provides necessary background information on the industry
such as its institutional arrangements/practices (especially
with respect to the Multiple Listing Services (MLS) system)
and the level of and trends in industry concentration which
may encourage and facilitate stable collusive behaviour.
Chapter 3 contrasts a collusive with a non-collusive model
of the industry and outlines corresponding testable
hypotheses. Chapter 4 examines the evidence on recent
brokerage pricing behaviour in order to test the predictions
of the collusive/non-collusive models and to determine the
efficacy of recent amendments in the Act towards reducing
collusion. Chapter 5 discusses the role and determinants of
advertising and search behaviour, especially with respect to
their relation to collusion. Chapter 6 discusses the
Canadian competition policy as it applies to the brokerage
industry, while Chapter 7 provides a summary and conclusions
of the thesis and suggests policy recommendations. It also
discusses the limitations of the study and points to the

need for and the direction of further research in this area.

2. THE NATURE, ORGANISATION, AND STRUCTURE OF THE BROKERAGE INDUSTRY

This chapter provides background information as well as a literature survey which permits a better understanding of the behaviour of the brokerage industry. With this aim in mind, it presents a definition of the industry with a view to limiting the scope of the study (section 2.1). The case of transactions without brokers (TWB) is analysed in section 2.2. Section 2.3 discusses transactions with brokers and the institutional arrangements associated with and the limitations of different types of transactions. A brief review of studies of brokerage behaviour is presented in section 2.4. Finally, section 2.5 examines the level of and trends in industry concentration.

2.1 DEFINITION AND NATURE OF THE INDUSTRY AND SCOPE OF THE STUDY

The term 'Real Estate Industry' is not clear cut and is sometimes even confusing. It may encompass a wide variety of activities only imperfectly related to each other. This wide range of activities can be classified into four distinct categories. The first category includes firms who are called speculators in real properties (they usually purchase land, buildings or structures with the sole purpose of resale at a higher expected price at some future date). Firms in the second category are called builders and developers (they are directly involved in production and construction activities

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in real property such as developing raw land for residential or commercial use, building new homes and structures, and other related activities). In the third category, firms (eg. banks and other financial institutions) are involved in financing (eg. providing mortgage loans) and other ancilliary services associated with the transaction of real property.

The fourth category includes the activities of firms or individuals who are involved in the process of transferring ownership titles to property from one individual to another. These firms are known as real estate brokerage firms. As compared to the first two categories, the firms in this category may not require a large capital investment, nor do they incur a great deal of financial or other risks. They may choose to specialise in one or a suitable combination of the following activities: buying and selling of residential homes, apartments and condominiums (new or used), commercial and industrial properties, and land (raw or developed); property appraisal; counselling; arranging legal services related to property ownership transfer; property management; and renting and/or leasing property.

Since each of the above categories are imperfectly related, each deserves to be treated as a separate industry. This study is mainly concerned with the brokerage industry alone.'' Note that the above classification may not always

----

''This does not indicate, however, that the other categories are less important, but rather that the study of all four categories in this project would not be possible given time and resource constraints.

be compact. For example, a builder may be observed to sell his own (or other's) property (a brokerage activity), or a broker may be found to be associated with a builder or speculator. Thus, a firm can have different degrees of specialisation and interlinkages while operating within the 'Real Estate Industry' in a general sense. In such cases, it is not always possible to assign every individual or firm to one of the four specific categories. This, of course, does not pose an insurmountable problem because a large number of firms deal exclusively in the brokerage activities. Only in the case where a firm is involved in an overlapping range of activities is a firm assigned to that particular category from which it generates the major proportion of its income.

Turning now to the relative size and importance of the brokerage industry, it is found that the dollar volume of MLS sales in ⌐ ⌐nton (see Appendix E, Table E.2 for details) i ⌐⌐eased from $9.4 million in 1956 to $1103.6 million in 1⌐⌐. (then declining to $507.1 million in 1982 due mainly to severe recession). The estimated brokerage fees from such sales have increased from $0.66 million in 1956 to a record high of $77.3 million in 1979. The 1979 brokerage fees would represent, for Edmonton with a population of 500,000 persons, about 4.5% of family disposable income or $150 per capita. Similar estimates can be obtained for Canada as well as different provinces (See Appendix E, Table E.4 for details). For Canada, for example, the dollar value of MLS sales increased from 3461 million

dollars in 1973 to 12644 million dollars in 1982 (an increase of 265 percent over 9 years) while brokerage commission income increased from 242 million to 885 million dollars.

With respect to different types of transactions, it is estimated that, of the total volume of resale properties sold in the metro Edmonton market, about 93 percent were sold by brokers and about 7 percent by owners (TWB) in 1982.[2] The domination of housing sales by broker operated transactions is also observed in the United States. Of the 63 cities surveyed, it is observed that sale by owners does not exceed 30 percent[3] in any city in 1973 (see Appendix E, Table E.1). The broker operated sales can also be classified into ELS (Exclusive Listing Services) and MLS (Multiple Listing Services) transactions. Of all the sales processed through brokers, about 85 percent constituted MLS sales and the remaining 15 percent constituted ELS sales.[4] The relative importance of the MLS system is also evident from the fact that a great majority of brokers and salesmen are members of the local real estate boards and thereby fully participate in the MLS process. For instance, it is observed

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[2] See Islam and Jenkins (1983), p 2. Peter Jennings, the Vice President of an Edmonton based new brokerage firm, Komputermatch Private Property Listing Services Inc., estimates the share of "sale by owner" market to be about 12 percent.
[3] For 12 cities, it is less than 10 percent.
[4] See Islam and Jenkins (1983), p 3. This information is taken from a report by Jim McCreedy in the Edmonton Journal, January 16, 1982 and also confirmed by Arthur Jones, the public relations officer of the Edmonton Real Estate Board.

that about 75 percent[15] of all licensed brokers and salesmen
are members and hence are active participants in the MLS
process. The above information clearly indicate that the
transaction process is dominated by broker operated sales,
especially by the MLS process.

2.2 TRANSACTIONS WITHOUT BROKERS (TWB)

This is equivalent to sale by owners (sellers) and, in
this case, a simple transaction process is involved which
can be described by the following relation:

$$S \qquad \leftrightarrow \qquad B \qquad\qquad\qquad (2.1)$$

where the arrow is used to represent the process of two-way
search undertaken by the buyer (B) and the seller (S) in
order to locate each other. Since no intermediary is
involved, the seller avoids paying any commission to a
broker out of the sale proceeds, but the seller (as well as
the buyer) has to bear any necessary transaction costs such
as time costs (eg. opportunity cost of own time invested in
selling/buying) and other search costs (eg. advertising and
showing costs).

The seller usually has a particular notion of the
lowest price[16], the 'minimum offer price' PS*, that he would
be willing to accept in exchange for his house upon entering

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[15]This percentage varies from 60 percent to 90 percent in
different provinces in Canada in 1973 (see Appendix E, Table
E.5).
[16]It should at least reflect the cost of rebuilding the
home.

the market. His objective would be to maximize the excess of the actual sale price of the house over and above PS*, net of his time and search costs. It is also possible to view the objective of the home buyer in a symmetrically opposite fashion. He would try to maximize the deficiency of actual purchase price of the house below his 'maximum reservation price' PB* '', net of his time and search costs.

Since information in the housing market is rarely perfect and often costly, it is readily seen that sellers (buyers) would tend to generate 'gains from trade'' by undertaking search activity to locate buyers (sellers) with higher 'reservation prices' (lower 'offer prices'). Will each continue search until he has canvassed all buyers (sellers)? The answer is usually negative because of the constraint of positive search costs. Thus, a rational participant will continue search until the expected marginal benefit (MB) from an additional unit of search equals the expected marginal cost (MC) of search (the latter includes both time and other search costs). The interpretation of MC is straightforward. It is the increment in cost due to an additional unit of search. The expected marginal benefit can be interpreted in terms of the surplus extractable from locating buyers (sellers) of incrementally higher 'reservation prices' (lower 'offer prices') due to an additional unit of search.

''He would not consider buying the house if the actual price is greater than this price.
'This terminology is due to Bartlett (1981), p 83.

2.3 TRANSACTIONS WITH BROKERS

This section analyses the conditions leading to the development of a brokerage system with its associated institutional arrangements/practices. The brokerage system arises out of the limitations associated with the TWB. With TWB, a single seller (buyer) would be unable to canvass all available buyers (sellers) due to positive search costs. Under such circumstances, the gross 'gains from trade' for individual participants may not be maximized. This might be especially the case for certain participants (those with high time costs). Hence an opportunity arises for a third party (broker) to enter into the market who, by his efforts, can profitably realise a part of the still unrealised 'gains from trade' (after paying for his own costs) and at the same time, reduce the transaction costs of sellers and buyers (i.e. in the form of brokerage fees lower than own (individual) costs of search).

The search costs of the broker are lower than those of individual buyers and sellers for two reasons. (i) Because of the infrequency of housing transactions for individual buyers and sellers, the individual's efficiency of collecting and using information is likely to be lower than that of a broker due to his lack of experience in the market or depreciation of previous knowledge. (ii) In contrast to the individual seller/buyer, the broker can spread his overhead and other joint costs over a larger number of transactions and so reduce his unit costs significantly.

To be viable, the broker needs to solve one additional problem. Because housing is an expensive commodity, it is difficult for brokers to establish direct 'property rights' (eg. through direct purchase) on owners' property.[19] In addition, while selling property without 'property rights', the broker may be unable to prevent resale of information by buyers/sellers[20], because of the 'public good' nature of information. In this situation, brokers have developed a unique method of protecting their interests in the form of creating what is called a system of 'property rights' to the transaction itself.[21] This right is established by asking the seller to sign a 'listing contract' with the broker. This contract[22], gives the broker exclusive right to negotiate the sale of the property of the owner during a specified time period; it also specifies the amount of brokerage fees to be paid by the owner upon closing the transaction.

An important reason for the extensive use of brokerage services by home owners/buyers is evident, i.e. the dichotomous way of extracting brokerage fees from the buyers and sellers. According to the current practice, only home owners pay (directly) the brokerage fees[23] whereas the home

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[19] Note that direct purchase occurs in the used car market.
[20] The seller, for example, may purchase the information at a certain price and then may resell it to some other interested parties.
[21] See Bartlett (1981), pp 84-88 for details.
[22] The different forms this contract may take have been discussed in Appendix B.
[23] It is interesting to ask why homeowners alone (not buyers) pay brokerage fees. One reason might be that brokerage costs (eg. advertising costs) are directly incurred to sell the

buyer does not (he pays a zero price[24] (at least directly)).
Thus, the buyer would be better off using the services of
brokers as well as search on his own. In addition, the
buyer, unlike the seller, is not tied to any broker by a
contractual agreement. He can contact as many brokers as he
likes, subject to his time cost in contacting brokers. It is
thus obvious that a great majority of home buyers would be
attracted to brokers. Consequently, it will give brokers
some degree of control over a large segment of the stock of
potential buyers. Once a vast majority of home buyers come
to rely extensively on the services of brokers, it becomes
increasingly more difficult for a home owner to find a buyer
by his own efforts.[25] Therefore, the very existence of the
brokerage system generates forces strong enough to
discourage transactions without brokers (TWB).

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[23](cont'd) listings of the homeowner. As a result, brokers
may be inclined to charge them directly for the services
rendered. It might also be related to the fact that housing
is an expensive commodity. The purchase of a house would
require a significant amount of investment on the part of
buyers. Additional charge in the form of brokerage fees may
discourage many potential buyers to use brokerage services.
Finally, from a broker's point of view, it is possible that
"contracts" with home owners is easier to enforce than that
with home buyers.

[24]Buyers may, of course, be indirectly paying to the extent
that the seller can pass over a part of his cost to the
buyer in the form of higher house prices.

[25]For example, if the seller does not want to contact a
broker, he faces at least the following disadvantages: (i)
he may not be able to attract many serious buyers; (ii) most
of the buyers with higher reservation prices may be steered
to the brokers, in which case he may not be getting a high
price for his property; and (iii) the time required to sell
his property may be significantly longer because of (i)
above. All the above factors will tend to enhance a seller's
opportunity cost of not employing a broker, once the
brokerage system is in existence.

Brokerage processes can be classified into two categories:

(i) Exclusive Listing Services (ELS)

(ii) Multiple Listing Services (MLS)

2.3.1 Exclusive Listing Services (ELS)

This is a case of a simple brokerage system which can be expressed as follows:

$$S \leftrightarrow BR \leftrightarrow B \qquad (2.2)$$

In (2.2), compared to (2.1), one additional link between S and B is created, i.e. sellers and buyers communicate through a broker (BR). The seller is required to sign a listing contract with the broker specifying the terms and conditions that are to be observed by both parties in carrying out the transaction. It also gives the broker the exclusive right to negotiate the sale of the listed property on behalf of the seller subject to his final approval.

Several limitations of the ELS system are evident. With ELS, home buyers and sellers are directed to individual brokers and, in this process, the market becomes segmented. Under this system, an individual seller's property will not receive the maximum possible exposure because the listing broker of that property will show it to only those buyers who are attached to that particular broker. As a result of this limited exposure, the potential 'gains from trade'

might not be maximised from the seller's point of view. The same argument holds for the home buyer as well (i.e. the buyer may also be attached to one or a few brokers because of his time and other costs) even though the direct charge for brokerage service is zero for him. Therefore, market segmentation may significantly limit the extractable 'gains from trade' for all participants.

Another source of inefficiency arises from an individual broker's strong incentives to distort information in order to influence the buyer towards his own listings, even though he knows very well that other properties in the market (not listed with him) correspond more to the needs of the buyer. To the extent that this happens, it reduces the amount of potential gains for buyers. A possible third source of inefficiency arises from the inordinately intensive search for listings and buyers. Excessive efforts to acquire listings occur because successful sales and related profits are directly related to the size of his inventory of own listings. Moreover, with a larger current share of listings/buyers, a broker would find it easier in the future to attract more buyers/listings due to his reputation.

2.3.2 Multiple Listing Services (MLS)

In most real estate markets, there has evolved a more complicated but interesting and increasingly more common group of transactions which are carried out through the

Multiple Listing Services (MLS).[26] The MLS system can also be called a system of 'cobrokerage' between participating member firms. The transaction process can be described by the following communucation links:

$$S \leftrightarrow LBR \leftrightarrow SBR \leftrightarrow B \qquad (2.3)$$

where LBR stands for listing broker and SBR stands for selling broker.

Once a property is listed with the MLS, the sale can be negotiated by any participating (even non-member) broker[27] and the resulting commission income would be shared between the listing and selling broker on a prespecified percentage basis (usually 50-50). The commission rate, the sharing arrangements and the identity of the listing and the (final) selling broker are usually specified in the MLS listing/sales catalogues. The listing agreement between the home owner and the broker in this case takes the form of what Bartlett calls the 'shared property rights' system (in contrast to exclusive 'property rights' associated with the ELS system).

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[26] The MLS is usually organised and executed through some institution or association of brokerage firms such as a 'real estate board' or a 'real estate association'. Usually one such board is organised within the confines of a local real estate market (such as a metropolitan area or a county). In Canada, there are 88 local real estate boards in operation.
[27] Note that non-members are not allowed to list properties with the MLS.

Under the MLS, a broker's commission income can now be derived from three channels: Channel a: commission is generated from sales arising out of the stock of own listings in which case he receives full commission. Channel b: commission is received from his selling the listings of the other brokers. In this case he, as the selling broker, receives a fraction, say β, of the commission. Channel c: In this case, his income is generated through the sale of some of his own stock of listings by other brokers and he, as the listing broker, receives a fraction $(1-\beta)$ of the commission from such sales.[28] The MLS is thus essentially a cooperative arrangement between/among two or more firms in organizing a sale.

An explanation can now be provided as to the existence and relative popularity of the MLS system *vis-a-vis* sale by owners(TWB) and the ELS system. The rationale for the existence of the MLS system can be traced back to the problems and limitations associated with the operation of the simple brokerage (ELS) system. One obvious response to these limitations would be an attempt to reduce the degree of market segmentation[29] and other biases as much as

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[28] In the case of MLS transactions, the listing broker is responsible for paying a portion of his commission to the MLS to cover the costs of MLS operation.

[29] It is interesting to note that brokers attempt to reduce the degree of market segmentation by shifting from ELS to MLS system. Brokers mainly deal in information and such a shift has the potential of improving informational efficiency of transactions. But in the case of other markets (eg. automobiles), firms have incentives to segment the market. These firms usually sell their own products (whereas brokers sell the properties owned by others). It is in their interest to create brand names (through advertising and

possible. One solution, of course, is to develop a system of cobrokerage through which brokers can cooperate in sharing information with each other.

The MLS system provides them with such an opportunity. The problem of market segmentation, for example, is eliminated because, with MLS, both buyers and sellers get maximum possible exposure of the property they want to buy or sell. The seller is ensured exposure of his property to all buyers in the system because all brokers may try to sell his property once it is listed in the MLS catalogue. In a similar fashion, a buyer can contact only one broker and become informed about all the available listings in the system. This potentially reduces search costs for buyers significantly. It has the additional advantage of reducing the advertising expenditures of brokers to search for home buyers, since a broker need not be so concerned with attracting a buyer because he can approach that buyer indirectly through the MLS anyway.

Another important benefit of the MLS is the (possibility of a) reduction in the incentives of brokers to distort information so as to direct home buyers towards their own individual listings (see also Bartlett (1981). With MLS, this incentive is not totally eliminated but only

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² '(cont'd) other methods) and thereby segment the market. Creation of brand name and market segmentation give them greater control over the market. Market segmentation occurs in the used car market as well although, like brokers, used car dealers do not sell their own products over which they can establish product specific brand names to segment the market.

partially reduced because, even with MLS, a broker's interests still lie in selling homes from his own listings (since such sales bring full commission) rather than from the stock of other firms' listings (where commission has to be shared with cobrokers).[30] To the extent that these advantages are realised, it can be argued that society as a whole stands to gain from having the MLS system.[31]

In Section 2.1, it was observed that the brokerage operated sales are dominated by the MLS process. The reasons for the extensive and overwhelming use of the MLS system vis-a-vis other types of transactions (eg. ELS transactions or sale by owners) are now discussed. The basic reason is as follows. The fact that home buyers can purchase brokerage services at a zero (direct) price provides them with strong incentives to seek out brokers. These incentives are even

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[30] There is a Pareto gain from having the MLS system to the extent that all the parties - the buyer, the seller and the broker - can share the 'gains from trade' arising from the system without necessarily reducing the share of any other party.

[31] It is to be noted that the cost advantages (in terms of advertising, brokers' efforts and other selling costs) of the MLS system are not entirely clear. For example, the indirect communication link back and forth between/among the seller, listing broker, selling broker and the ultimate buyer may enhance transaction costs. In addition, the seller's property will be ultimately sold by one selling broker but in the process (until the property is sold), other brokers incur time and other costs without any return. Third, non-price competition for listings and sales may be unduly elevated if brokers expend considerable time and advertising expenditure to attract listings and to locate byuers of incrementally higher offer prices (an especially resource consuming process when it is recognised that the owner/seller is encouraged to hold out for an even higher offer price by the fact that he pays a marginal commission - at say 7 percent - much smaller in value than the aggregate search costs of the agents attempting to find buyers (see also Islam and Jenkins (1983), p 6)).

greater for the MLS compared to the ELS because with the
former, the buyer now does not need to contact more than one
participating MLS broker in order to gain access to all the
available MLS listings (which reduces his transaction costs
significantly).

Note that the increasing MLS sales may come partly at
the expense of ELS sales because it becomes more imperative
for home owners to list with an MLS broker in order to have
access to the larger pool of home buyers. In addition,
brokers have incentives to transfer some of their ELS
listings (which are more difficult to sell) into MLS
listings (possibly if the ELS listing agreement has expired
before the property is sold). Finally, during a recession in
the housing market when it is more difficult to find buyers,
both home owners and brokers would prefer to list properties
with the MLS rather than ELS (for the same commission). Thus
the very existence of MLS perpetuates its own survival and
development.

2.4 A BRIEF REVIEW OF STUDIES OF BROKERAGE BEHAVIOUR

In a recent paper, Yinger (1981) presented a model of
real estate broker behaviour. Using a probabilistic
approach, he defined brokerage output in terms of the number
of completed transactions or matches, and then discussed the
equilibrium search-and-match behaviour of brokers within the
framework of profit maximization. His paper draws
extensively on the investigations of uncertainty and

imperfect information (Stigler (1961); Rothschild (1973) and especially Carlton (1978)). His model focuses on the analysis of a broker's response to uncertain demand for his services.

Uncertainty arises from imperfect information in the housing market - uncertainty about the number of buyers of housing, uncertainty about available listings, and uncertainty about matches between buyers and listings. The demand for matches to be arranged by brokers arises solely from the seller's side of the market and is inversely related to the commission rate. The probability of a match is considered as positively related to the number of listings that the broker possesses. An individual broker's share of total listings is determined by the commission rate he charges and the level of his search for sellers. It is to be noted that, while Yinger's pioneering work is very useful in understanding the search-and-match behaviour of brokers, his study pays very little attention to various important aspects of brokerage market structure and related behaviour (eg. price fixing and price stability). In addition, he does not provide empirical evidence (to support various hypotheses developed in the paper (e.g. his share and search equations).

Bartlett (1981), on the other hand, provides an extensive, often intuitive, analysis of the brokerage industry, justifies-the the existence of the brokerage system, and discusses a few related aspects of brokerage

structure and behaviour (eg. price (commission rate)
stability). He rejects the model of 'monopolistic
competition' and 'collusion' and explains price stability in
terms of the 'shared property rights' system inherent in the
MLS process. Bartlett argues that this sharing arrangement
transforms the otherwise competitive relations into
cooperation between/among brokers and thus eliminates any
incentive for price competition. To quote him:

> ...The determination of compensation for both
> listing and selling broker simultaneously ...
> creates incentives to avoid price competition. This
> is specially true when the sharing arrangements
> formally or informally specifies a fixed 'split' or
> division of commission for all co-brokered
> homes....[32]

The structure he refers to is the 'shared property
right' system under the MLS. He argues that price cutting
would not necessarily increase a broker's revenue and profit
even though his share of listings may be increased. This is
because, to quote him again:

> ...With fixed splits, a negotiated reduction in the
> listing rate is *ipso facto* a simultaneous reduction
> in the compensation earned by cooperating brokers.
> Any comparable unit listed at the "full" rate will
> generate higher revenues for the selling brokers and
> they have a private, individual incentive to focus

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[32]See Bartlett (1981), p 91.

selling efforts on "full" commission homes. This may
well eliminate any benefit from the higher level of
lists by reducing the proportion of listings sold
per period of time.[33]

A careful analysis of Bartlett's explanation of price
stability reveals many shortcomings. First, he discusses the
reasons for price stability but does not explain how the
price is established in the first place; Second, he
recognises but does not explain the existence of the 'fixed'
split (i.e. the fixed commission sharing parameter). A
'fixed split' may be the result of formal or informal
collusion. Third, with a fixed commission rate and a fixed
"split", a secret reduction in the commission rate by the
listing broker does not necessarily reduce the compensation
for both listing and selling broker as Bartlett argues. Only
the compensation of the listing broker need be reduced, with
the share going to the selling broker remaining at the level
specified by the MLS regulations. The listing broker absorbs
the effects of secret rate cutting. If so, then rate cutting
will not necessarily reduce the proportion of (own) listings
sold as argued by Bartlett (more details in Chapter 3
below).

Fourth, he further argues that if the listing broker
cuts price, other (selling) brokers would be less interested
in selling these "lower" commission homes and concentrate on
selling other "full" commission homes. This will reduce the

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[33]See Bartlett (1981, p 91).

proportion of the sales of the price-cutting broker. This argument again is not tenable. With the MLS, a broker's sales accrue through three channels. When a broker lists a home at a rate less than the "full" rate (price cutting), the probability of selling through channel (c) would be reduced, to the extent that other brokers are more interested in selling "full" commission homes, as argued by Bartlett. But what he fails to recognise is the fact that broker's chances of sales through channel (a) would be increased because of any increase in his listings due to his lower rates. Thus, an increase in the income of the price-cutting broker through this channel may more than compensate for the loss of income due to lower probability of sales through channel (c). Contrary to Bartlett's argument, it is thus found that there may still be incentives for rate cutting and, to the extent that this is true, his analysis is inadequate in explaining rate stability.

Fifth, if the assumption of a fixed "split" is dropped, Bartlett's argument would be more difficult to support. This might especially be the case if the selling broker were willing to reduce his share of the commission in order to make any given offer to purchase more readily acceptable to the home owner. Sixth, although his analysis of price stability in terms of 'shared property rights' system may have some relevance for the MLS case, it does not apply to the ELS case. This is because, in the latter case, the

system of 'shared property rights' does not arise. Finally, his analysis of the price movements in response to cyclical changes in the upstream housing market is also inadequate in many respects (eg. from a theoretical point of view, the demand for brokerage services is not unambiguously greater during recessions. Appendix B provides a detailed discussion of this issue).

Rosenbluth's (1976) study is primarily a descriptive study of the Vancouver brokerage market. Using survey data, his analysis focuses on the earning profiles of the real estate practitioners (brokers and salesmen) and concludes that their earnings do not differ significantly from other comparable industries. He also presented some evidence on brokerage market structure (eg. size distribution of firms) and behaviour (eg. commission structure). He found moderately high concentration (see section 2.5.1 below) in spite of a high turnover of brokers and salesmen in this industry. He recognized that the brokerage market was cartelised in the past, but concluded that price competition would gradually increase as a consequence of the sectoral extension of the Combines Investigation Act of 1976, prohibiting price fixing in this and other service industries. As will be shown in Chapters 3 and 4 below, this conclusion is based on an inadequate understanding of various institutional features of the brokerage market, especially those facilitating cartel stability (at least in implicit form when overt collusion is prohibited by law).

His study is thus quite inadequate in providing a viable explanation of brokerage price stability and related behaviour (eg. advertising).

Owen, on the other hand, emphasized the collusive nature of the industry. Citing casual evidence, he argued that price-fixing and conspiracy had prevailed in the California brokerage market.[34] He also concluded that price-fixing by brokers was the most important source of high closing costs paid by home buyers and sellers (Owen (1977), p 932). Note that the hypotheses developed in this study are more in line with Owen than Case (1965), Bartlett (1981), Becker (1971), and Yinger (1981). But it should be recognized that Owen's conclusions are not derived from any formal model, nor does he provide adequate empirical evidence to support his conclusions.

2.5 MARKET STRUCTURE AND CONCENTRATION IN THE BROKERAGE INDUSTRY

This section discusses brokerage market structure (as reflected by the number and size distribution of firms) and related market power within the framework of a static as well as dynamic analysis. This analysis is important in determining whether market power/collusion is feasible in this industry. In addition, various structural characteristics can be used to infer the existence and

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[34] Conspiracy existed even though the industry was relatively unconcentrated (a few large firms controlled over 10% of the market, and a large number of brokers (178,000 full- and part-time) existed (see Owen (1977), p 945).

nature of collusive behaviour in a market (see Asch and Seneca (1975); Fraas and Greer (1977); and Hay and Kelley (1974)).

Although at first glance one might believe that market power in this industry is low because most local markets display a large number of firms and low entry barriers, it will be shown that concentration in the Edmonton (and conceivably other) markets is high. In order to accomplish this purpose, several widely used indices of concentration (eg. the Herfindahl index[35] (H), Concentration Ratios (CR_n), Variance of Logarithms (v), Theil's Entropy index (T), and Gini Coefficient (GC)) are constructed using firm level data for the period 1971 to 1983 in order to indicate the degree of potential market power.[36]

2.5.1 Measures of Firm Size and Concentration

Before discussing trends in concentration, it is necessary to examine the appropriate measure of firm size in this industry. To the extent that output[37] can be measured by the number of 'completed transactions' (see Yinger (1981)), the available data on housing sales are a useful output proxy. The (firm level) data on housing sales are

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[35]Note that Herfindahl index is arguably a better index than others because it reflects the effect of both the number and the size distribution of firms (see Scherer (1970; p 51) and Islam (1985)).
[36]For an elaboration and a rigorous discussion of the relationship between concentration and market power, see Saving (1970) and Hause (1977).
[37]For a discussion of the definition of output from a theoretical and operational point of view, see Chapter 3 below.

available (from MLS catalogues) for several years and
therefore can be conveniently used to measure firm size and
to indicate trends in concentration. It should be mentioned
here that an alternative measure of size - employment[3]
(number of salesmen employed) is available from the
questionnaire survey. However, this information is available
only for the survey year (1979) so that it cannot be used to
study trends in industrial concentration. The employment
data, however can be utilised to examine the sensitivity of
concentration indices to alternative measures of firm size.
The details of the sources of data and the measurement of
variables are discussed in greater detail in Chapters 4 and
5 below.

The frequency distribution of salesmen (from
questionnaire survey data) for 158 respondents (brokerage
firms) in the Edmonton metropolitan housing market is given
in Table 2.1. A wide disparity and inequality in the size
distribution of firms is quite evident from this table.
About 28.6% of the firms are observed to employ less than 2
salesmen and 43.5% to employ less than 4 salesmen, while at
the other end of the distribution, there are only 3 firms
(1.8% of all firms) who employ more than 128 salesmen each.

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[3] Employment can be a useful measure of firm size and
therefore concentration because it avoids measurement
problems associated with price changes (as may be
encountered while measuring size by sales or assets (for
details, see Adelman (1951)). It may also be useful because
of the labour-intensive nature of the industry. It should be
mentioned, however, that this measure may encounter
difficulties if labour productivity changes.

TABLE 2.1 Distribution of Salesmen in the Edmonton Real Estate Brokerage Market, 1979

No. of Salesmen	No. of Firms	% of Firms	Cumulative % of Firms
1 - 2	46	28.57	28.57
3 - 4	24	14.91	43.48
5 - 8	42	26.09	69.57
9 - 16	26	16.15	85.72
17 - 32	8	4.97	90.69
33 - 64	2	1.24	91.93
65 - 128	7	4.35	96.28
129 - 256	3	1.86	98.14
No Response	3	1.86	100.00
Total	161	100.00	-----

Source: Questionnaire Survey of Edmonton Brokerage Industry, 1979

The indices of concentration based on three alternative dimensions of size, i.e. number of houses sold, dollar volume of housing sales and employment for 1979, are reported in Table 2.2. The data on the number of houses sold and the dollar volume of housing sales by firms are collected from the MLS sales catalogues (monthly issues) published by the Edmonton real estate board. This table also reports some concentration indices for the Vancouver market which are taken from Rosenbluth (1976). This permits a comparison of concentration in the two local markets.

Consider the Edmonton market first in order to examine the sensitivity of concentration indices based on alternative measures of firm size. It is clear that by all CR_n measures, employment concentration appears to be higher than that based on the dollar value of sales, but the CR_n's based on the latter are very close to those based on the number of houses sold. This result is not surprising given the fact that salesmen are usually employed on a commission sharing basis (eg. when a house is sold, the commission is shared by the firm and the salesmen usually on a 50-50 basis) rather than on the basis of salaries/wages. This system of compensation preserves incentives for firms, especially larger ones, to enlarge their labour force (since the marginal cost of hiring an extra salesmen is very low) with the expectation of capturing a larger share of the market. Note that the above-mentioned bias is reduced if one looks at the Herfindahl index, H. Here, it is observed that

TABLE 2.2: Dimension of Firm Size and Concentration Indices

Indices	Vancouver Market (Rosenbluth) Employment	Edmonton Market Employment	No. of Houses Sold	Value of Sales
CR3	0.1800	0.2900	0.2800	0.2700
CR4	na	3500	0.3200	0.3100
CR6	0.2300	0.4500	0.3900	0.3700
CR8	na	0.5300	0.4600	0.4600
CR10	0.2800	0.6000	0.5200	0.5100
H	na	0.0461	0.0512	0.0516

Sources: (1) Employment concentration for Vancouver is taken from Rosenbluth (1976).

(2) Employment concentration for Edmonton is calculated using the data collected from the Questionnaire survey of the Edmonton Brokerage Market.

(3) Other Indices (using no. of houses sold and value of sales) were calculated using data collected from the MLS Sales Summaries (various monthly issues), 1979.

concentration based on the number of houses sold (also value of sales) is slightly higher than that based on employment.[39]

Turning now to a comparison of concentration in the two local markets, it appears from Table 2.2 (using employment as the measure of firm size which is common in both markets) that CR_3 is 0.18 in Vancouver as compared to 0.29 in Edmonton and for CR_6, the relevant values for the two markets are 0.23 and 0.45 respectively.[40] For the Vancouver market, Rosenbluth concludes that: 'concentration is high but not strikingly so'.[41]

In comparison to the Vancouver market, the available evidence suggests that concentration in the Edmonton market is substantially higher.[42] One possible explanation of much higher concentration in the Edmonton market is that the size of the housing market is smaller here than in Vancouver. The number of firms operating in Edmonton is much smaller, perhaps due to some economies of scale in relation to the smaller size of the market. Concentration in this market can also be compared with concentration in other industries in Canada. Such comparisons indicate that concentration in this

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[39] Since H is arguably a better index (see Islam (1985) and Scherer (1980)) than CR_n, it can be argued that concentration based on the number of houses sold is at least as high as those based on the dollar value of sales or employment.
[40] CR_n is used for comparison because H index is not available for the Vancouver market from Rosenbluth's study.
[41] Rosenbluth (1976), p 9.
[42] It should be noted that Rosenbluth's study refers to 1974 while this study to 1979 but this short time difference is not likely to account for such a large difference in concentration.

market is as high or higher than many manufacturing

industries. For example, the Report of the Royal Commission

on Corporate Concentration (1978, p41, Table 2.9) reports

CR_4 for 1972 to be 0.36 for Pulp and Paper mills, 0.18 for

Sawmills and Planning mills, 0.13 for miscellaneous

machinery and equipment manufacturing and 0.33 for the dairy

products. Note that the latter indices refer to the national

market (hence may be underestimates of true (local)

concentration), whereas Edmonton is only a local market.[43]

2.5.2 Trends in Concentration

Some preliminary idea about the level of and trends in

concentration and inequality can be found from some

descriptive indicators reported in Table 2.3. The number of

firms reporting sales in the MLS sales catalogues steadily

increased (see row 1) from 89 in 1971 to 165 in 1979 and

then declined slightly in 1981 to 135.[44] Note that the top

20 firms as a group significantly increased their combined

share of the market (row 2) from 60.95 percent in 1971 to

71.29 percent in 1981 at the expense of (the growing number

of) other firms (row 3). Thus the degree of inequality in

the size distribution of firms has tended to increase

steadily over the sample period. Hence, although mean firm

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[43] If Edmonton itself consists of sub-markets, even the
city-wide concentration indices for Edmonton may also
underestimate true concentration.
[44] As a result, top 20 firms as a percentage of those of all
firms, declined up to 1979 and increased slightly in 1981
(row 5), while the reverse holds for the remaining firms as
a percentage of those of all firms (row 6).

TABLE 2.3: Size Distribution of Firms: Some Descriptive Statistics, 1971-1981

Indicators	1971	1973	1975	1977	1979	1981
1. No. of Firms reporting MLS sales	89	106	117	118	165	135
2. Market Share of Top 20 Firms	60.95	70.66	65.56	67.95	64.34	71.29
3. Market Share of Remaining Firms	39.05	29.34	34.44	32.05	35.66	28.71
4. Number of other Firms	69	86	97	98	145	115
5. Top 20 Firms as % of All Firms	22.47	18.87	17.09	16.95	12.12	14.81
6. Remaining Other Firms as % of All Firms	77.53	81.13	82.91	83.05	87.88	85.19
7. Mean Market Share (ALL Firms)	1.12	0.94	0.85	0.85	0.61	0.74
8. Mean Market Share (of Top 20 Firms)	3.05	3.53	3.28	3.40	3.22	3.57
9. Mean Market Share of Remaining Firms	0.57	0.34	0.36	0.33	0.25	0.25
10a. No. of Firms With Share Above Mean Market Share	27	24	25	22	33	22
10b. 10a. as % of all Firms	30.34	22.64	21.37	18.64	20.00	16.30
11a. No. of Firms With Share Below Mean Market Share	62	82	92	96	132	113
11b. 11a as % of all Firms	69.66	77.36	78.63	81.36	80.00	83.70
12a. Largest Firm's Share as a Multiple of Mean Share	7.26	11.40	12.92	17.33	31.21	27.29
12b. Largest Firm's Share as a Multiple of 2nd largest	1.15	1.55	1.44	2.11	3.68	2.05

Source: MLS Sales Summaries, Various Issues, 1971 to 1981.

size has declined (as reflected by the decline of the mean market share of all firms (row 7) from 1.12 percent in 1971 to 0.71 percent in 1981), the mean market share of top 20 has increased from 3.05 percent in 1971 to 3.57 percent in 1981, whereas the mean size of the remaining firms has declined from 0.57 percent in 1971 to 0.25 percent in 1981.[45]

In addition to the above evidence, several alternative indices were constructed and are reported in Table 2.4 to indicate trends in concentration. The Herfindahl index, H, is reported in row 1. It increased from 0.0283 in 1971 to 0.0688 in 1981 and 0.12 in 1983[46] (except for a slight decline during the 1973-75 period). Similar large increases are also recorded for other indices. CR_4 increased from 24.0 percent in 1971 to 44.7 percent in 1981 (and 54.0 percent in 1983[47], while CR_8 increased from 38.4 percent in 1971 to 55.3 percent in 1981. Significant increases in concentration are also indicated by the changes in v, T, and GC over the same period of time. It is to be noted that the level of concentration in the Edmonton market in 1985 would be substantially higher if one takes account of two recent proposed mergers (one between Lepage and real estate branch

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[45]Some further interesting information about the trends in the size distribution of firms is obtained from rows 10a through 11b of Table 2.3. In 1971, for example, 27 firms (30.34%) were of a size above the mean firm size and the other 62 firms (69.66%) were below it, whereas in 1981 these numbers were 22 (16.30%) and 113 (83.7%) respectively.

[46]The 1983 figure is taken from Islam and Jenkins (1983), p 5.

[47]Islam and Jenkins (1983), p 5.

TABLE 2.4 Trends in Inequality and Concentration, 1971-1981

Concentration Indices	1971	1973	1975	1977	1979	1981
1 H	0.0283	0.0377	0.0364	0.0438	0.0512	0.0688
2 CR4	0.2403	0.3015	0.3109	0.3234	0.3217	0.4471
3 CR8	0.3841	0.4593	0.4502	0.4852	0.4629	0.5526
4 CR10	.356	0.5236	0.4895	0.5371	0.5161	0.5911
5 CR20	0.6095	0.7066	0.6556	0.6795	0.6434	0.7129
6 V	0.9343	1.5838	1.2692	1.0899	1.2561	1.2290
7 T	0.5019	0.8520	0.8259	0.8909	1.1086	1.2821
8 GC	0.5293	0.6710	0.6419	0.6482	0.6965	0.7248

Source: MLS Sales Summaries, various issues, 1971 to 1981

of the Royal Trust and the other between Remax and Langley),

both involving larger firms (the rank of Lepage, Royal,

Remax, and Langley are respectively 1st, 3rd, 8th, and 14th

in 1981 (see Table 2.5).

Another interesting feature of the trends in

concentration can be indicated. Note that concentration

increased slowly from 1971 to 1976 and rapidly thereafter.

CR_4, for example, increased from 24.0 percent in 1971 to

32.3 percent in 1977, while H increased from 0.03 to 0.04

during the same period. But CR_4 and H rose respectively to

44.7 percent and 0.07 by 1981 and to 54.0 percent and 0.12

respectively by 1983. It is further predicted (on the basis

of 1981 market shares of firms involved in the two recent

mergers) that CR_4 and H would rise to 66 percent and 0.15

respectively in 1985. An explanation for the dramatic rise

in concentration especially since 1976 is provided in

Chapter 4 (section 4.3.2) below.

2.5.3 Degree of market share instability

The market shares and the ranks of the top 20 firms for

selected years from 1971 to 1981 are given in Appendix A

Table A.1. Table 2.5 is constructed from this table in order

to get a clear picture of the size mobility. The first

column of this table gives the rank of the top 20 in

descending order while the other columns identify the firm

corresponding to a specific rank for a particular year. For

example, rank 2 was occupied by different firms in different

TABLE 2.5 Size Mobility of the Top 20 Firms, 1971-1981

Rank	1971	1973	1975	1977	1979	1981
1	Lepage	Lepage	Lepage	Lepage	Lepage	Lepage
2	Kellough	Buxton	Weber	B Bros	Kellough	B Bros
3	Weber	Weber	Buxton	Weber	Royal	Royal
4	Wilroy	United	Sicoll	Kelloogh	Kellough	Cowley
5	Buxton	City Savings	Sicoll	Sicoll	Buxton	Spencer
6	Britannia	Royal	B Bros	Buxton	Weber	Can. Perm.
7	Killen	B Bros	Royal	Royal	Friesen	Friesen
8	Northgate	Graham	Graham	Graham	Graham	ReMax
9	Principal	Kellough	City Savings	Friesen	Spencer	Buxton
10	Graham	Can. Perm	Kellough	Spencer	Can. Perm	Toole
11	Propp A	Osborne	Can Perm	Toole	Potter	Macauly
12	Allied	Wilroy	Fortune	Can. Perm	Ashford	Barnes
13	Ingram	Friesen	Montreal	Academy	Pyrmont	Weber
14	Willes	Fortune	Spencer	Pyrmont	Pyrmont	Langley
15	Burns	Mason	Toole	Dasilva	Rancho	Byrons
16	City Savings	Montreal	Wilroy	Murray	Langley	Haida
17	Friesen	Baker	Academy	Haida	Bell	Ashford
18	Gateway	JCM	Bermont	Potter	Academy	Bermont
19	Sande	Saber	JMB	Wilroy	Byrons	Nu Lane
20	Bermont	Willes	Metro	Riviera	Toole	Potter

Source: This table is constructed from Appendix A, Table A.1

years, i.e. by Kellough in 1971, Buxton in 1973, Weber in 1975, Block Brothers in 1977, Kellough in 1979 and finally Block Brothers in 1981, and similarly for the other ranks.

The only exception is the first rank which is occupied by the largest firm, A.E. Lepage. It maintained its position throughout the entire period, while its market share continuously increased from 8.15% in 1971 to 20.21% in 1981 (see Appendix A Table A.1, row 29). It is also to be noted that this firm was 7.26 times larger than the mean firm size in 1971 and it became 27.29 times larger than the mean firm size in 1981 (Table 2.3, row 12a). Note that its size (relative to other firms) would be larger now because of its merger with the real estate branch of the Royal Trust Corporation (the 3rd largest firm in 1981 (see Table 2.5)) in 1984 (its market share is predicted to rise to 28 percent in 1985). It also did not experience any serious threat from any of its neighbouring firms, which is evident from the fact that, relative to the second largest firm, its size was 1.15 times larger in 1971 and it had become more than twice the size of the second largest firm by 1981 (Table 2.3, row 12b).

Another interesting feature is that the composition of the top 20 (or top 4, top 8, top 10, etc.) has been changing as well, indicating that some bigger firms were unable to maintain their dominant position, whereas a few other large firms were rising to prominence. Note that the observed market share instability cannot be attributed to the

presence of price competition in this market (for details,
see Chapter 4 and Appendix B). It can in fact be attributed
to a number of bankruptcies and mergers involving several
medium to large firms in this market. For example, a few of
the bigge firms such as Buxton, Graham, Kellough and Weber
went out of business by 1982. The exit of these firms might
have been precipitated by the severe depression in the
housing market after 1979. Alongside the decline of such
former giants, some other firms such as Lepage, Block
Brothers, Royal Trust, Canada Permanent Trust, Remax *et
cetera* consistently improved their relative position in the
market; i.e. they established themselves among the top 10
(in that order) by 1981 (More discussion follows in Chapter
4, section 4.3.2 below).

2.5.4 Sources of change in market shares

Dynamic analysis of concentration involving sources of
change in market shares has been pioneered by Gort (1963),
Grossack (1965), Hymer and Pashigian (1962); Simon and
Bonini (1958) and others. Dynamic analysis not only
supplements results of the static analysis, but in many
cases it is even more useful in facilitating inferences
about the stability of monopoly power/collusion. Following
Grossack (1965), this section develops a dynamic measure
(details of the Grossack's methodology is discussed in
Appendix A) of industrial concentration which is expected to
throw light on the following: (i) whether and to what extent

the large firms lost (gained) market shares and (b) if so, to whom (from whom) they lost (gained) shares, i.e. to (from) other large firms or to (from) small firms and/or new entrants.

The Herfindahl index provides a useful analytical tool for the examination of structural change. To construct a dynamic measure, data on the market shares of individual firms are needed for at least two years. Following Grossack (1965), the regression coefficient 'b' of the initial year market shares of firms on the 'reference' year market shares is used to indicate the degree of market share instability. But it alone cannot predict the sources of such change. In order to indicate the sources of change, Grossack obtained the following equation:

$$b = r \cdot RH \qquad\qquad (2.4)$$

where 'r' is the coefficient of correlation between the 'initial' and the 'reference' year market shares (a value of 'r' close to unity would indicate high stability of market shares between these periods) and RH is the square root of the ratio of Herfindahl indices in two periods (a value of RH > 1 would indicate an increasing trend in concentration).

Information on these coefficients can be conveniently used to indicate the relative stability of the market share of leading firms *vis-a-vis* other (smaller firms and/or new entrants) firms. For example, if a value of b less than

unity is observed with a low value of 'r' and the value of RH close to unity, the results can be interpreted to indicate that concentration is not rising and that large firms are losing market share to each other. The estimates of the above mentioned coefficients for all available year pairs are reported in Appendix A, Tables A.4 and A.5.

Instead of discussing all the coefficients in Appendix A, Tables A.4 and A.5, it is more convenient to concentrate on a few selected coefficients for further analysis. The selected coefficients reflecting time trends in the coefficients are given in Table 2.6. Looking at the 'b' coefficient (all the coefficients are highly statistically significant (see Appendix Table A.4)), it appears that it has been less than unity up to 1977, implying that large firms were losing shares up to then (during the 1971-73 period, they lost about 19 percent of their market share during the 1973-75 period, about 16 percent, but less than 2 percent during the 1975-77 period). For the remaining periods, it appears that 'b' is slightly larger than unity, indicating that large firms as a group were gaining market share, although the gains were negligible, i.e. much less than one percent during both the 1977-79 and 1979-81 periods.

Now, combining the results on 'b', RH and 'r', the results can be interpreted as follows: During the time periods (1971,73), (1973,75), and (1975,77), there is some evidence that large firms lost market share to each other

TABLE 2.6 Selected Coefficients of 'b', Sq root of RH and r

Time Periods	(1)	(2)	(3)	
(Year Pairs)	b	Sq root of RH	r	Categorisation
(1971, 1973)	0.8110	1.1542	0.7027	Case II
(1973, 1975)	0.8372	0.9826	0.8520	Case II
(1975, 1977)	0.9870	1.0969	0.8998	Case II
(1977, 1979)	1.0009	1.0812	0.9257	Case I
(1979, 1981)	1.0038	1.1592	0.8659	Case I

*Source: Appendix A. Tables A 4 and A 5.

but not to smaller firms and/or new entrants. The results

for the periods (1977,79) and (1979,81), on the other hand

indicate that large firms did not lose market share to each

other. They rather gained market share from small firms

and/or new entrants. Since 'b' is very close to unity during

these latter periods, this gain is again negligible, and

thus these periods can be considered as more stable than the

earlier periods. Of course, the fact that r is still less

than unity indicates that some degree of instability still

persists, although the trend is towards considerable greater

stability. This higher degree of market share stability

might provide an indication that the dominant group has

achieved high and stable prices.**

** A detailed discussion of the analysis and measurement of
permanent industrial concentration, following Grossack
(1972), is provided in Appendix A.

3. THE ANALYTICAL FRAMEWORK: THE MODEL

This chapter develops an analytical framework for examining brokerage pricing and related behaviour (advertising and entry) under alternative non-collusive and collusive scenarios. Section 3.1 discusses an operational definition of brokerage output and relevant demand and cost conditions. It also provides some general observations about brokerage pricing and related behaviour. The profit functions of brokers are presented in section 3.2. In section 3.3, a non-collusive version of the model is presented. Finally, section 3.4 presents a collusive version of the model. The two alternative versions provide different predictions about brokerage pricing and related behaviour which are subject to empirical testing in subsequent chapters.

3.1 GENERAL OBSERVATIONS ON BROKERAGE BEHAVIOUR

A broker receives a commission, upon successful completion of a transaction, which can be interpreted as the 'price' of brokerage output, whether measured in terms of the number of 'completed transactions' or 'matches' (see Yinger (1981)) between home owners and buyers. Since brokerage firms deal mainly with housing information, output can alternatively be measured as extractable surplus or units of information processed. Although the latter variables are theoretically more plausible, data on them are generally unavailable.[1] As a result, an operational

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[1] Note that the latter definitions may encounter operational problems as well because a broker receives commission only

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definition of output in terms of the number of 'completed transactions' is used in this study. For subsequent analysis, X is used to denote brokerage output (completed transactions) and P_x is used to denote its unit price (or gross commission received per house sold)

emand for brokerage output arises from home owners desires to sell their homes and the desire of potential buyers to purchase those homes.[50] The market demand for brokerage output can be written as $X^d(P_x, J)$, where P_x is the relevant price variable and J represents a vector of other variables (eg. income, building activity) which influence the demand for X.[51] The relationship between X^d and P_x is inverse because an increase in P_x would induce a substitution of own efforts by home owners for brokerage efforts to locate potential buyers.

Consider now brokerage cost/supply conditions.[52] A broker's main function is to collect and process information about disparate groups of sellers and buyers and to

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[49](cont'd) after the listed property is sold. If he fails to arrange a match within the period of the listing contract, he is not entitled to receive any commission, even though he may have incurred costs in the sense of providing some units of information/services.

[50]Note that commissi s are directly extracted from home owners (not buyers).

[51]The demand function can be derived using a simple optimization framework of home owners (see Appendix B). Since only home owners directly pay the commission, their behaviour is more directly relevant. A typical home owner can be viewed as maximizing utility (which depends on wealth and leisure), subject to the limitations on the present discounted value of his labour income, non-labour income, and the capital gains from the housing transaction (net of brokerage fees, if any).

[52]An example of the derivation of the cost function is discussed in Appendix B.

endeavour to arrange a match. The costs of brokerage
operation can be categorised as follows: (a) office and
related overhead expenses; (b) search costs which include
advertising to locate both listings (sellers) and buyers;
and the (c) time and incidental costs for concluding and
drawing up listing agreements, showing properties and
closing actual transactions. Given a typical broker's
production function as X(O, AD, AB, AS) (where O stands for
office inputs, AD stands for advertising costs, AB for units
of search to locate buyers, and AS for units of search to
locate sellers), and given input prices P_O, P_{AD}, P_{AB}, and
P_{AS}, a cost minimization framework[53] can be used to derive
his supply function. The aggregate supply function, X', can
be derived as a direct function of price, $X'(P_x)$, and the
relevant total cost function (given input prices) would be
given by TC(X), where X measures the level of output.[54]

If the brokerage market is competitive, the interaction
of demand and supply would determine competitive price, say
P_c, and competitive output, say X_c. If the industry is in
long run equilibrium, price would reflect the minimum costs

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[53]Note that similar results can be obtained if one uses a
profit or output maximization framework, provided that the
production function satisfies the usual regularity
conditions.
[54]It is to be noted that in deriving brokerage cost
functions, it might be more appropriate, from an empirical
point of view, to use the dollar volume of sales as a
measure of brokerage output. This is because house prices
vary considerably. As a result, it is conceivable that
different houses would require different amount of brokerage
selling efforts (eg. showing costs may be higher for more
expensive properties). But measuring output in terms of the
dollar volume of sales instead of X would not significantly
alter the results.

of production of the marginal firm, the latter firm would earn only normal profits, and the number of firms, N_c, would be in long-run equilibrium.

If there is collusion in this market, price, say P_m, would exceed marginal cost (allocative inefficiency) and would also likely exceed minimum long run average cost (productive inefficiency). Any resulting excess profit would encourage entry of new firms, until prices are driven down and/or costs up and profits down towards normal profit. In addition, some inefficient firms might remain in business.

Also at price P_m, there would be a tendency for excess supply/capacity in the industry in the sense of brokers' being willing to make more matches than demanded at that price.[55] This would encourage brokers to indulge in intensive search for listings and buyers to arrange matches. More discussion on this point is given in section 3.5 below. In addition, with a high turnover of firms and excess capacity, the resulting higher advertising and promotional costs by both new and old firms would lead to higher costs of production and inefficient utilization of resources in the industry (see also Bartlett (1981) and Owen (1977)). In addition, high prices (with low barriers to entry) would encourage entry. The entry of new firms would continue until excess profits are eroded (if all firms are identical). In equilibrium, the industry may include more firms than would

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[55] Note that it is easier to enforce collusive agreements to fox price than to regulate advertising (or other selling efforts). More details on this point in Chapter 5 below.

prevail if the market behaved competitively.

Note that the usual practice in the brokerage industry is to extract the price in the form of commission rate (CR) applied to the sale value of the property. The following equation gives the relationship between the gross commission (P_x), the commission rate (CR) and property value (PH):

$$P_x = CR.PH \qquad (3.1)$$

Under collusion, CR would be fixed at a level higher than that prevailing under a similar competitive commission structure, say at CR_f, so that equation (3.1) can be written as follows:

$$P_x = CR_f . PH \qquad (3.2)$$

Equation (3.2) specifies a uniform (collusive) commission rate which is independent of house prices. It can now be shown that such a uniform fixed commission rate may be potentially price discriminatory and hence indicative of market power/collusion. Rearranging equation (3.1), the commission rate can be expressed by following equation:

$$CR = P_x/PH \qquad (3.3)$$

In what sense does a fixed percentage commission rate imply price discrimination? In order to answer this question, totally differentiate equation (3.1) and rearrange terms to obtain the following condition:

$$dP_x = PH \cdot d(CR) + CR \cdot d(PH) \qquad (3.4)$$

where d stands for the total differential operator. Dividing both sides of equation (3.4) by d(PH) and rearranging terms, the following equation is obtained:

$$dP_x/d(PH) = PH \cdot d(CR)/d(PH) + CR \qquad (3.5)$$

The following cases can be identified from equation (3.5):

Case I: $dP_x/d(PH) = 0$ iff

$$d(CR)/d(PH) = -(CR/PH) \qquad (3.6)$$

In this case, gross commission is independent of house price if the commission rate falls proportionately with the rise in house price. This would be expected in a competitive market, assuming selling costs (SC) are fixed [5] (d(SC) = 0) and also independent of house price.

Case II: $dP_x/d(PH) > 0$ iff

$$d(CR)/d(PH) > -(CR/PH) \qquad (3.7)$$

In this case, gross commission rises with house price if the

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[5] Shopping theory may suggest that brokers would show more homes (higher selling costs) the higher the price. Thus d(SC)/d(PH) may be positive. But the above conclusions would still hold if selling costs do not rise in proportion to PH.

commission rate falls less than proportionately with the
increase in house prices perhaps not falling a so that
$\partial(CR)/\partial(PH) = 0$). To the extent that the cost of selling a
house does not increase in the same proportion as the
increase in house prices, discriminatory pricing pertains.

Selling costs may not rise in proportion to house
prices for the following reason. The costs of selling a
house include a fixed and a variable component. In
particular, fixed transaction costs (independent of house
prices) are associated with the drawing up and signing of a
listing contract (including property appraisal), initial
(not repeat) advertising in the newspaper, other media, or
the MLS catalogues, and closing the deal. Variable costs
arise from repeat advertising, personal selling efforts,
showing costs, all of which may rise more or less
proportionately with house prices and related extractable
surplus. Since some costs are fixed and other costs are
approximately proportionate to house value, it is quite
unlikely that the full costs of selling a $100,000 home will
be exactly twice as large as that of selling a $50,000 home.
Hence a doubling of gross commissions under a uniform
percentage scheme may be unjustified and discriminatory. It
can thus be argued that if competition pertains (see Chapter
4, section 4.3.1 below), one may observe a lower commission
rate on more expensive properties and a higher commission
rate for less expensive properties, *ceteris paribus*. On the
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Porter (1983, p 220) reports that since the abolition of
fixed commission rate in the New York stock brokerage market

other hand, if the industry operates under a regime of
collusion, one may observe that any secret discount (from
the fixed rate) would be more frequent for more expensive
properties and less frequent for less expensive ones (for
details, see Proposition X in section 3.4.4 below).

It can be argued that a non-discriminatory, potentially
competitive, commission structure might consist of F, a flat
fee (to reflect the fixed component of brokerage costs),
plus a percentage incentive bonus (to reflect the variable
component of brokerage costs). Of course, selling costs in
particular may be marginally related to house prices but not
necessarily proportionately. In this situation, even Case I
may involve price discrimination. In the above example,
charging the same commission rate (say 7%) to both
homeowners would involve price discrimination against the
owner of the more expensive house if the cost of brokerage
is less than proportionately related to house price. If
there are no differences in selling costs, price
discrimination would be extreme.

Note that the uniform discriminatory commission
structure (as currently practised) generates lower revenues
(but is simpler to administer) than a discriminatory
non-uniform commission rate structure such as a two-part or
n-block scheme. Leland and Meyer (1976), for example, have
demonstrated that the two-part or n-block schemes are at

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5 (cont'd) in 1975, the commission rate on sales to
individuals fell 18 percent, while commission rate on small
orders (less than 200 shares) had actually risen in response
to competitive pressure.

least as profitable as a uniform scheme. If brokers were to follow a discriminatory two-part scheme[5], gross commission would consist, say, of a fixed fee[6], F plus a fixed percentage of PH.

Although it is potentially more profitable, brokers do not follow this scheme because F would require periodic cyclical/inflation adjustment which may strain/destabilize oligopolistic coordination (more details in section 3.4 below). Nor have brokers adopted an n-block scheme by applying different commission rates to different transaction classes (these classes can be defined in terms of property values). Again brokers have avoided adopting an n-block scheme because it may increase cartel coordination costs. They have, however, adopted a two-block scheme to the extent that they charge a 7% commission rate on property values up to $100,000 and a marginal rate of 3% for excess value. The declining two-block scheme may reduce the severity of price discrimination but does not eliminate it. Implicit price discrimination may still persist among properties with PH less than $100,000 as well as among properties with PH above $100,000. This scheme is adopted partly because it is more profitable, but perhaps more importantly, to avoid rivalrous discounting on commission for more expensive properties (for more details, see Proposition X in section 3.4.4 below).

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[5] This scheme is at least as profitable as the uniform scheme because he can always set F to zero.
[6] It is to be noted that under non-competitive conditions, F may not accurately reflect the fixed component of selling costs.

3.2 SPECIFICATION OF THE PROFIT FUNCTION

The profit function of a brokerage firm can take two different forms depending on whether one is considering the ELS system or the MLS system. In the ELS case, the total gross commission income can be obtained by multiplying output by the price, i.e. $(P_x.X)$. Given total cost TC = TC(X), the profit function of a representative broker, Π, is given by equation (3.13):

$$\Pi_{ELS} = P_x.X - TC(X) \tag{3.8}$$

Specification of the profit function under the MLS system is more complicated. A broker's income is now derived from three channels (as discussed in Chapter 2). The profit function can be written as follows:

$$\Pi_{MLS} = q_1(P_x.X) + \beta.q_2.(P_x.X) + (1-\beta).q_3.(P_x.X) -$$

$$TC(q_1X, q_2X, q_3X) \tag{3.9}$$

where β is commission sharing parameter (i.e. the proportion of the commission received by the selling broker (if different from the listing broker)), q_1 is the proportion of X the broker sold from the stock of his own listings (and earned full commission), q_2 is the proportion of X he sold from other broker's listings, and q_3 is the proportion of X sold by other brokers from his own listings. Note that $\Sigma q_i = 1$; $0 \leq q_i \leq 1$.

3.3 THE NON-COLLUSIVE MODEL

A brokerage market is usually characterised by a large
number of firms and relatively easy entry. As a result, Case
(1978) has suggested that the market is (purely)
competitive. Others have argued that the brokerage market
may be more appropriately characterised as monopolistically
competitive (see Becker (1971)) rather than purely
competitive.[*] In comparison, this study argues that the
brokerage market may be better characterised as collusive.
This section presents a non-collusive (monopolistic
competition) model of the brokerage industry while its
collusive counterpart is presented in section 3.4 below.

In the case of ELS transactions, a profit maximizing
broker sets price, P_x, which maximises his profits so that
the optimality condition given by equation (3.10) holds:

$$d(\Pi_{ELS})/dX = P_x + X \cdot (dP_x/dX) - dTC/dX = 0 \qquad (3.10)$$

This condition states that a profit maximising broker having
limited market power (monopolistic competition) would set
optimal price P_x for which marginal revenue is equal to
marginal cost, $MC(X)$ (assuming second order conditions are
satisfied). Given market power, the slope of the demand

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[*]Imperfect nature of information and significant positive
costs associated with the collection and use of information
may have implications for the existence of market power in
this industry. It can, in fact, be argued that high search
costs for buyers/home owners can generate market power even
if other conditions of a purely competitive market are
satisfied (see Rothschild (1973); Prat, Wise and Zeckhauser
(1979); Salop and Stiglitz (1977)). So too can heterogeneity
in the services/locations of brokers.

function is negative and equilibrium price in equation (3.10) exceeds marginal cost.

The relevant profit function to be maximised by firms in the MLS system is given by equation (3.9) and the first order condition for maximum profits in this case is given by equation (3.11):

$$d(\Pi_{MLS})/dX = q_1[P_x + X.dP_x/dX] + q_2.\beta.[P_x + X.dP_x/dX] +$$

$$q_3.(1-\beta)[P_x + X.dP_x/dX] - q_1.dTC/d(q_1X) -$$

$$q_2.dTC/d(q_2X) - q_3.dTC/d(q_3X) = 0 \qquad (3.11)$$

This equation can be interpreted as follows. In setting price, the monopolistically competitive firm equates the weighted average of marginal revenues with the weighted average of marginal costs (the weights being the coefficients outside each bracketed expression in equation (3.11) and consisting of the output allocation parameter*' and the commission sharing parameter). If there is no market power, dP_x/dX would be zero, and price would be equal to marginal cost. It should be mentioned that, unlike the ELS case, the conditions for profit maximisation in the MLS system also depend on the output allocation parameter and

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*'One relevant issue is to determine whether the output allocation parameter q_1 is exogenous or endogenous. Although it can be reasonably argued that it is exogenous in the short-run, it might be a choice variable in the long-run. In other words, a broker may wish to choose optimal q_1 within the framework of profit maximisation. This issue is not given further consideration in this study.

the commission sharing parameter.

A few predictions of the non-collusive model can be mentioned:

Proposition I: In the simple case, that all firms are identical and provide identical output/services, and if information is perfect and obtainable at negligible costs, a single equilibrium price will prevail under monopolistic competition. But if firms do not provide identical products (services), or buyers and sellers have less than full information (due to high enough search costs), a price dispersion is likely to be observed (see Prat, Wise, and Zeckhauser (1979); Rothschild (1973); Salop and Stiglitz (1977)). In this situation, the price reflecting the minimum average costs would set the floor above which price dispersion would be observed.

Proposition II: Under monopolistic competition, if firms are earning short-run excess profits, new firms would be encouraged to enter into the market. As entry occurs, individual firm's demand will decrease, price will fall and/or average cost rise (for example, because of intensive search for buyers/listings). As a result, excess profit will be eroded in the long run after which no further entry will take place (see Chamberlin (1933); Joskow (1973); and Stigler (1968)).

The above two propositions would hold under both the ELS and MLS transactions.

3.4 THE COLLUSIVE MODEL

In presenting the collusive model, this section gives special attention to the following matters:

(1) Cost/Difficulty of Collusion: Some General Observations;

(2) Collusion in the Brokerage Industry;

(3) Incentives to Cheat and the Difficulty of Coordination;

(4) Factors Facilitating the Stability of Coordination;

(5) Cyclical Variation in the Brokerage Commission Rate;

(6) Cyclical Variation in the Commission Sharing Parameter;

3.4.1 Cost/Difficulty of Coordination: Some General Observations

Collusion is usually observed in a situation where the number of firms is relatively small (oligopoly) and firms recognise interdependence in decision-making (see Chamberlin (1929); Fellner (1965); Scherer (1980); Stigler (1964); and Sweezy (1939)). The price and output under these circumstances are difficult to predict. This uncertainty may create substantial instability in the market. Obviously, this situation is undesirable to the firms and they recognise the need to cooperate/collude rather than to compete.

At this point, it should be recognised that coordination is not costless and, in some cases, the cost (difficulty) of coordination may be so high that it may be unprofitable. The problems of organizing and stabilizing a cartel are extensively discussed in the literature (see Asch

and Seneca (1975); Fraas and Greer (1977); Friedman (1971);
Green and Porter (1984); Hay and Kelley (1974); Hefflebower
(1961); Kuhlman (1969); Orr and MacAvoy (1965); Osborne
(1976); Palmer (1972); Scherer (1980); and Spence (1978a and
1978b)). At an industry level, price-fixing is discussed by
Costello (1968 ; Tetracycline), Erickson (1969; Folding
Bleacher), Erickson (1976; gymnasium seating, rock salt, and
structural steel), Kessel (1958; medicine), Owen (1977;
title insurance industry and the brokerage industry),
Watkins and Adams (1984; fluid milk market), among others.

The cost of coordination are associated with the
solution of the following five major problems faced by a
cartel[2]: (i) the external problem, which arises from
production by non-member firms or potential new entrants (to
the extent that such behaviour cannot be predicted and
controlled, the stability of market price and coordination
is seriously threatened); (ii) location of the contract
surface (or joint profit-maximising price and output), which
requires information regarding cost conditions for
individual firms and the market demand; (iii) the choice of
a point on the contract surface (this is essentially the
sharing problem, i.e. the determination of the individual
firm's output quota); (iv) the problem of detecting cheating
(discounting) once collusion is established; and (v) the
problem of deterring cheating.

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[2] See Osborne (1976) for details. Also see Spence (1978a and
1978b)).

Under collusion there are incentives for individual
firms to cheat. Members therefore must find means to detect
and deter cheating by individual members. While standard
theory suggests that cartels are inherently unstable because
of the sharing and deterring problems, Osborne (1976)
persuasively argues that the sharing and deterring problems
are not inherently insoluble; in other words, the
participating firms can follow a quota rule which will
simultaneously solve both the sharing and the deterring
problems.[ ] The quota rule allows individual firms to
adjust price so as to maintain relative market shares and so
significantly reduces any individual member's increase in
market share and incentive to cheat. Osborne suggests that
the fundamental problem lies in the location and the
detection problems, with both being accentuated by the
existence of external firms. Stigler (1964) also emphisized
the detection problem as central to cartel stability.

A lack of information clearly bears on the detection
problem. The detection of cheating requires information
regarding market share and/or price of each individual
member. In general this problem becomes more difficult: (i)
the larger the number of participating firms[ ]; (ii) the
larger the proportion of output controlled by small cartel
members[ ]; and (iii) the larger the proportion of output

[ ] For details, see Osborne (1976).
[ ] With a large number of firms, it is more difficult to
identify price cutters since the cost of collecting
information increases more than proportionately with the
number of firms (see Scherer (1980)).
[ ] When these firms as a group control a large proportion of

controlled by the external firms. In the presence of external firms, it becomes more difficult to identify whether the loss of market share experienced by a member firm is due to cheating by other members or due to increased output by the external firms. Being unable to detect the source of cheating, affected members may retaliate with large discounts, which may in turn threaten the stability of the cartel.

With respect to the detection problem, it is possible to identify following cases of successively increasing coordinational difficulty: Case I: The output and price of each individual member is known by all and therefore the detection problem is completely solved. The cartel would, therefore, be internally stable. The external firms do not pose any serious difficulty as long as they represent a very small minority. Case II: Members know the output (but not price) of each member; again, output and hence the market
:a of individual members can be effectively used to
:sible secret price cutting by rival firms. Cartel
detection problem is again solved at a reasonable enforcement cost. Case III: Members know the output supplied by all the members jointly but not the output of individual members. Here, the detection problem becomes more difficult but as Osborne suggests, it can still be solved. Case IV:

[cont'd] output (not necessarily larger than the combined share of the dominant group), it may be more difficult to detect cheating. Member firms may then cheat without being identified.

See Osborne (1976) for details.

Total industry output is known but neither the total nor individual output of members. Case V: Industry output is also unknown. The last three cases would be very unstable because of the serious difficulty in solving the detection (as well as the location) problem. Under these circumstances, if a cartel is formed, it is most likely to be unstable.

3.4.2 Feasibility of Collusion in the Brokerage Industry

In the few previous studies of the brokerage industry, the possibility of collusion received little attention. Chap suggested that Yinger (1981) gave only a passing reference to this issue. Bartlett's analysis of price stability in terms of a system of 'shared property rights' suffers from the same and other limitations (as discussed in Chapter 2 and Appendix B). Although the possibility of collusion was recognized by Rosenbluth (1976) and Owen (1977), their analyses, as already mentioned in Chapter 2, are inadequate. This section argues that a model of collusion provides a more plausible explanation of observed brokerage price stability.

The possibility of successful collusion is perhaps ignored by researchers in this area because of the fact that the industry is characterised by a large number of firms and relatively easy entry, factors which are presumed to raise coordination costs high enough to make collusion unprofitable. But this section will argue that collusion in

this market can succeed in spite of a large number of firms, relatively easy entry, and even excess capacity.

Collusion becomes more feasible when a few firms dominate the industry (as discussed in Chapter 2). Moreover, a sophisticated 'competitive fringe' may respond to the long (but not short-run) profit incentive by following the higher price set by the large price leaders. Moreover, even with a large number of firms, informal coordination may give place to formal collusion involving an industry trade association to regulate the behaviour of individual members against secret price cutting (see Fraas and Greer (1977); Hay and Kelley (1974)). Hay and Kelley, for example, report that, in 7 out of 8 cases of collusion with more than 15 members in the cartel, a formal industry trade association was involved.

In the case of the brokerage industry, a formal trade association (in the form of real estate association/board) exists in typical urban markets in Canada and the United States. The local boards are also related, through membership, to the the respective higher (provincial and national) boards. Similar success in collusion has been observed in the fixing of insurance rates in the U.S. property liability insurance industry (see Joskow (1973).); in setting minimum commissions for transactions in the New York Stock Exchange (see Baxter (1970) and West and Tinic (1971); and in the California title insurance and brokerage industry (see Owen (1977), all despite the existence of a

large number of firms (often hundreds) and easy entry in these industries.

Competition in a brokerage market may take the form of price or non-price rivalry, the latter, in turn, comprising competition on the basis of service quality or advertising. Note that it would be difficult in a brokerage market to clearly distinguish between service quality and advertising. For example, since brokers deal with information, service quality can be improved by providing more information (eg. informational ads in newspapers which may result in a quicker sale or a better match for home owners and buyers). As a result, it is advisable to group them under 'non-price' competition/rivalry.

In this market, collusion may take the form of price coordination and/or coordination to restrict non-price competition/rivalry. The latter may take the form of standardizing service quality (eg. type and amount of services to be provided, number of ads, standardized lengths of 'listing contracts', *etc*). Telser (1960, p 90) has argued that service standardization is an activity in restraint of trade and that it facilitates cartel stability. Although both price and non-price coordination is possible, it is more likely that brokers would prefer the former. This is because the former is easier to achieve and easier to monitor than the latter (see Nelson (1974); Scherer (1980); and Stigler (1964)). The greater difficulty of non-price coordination arises because it is more difficult to define

and to agree on any specific (or all) dimension(s) that
non-price rivalry may assume (more details in Chapter 5
below).

Note also that documented cases of formal collusion
have usually taken the form of price coordination. When
brokers agree not to compete on the basis of price, it can
be expected that they would indulge in non-price rivalry
order to attract more business towards them (see also Owen
(1977); Scherer (1980); and Stigler (1964)). This tendency
would be stronger if the collusive price is set much above
the competitive rate. Much of promotional campaigns which
are directed to attract listings (from the already given
stock of listings) would have questionable social value. Of
course, a part of those expenses (eg. more informational ads
in newspapers) which are directed to obtain buyers may
improve service quality (eg. better searches). Given the
dichotomous way brokerage fees are assessed, buyers would
tend to utilise brokerage services anyway (only to be
constrained by his search costs for brokers, which may be
very small under MLS). As a result, it is very likely that a
major part of promotional expenses would be designed to
attract listings rather than buyers.

The following predictions can now be stated:
Proposition III: If price collusion alone is achieved,
brokers would tend to indulge in substantial non-price
rivalry. A part of this non-price rivalry may improve
service quality, but another part of it may have

questionable social value.

Proposition IV: With relatively e   entry, a high
commission rate would encourage excessive entry and would
allow some inefficient firms to survive. Entry will continue
until excess profit is exhausted.

Given Propositions III and IV, one should not be surprised
to observe low profit rates in easy entry collusive
industries. Asch and Seneca (1976), for example, find that
collusive behaviour is inversely related to inherent firm
profitability. For the Vancouver brokerage market,
Rosenbluth (1976: 87-47) found that, in spite of high
commission rates, the earnings of brokers and salesmen were
not much higher than other industries (eg. mining and
manufacturing). Observing low profit rates, some researchers
have been tempted to characterise such industries as purely
competitive (see Case (1965); Kalymon* (1978)) or
monopolistically competitive (see Becker (1971)).

3.4.3 Cost/Difficulty of Coordination in the Brokerage Industry

Collusion might be formal (eg. a bylaw of the real
estate board) or implicit (as occurs under price leadership
or focal point pricing). If collusion pertains in the
brokerage industry, the objective of the cartel would be to
maximize joint industry profits. Price (commission rate)
would be set for both the ELS and MLS transactions such that
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*'Strictly speaking, Kalymon's study refers to real estate
builders and developers rather than to real estate brokers.

the respective profit functions (equations (3.8) and (3.9) respectively for the ELS and MLS cases, are maximized (these equations now being interpreted at the industry level).

This section would argue that significant rewards for cheating (discounting) together with structural features, render collusion, if it exists, very unstable in this market.** It will be demonstrated that the net incentive to cheat is especially strong due to the following structural features: (a) a large number of firms; (b) the presence of external firms (non-members and potential new entrants); (c) the presence of a high proportion of small firms; and (d) the high rate of entry of new customers/home owners (demanding brokerage services) per period of time.

The role of the above factors are discussed using the methodology developed by Stigler (1964). In his classic article, Stigler provides important insights about cartel behaviour and its organization. More specifically, he emphasized important difficulties associated with the policing of cartel arrangements. His implicit analytical framework can be used to make inferences regarding the circumstances under which a cartel organization would be less susceptible to secret price-cutting and hence more stable. This methodology is modified (eg. the assumption of equal firm sizes is dropped), extended (eg. additional new results are obtained), and then applied to a study of the price discounting behaviour of the brokerage industry.

**Discounting may occur at the time of listing or at the time of sale.

For subsequent analysis, two groups of customers are identified: (a) current customers (home owners) who want to renew their listing contracts (their properties are still unsold); and (b) customers who are new in the market. Assume there are C customers of which C_0 are current and C_n are new. Consider the behaviour of current customers first (ignoring new customers for the time being, i.e. $C = C_0$). Many current customers recognize the advantages of renewing the listing contract with the same broker, thereby avoiding the transaction costs of finding another broker and signing another listing contract, as being greater than the benefits of possible discounts that may come from changing brokers.[*]

Assume that there are N brokers in the market. Given any arbitrarily defined time period over which listing contracts are signed, assume, for simplicity, that all contracts expire at the end of the period and that all contracts are renegotiated and renewed/recontracted at the beginning of each period. Let s be the probability that a customer will be attracted to a broker. Thus, s can be interpreted as his market share in the previous period. Since price exceeds marginal cost (under collusion), an individual broker would have a strong incentive to obtain a market share exceeding s by giving secret price discounts. From the pool of customers, he will be able to obtain, on

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[*] Some customers may want to switch if they view their current brokers as highly inefficient.

average, m listing contracts[o] in the absence of secret
price discounts, where m is given by:

$$m = C_o.s = C.s \qquad (3.12)$$

and has a standard deviation

$$v = \{ C.s.(1-s)\}^{1/2} \qquad (3.13)$$

With collusion, the ████████ rate is given for a cartel
member. A broker may ████ secret discounts to some
customers (with a maximum value of the excess of price above
marginal cost) in order to attract more than m contracts.
Assume that he can obtain a number of contracts which is k
(any positive number) standard deviations above m without
being deemed a price-cutter by its rivals (the deviation
within that range may be viewed as due to random factors). A
similar condition holds for other rivals as well. Thus, a
broker will be suspected of price-cutting only if he obtains
more than (m + k.v) contracts. Since this reflects the
maximum contracts a price-cutting firm can obtain without
being deemed a price-cutter, and since m is the expected
number he can obtain without price cutting, one can define G
as follows:

$$G = (m + k.v - m) = k.v \qquad (3.14)$$

where G can be interpreted, following Stigler (1964), as the

[o]A binomial probability distribution is assumed. Here s is
the probability of success in attracting customers and (1-s)
is the probability of failure.

gain in sales with price-cutting remaining undetected.

Expressing G as a proportion of his own average sales m, the

following is obtained:

$$PG = k.\{C.s.(1-s)\}^{1/2}.s \qquad (3.15)$$

where PG expresses the maximum proportion of listing

contracts which can be gained by secret price-cutting,

beyond which rivals would infer price-cutting. Since the

profitability of secret discounting depends partly on the

the number of customers one obtains, PG can also be

interpreted as proxying the incentives to engage in secret

price discounts (see Stigler (1964)).

Taking a partial derivative of PG w.r.t. s, and

simplifying the expression, the following is obtained:

$$\partial PG/\partial s = -(1/2).k.C^{1/2}.\{(1-s)/s\}^{-1/2}.(1/s^2) \qquad (3.16)$$

Since $\partial PG/\partial s$ is negative, the following predictions can be

derived:

Proposition V: The incentive to secret price-cutting (or

equivalently the difficulty of detecting secret price cuts)

is inversely related to s (i.e. size of the firm).

The implication of this proposition is that smaller

cartel members would offer commission rate discounts more

frequently than the larger firms. This result is consistent

with general cartel theory (an explanation of this

hypothesis is given in Chapter 4, section 4.1 below).

Turn now to examine the effect of N (number of firms) on incentives for secret price-cutting. Equation (3.15) cannot be used for this purpose because N does not appear explicitly in this equation. To overcome this problem, G (equation 3.14) is expressed as a proportion of mean market share in the industry (1/N) (instead of m as in equation (3.15)) and the following equation is obtained:

$$PGG = k.N.\{C.s.(1-s)\}^{1/2} \qquad (3.17)$$

The interpretation of PGG is similar to PG, i.e. it can be interpreted as the maximum proportion of listing contracts (expressed now as a proportion of average market share (1/N) instead of m) which can be gained by secret price-cutting. Differentiating equation (3.17) w.r.t. N and simplifying the expression, the following equation is obtained:

$$\partial PGG/\partial N = k.\{C.s.(1-s)\}^{1/2} \qquad (3.18)$$

From equation (3.18), where $\partial PGG/\partial N > 0$, the following proposition can be stated:

Proposition VI: The incentive to secretly price discount (or equivalently the difficulty of detecting price cut(s) varies directly with the number of firms in the industry. This proposition holds for both the ELS and MLS transactions. Again, this proposition is quite consistent with the received theory of the cartel. As discussed in section 3.5.1 above, an increase in the number of firms increases coordination costs (increases policing and enforcement costs

...cerbating the detection problem (see also Scherer ...); and Stigler (1964)). Given that most brokerage markets contain a large number of firms, and entry is relatively easy (see Bartlett (1981); Owen (1977); Rosenbluth (1976); Yinger (1981)), it can be argued that a brokerage cartel would face enormous coordinational difficulties, especially in the ELS market.

The previous discussion ignores the entry of new customers in the market each period. Note that entry of new customers may play a significant role in this market each period, many home owners enter this market for the first time to sell their homes. This factor may have strong influence on the discounting behaviour of brokers. Assume, for simplicity, that the number of new customers, C_n, per period is a constant proportion ω of C_0, i.e.

$$C_n = \omega.C_0; \quad 0 < \omega < 1 \tag{3.19}$$

where ω is the rate of entry of new customers. A broker will be able to attract, on average, m_n of these new customers:

$$m_n = C_n.s = \omega.C_0.s \tag{3.20}$$

with a variance

$$V_n = \omega.\{C_0.s.(1-s)\}^{1/2} \tag{3.21}$$

and the relevant expression for PG_n, the maximum undetected proportionate gain in the share of new customers attributable to discounting, is:

$$PG_n = k.\{\omega.C_o.s.(1-s)\}^{1/2}/(1+\omega).C_o.s \qquad\qquad .(3.22)$$

where the denominator in equation (3.22) represents the firm's market share after taking account of new customers.

Taking the partial derivative of equation (3.22) w.r.t. ω and simplifying the expression, the following result is obtained:

$$\partial PG_n/\partial\omega = K.\{(1-s)/C_o.s\}^{1/2}.\{(1-\omega)/2\omega^{1/2}.(1+\omega)^2 \qquad .(3.23)$$

Equation (3.23) is positive for $s<1$ and $\omega<1$. The following prediction can be derived:

Proposition VII: The incentive to secretly price-cut (or equivalently the difficulty of detecting price cuts) is positively related to the rate of entry of new customers ω per period of time (see also Stigler (1964)). Since it is less likely to result in the detection of cheating, brokers are more willing to offer discounts to attract new customers by offering discounts to them rather than to the current customers of rival firms. This result holds for both the ELS and the MLS market. Note that ω is relatively high for the brokerage industry *vis-a-vis* other industries. This is because the housing market is characterised by transactional infrequency. As a result, the turnover of home owners and buyers is large. Each period, many new listings appear in the market and a large proportion of old listings disappear from the market. Firms in this market thus have ample opportunities (and therefore incentives) to engage in secret discounting with less fear of being detected relative to

that in other collusive markets characterized by a smaller
rate of turnover of customers.

3.4.4 Conditions Facilitating Collusion in the Brokerage
Market

The above propositions indicate the existence of strong
incentives for secret price cutting by brokers. The
incentives would be stronger, the greater the excess of
collusive price over competitive costs. Given these
incentives, the following prediction can be made:

Proposition VIII: In a collusive brokerage market, a
non-trivial dispersion of actual transaction prices would
prevail because of possible secret price-cutting by brokers.
But, in contrast to Proposition I, price dispersion in this
case would be observed *below* the cartel determined
commission-rate (call it the "ceiling rate").

Although a brokerage cartel is potentially unstable,
certain factors contribute to its stability. The major
hypothesis is that the cartel difficulties can be overcome
(and hence the cartel stabilized) if the institutional
arrangements inherent in the MLS system are effectively used
by the brokerage trade association to detect and deter
cheating. The coordination and enforcement costs can be
significantly reduced in spite of a large number of firms,
relatively easy entry of firms, the presence of a high
proportion of small firms, and a high rate of turnover of
customers in this market.

With a view to analysing the stability question, one can begin by comparing the institutional arrangements underlying the ELS and MLS transaction processes. In the ELS market, the market share of individual members is generally unknown, as is the price charged by them. Thus, the detection, deterring, sharing and location problems are more difficult to solve. The existence of external firms accentuates this dilemma. Collusion in the ELS system falls under case III or case IV above (section 3.4.1) and, therefore, is less likely to be stable. One important implication of this result is that a high degree of price cutting would prevail if collusion is organised in the ELS system. It is mentioned here that collusion, nonetheless, can facilitated by the existence of a focal point (such as the 6 percent value provided by the pre-1976 commission rate).

In contrast to the ELS, it is argued that price collusion is better achieved and maintained in the MLS system, largely due to the institutional mechanisms, underlying the MLS process. In Chapter 2, it was mentioned that the MLS system has a greater potential for generating an informationally efficient transaction process than the ELS system. In this section, it is argued that the scope for the market application of this potential is greatly reduced when the MLS is used as a cartel coordinating device. As a matter of fact, the MLS provides firms with an excellent

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'It is to be recognized that salesmen and broker training may also promote adherence to the established rate.

institutional mechanism through which price coordination can be achieved and maintained at a reasonably low cost. To see this, recall the transaction process underlying the MLS system. Under the MLS, the listing broker sets the commission rate and also specifies the "split" or the commission sharing parameter[72] (usually 50-50).[73] Moreover, under current MLS practice he must allow all participating members access to the information on commission rate and "split", and other listing information through the MLS listing catalogue.

Other listing information includes various characteristics of the house, the list (asking) price of the house and the identity of the listing broker. In the Edmonton brokerage market, for example, the information on the commission rate and the "split" is recorded under the "CODE" in the listing catalogue. In addition, when the house is sold, the final sale price of the house and the identity of the selling broker (which may be different than the listing broker) are also published in the MLS sales catalogue. The information on commission rates and market shares facilitates the solution of the detection, deterring, sharing and location problems and thus facilitates cartel stability. In terms of earlier categorisation, the MLS market falls under case I where collusion is likely to be

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[72]It would be interesting to find out from a micro model what factors determine the optimal value of β from the point of view of the listing (selling) broker and how likely it is to be 50-50. This issue will not be pursued here.
[73]The listing broker pays the MLS fee from his share of commission on a pre-specified basis.

'service' means a service of any description whether
industrial, trade, professional or otherwise. The brokerage
industry, thus, clearly falls within the jurisdiction of the
Act. Brokerage industry behaviour might contravene the Act
in the following areas:

1. Fixing of commission rates and commission sharing
parameters as a form of conspiracy;

2. Conscious parallelism and joint monopolisation by ERB
members ;

3. Monopoly and mergers on the part of the largest firms;

4. Price discrimination; and

5. The MLS as a form of market restriction.

6.3.1 Fixing commission rates and commission sharing
parameters

Historically, the commission rate (CR) and the
commission sharing parameter, β, were fixed (by overt
collusion) in Canada until 1976 when the Act was amended
Available evidence suggests that even today, nine years
after the Act was amended, the brokerage industry still
appears to adhere to the traditional fixed commission rate
and commission sharing parameter, β. Section 32(1)(b) of the
Act now applies directly to price fixing in this industry.
Its application has been somewhat limited. In particular,
its application, like that of much of Canadian competition
policy, has been rendered ineffective because of the use of

such words'ᶦ· as "unduly" or "beyond reasonable doubt" in
the legislation.

Although the above two factors may limit .the
application of the legislation to only the most blatant
cases of price fixing, the effectiveness of competition
policy in this case'would depend greatly on the attitude of
the court in interpreting such words as 'unduly', 'detriment
to public interest' and 'beyond a reasonable doubt'. Most
economists agree that conspiracy to fix prices does not
serve any interest other than those of the producers.'ᶦᶦ The
ECC Report also suggested strong measures in dealing with
price fixing in all service industries and it recommends the
treatment of all price fixing as *per se*'ᶦ· rather than *rule
of reason* offences.'ᶦ·

It is not surprising that this legislation has
generated serious opposition from the brokerage industry. In
three separate Reports (1970, 1974, and 1975a), the CREA
went so far as to argue that fixed schedules were in the
public interest. The 1975 Report reads as follows:

...that is that fixed commission rates were intended

'ᶦ· For a detailed discussion of the implications of these
words involving many court cases in Canada, see Green
(1980), pp 168-176.
'ᶦ'Green (1980, p 176), for example, argues that all
collective attempts to lessen competition should be
thwarted, not just those which are 'undue'.
'ᶦ· The ECC Report (1969), pp 147-48). The only exception
suggested is that related to trade union activities, the
B.C. fishermen's aggreement with their customers, and other
activities which are clearly subject to alternate forms of
social control.
'ᶦ'Price fixing is considered as a *per se* offence in the
U.S.A., i.e. undueness need not be demonstrated.

to set a reasonable standard and a 'bench mark' of a

proper tariff to eliminate predatory practices on

the one hand and price gouging of the public on the

other.'[40]

The 1974 Report states that:

...it is considered in the public interest that the

consumer should be able to have some common point of

reference as to the relative costs of service, prior

to deciding whether to employ the services of a

broker, and/or to utilise the facilities of the MLS,

where such facilities exist.'[41]

This argument is not tenable because the public would

obviously benefit from lower fees, or at least the choice

among a range of fees and service qualities, established by

competition rather than the current high rate established by

collusion. Second, it is difficult to understand why a

competitively determined rate would not serve just as well

as a 'point of reference' for the home seller as to the

relative cost of the service prior to employing a broker. In

pressing for a common reference point, the CREA argues that:

...while specific real estate statistics are as

meagre in the United States of America, as they are

in Canada, the trend has been unmistakenly that when

the common reference point of real estate commission

was removed, the actual cost of the service to the

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[40] CREA Report (1975a), p 9).
[41] CREA Report (1974), p 11.

. public tended to increase, rather than decline.'⁴²

This argument cannot be accepted either because: first, the report itself recognises that the claim is based on insufficient data; second, it does not give any statistics or references whatsoever in support of its arguments; third, it does not justify why and under what conditions the rate tended to rise; and fourth, since the brokerage fee is expressed as a percentage of house prices, it does not recognise that the fixed schedule would indicate that the gross commission increases in the same proportion as the inflation of housing prices (although brokerage costs may not rise in the same proportion). The CREA also argues that:

> ... where there is less competitive activity on the subject of relative rates and charges for service, the competition is more intense and more satisfactory to the consumer, in the areas of the level and degree of the service itself.'⁴³

This argument is also based on improper analysis. First, it implicitly assumes that competition on the basis of 'service quality' is more beneficial to the public than that based on 'price' competition; it is difficult to justify on *a priori* grounds that quality competition is always more beneficial. Second, quality competition in the brokerage industry may have taken the form of wasteful competition in soliciting inframarginal listings already

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'⁴²CREA Report (1974), p 11.
'⁴³CREA Report (1974), p 11.

available for sale in the market (discussed in Chapters 3 and 5). Third, if the rate is already fixed, it does not allow the consumer to choose the optimum price-quality combination he wants to purchase.[144]

It appears that CREA arguments in favour of price fixing are less than fully convincing. In any event, perhaps because of a stronger position taken by the Consumer and Corporate Affairs of Canada and the Canadian Parliament with respect to price fixing and conspiracies, the CREA, in its general meeting on April 18, 1974, adopted a resolution recommending to all its affiliated local boards the removal of any reference to fixed commissions.[145] Note that although the CREA has recommended the abandonment of fixed commission rates, commission rates have changed little (as discussed in Chapter 4) since then. As a matter of fact, price fixing appears to continue in implicit form in spite of this recommendation. There is evidence that some boards have tended to use a 'suggested rate' instead of a 'fixed rate'. This suggested rate is nothing but the previously fixed rate under a different name.[146]

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[144]For example, a home owner who wants a quicker sale may be willing to pay a higher fee than another home owner.
[145]CREA Report (1975a), p 10).
[146]If a broker were not to follow these rates, he might face expulsion from membership (in the case of fixed rates under explicit/formal collusion) or his listings might be boycotted by other members (in the case of suggested rates under implicit/informal collusion).

6.3.2 Conscious Parallelism and Joint Monopolization

It is shown in the previous subsection that section 32(1)(b) of the Act can be applied against explicit (written) agreements. But if agreements take the form of an implicit understanding among brokers to follow a parallel pricing policy, for example following a 'suggested', or 'floating' rate or any other rate which acts as a 'focal point' of oligopolistic coordination, the present Act becomes difficult to apply. Its application would depend entirely on the willingness of the courts '*' to interpret such parallel behaviour as an evidence of the existence of a conspiracy or agreement. Of course, charges against such behaviour can be laid under section 32(1)(c) or section 32(1)(d) of the Act that the defendants had conspired or agreed or arranged to lessen competition 'unduly'.

But such charges, given existing court attitudes and interpretation, in general, are likely to be much less effective than those involving explicit agreements. As a result, many implicit agreements, including any in the brokerage industry, have yet to be challenged in the courts.'*'. This poses a serious problem in the case of the brokerage industry because, in many instances, although local boards no longer fix the commission rate explicitly,

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.'*'Various court cases involving such behaviour in Canada have resulted in only a few convictions. For details, see Green (1980), pp 176-179.

'*' Green (1980, 179), for example, argues that: 'Conscious parallelism as such does not violate section 32(1). But there is some danger that the concept may become a widely used shield to protect otherwise prohibited conduct of oligopolists.

brokers may have continued to practice price fixing in
implicit forms (perhaps with the previously fixed rate as
the focal point of coordination).

6.3.3 Monopoly and Mergers

Section 33 of the Act deals with monopoly and mergers.
Like that governing price fixing, this section is likely to
be relatively ineffective because these offences have to be
proven 'beyond reasonable doubt'; and the situation must be
one in which one or more persons must control the relevant
market either 'substantially or completely', where these
words may be interpreted as requiring the virtual
elimination of competition; and they deal with concentration
at a point in time, but may not pay much attention to the
trends in concentration.

The legislation dealing with mergers is of special
interest in view of the fact that the level of concentration
in this industry has been steadily increasing (as discussed
in Chapter 2). The recent rise in concentration (especially
since 1976) is attributed to mergers and bankruptcies
involving several medium to large sized firms. It is argued
in Chapter 4 that the 1976 Act's prohibitions on overt
collusion might have encouraged (at least partially and
inadvertently) merger activity as well as takeovers of
company names/listings of bankrupt/insolvent companies.

6.3.4 Price Discrimination

Section 34(1)(a) of the Act deals with price discrimination. It defines price discrimination as à *per se* offence (i.e. detriment need not be shown). Price discrimination (from an economic point of view) may have been implicitly practised in the brokerage industry (and in many other professional services such as medicine or law) all over Canada and the United States for a long period of time. The legislation in the Act dealing with price discrimination in Canada is considered as an ineffective piece of legislation for the following reasons: first, it refers to 'purchase of articles' and that 'article' by definition does not include services. So, the substitution of the word 'article' for 'product' in this section excludes all service industries, including the brokerage industry, from the prohibitions on price discrimination. This goes against the strong recommendations of the ECC Report.[149] Therefore, the existing legislation needs modification to include price discrimination in the service sector in general and the brokerage industry in particular under its prohibitions.

If section 34(1)(a) of the Act were modified by replacing the word 'product' for 'article', the legislation would apply to all service industries. But the legislation, as it now stands, would still be extremely ineffective[150]

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[149] ECC Report (1969), p 146.
[150] For a detailed discussion and criticisms of the existing legislation on price discrimination in Canada, see Nozick (1976) and Green (1980, ch. 7)

for the following additional reasons. First, since the
legislation is carried out through the threat of criminal
sanctions, the Crown has to prove the offence 'beyond a
reasonable doubt'. Second, the discrimination has to be
between purchasers who are in competition with each other.
In the case of the brokerage industry, homeowners selling
their homes through a broker are not unambiguously in
competition with one another. Since homeowners (sellers) are
not usually producers of homes, they may not be viewed by
the courts as being in direct competition with one another
in the sale of their homes.[151] Property sales/purchases
involving home builders or developers would be more
prosecutable since competition is evident. Third, the
product or service purchased must be of 'like quality and
quantity'. In the case of brokerage services, it would be
difficult to rigorously determine if services were of 'like
quality and quantity'.[152] If the brokerage services do not
satisfy this qualification, the existing legislation would
be inapplicable.

Additional difficulties may arise because of the
difference between the legal and economic definitions of
price discrimination. For example, the courts may not

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[151] Note that two home owners listing their homes for sale
even in the same market cannot strictly be considered as
involved in direct competition with each other in the sense
that any one might go out of business from the action (eg.
quicker sale) of the other party.
[152] This problem would, of course, be less serious for MLS
sales because brokerage services in these cases are more
standardized than ELS sales. Even in MLS sales, service
quality can differ as discussed in Chapter 3.

consider the uniform fixed percentage rate (independent of

house prices) as legally discriminatory although it might be

discriminatory from an economic point of view (as discussed

in Chapter 3). Paradoxically the courts might construe the

lower marginal rate of .3 percent (applied to property value

in excess of $100,000) as legally discriminatory even though

such a declining two-block pricing scheme might reduce the

severity of price discrimination (from an economic view

point as discussed in Chapter 3). On the other hand, by so

doing they would discourage brokers from giving commission

rate rate discounts on more expensive properties.

It is to be noted that price discrimination is not

necessarily harmful.[13] Therefore, this practice should be

dealt with on a case by case basis and as such should be

considered as a *rule of reason* rather than a *per se* or

criminal offence. But one serious problem with this approach

is that it would demand large administrative, research and

time costs. These costs would be reduced to a large extent

by dealing with price discrimination under civil law where

lower standards of proof are required.

6.3.5 The MLS and Related Market Restrictions

Charges can also be laid against the participants in a

system of Multiple Listing Services (MLS) under various

sections of the Act. They are as follows: (i) Participation

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[13] The cases where price discrimination can be beneficial
(eg. first or second degree (third degree in some cases)
price discrimination or unsystematic price discrimination)
should not be prohibited.

as a listing agent in the MLS typically requires prior
membership[154] in the local real estate board, where both
institutions can be challenged on the ground that they
constitute combinations in restraint of trade under section
32 of the Act. (ii) Educational requirements established by
the local (and provincial) boards on top of provincial
government requirements to obtain a license can be
interpreted as erecting further barriers to entry of a
person into a profession in restraint of trade and it can be
challenged under sections 32(1) (detailed above) and 32(3)
of the Act.[155] (iii) Some applications of a "code of ethics"
and "standards of business practices" by the real estate
boards to discipline members (eg. for competitive behaviour
such as reducing commission rates) may be challenged under
section 32(1) of the Act as a combination in restraint of
trade.

As expected, serious concern was raised by the members
of the industry, especially the CREA, against the Act as it
might apply to such practices of the MLS. The CREA argues
these practices are designed to serve the 'public interest'
and, therefore, should be exempted from the prohibitions of
the Act.[156] The next chapter discusses various policies for
restructuring the MLS practices/institutions in order to
achieve a more competitive brokerage market.

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[154]This practice is followed by local boards in all the
provinces in Canada.
[155]This can be challenged even though provincial law may
allow local boards to do so.
[156]The CREA Report (1975a), p 14.

6.4 SOME COURT CASES

In 1974, a case[57] was heard in the Supreme Court of British Columbia, in which the existence of the MLS and some of its restrictive practices were challenged on the basis of the 'Societies Act' of British Columbia. In this case, the defendant, the Vancouver Real Estate Board, was acquitted of the charges on the ground that the MLS and its various practices were not found to be restrictive and that the MLS was not operated to the detriment of 'public interest'.

A few comments on this case is in order. First, the case was challenged on the ground of violating the Societies Act of the province of British Columbia, not on the basis of the 1976 Combines Investigation Act. The conviction of the defendant society might be possible if it were challenged on the basis of the latter Act because the former does not deal with price fixing, and that the latter deals with various market restrictions in stronger terms than the former. Second, given that membership in the Board was open to all licensed brokers, the judge regarded that the MLS practices (eg. higher educational standards on top of provincial requirements and various explusionary procedures) were in the 'public interest' rather than to its detriment. While a few of the practices (eg. to maintain a code of conduct) may serve public interest, others (eg. entry restrictions) can be used to restrain trade and discipline members against

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[57] The relevant sections of the verdict of the justice MacFarlane of the Supreme Court of British Columbia is reported in Appendix 'H', pp 63-67 of the CREA Report (1975a).

price cutting. For example, the threat of expulsion of a
broker from membership would mean denial to him of access to
MLS listings (which constitute a very large proportion of
housing transactions) and thus, have the potential of
imposing severe financial hardship on the broker and even
threaten his existence (see also Owen (1977)). Third, the
plaintiffs also failed to convince the court that the MLS
was operated as a 'restraint of trade' affecting non-member
brokers adversely. It was indicated in Chapter 2 that the
increasingly greater use of the MLS system may have the
effect of driving the non-members out of business unless
they were to join[158] the defendant society.[159] In addition,
it can also be shown (from the discussion in Chapter 3) that
the MLS institutions/practices can be successfully utilised
to enhance price coordination (hence reduce competition) to
the potential detriment of the 'public interest'. The role
of public policy to regulate the MLS process is discussed in
the next chapter.

　　While the MLS practises were challenged, no cases of
price-fixing have been brought before the courts for
prosecution in Canada. In the United States, on the other
hand, the existence and operation of the MLS has not yet
been challenged in the court, but there have been some
successful prosecutions against some local boards practising

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[158]A broker or salesmen can join the local board without
much difficulty so long as they abide by the board
regulations.
[159] see also G. Rosenbluth (1976), p 33.

overt collusion in fixing[100] commission rates. For example, as Bartlett (1981, p 83) reports, in the case involving the U.S. vs. National Association of Real Estate Boards *et. al.*, in 1950, the practice of price fixing was declared to be a violation of the Sherman Act.

The justice department has also obtained several orders against real estate organisations since 1970, including at least two criminal convictions. There were also several state-initiated actions and a large number of privately initiated antitrust suits during the 1970's. For example, both Rochester, N.Y., and Northern Virginia have been successful in prosecuting the defendants for price fixing.[101] As Bartlett (1981, p 83) noted, in spite of penalties for price fixing convictions (fines), the brokerage commission rates in many local markets have remained virtually the same as before. This is not surprising given that such prosecutions were not accompanied by the sort of structural changes in the MLS system to be discussed in the next chapter.

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[100] In many local markets in the U.S.A., as in Canada, overt price fixing has been practised for decades, see for example, Bartlett (1981), Olson (1958), and Owen (1977) for more details.
[101] For details, see Bartlett (1981), Olson (1958), and Owen (1977).

7. SUMMARY, CONCLUSIONS AND POLICY RECOMMENDATIONS

7.1 MAJOR FINDINGS

- The objective of this dissertation was to undertake a comprehensive theoretical and empirical analysis of the state of competition in a typical local market of the Canadian real estate brokerage industry. The standard structure-conduct-performance paradigm was used as the underlying framework with special emphasis given to the study of brokerage behaviour and the efficiency of transactions in the market where real properties are traded. The analysis of structure dealt with the level of and trends in concentration, the sources of change in concentration, mergers and the pattern of entry. Regarding brokerage conduct, the study focussed on the nature and degree of price (eg., the level and structure of commissions) and non-price (eg., advertising) rivalry. It also examined the role and effectiveness of Canadian competition policy in stimulating effective competition and attendant behaviour and performance.

The brokerage industry is a service industry providing agency services/information to current property owners and potential buyers. Chapter 2 discussed the nature and importance of the industry, developed an analytical and conceptual framework to formalise the behaviour of different participants in the transaction process, and rationalized the existence of the brokerage system in general and the MLS

process in particular. It argued that the existence of the
brokerage system is attributable to the fact that
information in the housing market is costly and that it is
often incomplete. With respect to the relative efficiency of
the MLS process *vis-a-vis* the ELS process, it is argued that
the former provides superior informational efficiency (eg.
economies of scale in information processing), avoids
inefficiency due to the market segmentation associated with
the ELS process, significantly reduces the search costs of
buyers and reduces the incentives of brokers to distort/bias
information.

As background information, this chapter also presented
results on the level of and trends in concentration and the
sources of change in concentration. Although the number of
firms is large and entry is relatively easy, the results
suggest that the industry is dominated by a few large firms,
that the level of concentration (however measured) is
moderately high and has been increasing at a relatively
rapid rate since the 1976 Combines Investigation Act came
into effect. The rapid rise in concentration is mostly
explained by a series of mergers and bankruptcies involving
several intermediate and large sized firms. The extension of
the law to prohibit price fixing (along with the cyclical
changes in the housing market) may have inadvertently
encouraged firms to merge as a means of achieving an
internally stable, readily coordinated market structure. It
is also observed that the larger firms gained market shares

from smaller firms and they are enjoying a greater degree of market share stability compared to the earlier periods. The above structural factors provide some indication about the feasibility of collusion in this market.

In Chapter 3, a model of brokerage behaviour was developed within the framework of profit maximisation. Two alternative formulations were presented, one describing brokerage behaviour within the framework of pure/monopolistic competition and the other within the framework of collusive oligopoly. The predictions of the two formulations were then compared and evaluated in the light of observed data in later chapters. These models were used to generate predictions about the level and structure of commissions, price discrimination, stability of the commission sharing arrangements, substantial non-price rivalry, and the continuing high turnover of brokers and salesmen in an industry with persistent excess capacity (as reflected in a low transactions/salesperson ratio). It was predicted that the fixing of the commission rate above the competitive rate (through successful oligopolistic coordination) encouraged excessive entry and allowed inefficient firms to survive and maintain excess capacity.

In this industry, oligopolistic coordination is arguably successful in spite of the fact that the industry is characterised by a large number of firms, relatively low barriers to entry, and persistent excess capacity. In particular, the conditions for successful coordination are

created by the institutional arrangements inherent in and various restrictive practices associated with the MLS process. The institutional arrangements facilitating coordination include shared property rights and the associated commission sharing arrangements (which reduce but do not ⌐ ate the incentives for competition); the practice ∪_ the listing broker's determining both his own commission and that of the selling broker; and the publication of the commission rate (which helps detection of price cutting), the commission sharing parameter and the identity of the listing and the selling broker (which implicitly discloses the market shares of all firms - such publication is useful to the detection as well as deterrence of discounting) in the MLS listing and sales catalogues.

The most restrictive practices of the MLS are the denial of listing privileges and catalogue access to non-members[1,2] and other participants (eg. homeowners and buyers). Related restrictions attached to Board participation include membership regulations specifying various expulsionary and disciplinary procedures and additional educational requirements (on top of provincial licensing requirements). Two key related implications of the collusive model are that one would observe less frequent commission discounting of MLS transactions than ELS transactions and less frequent discounting by large firms (price leaders) than small firms.

[1,2] In Edmonton, non-members are only allowed to negotiate sale of MLS listings of member firms.

These and other predictions related to brokerage pricing behaviour were subjected to empirical testing in Chapter 4. The results indicate that most of the predictions of the collusive model are in general borne out. Following the pre-1976 era of formal collusion, the brokerage market appears to have been characterized by tacit collusion. As a matter of fact, the 1976 Act appears to have done very little to promote price competition (eg. the level and structure of commissions have not substantially changed in response to the legal promotion of competition). With respect to pricing behaviour, it is observed that the MLS commission rate exceeds the ELS rate by one percentage point; that commission rate discounts are less frequent in MLS transactions than the ELS transactions, and that large firms are less likely to discount than small firms. Official discounting of MLS transactions was absent prior to the 1976 period. A significant amount of discounting of both MLS and ELS transactions was observed in 1979 (at least partly due to the short-run effect of the 1976 changes to the Combines Act). However, discounting appears to have virtually disappeared by 1983. This might be partly explained by the onset of depression in the housing market (after 1980), assuming weakly defensible counter-cyclical pricing behaviour (Bartlett (1981)). It seems more obvious, however, that brokers might have reestablished successful tacit coordination in an increasingly concentrated market and with the aid of the MLS system.

The results also indicate that the commission sharing parameter has remained unchanged over time; the listing broker sets the commission for the selling broker; possible implicit price discrimination still persists; brokers still follow a single break point in applying a marginal commission rate of 3% and this rate has remained unchanged over time; and that excess capacity still persists in view of low ratios of properties sold per salesperson. In addition, it is also observed that competition policy (together with cyclical changes in the upstream housing market), by inadvertently encouraging mergers, may have contributed further to creating a readily coordinated, internally stable, market structure. There is thus "enough" empirical evidence (to correspond to the theoretical predictions) to make it hazardous to reject the hypothesis of collusion in the brokerage industry. The policy implications of these results are discussed in the next section.

Chapter 5 discussed the role and deter ine f advertising and other non-price competition i : okerage market. The theoretical and empirical resulcs in chapter provide some indication that the cligopclisc market structure and the related market power to elace commission rates lead to high advertising and non-price rivalry, especially in the persuasive solicitation of listings. The MLS process has likely encouraged brokers to substitute intensive non-price rivalry for price rivalry,

especially in order to attract listings from the given stock

of listings. It is concluded that although an intensive

advertising campaign (including selling efforts) may improve

service quality (eg. more informational ads in newspapers

achieving better/quicker matches), a part of it may be no

more than a response to the advertising of other agents

(defensive) and even socially undesirable.

The existence of a "threshold" effect in advertising

and the "economies of scope" in joint advertising for

brokerage and financial services were also supported by the

results. Some reduction in advertising intensity was also

observed for the national firms, firms which participate

with the Century 21 group, and firms which maintain a larger

number of office locations. While increasing efficiency and

improving service quality, the presence of these economies

along with the domination of the mass media by the dominant

firms may have helped to segment the brokerage market into a

large/branded/advertised/national group and a

small/unbranded/unadvertised/regional group. These results

point to the need for stronger enforcement of public

policies to encourage price competition in order to both

directly achieve allocative/output efficiency and to

indirectly reduce the degree of non-optimal

advertising/non-price rivalry in this market.

Chapter 6 provided a critical examination of the

Canadian competition policy as it applies to this market. It

is argued that various sections of the 1976 Combines

Investigation Act could potentially be applied to deal with mergers, price fixing (formal or informal), price discrimination and various restrictive MLS practices. The limitations of the potential application of various sections of the Act were also discussed.

7.2 POLICY RECOMMENDATIONS

It is generally argued that public policy can play a significant role in generating effective competition and discouraging undesirable behaviour in an industry. A number of recent studies of other industries in the United States (Feinberg, 1980; Block *et. al.*, 1981; and Garbade *et. al.*, 1982) have found that the previous indictment of the firm, in some cases the previous indictments of other firms in the industry, and the magnitude of any financial penalties upon conviction have reduced mark-ups (by about 2.4, 2.5, and 4.6 percent respectively according to Block *et. al.*.. They also indicate a subsequent reduction in stock value (by about 7.5 percent according to Garbade *et. al.*) of the penalized firms. In addition, Porter (1983, p 218) reports that since the abolition of fixed commissions in the NYSE from 1975, commissions on large blocks of securities had declined almost 50 percent (48 percent for institutional sales and 18 percent on sales to individuals). .

This study, therefore, argues that active measures such as investigations, indictments, convictions, penalties and injunctions for tacit collusion, mergers, and price

discrimination are needed in order to stimulate competition
and changes in commission rates. However, they must be
accompanied by measures aimed at easing other restrictive
practices in order to be successful in encouraging effective
competition in this market.'"' Given the nature of the
brokerage cartel (eg. its effective use of the MLS
institutions/practices), fundamental changes in the current
operation of the MLS are needed.'""

This is readily seen. In the United States, commission
rates and hence the degree of collusion have not been
reduced in spite of many successful anti-trust prosecutions
of local brokerage cartels for price-fixing/conspiracy (for
details, see Bartlett (1981) and Owen (1977)). The empirical
analysis in Chapter 4 also suggested that, in Canada, the
mere sectoral extension of the 1976 Combines Investigation
Act has done very little in encouraging price competition
and discouraging various undesirable aspects of conduct and
performance. The failure of the Act is evident from the
dearth of discounting, the persistence of price
discrimination, the stability of commission sharing
arrangements, and continuing high levels of excess capacity
and attendent non-price competition/rivalry.

'"' Since the initiative for active measures is unlikely to
come from an individual home owner/buyer (because the
potential gain accruing to him from a successful anti-trust
suit may not compensate for the anticipated costs (eg. time
cost and lawyer's fees)), the initiative should come from
the government (eg. Consumer and Corporate Affairs or the
Restrictive Trade Practices Commission).
'""This is because the local brokerage cartels may have been
greatly stabilized (both in Canada and the United States) by
the successful use of MLS institutions/practices.

Indictments for tacit collusion may draw upon the
following evidence: the commission rate remaining stable at
the traditional compliance levels (7 and 6 percent
respectively for MLS and ELS transactions) irrespective of
cyclical changes in the upstream housing market; use of a
uniform percentage commission structure independent of house
prices/quality of brokerage services provided; the
publication of these commission rates and the "split" as a
means of providing focal points for oligopolistic
coordination and detecting (and deterring) formal
discounting; the publication of the identity of the selling
broker as a means of monitoring changes in market share and
related discounting behaviour; the infrequency of
discounting, especially in recent years and by large firms;
the possible price discrimination implicit in the uniform
percentage commission rate (except for the $100,000 break
point) over a wide range of property values; the continuing
use of this break point to determine the marginal commission
rate of 3 percent on more expensive properties; the marginal
rate of 3 percent remaining at the same level over a long
period of time; the continuing high levels of excess
capacity/non-price rivalry; and high and increasing levels
of concentration (due largely to mergers/bankruptcies).
Penalties may include large fines[45]; class action

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[45]Note that small fines may not have any noticeable effect
in discouraging anti-competitive behaviour because expected
benefits from collusion would outweigh expected cost
(arising from any small fines levied upon them if convicted)
of such behaviour

settlements; injunctions on the publication of commission rates and the identity of selling (listing) broker; and other restrictions discussed below.

Indictments for mergers (especially involving large firms) should recognize the high and increasing levels of industry concentration; the large aggregate market share involved in recent takeovers of the assets/listings of solvent/insolvent companies (which accounts for almost all the recent increase in industry concentration) and the tendency of large nationally-based firms to participate in these mergers and takeovers of company names/listings. Penalties might include fines, injunction on the takeover of actual listings, assets or company names, and restrictions on the establishment of new branch offices by larger brokers.

Indictments for the market restrictions inherent in the MLS might focus on the refusal to sell offence of Section 31.2 of the Act. Related recommendations for structural change in the operation of MLS might include the following. (i) The provision that all brokers (including non-members) and homeowners (without employing a broker as an intermediary[**]) be allowed to list their properties in the MLS listing catalogue[**'] for an initial and a monthly fee (with home owners advised but not required to obtain an independent appraisal of their property prior to

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[**] Currently, a home owner cannot list his property with the MLS without/hiring a member broker as his listing agent.
[**'] Similar measures (eg. allowing access to non-members) were suggested by Yinger (1981) and Rosenbluth (1976).

self-listing). Potential buyers likewise should be allowed

to purchase the MLS listing catalogue at a reasonable fee

and then deal directly with the listing broker or the

self-listed home owner. (ii) The listing broker should be

permitted to set his own but not the selling brokers'

commission rate. If selling brokers are allowed to negotiate

their own commissions, a greater variation (due to price

competition) and innovation in the commission structure

might be observed.'** For example, the selling broker might

be willing to accept a lower commission rate if he can

obtain a buyer quickly. Similarly, a listing broker need not

disclose his commission to the selling broker and thus

remain undetected from possible price cutting. (iii)

Injunctions on the publication of the commission rate and

the "split" in the MLS catalogue. This would increase

brokerage coordination costs (especially for detection and

deterrence) and thus would encourage a greater discounting

frequency.

These measures would not only increase price

competition among brokers but also have the potential of

reducing communication costs associated with several, at·

times unnecessary, linkages in the MLS transaction

process'** and at the same time preserve the superior

'** One should, of course, bear in mind that the potential
benefit (in terms of more price variation) from this measure
may partially be offset by the increased transaction costs
(due to seperate negotiation of listing and selling brokers'
commission rates).

'**'The communication costs can be reduced, for example, if a
buyer obtains the MLS listings at a fee and then contacts
the listing broker directly. A similar service' is currently

informational efficiency of the MLS system.

Additional measures may include the requirement that disciplinary/expulsionary procedures not be applied to members for price discounting and ethical non-price competition. Educational requirements (on top of provincial requirements) established by boards should be allowed to the extent that they improve service quality; however, they should not be allowed to restrict entry. In some cases, higher educational requirement should be suggestive but not mandatory. The 'code of ethics' and 'standards of business practices' should likewise be allowed only to the extent that they are used to maintain ethical standards and efficient performance but not to restrict entry and discipline members for normal competition. The study also recognises the need for greater federal-provincial cooperation (in cooperation with the real estate boards/associations) in establishing Canada-wide uniform educational requirements and ethical standards of business practices.

Although the previous recommendations do not suggest the dissolution of the local real estate boards and the dismantling of the MLS *per se*, they do however argue for stronger enforcement of the existing legislation to discourage price fixing, mergers and various restrictive

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''(cont'd) provided by a new firm, Kumputermatch, in Edmonton for a fee of 300 dollars. It is to be noted that this firm is viable and that, with changing technology, computerised listings can be easily produced and distributed at reasonable cost.

practices; and they do suggest fundamental changes in the MLS rules of operation. In addition to increasing competition, the latter measures are expected to increase the informational advantages of the MLS system.

As already mentioned, substantial economies of scale in information processing may be associated with the use of the MLS process. In such a situation, one might consider these as a source of market failure and therefore might recommend direct public intervention in some form (eg. to replace the MLS system with some other institutional arrangement (rather than an unqualified dismantling of the MLS) or to recommend government regulation of the commission rate[170]). For example, as Rosenbluth (1076, p 77) has suggested, the provincial governme .. or even the municipalities can establish and : ·rate a centralised (computerised) system such as the MLS wi.. open access to all interested parties.[171] This would preserve the informational advantages of the MLS without necessarily incurring the costs associated with the various restrictive provisions attached to board membership. It might reduce but would not eliminate

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[170] The problem with this approach is that such a policy has the potential of transforming a private cartel into a public cartel as has occured under the government regulation in agriculture.

[171] Instead of replacing it, one may argue in favour of organizing a public MLS as a competing institution to the current MLS. But the existence of two or more such independent MLS-type organizations would segment the market and thus reduce the informational advantages of the MLS. Market may become segmented because some home owners or buyers may not be willing or able to contact more than one MLS. Those contacting more than one MLS would be paying higher transaction costs (eg. search costs as well as costs of signing seperate contracts with different institutions).

the level of formal brokerage activity since many home
owners and buyers would still want to use the services of
the broker in arranging a match.[172]

But a serious limitation of this approach would be that
a publicly owned and operated institution may display some
disadvantages of bureaucratic inefficiency and unnecessary
delays. In any case, this approach might be considered only
if the structural remedies mentioned earlier (including
stronger enforcement of several of the more important
sections of the 1976 Act such as those pertaining to
conspiracy, merger, monopoly, and market restrictions and
with the application of a variety of penalties and
injunctions) were to fail to generate effective competition
in the Edmonton and other brokerage markets in Canada.

7.3 LIMITATIONS OF THE STUDY

A discussion of the limitations of the study is in
order. This study was concerned mainly with the brokerage
market. It did not examine other major segments of the real
estate industry (eg. building and development, speculation
in real estate, and financial and other related services).
It thus assumes away possible interactions between the
brokerage market and the other segments of the real estate
industry. The omission of these other segments from
discussion would be inadvisable if the interrelations and
feedbacks were quite large.

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[172]These home owners and buyers presumably have a higher
opportunity cost of own time.

Second, housing is an expensive commodity and its purchase is an investment decision. Therefore the potential gains from search may be quite large. Although this study recognises the importance of search and its implications, the search process of homeowners and buyers are not elaborated and explicitly incorporated in the model.

Third, in Chapter 5, a single equation regression model of advertising intensity was specified and estimated. Although the commission rate variable can be considered as exogenous, advertising intensity and the market share variables may be jointly determined. As a result, the reported regression coefficients may suffer from simultaneity bias. It is hoped that such biases are not very serious. Fourth, the explanatory power of the estimated regression equations in Chapter 5 is not very high, indicating that some important explanatory variables may have been omitted (eg. advertising reactions of rivals in response to own advertising and *vice versa* from the set of regressors (or there may be a lot of randomness in the data)). Fifth, some estimation problems were encountered due to the presence of multicollinearity.[73]

Sixth, in Chapter 5, the presence of significant economies of scale and economies of scope in advertising was observed but this study failed to fully identify the sources of these economies. It also failed to determine the extent to which these economies are pecuniary rather than

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[73]Multicollinearity may result in unreliable regression esatimates.

technical. Seventh, the data collected by the questionnaire
survey may suffer from various biases associated with
under-representation of small and non-member firms and
inaccuracy of reporting by the respondents. Finally, since
the various conclusions were drawn from the data collected
from the Edmonton brokerage market, and although it is
expected that other local brokerage markets would display
similar patterns, generalization of the findings requires
additional research on other local markets.

7.4 SCOPE FOR FUTURE RESEARCH

The limitations of the study would clearly indicate the
direction in which future research in this area be
conducted. First, interrelationships between/among different
segments of the real estate industry can be studied.
Emphasis may be placed on the implications of these linkages
for the structure, conduct and performance of the brokerage
market. Second, similar but independent studies can be
conducted to examine the structure, conduct and performance
of other segments of the real estate industry. These
segments include the following: the real estate building and
development industry; real estate speculation; and financing
and related services.

Third, in building a model of the real estate brokerage
industry, future studies might consider modelling the search
process of home buyers and sellers. This might provide
richer insights and predictions concerning the behaviour of

the different participants in this market. Fourth, other

studies might develop a more rigorous model which would

treat the brokerage market and the housing market in an

integrated fashion. This model might yield better

predictions about the behaviour of the firms in the

brokerage market. It would also allow the researcher to

explore the effects of brokerage behaviour on house prices

and efficiency of transactions in the housing market (eg.

the amount of time or units of information required to

complete a transaction). Fifth, additional research would be

needed to identify the sources of the economies of scale in

large scale advertising and economies of scope in joint

advertising.

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8. APPENDIX A

8.1 Degree of market share instability

The market shares and the ranks of the top 20 firms for selected years from 1971 to 1981 are given in Table A.1. An empty cell in this table indicates either that the firm was not in business in that year (the firm was not yet in or went out of business) or that its rank dropped below the 20th for that year.

8.2 Market share instability and price competition

From the analysis in Chapter 2, the following are observed: (i) considerable instability in the market share of the top 20 firms; (ii) considerable changes in the ranks of those firms; (iii) and considerable changes in the composition of the dominant group (with increased dominance of Lepage). Does the above evidence suggest that there is considerable price competition in the brokerage market? One may argue that the firms which are gaining market shares are those which offer price (commission rate) rebates exceeding those of other firms. Thus an inverse relationship between changes in market share and price would be observed if price competition existed. Another variable which might affect changes in market share is the advertising intensity of the firm (ADSR, the advertising sales ratio).

Table A.2 gives the changes in market share (DMSS) of the top 20 firms in 1981. The DMSS of these firms in 1981

TABLE A.1. Top 20 Firms For Each Year. Their Market Shares and Ranks. 1971-1981

Firms	1971		1973		1975		1977		1979		1981	
	Share	Rank	Share	Rank	Share	Rank	Share	Rank	Share	Rank	Share	Rank
Academy	---	---	---	---	1.44	16	1.78	13	0.96	17	---	---
Allied	1.93	12	---	---	---	---	---	---	---	---	---	---
Ashford	---	---	---	---	---	---	---	---	---	---	---	---
Baker	---	---	1.51	17	---	---	---	---	1.66	12	0.96	17
Barnes	---	---	---	---	---	---	---	---	---	---	---	---
Bell	---	---	---	---	---	---	---	---	1.31	16	1.71	12
Bermont	---	---	---	---	1.44	16	---	---	---	---	---	---
Block Bros	---	---	3.72	7	4.56	5	---	---	---	---	0.96	17
Britannia	3.65	6	---	---	---	---	6.97	2	4.01	4	9.84	2
Burns	1.72	15	---	---	---	---	---	---	---	---	---	---
Buxtor	0.86	5	6.93	2	6.60	3	4.15	6	---	---	---	---
Byrons	---	---	---	---	---	---	---	---	3.75	5	1.93	9
Can. Perm.	---	---	3.12	10	2.16	10	2.23	12	0.96	18	1.18	15
City Savings	1.72	16	4.22	5	2.77	8	---	---	2.53	10	2.53	6
Cowley	---	---	---	---	---	---	---	---	---	---	---	---
Dasilva	---	---	---	---	---	---	1.34	15	---	---	6.31	4
Fortune	---	---	1.81	14	1.80	11	---	---	---	---	---	---
Friesen	1.72	17	2.11	13	---	---	2.82	9	3.49	7	2.35	7
Gateway	1.50	18	---	---	---	---	---	---	---	---	---	---
Graham	2.15	10	3.72	8	3.24	7	3.12	8	3.31	8	---	---

TABLE A.1: (Continued)

	1	2	3	4	5	6	7	8	9	10	11	12
Halda	1.93	---	---	---	---	---	1.04	17	---	---	1.07	16
Ingram	---	13	---	---	---	---	---	---	---	---	---	---
JCM	---	---	1.51	18	---	---	---	---	---	---	---	---
JMB	---	---	---	---	1.44	16	---	---	---	---	---	---
Kellough	7.08	2	3.32	9	2.76	9	5.19	4	5.14	2	---	---
Kennedy	---	---	---	---	---	---	---	---	0.87	19	---	---
Killen	3.65	7	---	---	---	---	---	---	---	---	---	---
Langley	---	---	---	---	---	---	---	---	1.13	15	1.28	14
Lepage	8.15	1	10.75	1	11.04	1	14.69	1	18.92	1	20.21	1
Macauly	---	---	---	---	---	---	---	---	---	---	1.82	11
Mason	---	---	1.61	15	---	---	---	---	---	---	---	---
Metro	---	---	---	---	1.32	20	---	---	---	---	---	---
Montreal	1.61	16	---	---	---	---	1.19	16	---	---	---	---
Murray	---	---	1.69	12	1.69	12	---	---	---	---	---	---
Northgate	3.22	8	---	---	---	---	---	---	---	---	---	---
Nu Lane	---	---	---	---	---	---	---	---	---	---	0.86	19
Osborne	---	---	2.71	11	---	---	---	---	1.92	11	---	---
Potter	---	---	---	---	---	---	1.04	17	---	---	0.86	19
Principal	3.01	9	---	---	---	---	---	---	---	---	---	---
Propp Ag	2.15	11	---	---	---	---	---	---	---	---	---	---
Pyrmont	---	---	---	---	---	---	1.48	14	1.66	13	---	---
Rancho	---	---	---	---	---	---	---	---	1.40	14	---	---

TABLE A.1 (Continued)

Name											
Remax	---	---	---	---	---	---	---	---	---	---	---
Riviera	---	---	---	---	---	---	0.89	19	---	---	---
Royal	---	4.12	6	3.36	6	4.15	4.10	6	3	2.35	7
Saber	---	1.51	19	1.44	16	---	---	---	8.34	3	
Sande	1.50	19	---	---	---	---	---	---	---	---	---
Sicoli	---	---	---	5.76	4	4.75	5	---	---	---	---
Spencer	---	---	---	1.69	13	2.37	2.79	10	9	3.32	5
Toole	---	---	---	1.68	14	2.37	0.87	10	20	1.93	9
United	---	5.63	4	---	---	---	3.58	3	6	---	---
Weber	4.72	6.83	3	7.68	2	5.49	---	---	---	---	---
Willes	1.93	1.31	14	---	20	---	---	---	---	1.50	13
Wilroy	4.08	2.61	4	1.68	12	0.89	15	19	---	---	---

*Source: MLS Sales Summaries. Various Issues. 1971 to 1981

TABLE A.2: Market Share, Commission Rate and Advertising of Top 20 Firms

Top 20 in 1981	Mx (1979)	Change in Mx (1979-81)	CR (1979)	ADSR (1979)
1. Lepage	18.92	1.29	7.0	8.0
2. B. Bros.	4.01	5.83	7.0	5.0
3. Royal	4.10	4.24	7.0	10.0
4. Cowley	na	6.31	na	na
5. Spencer	2.79	0.53	7.0	10.0
6. Can. Perm.	2.53	0.00	7.0	8.0
7. Friesen	3.49	-1.14	7.0	8.0
8. ReMax.	na	2.35	7.0	na
9. Buxton	3.75	-1.82	7.0	8.0
10. Toole	0.87	1.06	7.0	15.0
11. Macauly	na	1.82	na	na
12. Barnes	na	1.71	6.5	4.0
13. Weber	3.58	-2.08	7.0	13.0
14. Langley	1.13	0.15	7.0	20.0
15. Byrons	0.96	0.22	6.5	4.0
16. Maida	na	1.07	7.0	.7.0
17. Ashford	1.66	-0.70	7.0	6.0
18. Bermont	na	0.96	7.0	7.0
19. Nu Lane	na	0.86	na	na
20. Potter	1.92	-1.06	7.0	10.0

Sources: (1) Data on Market Shares (Mx) are collected from MLS Sales Summaries.
(2) Data on CR and CAD are collected by a Questionnaire survey.
(3) Mx, CR and ADSR are expressed as percentages.

were calculated by subtracting their 1979 shares from 1981 shares. DMSS appears in column 2 and the commission rate (CR) and advertising intensity (ADSR) are given in columns 3 and 4 respectively. The CR and ADSR variables refer to 1979. If one compares CR with DMSS, one would find that, while there is little variation in the commission rate itself, firms which gained significant market shares during this period, such as Lepage, Block Brothers, Royal Trust, Toole, Haida, etc., were charging the same commission rate (7.0 %) as the the other firms such as Friesen, Buxton, Weber, Potter, etc., who were losing market shares. Thus changes in market share do not appear to be related to the commission rate at all. This independence between DMSS and CR is likely to hold for earlier periods as well, which is evident from the fact that, prior to 1976, all firms were charging the uniform commission rate of 7.0 percent (determined by the local real estate board), when again the market shares of these firms were observed to change significantly (Table A.1). With respec the relationship between changes in market shares and advertising intensity, the association among the top 20 appears to be positive, as expected, but very weak.

For a more rigorous test involving DMSS with CR and ADSR, the following regression model is estimated:

$$DMSS = a_0 + a_1 CR + a_2 ADSR + a_3 MSS_{79} + error \qquad (A.1)$$

where MSS_{79} is the market share of the firm in 1979. It is
expected that a_1 is negative, a_2 is positive, and a_3 is
positive if firms, which were larger in the initial period,
enjoy certain advantages over other firms. Equation (A.1) is
estimated using the OLS method and the regression
coefficients are presented in Table A.3. The results show
that in all regressions, a_1 is negative (except equation 1),
as expected, but not significantly so. This suggests that
the market share instability may not be explained by the
presence of vigorous price competition in this industry. The
coefficient of the ADSR variable has a negative sign and is
also statistically insignificant, indicating that
advertising is not a very effective method of gaining market
share either. The coefficient of the MSS_{79} variable has the
expected positive sign and is highly stati :cally
significant (indicating that larger firms were getting
larger, perhaps due to economies of scale and related
increase in service quality).

8.3 Sources of change in market shares

The following analysis discusses Grossack's measure to
analyse the sources of change in market shares and
concentration. As already mentioned, the Herfindahl index,
H, provides a useful analytical tool for the examination of
structural change. Given the definition of H as:

$$H_t = \Sigma P_{it}^2 \qquad \text{(A.2)}$$

TABLE A.3: Explaining Market Share Changes: Some Regression Results

Variables	(1)	(2)	(3)	(4)	(5)
CR	0.12	---	0.22	---	-0.10
t-value	0.21	---	0.37	---	-0.17
ADSR	---	-0.25	-0.36	---	-0.18
t-value	---	-0.33	-0.45	---	-0.23
MX	---	---	---	0.23	0.20
t-value	---	---	---	2.98	2.72
Intercept	-0.80	0.15	-1.27	0.78	0.51
t-value	-0.21	0.30	-0.33	0.18	0.14
R-Square	0.0006	0.002	0.004	0.08	0.09
F-value	0.05	0.12	0.13	2.85	2.55

Sources:(1) Data on Market Shares (MX) are collected from MLS Sales Summaries.
(2) Data on CR and CAD are collected by a Questionnaire survey.
(3) ADSR is taken from the questionnaire survey (at midpoint values).

and its decomposition into

$$H_t = \Sigma p_{it}^2 + (1/n_t) \qquad\qquad\qquad (A.3)$$

where

$$p_{it} = P_{it} - P_{mt} = P_{it} - 1/n_t \qquad\qquad (A.4)$$

where subscript t refers to time t and P_{mt} is the mean market share (equal to $1/n_t$).

To construct a dynamic measure, data on market share of individual firms are required for at least two years. Let P_{it} be the market share of firm i in the terminal year t and $P_{i(t-k)}$ be that of the initial year (t-k), where k can be any positive integer and p_{it} and $p_{i(t-k)}$ are the deviations of P_{it} and $P_{i(t-k)}$ from their respective mean values. The coefficient of a regression of terminal year on initial year shares is given by:

$$b_{t(t-k)} = [\Sigma p_{it}.p_{i(t-k)} / \Sigma p_{i(t-k)}^2] \qquad\qquad (A.5)$$

which can be re-written as:

$$b_{t(t-k)} = [1 + \Sigma w_i \{p_{it} - p_{i(t-k)} / p_{i(t-k)} \}] \qquad (A.6)$$

where

$$w_i = [p_{i(t-k)}^2 / \Sigma p_{i(t-k)}^2] \qquad\qquad\qquad (A.7)$$

From equation (A.6), it appears that the regression

coefficient will differ from unity by an amount and direction that is a function of the weighted average of the relative changes from year (t-k) to year t in the deviations of the firms' market shares from their means. The definition of w_i in equation (A.7) indicates that the firms which are farther above/below the mean market share in the initial year are given greater weight in determining the value of b. If n_t is large, the mean market share, given by $(1/n_t)$, would tend to zero and the b coefficient can be directly interpreted. If b is less than unity, say 0.85, then the firms which were large in the initial year lost, on the average, about 15 percent of their market shares. When b is greater than unity, say 1.1, then they have increased their share by 10 percent. [174]

This analysis can be extended further to investigate whether the loss (gain) by the larger firms has been to (from) other large firms or to (from) small firms and/or new entrants. With a simple manipulation, the b coefficient can be rewritten as:

$$b_{t(t-k)} \cong r_{t(t-k)} \cdot RH_{t(t-k)} \qquad\qquad (A.8)$$

where $r_{t(t-k)}$ is the coefficient of correlation between market shares in periods t and (t-k), $RH_{t(t-k)}$ is the square root of $RHX_{t(t-k)}$, and $RHX_{t(t-k)}$ is the ratio of the Herfindahl indices of periods t and (t-k). The correlation

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[174] For details, see Grossack (1965), p 303.

coefficient reflects the degree to which market shares in the two periods were stable. If firms, especially large firms are able to maintain their relative shares in the two periods, r is likely to be close to unity. Otherwise, it would be less than unity, indicating instability in the market shares.[17] The RH coefficient , on the other hand, would indicate the trend in overall industry concentration. For example, if RH is greater (less) than unity, concentration as reflected by the Herfindahl index is increasing (decreasing). The value of b then depends on the degree of correlation between market shares in the two years and the trend in overall concentration as reflected in RH. The following interesting cases were identified by Grossack: (i) Case I: for b > 1, it is clear that the following two conditions must hold: concentration rises and the value of r is close to unity. In this case, concentration is increasing and, at the same time, large firms as a group are gaining market share from small firms and/or exiting firms. Since r is close to unity, large firms do not seem to be losing market share to each other. (ii) Case II: For b < 1, r by itself is low with RH close to unity. Here, concentration is not rising and large firms may be losing market share to each other. (iii) Case III: For b < 1, RH is low with r close to unity. In this case, large firms do not seem to lose share to each other but tend to to lose market share as a group to small firms and/or new entrants. (iv) Case IV:

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[17]Gort (1963) , p 52 uses r as a measure of market share stability.

For b < 1, both r and RH are low. Here, large firms appear
to lose market share to each other as well as to small firms
and/or new entrants.

Given the above framework of analysis, it is now
possible to analyse sources of change in market shares in
the brokerage industry. Table A.4 reports the regression
coefficients of all possible combinations of terminal year
and initial year market shares. The top corner entry of
1.0038, for example, is the estimated b coefficient when
1981 market share (MSS_{81}) is regressed on 1979 market share
(MSS_{79}). Similar interpretations hold for the other entries
in the first row of this table, where MSS_{81} is kept as the
terminal year market share. The first entry in the second
row, for example, represents the b coefficient when MSS_{79} is
regressed on MSS_{77}. Concentrating on one particular row, if
one goes farther back in time, the b coefficient becomes
smaller in magnitude for the obvious reason that the
correlations of market shares are smaller as the terminal
year is farther from the initial year. The results
corresponding to equation (A.8) are presented in Table A.5
for all possible combinations of terminal year and initial
year pairs. Column 1 gives the b coefficient (from Table
A.4) which is the product of $RH_{t,(t-k)}$ in column 2 and
$r_{t,(t-k)}$ in column 3. Block A represents results for which
the terminal market share is that of 1981, Block B
corresponds to the terminal market share as that of 1979 ,
and so on up to Block E.

TABLE A.4   Regressions of Terminal Year on Initial Year Market Shares

Estimated 'b' Coefficient of Independent Variables

Dep Variables	MX 79	MX 77	MX 75	MX 73	MX 71
MX 81	1.0038 (33.41) (0.74)	1.0397 (28.38) (0.67)	0.9572 (18.51) (0.47)	0.8935 (16.94) (0.42)	0.6842 (9.31) (0.18)
MX 79	------	1.0009 (46.81) (0.85)	0.9563 (26.02) (0.63)	0.9035 (23.65) (0.59)	0.8722 (16.19) (0.40)
MX 77	------	------	0.9870 (39.21) (0.80)	0.8522 (25.15) (0.62)	0.7916 (15.81) (0.39)
MX 75	------	------	------	0.8372 (32.40) (0.73)	0.7319 (16.38) (0.41)
MX 73	------	------	------	------	0.8110 (19.02) (0.48)

Notes (1) MX81, MX79, MX77, MX75, MX73, MX71 are the Market Shares of firms for 1981, 1979, 1977, 1975, 1973, 1971 respectively.

(2) Figures in the first parentheses below the regression coefficients are the t-values

(3) Figures in the second parentheses below the regression coefficients are the R-Square values

TABLE A 5 Sources of Change in Market Shares and Concentration

Time Periods	(1)	(2)	(3)
(Year Pairs)	b	Sq. root of RH	r
A 1981 as Terminal Year			
(1981, 1979)	1.0038	1.1592	0.8659
(1981, 1977)	1.0397	1.2533	0.8296
(1981, 1975)	0.9572	1.3748	0.6762
(1981, 1973)	0.8935	1.3509	0.6614
(1981, 1971)	0.6842	1.5592	0.4388
B 1979 as Terminal Year			
(1979, 1977)	1.0009	1.0812	0.9257
(1979, 1975)	0.9563	1.1860	0.8063
(1979, 1973)	0.9035	1.1654	0.7753
(1979, 1971)	0.8722	1.3451	0.6484
C 1977 as Terminal Year			
(1977, 1975)	0.9870	1.0969	0.8998
(1977, 1973)	0.8522	1.0779	0.7906
(1977, 1971)	0.7916	1.2441	0.6363
D 1975 as Terminal Year			
(1975, 1973)	0.8372	0.9826	0.8520
(1975, 1971)	0.7318	1.1314	0.6453
F 1973 as Terminal Year			
(1973, 1971)	0.8110	1.1542	0.7027

8.4 The Analysis and measurement of permanent concentration

The level of concentration at a point in time or its trend over a period of time may not properly reflect true monopoly power in an industry. This is because the underlying forces of change may be temporary rather than permanent. In another paper, Grossack (1972) developed a framework , following Friedman and Kuznets (1954, ch7), which can be used to measure permanent industrial concentration. In the spirit of Friedman and Kuznets, the market share of a firm is conceived to comprise two components, one permanent and the other transitory. The permanent components are those portions of the market shares that the firms are able to maintain over a period of time and the transitory components are those portions present in only one year.[14]

Firms that have large shares of a particular market in a particular period may enjoy a set of advantages such as branding, patent holdings, control of scarce resources, good trade connections, control of strategic distributive outlets, favourable financing, etc., relative to those of smaller firms and potential entrants. Some of these advantages may be permanent and others may be temporary or transitory. Grossack emphasised that these advantages are reflected in observed market shares and that the more permanent advantages are the ultimate bases of the market power of larger firms. Since permanent advantages operate

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[14] Grossack (1972), p 746.

over several years, one can isolate the permanent from the transitory components of advantages and market shares in any particular "base" year only with respect to some "reference" year. Of course as one changes the reference year there should be changes in the permanent and transitory components in the base year. Thus, in empirical applications, it is desirable to work with data from several years to gain more insight into these issues.

In developing the methodology, the Herfindahl index is again used as a structural measure of concentration. Since the methodology and the underlying assumptions are available in Grossack (1972), they will not be elaborated here. Assume p_{io} and p_{it} are the deviations of the ith firm's shares from the mean market share''' in each of the two periods (0 referring to the "base" period and t referring to the "reference" period). These observed deviations are decomposed into two parts in each of the years, a permanent component (subscript z) and a transitory component (subscript s) and, assuming the permanent and transitory components are additive, the following equations can be written:

$$p_{io} = p_{ioz} + p_{ios} \tag{A.9}$$

$$p_{it} = p_{itz} + p_{its} \tag{A.10}$$

''' the mean market share remains same for all years, i.e. (1/n) because n remains same because of the way entries and exits are handled. For details, see Grossack (1972).

and the observed Herfindahl index for the base year is given by:

$$H_{oo} = [\ \Sigma \ p_{io}^2 + (\ 1/n \ ) \ ] \qquad \text{(A.11)}$$

Now substituting the sum of squares of the permanent components of the deviations for the observed deviations, the permanent Herfindahl index can be written as follows:

$$H_{oz} = [\ \Sigma \ p_{ioz}^2 + (\ 1/n \ ) \ ] \qquad \text{(A.12)}$$

With this definition of H_{oz}, the statistical problem is to derive a value for the expression of the first term on the R.H.S. of equation (A.12) from the observed market shares. In deriving an empirical form of equation (A.12), Grossack proposes two alternative models as follows:

8.4.0.1 The proportionality model

$$H_{oz} = [\Sigma p_{ioz}^2 + (1/n)] = [\ r \ . \ \Sigma p_{io}^2 + (1/n)] \qquad \text{(A.13)}$$

where r is the correlation coefficient of the two year's observed market shares. The underlying assumption in this model[178], Friedman and Kuznets, is that the ratios of permanent to the observed variances are the same for

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[178]For details of derivation including the underlying assumptions, see Grossack (1972), pp 749-51.

both years.

8.4.0.2 The equality model

$$H_{oz} \ni [\ p^2_{ioz} + (1/n)\ ] = [\ b\ \Sigma\ p^2_{io} + (1/n)\ ] \qquad (A.14)$$

where b is the coefficient of regression of the observed
market shares in the reference year on the observed
market shares in the base year. The underlying
assumption of this model'', again due to Friedman and
Kuznets, is that the permanent advantages have the same
absolute impact on the permanent components of every
firm's market share in both years.

It is difficult to determine which model is to be
preferred. Grossack maintains that while the
proportionality model has easier interpretations and
more realistic assumptions, the equality model has the
potential of generating richer insights. He suggests
that if data for more than one reference year are
available, the equality model may be employed in spite
of its hazards. This study uses both models in deriving
estimates of the permanent Herfindahl index and also
uses two alternative base years, i.e. 1975 and 1977 to
examine the sensitivity of the results with respect to
base changes. The results are given in Table A.6 for
both models. The estimated permanent Herfindahl index,

''See Grossack (1972), pp 749-52 for details.

TABLE A.6 Indices of Permanent Concentration, 1971-1981

Year	Observed Herfindahl Index	Permanent Herfindahl Index			
		Proportionality Model		Equality Model	
		1975 Base	1977 Base	1975 Base	1977 Base
1971	0.0283	0.0244	0.0288	0.0273	0.0353
1973	0.0377	0.0314	0.0352	0.0308	0.0378
1975	0.0364	0.0364	0.0397	0.0364	0.0433
1977	0.0438	0.0330	0.0438	0.0359	0.0438
1979	0.0512	0.0298	0.0408	0.0349	0.0439
1981	0.0688	0.0254	0.0368	0.0349	0.0455

*Note The method of constructing these indices are discussed in Appendix A.

H_{oz}, with respect to base year 1975 is graphed in figure A.1 and for base year 1977 in figure A.2. H_{oz} in figures A.1 and A.2 are expected to trace out through time the distribution of firm sizes of the base year. A point on this graph would represent the permanent Herfindahl index for year 0 (base year) for a particular reference year. The H_{oz} for year 0 with 0 as the reference year, H   s the observed Herfindahl index.

Consider the case of the 1975 base first. While the observed Herfindahl index ,H_{oo}, is increasing rapidly from 1971 to 1981, the H_{oz} of the equality model is observed to gain stability after 1975, but the H_{oz} of the proportionality model continues to decline (slightly). A similar pattern is observed in figure A.2 for the case of the base 1977. Using the equality model, it is now possible to compare the shape of this curve with the hypothetically generated curves reported by Grossack (figure 1, panels a through f in Grossack(1972), p 759). With low values of H_{oz} relative to H_{oo}, it is possible to infer that the transitory factors played a role in increasing concentration in 1975 with respect to the reference years. The question is how strong was the influence of transitory factors? If H_{oz} rose rapi over time prior to the base year and fall rapidly thereafter, as depicted in Grossack's figure 1, panel a, one could conclude that size advantages or disadvantages were absent and that strong

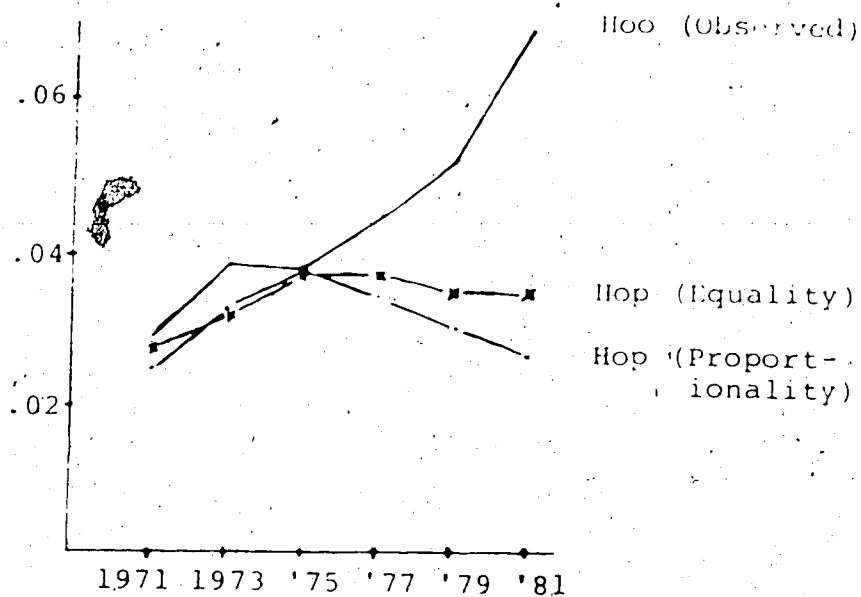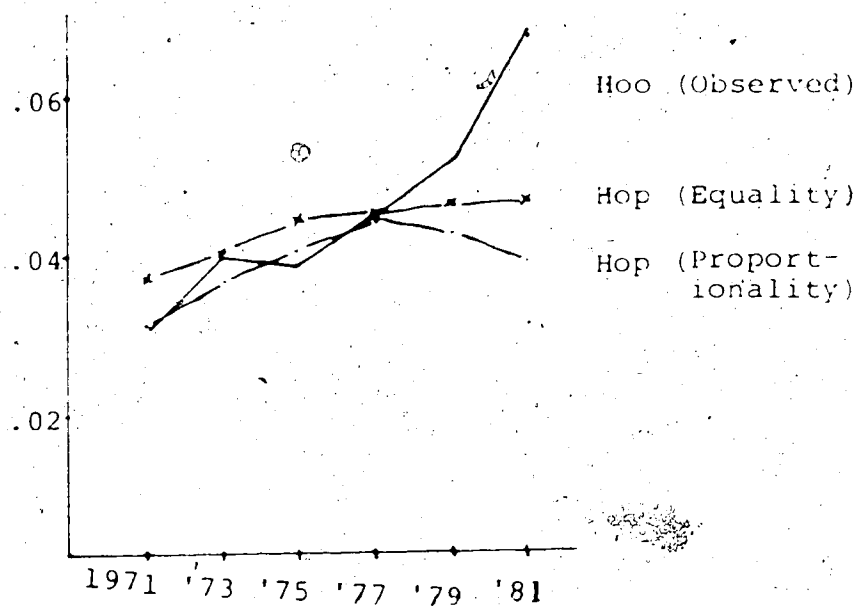Figure A-1: Permanent Concentration: 1975 Base

Figure A-2: Permanent Concentration: 1977 Base

Legend:
———— Hoo: Observed Herfindahl Index
—·— Hop: Permanent Herfindahl Index: Proportionality
        Model
—·×— Hop: Permanent Herfindahl Index: Equality Model

transitory advantages were responsible for increasing

concentration. A similar inference but with a weak

transitory effect would be inferred if the shape

corresponds to Grossack's figure 1, panel b. The

empirical shape of H_{oz} in this study corresponds closely

to the shape of figure 1 panel b of Grossack and

therefore, it can be concluded that, in the brokerage

industry, the scale effect (size advantages or

disadvantages) was not prominent and that the observed

increase in concentration was partly due to weak

transitory advantages and partly due to permanent

advantages. A similar interpretation can be offered to

the shape of H_{oz} in figure A.2 which has 1977 as its

base year.

9. APPENDIX B

9.1 TYPES OF LISTING CONTRACTS IN THE BROKERAGE INDUSTRY

The listing contract between a seller and a broker can take many forms. The three most common types of listing contract that are observed to exist in either the ELS or the MLS market are as follows:

(a) Exclusive Rights To Sale;

(b) Exclusive Agency Listing; and

(c) Open Listing.

9.1.1 (a) Exclusive Rights To Sale

In this type of listing contract, a provision requires that during a prespecified period of time, the seller (home owner) is obliged to pay the commission to the listing broker even if the seller himself finds the buyer. Thus, there need not be any connection between the broker's efforts and the sale. In this case, the seller cannot list with any other broker and no one, not even the seller (owner), can find a buyer so as to negate the obligation to pay a commission to the listing broker. It is to be noted here that a vast majority of the property listings involve this type of listing contract.

9.1.2 (b) Exclusive Agency Listing

In an exclusive agency listing, the seller can avoid paying a commission to the listing broker only if he himself

can produce a buyer. If the buyer is produced by any party other than the seller (owner), the commission must be paid to the broker holding the listing contract. Thus, compared to contract (a), the exclusive agency listing gives a little more flexibility to the seller. But the proportion of listings of this type is not very high, indicating its relative unavailability to the home sellers.

9.1.3 (c) Open Listing

In an open listing, the obligation of the seller to pay a commission to the listing broker is contingent upon the latter actually producing a buyer. Contract type (c) is thus most advantageous from the point of view of sellers but is rarely observed in the residential housing market (although it is more frequently observed in the commercial and industrial property transactions).

In choosing from among the three available contracts, it appears that the interest of the seller conflicts with that of the brokers. In terms of broker's preferences, contract (a) is preferable to contract (b), and contract (b) over (c), but the reverse is the case with seller's preferences. The broker prefers contract (a) over (b) and (b) over (c) because there are positive costs which he must incur (in attempting to sell the listed property) once the contract is signed, whatever is the form of contract chosen, whereas in terms of the broker's return, only contract (a) provides a full guarantee of a return. In an actual market

situation it is observed   t contract (a) is mc
frequently available compared to (b) and (c). This
observation perhaps indicate that brokers have the upper
hand in deciding the type of contract (most suitable to
their interests) to be made available in the market.

9.2 THE DEMAND FOR BROKERAGE SERVICES

This section develops a demand function for brokerage
services using the standard framework of wealth
maximization. The following notation is used in developing
the analysis:

$U(.)$ = Utility function of a typical home owner (seller)

y_t = Income of a typical home owner in year t

y_o = Initial income of the home owner

ω = PDV of wealth given by $y_o + \Sigma y_t$

H = Hours (time) available to the home owner

H_w = Hours allocated to work

H_l = Hours allocated to leisure

H_o = Hours allocated to own search for buyers

P_h = Price (wage rate) per hour worked

PB = Reservation price of a typical home buyer

PS = Offer price of a typical home owner

PS^* = Minimum offer price of a typical home owner

T = Hours (quantity) of brokerage services utilised

P_t = Price per hour (quantity) of brokerage services
purchased

δ = Kronecker's delta = 1 if $T > 0$, zero otherwise

Assuming identical sellers, a typical seller's utility function is given by equation (B.1) as a function of his wealth and leisure. He maximises (B.1) subject to the constraints given by (B.2), (B.3), (B.4) and (B.5) below:

$$U = J(\omega , H_1) \tag{B.1}$$

$$y_o = (H - H_1 - H_o)P + (PB - PS^*) - \delta . P_h . T \tag{B.2}$$

$$H = H_w + H_1 + H_o \tag{B.3}$$

$$PB = f(H_o , T) \tag{B.4}$$

$$H_o + T \leq H \tag{B.5}$$

The initial income is specified by (B.2) and is derived as follows: his income consists of wage income (first term on the R.H.S. of (B.2) plus the potential surplus generated from the sale of his home (second term on the R.H.S.) minus the cost of brokerage services employed (third term). The last term is positive if Kronecker's delta is unity, zero otherwise. Equation (B.3) gives the allocation of total hours, H, into hours allocated to work, hours allocated for leisure and hours allocated for own search in order to find a prospective buyer. In equations (B.2) and (B.3), hours available to homeowners, H, is considered as exogenously given, i.e. it may be interpreted as the maximum time

available to the homeowner after which the house must be sold.[10] Equation (B.4) assumes that the gross selling price, PB, depends positively on his own efforts, H and the hours (quantity) of brokerage services, T, employed. Equation (B.5) represents another constraint which specifies that the hours allocated to own search plus the hours of brokerage services employed must not exceed the total time available to the homeowner. The positive but diminishing returns to both factors are specified by equations (B.6) and (B.7):

$$\partial PB/\partial H_o > 0 \ ; \ \partial^2 PB/\partial H_o^2 < 0 \qquad\qquad (B.6)$$

$$\partial PB/\partial T > 0 \ ; \ \partial^2 PB/\partial T^2 < 0 \qquad\qquad (B.7)$$

It is assumed that the home owner wants to sell his property initially by his own efforts but after a lapse of some time, say H , contacts a real estate broker (Note that H can be
zero). From this model, two corner solutions are possible. First, if the seller's own efforts are successful in finding a buyer , T = 0 and δ = 0. The model can now be solved for optimal values of H_1, H_o, and U_i. Second, after the lapse of time H_o the seller decides to employ the services of a broker, and since the property is not yet sold, T > 0 and δ

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[10] Although this assumption may appear to be too restrictive but in some cases (eg., when the seller faces a deadline for sale due to moving away) it may represent a reasonable approximation. In any case, a more realistic assumption would make the analysis more complicated but would not alter the basic conclusions.

$= 1$. The model can now be solved for the optimal values of the above mentioned variables including the optimal value of T_i^*, i.e. the optimal level of brokerage services demanded. Note that in this model, P_h can be interpreted as the opportunity cost of own search by sellers ,H_o . Thus an increase in P_h would induce substitution of T for H_c . Further, since P_t reflects the opportunity cost of employing the services of a broker, it is hypothesised that an increase in P_t would induce a substitution of H_c for T. In other words, the optimal demand for brokerage services by the ith home owner , T_i^d, would be related inversely to P_t as given by equations (B.8) and (B.9):

$$T_i^d = T_i^d(P_t , J)$$
(B.8)

$$\partial T_i^d/\partial P_t < 0$$
(B.9)

The vector J in (B.8) represents other variables such as P_h , PS^* , y_i ,*et cetera* which influence the demand for brokerage services. Summing over 'S' sellers, the relevant market demand function for brokerage services ,T^d , is representd by equation (B.10):

$$T^d = \Sigma T_i^d = \Sigma T_i^d(P_t , J) = T^d(P_t , J)$$
(B.10)

$$\partial T^d/\partial P_t < 0$$
(B.11)

9.3 COST AND SUPPLY OF BROKERAGE SERVICES

Assuming N identical brokers, competitive input markets and the production function T(W, AB, AS), where W, AB, AS stand respectively for brokerage personal selling efforts, units of search to attract buyers, and units of search to attract listings, the supply function can be derived as follows. Given the cost constraint (equation (B.12)), the Lagrangian function is represented by (B.13):

$$TC = P_w.W + P_{ab}.AB + P_{as}.AS \qquad (B.12)$$

$$\Psi = T(W, AB, AS) + \lambda(TC - P_w.W - P_{ab}.AB - P_{as}.AS) \qquad (B.13)$$

The first order conditions for maximising the Lagrangian function (B.13) w.r.t. W, AB, AS and λ are given in equations (B.14) through (B.17) below:

$$\partial\Psi/\partial W = T'_w(W, AB, AS) - \lambda.W = 0 \qquad (B.14)$$

$$\partial\Psi/\partial AB = T'_{ab}(W, AB, AS) - \lambda.P_{ab} = 0 \qquad (B.15)$$

$$\partial\Psi/\partial AS = T'_{as}(W, AB, AS) - \lambda.P_{as} = 0 \qquad (B.16)$$

$$\partial\Psi/\partial\lambda = TC - P_w.W - P_{ab}.AB - P_{as}.AS = 0 \qquad (B.17)$$

Assuming that the second order conditions are satisfied, equations (B.14) to (B.17) can be solved for the

optimal demand for inputs W^d, AB^d, and AS^d which, in turn, can be substituted into equation (B.12) to obtain the total cost function of ith firm, TC_i is represented by equation (B.18):

$$TC_i = TC_i(T_i ; P_w , P_{ab} , P_{as}) \qquad (B.18)$$

This equation expresses brokerage costs as a ith firm's brokerage services, T_i, *ceteris paribus* . The marginal cost function, MC, of ith broker is given by equation (B.19):

$$\partial TC_i / \partial T_i = MC_i = MC_i(T_i ; P_w , P_{ab} , P_{as}) \qquad (B.19)$$

If the brokerage market is competitive, P_t is given for the individual firm and the ith broker's supply function, T_i^s can be obtained from the marginal cost function as given in equation (B.20):

$$P_t = MC(T_i^s) \text{ or } T_i^s = MC^{-1}(P_t) ; \partial T_i^s / \partial P_t > 0 \text{ for }$$

$$\text{large } T_i \qquad (B.20)$$

This supply function, T_i^s, has the usual upward slope. The aggregate (industry) supply function, T^s, is given by equation (B.21) (summing over N identical brokers):

$$T^s = \Sigma T_i^s = \Sigma MC^{-1}(P_t) \qquad (B.21)$$

$$\partial T'/\partial P_t > 0 \text{ for large } T, \qquad (B.22)$$

9.4 CYCLICAL VARIATION IN BROKERAGE PRICING

Earlier (Chapters 2 and 3) it was mentioned that the demand for brokerage output, X, is essentially a derived demand. Therefore, output and price in the brokerage market should reflect the demand and supply conditions in the upstream housing market. Without developing any formal model, Bartlett (1981) argued that the brokerage price would move in counter-cyclical fashion, i.e. increasing during recession and decreasing during a period of boom in the housing market. During recessions, for example, to quote Bartlett:

> ...when there is a large inventory of homes offered
> for sale and the average turnover time for each is
> high, the value of a listing decreases....
> Conversely, since selling a home is more difficult,
> the value of broker's efforts in steering the
> limited buyers toward a particular unit increases.
> Both effects would tend to bid commission rates
> upward in response to a "soft" housing market.[*]

According to him, an exactly opposite result holds during a period of boom in the housing market. Although Bartlett's result may hold under certain circumstances, it is unlikely to hold as a general rule. First, his analysis is seriously lacking because of his failure to identify and

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[*] Bartlett (1981, p 89).

clearly distinguish between the forces operating from the demand as well as the supply side. Second, different forces which operate on either side may exert opposite influences so that the net outcome becomes ambiguous.

Consider price movements during recessions first. The following factors are likely to put upward pressure on brokerage price from the cost/supply side: (a) Because of a limited number of buyers, a broker's cost of finding a buyer (personal efforts and other selling expenses) would rise; (b) His costs of holding inventories (eg., advertising repeats) of listings (due possibly to an increase in the average time required to sell a listing) would increase; and (c) Since brokerage price is usually expressed as a percentage commission on property value, the lower property value during recession would automatically reduce commission income if the rate is not adjusted upward in order to maintain commission income at the previous level. But there are opposite forces operating from the supply side. For example, although the cost of finding buyers may increase, listings are more readily available (since it is difficult to locate buyers by own efforts, more home owners would seek out brokers). As a result, the broker's cost of finding listings would be reduced. In addition, it is not clear why a broker would try to maintain commission income at the previous level by raising his rate (to compensate for falling house prices) when factor prices (including the opportunity cost of his time) are declining as well. Thus,

given these opposing considerations, the net effect on brokerage cost and supply remains unpredictable.

From the demand side, on the other hand, since buyers are more difficult to find, the demand for brokerage services may rise for individual home owners. Again other forces may tend to offset this effect. First, fewer home owners would want to sell their homes because of lower house prices. Second, home owners may have more time available to invest in selling their homes (due possibly to reduced hours at work or lower opportunity cost of their time). This substitution of own efforts for broker's time would reduce demand for brokerage services. The net effect on the change in demand , thus, remains uncertain as well. Since the net effect on demand/supply is uncertain, the effect on price/output cannot be predicted on an *a priori* basis.

During an upswing or boom, on the other hand, a similar but opposite set of arguments would apply. Again the forces may operate to influence supply as well demand. Thus, the magnitude and direction of price movements in the brokerage market in response to cyclical changes in the upstream housing market would depend on the relative shifts of the demand and supply functions in the former market. Since the net effect on supply as well as on demand is uncertain because of opposing forces in either case, the non-collusive model cannot predict, *a priori*, the outcome in unambiguous terms. This result differs from but is more general than the unambiguous result claimed by Bartlett.

10. APPENDIX C

Department of Economics,
University of Alberta
Edmonton, Alberta
Canada, T6G 2H4

June 2, 1980

Dear Sir:

As part of a research project in the Department of
Economics, University of Alberta, I am sending you a mail
return Questionnaire which is intended to survey the Real
Estate Brokerage industry in Edmonton.

The purpose of the study is to understand and analyse
various aspects of the industry and possibly to make some
policy recommendations to improve the efficiency of
transactions in the market. The major concern of this study
may include, among others, such areas as entry into and exit
from the industry, excess capacity, the relative efficiency
of MLS transactions *vis-a-vis* the Non-MLS transactions, the
size distribution of Agents, the optimal structure of
Commission rates and the efficiency of transactions as
reflected in the sales-to-listing ratios or selling time in
the market.

The study is expected to be of benefit to the Real Estate
Board as well as individual members of 'the Board. It is to
be mentioned in this connection that a somewhat similar
study was conducted in the province of British Columbia by
professor Gideon Rosenbluth of the Department of Economics
at the University of British Columbia in which he
acknowledged the cooperation he received from the Vancouver
Real Estate Board as well as member agents of the Board. I
eagerly anticipate similar cooperation from the members of
the Edmonton Real Estate Board. I have already received
valuable assistance from Mr. J. Arthur Jones of the Edmonton
Real Estate Board (ERB) in this respect.

I would like to assure you that the information you will
provide will be used with extreme care and strictest
confidentiality, and the results of the study will be
released in statistical groups only in order to preserve the
anonimity of individual agents.

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Thank you in advance for your time and attention. I will
urge you to complete and return the enclosed Questionnaire
by 15th of July, 1980.

If you have any questions or comments, please do not
hesitate to contact me at the University of Alberta
(432-5144).

Yours Sincerely,

M. Anisul Islam
Lecturer

11. APPENDIX D
QUESTIONNAIRE
A Survey of the Real Estate Brokerage Industry in Edmonton

Department of Economics, The University Of Alberta.

1. Name of the Brokerage agency(and branch, if applicable):_____.

2. Year in which your agency first recieved a license to operate in Alberta (if known) :_____.

3. Nature of ownership: (circle one)
   (i) Single properietorship   (ii) Partnership
   (ii-i) Corporation

4. (a) Please indicate how many licensed salesmen your agency/branch (specify) did employ in 1979 to do business in the Edmonton area :
   Total salesmen : No.____ Male: No. ___ Female: No

   (b) How many of the above (total) sales personnel did work full-time (35 hours per week or more).
   Full time salespersonnel: No._____.

5. (a)Does your agency sell real Estate in any major city in Alberta *other than* Edmonton ?
   (i) YES   (ii) NO
   (b)If yes, please indicate the name of that city (or cities) in Alberta:_____.

6. a)Does your agency sell real Estate in any province in Canada *other than* Alberta?
   (i) YES   (ii) NO
   (b) If yes, indicate the name of that province (or provinces)_____

7. (a)From the following list, please check the activities in which your agency is currently engaged:
   (i) Residential Brokerage   (ii) Commercial and Industrail Brokerage
   0 Appraising   (iii) Property management
   (iV) Counselling   (V) Building Develpoping & subdividing
   (Vi)   others   (please specify):_____.
   (b)From the above list, please indicate one activity which generates most of the income to your agency:_____.

8. (a)How are your sales personnel compensated? (check one)
   (i) Salary   (ii) Commission   (iii) Salary plus Commission
   (iv) Commission plus Bonus   (v) Commission plus profit sharing
   (vi) others(please specify)_____.
   b)If sales personnel are compensated on the basis of commission, please indicate what percentage of the commssi s given to the sales personal?
   (i or a listing ____ percent.
   (ii)for a sale_____ percent.

9. (a)What is the approximate annual (yearly) turnover rate

(approximate number of salesman leaving your agency divided by total sales force) for sales personnel in your agency? _____ percent.

b) Do you consider this higher or lower than industry average?

0 Higher   0 Lower

10 (a) Do you have a membership in the Edmonton Real Estate Board?

0 YES   0 NO

b) If yes, year of initial membership in the board was _____ (year).

11. (a) Please indicate total number(approximate)of properties Listed by your agency/branch(specify) in Edmonton in 1979: No. _____.

(b) Out of these listings, approximately what percentage were initially listed through:

(i) The MLS listings _____ percent.

(ii) The NON-MLS(open & exclusive) _____ percent.

12. Please indicate total number (approximate) of properties(both MLS and NON-MLS) sold by your agency/branch in *Edmonton* in *1979*:

(i) Total properties sold: No. _____.

(ii) Approximate total dollar value of sales: $ _____.

(b) Out of this total properties sold in 1979, approximately what percentage were sold through:

(i) The MLS _____ (percent)

(ii) The Non-MLS _____ (percent).

13. a) What commission rate do your salesmen *usually* charge on MLS transactions?(check one)

(i) less than 5%   (ii) 5-6 percent   (iii) 6-7 percent

(iv) 6-7 percent   (v) 7 percent   (vi) Above 7 percent.

b) What Commission rate do your salesmen *usually* charge on Non-MLS transactions?

(i) 2-4 percent   (ii) 4-5 percent   (iii) 5-6 percent   (iv) 6 percent   (v) Above 6 percent.

14. Concerning question number 13(a) and 13(b) above, what percentage of properties involve commission rate which differ from the "usual" commission rate? _____ percent.

15. (a) Does the Commission rate charged differ depending on the value of the property (assume the property is valued less than $100,000)?

(i) YES   (ii) NO

(b) If Yes, please indicate the Commission rate charged on the following category of property values:

Property Value	*Commission Rate(Percent)*
(i) Less than $50,000	
(ii) $50,000 - $75,000	_____
iii) $75,000 - 100,000	_____
(iv) Above $100,000(Specify Breakdown)	_____

16. (a) In the case of MLS transactions, if the listing

agent differs from the selling agent, how is the commission income distributed?
    (i) Listing agent _____ (percent)
    (ii) Selling Agent _____ (percent)
    (iii) MLS (for its services) _____ (percent)

(b) In the case of MLS transactions, if the selling agent is a non-member, how is the commission income distributed?
    (i) Listing Agent _____ (percent)
    (ii) Non-Member Selling Agent _____ (percent)
    (iii) MLS (for its services) _____ (percent)

17. In the case of Questions 16(a) and 16(b) above, who determines the commission sharing arrangements?
    (i) The Listing Agent; (ii) The Selling Agent
    (iii) Both the Listing Agent and the Selling Agent together;
    (iv) The Real Estate Board; (v) Others (please specify) _____

18. (a) Has your volume of business in Edmonton been growing over time?
    (i) YES   (ii) NO
    (b) If yes, please indicate the approximate growth rate per annum:
    (i) 0-10 percent   (ii) 0-20 percent   (iii) 20-30 percent;
    (iv) 30 - 40 percent;   (v) 50 percent   (vi) above 50 percent.

19. (a) From the following List, please check the form(s) of advertising used by your agency:
    (i) Classified Ads; (ii) Other Newspaper Ads; (iii) Direct Mail; (iv) Television; (v) Radio; (vi) Lot Signs; (vii) Bill Boards; (viii) Form and Personal Letters; (ix) Yellow Pages; (x) Others (specify) _____
    (b) Please indicate which one of the above form(s) is the single most important form of advertising by your Agency? _____
    (c) Please indicate, on average, approximately what percentage of your Yearly Commission income is spent on Advertising?
    (i) Less than 5% ; (ii) 5 - 10% ; (iii) 10 - 15% ;
    (iv) 15 - 20% ;
    (v) Above 20%

20. (a) Does the MLS service seem to be operating effictively?
    (i) Yes   (ii) NO
    b) If No, please explain the difficulty

21. (a) What is, in your opinion, the most significant problem facing the Real Estate Brokerage industry in Edmonton today?

    (b) What suggestion(s) do you have to resolve that specific problem?

12. APPENDIX E

Appendix E gives some summary tables (Tables E.1 through E.6) to indicate the relative importance and growth of different types transactions processes (eg. MLS, ELS, and sale by owners) in Canada and the United States.

TABLE E 1 Distribution of Major U S Cities by % of Real Estate Sales by Owners. 1973-74

% of Sales by Owners	No of Cities	% of Cities
Less than 5%	6	9 5
5 - 10%	12	19 1
10 - 15%	19	30 2
15 - 20%	12	19 1
20 - 25%	8	12 6
25 - 30%	6	9 5
Total	63	100 0

TABLE E.2: Growth of MLS Sales in Edmonton Real Estate Brokerage Market, 1956-1982

(In million dollars)

Year	Value of Sales	% change (year-year)	Commissions	% change (year-year)
1956	9.4	---	0.66	---
1957	11.1	+18.1	0.78	+18.1
1958	11.9	+7.2	0.83	+7.2
1959	10.1	-15.2	0.71	-15.2
1960	10.6	+4.9	0.74	+4.9
1961	10.3	-2.8	0.72	-2.8
1962	13.1	+27.2	0.92	+27.2
1963	19.3	+47.3	1.35	+47.3
1964	19.2	-0.5	1.34	-0.5
1965	22.2	+15.6	1.55	+15.6
1966	31.6	+42.3	2.21	+42.2
1967	40.5	+28.2	2.84	+28.2
1968	48.4	+19.5	3.39	+19.5
1969	59.7	+23.3	4.18	+23.3
1970	71.1	+19.1	4.98	+19.1
1971	85.9	+20.8	6.01	+20.8
1972	117.2	+36.7	8.20	+36.7
1973	161.4	+37.7	11.30	+37.7
1974	240.6	+49.1	16.84	+49.1
1975	363.5	+51.1	25.45	+51.1
1976	417.7	+14.9	29.24	+14.9
1977	571.1	+36.7	39.98	+36.7
1978	703.8	+23.2	49.27	+23.2
1979	1103.6	+56.8	77.25	+56.8
1980	953.1	-13.6	66.72	-13.6
1981	941.5	-1.2	65.91	-1.2
1982	507.1	-46.1	35.50	-46.1

Note: Commissions are estimated by assuming a commission rate of 7% on all MLS transactions

Source: MLS Sales Summaries, various issues

TABLE E.3 Growth of MLS Sales in Toronto Real Estate Brokerage Market, 1953-1968

(in million dollars)

Year	Value of Sales	% change (year-year)	Commissions	% change (year-year)
1953	38.93	----	2.73	----
1954	44.83	+15.2	3.14	+15.2
1955	53.15	+18.6	3.72	+18.6
1956	73.49	+38.2	5.14	+38.2
1957	93.07	+26.7	6.51	+26.7
1958	128.17	+37.7	8.97	+37.7
1959	158.82	+23.9	11.12	+23.9
1960	151.83	-4.4	10.63	-4.4
1961	151.32	-0.3	10.59	-0.3
1962	161.88	+6.9	11.33	+6.9
1963	183.27	+13.2	12.83	+13.2
1964	241.22	+31.6	16.89	+31.6
1965	281.17	+16.6	19.68	+16.6
1966	326.68	+16.2	22.87	+16.2
1967	367.40	+12.5	25.72	+12.5
1968	430.31	+17.1	30.12	+17.1

Notes: a - Value of sales were calculated by multiplying the no. of units sold
by the average price of house for that year.

b - Commissions were estimated by assuming 7% commission rate
on all MLS transactions

Source : Adapted and compiled from the Toronto Board Report (1969)

TABLE E.4 Growth of MLS Sales in Canada and the Provinces, 1973-1982

(in million dollars)

Year	Canada	B.C.	Alberta	Sask	Man	Ont	Que	Atlantic
Sales								
1973	3460.7	695.0	358.2	81.2	138.7	1882.6	254.8	50.1
1976	7295.1	1378.7	970.3	256.2	340.0	3641.9	565.7	142.3
1979	12005.3	2304.4	2218.7	385.8	381.5	5366.6	1100.9	246.2
1982	12643.6	2637.2	1589.1	399.8	355.0	6279.0	1043.5	339.6
Commissions								
1973	242.2	48.7	25.1	5.7	9.7	131.8	17.8	3.5
1976	510.7	96.5	67.9	17.9	23.8	254.9	39.6	10.0
1979	840.7	161.3	155.3	27.0	26.7	375.7	77.4	17.2
1982	885.1	184.6	111.3	28.0	24.9	439.5	73.1	23.8

% change (period-period) both sales and commissions

	Canada	B.C.	Alberta	Sask	Man	Ont	Que	Atlantic
1973-76	+110.9	+98.2	+170.5	+214.0	+145.4	+93.4	+122.5	+185.7
1976-79	+64.6	+67.2	+128.7	+50.8	+12.2	+47.4	+94.7	+72.0
1979-82	+5.3	+14.4	-28.3	+3.7	+156.7	+17.0	-5.2	+38.2
1973-82	+265.4	+279.1	+343.4	+391.2	+156.7	+233.5	+310.7	+580.0

annual average rate of growth 1973-1982 period

	Canada	B.C.	Alberta	Sask	Man	Ont	Que	Atlantic
1973-82	+29.5	+31.0	+38.2	+43.5	+87.4	+25.9		+64.4

Notes: a - The Atlantic provinces are N.S., N.B., P.E.I., and Newfoundland
b - Commissions were calculated by assuming a 7% commission rate on all MLS transactions
c - Since a fixed commission rate is applied, the growth of sales and commissions are identical.

Source Adapted and compiled from the CREA Report (1982)

TABLE E 5 Distribution of Real Estate Brokers and Salesmen in Canada, 1969 and 1973

Provinces	Total Licensees			Total Membership			Memberships as % of Licensees		
	1969	1973	% change	1969	1973	% change	1969	1973	% change
B.C.	5416	7520	+38.9	4555	6726	+47.7	84.1	89.4	+5.3
Alberta	3027	4350	+43.7	2017	3261	+61.7	66.6	75.0	+8.4
Sask.	1012	1100	+8.7	640	956	+49.4	63.2	86.9	+23.7
Man.	1521	1900	+24.9	996	1433	+43.9	65.5	75.4	+9.9
Ont.	na	25554	-----	na	18947	-----	na	74.1	-----
Que.	2790	4834	+73.3	2034	2906	+42.9	72.9	60.1	-12.8
N.S.	na	833	-----	na	743	-----	na	89.2	-----
N.B.	206	362	+75.7	153	309	+101.9	74.3	85.4	+11.1
P.E.I.	na	91	-----	na	66	-----	na	72.4	-----
N.F.	na	158	-----	na	113	-----	na	71.5	-----
Canada	na	46702	-----	na	35460	-----	na	75.9	-----

Notes: a - 1969 data are taken from CREA Report (1970), p 20
b - 1973 data are taken from CREA Report (1975a), p 41
c - Membership represents membership in the CREA
na - Not available
- - Cannot be calculated

Source: Adapted and compiled from the CREA Reports (1970, 1974, and 1975a)

TABLE E 6. Distribution of Brokers and Salesmen Canada and the Provinces, 1974

Province	No. of Brokers	No. of Salesmen	Salesmen per Broker
B C	1175	5558	4 7
Alberta	480	3380	7 ?
Sask	167	761	4 6
Man.	213	1091	5 1
Ont	2697	16217	6 0
Que	369	2570	7 0
N S	134	652	4 9
N B	8?	242	3 0
P E I		50	3 1
N F	31	138	4 5
Canada	5364	30659	5 7

Source Adapted and compiled from CREA Report (1975)

even with a large number of firms and easy entry.

(ii) Second, the findings also suggest that the larger firms have been successful in maintaining monopoly power in spite of entry occuring at the lower tail of the size distribution. Further, the fact that the various local and provincial associations seem to want more stringent restrictions on entry through higher educational standards (for an agent to obtain a license), still higher educational requirements for membership in local boards, various disciplinary procedures against members violating board regulations, etc., has certainly not been conducive to competition in this industry.

(iii) As discussed in Chapters 3 and 4, the widespread and growing use of the MLS process has been effectively utilised by brokers as a cartel coordinating device.

(iv) The argument by the CREA that federal legislation would be superfluous and even conflicting deserves discussion in some detail. Section 92(16) of the British North America Act gives authority to provincial governments to legislate in areas of real estate.[2] As a consequence, the real estate brokerage industry is presently regulated by provincial legislation in all provinces of Canada. Real estate brokers and salesmen are licensed provincially and some of their activities (eg. code of conduct) are regulated by provincial governments.[30] The CREA strongly argues against federal

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[2]This feature is retained under the new constitution of Canada.
[30]Note that provincial regulation has resulted in non-uniform standards (eg. education/entrance requirements)

legislation in this industry.[130]

A careful analysis would show that the CREA arguments cannot be accepted. First, the mere fact that the industry has been "regulated by provincial governments" in the past does not imply that it has to be so in the future as well. With the changing needs of society, new legislation is enacted, old needs change and the federal-provincial division of powers and responsibilities may be revised if circumstances demand. Second, it is difficult to understand the CREA argument that federal legislation would be "unnecessary, contradictory and wasteful". Federal legislation would not be so if it is enacted in such a way and in such areas where provincial legislation is inadequate or lacking.[132] In areas where contradictions may arise, it may indicate the need for closer federal-provincial cooperation to protect the public interest and enhance economic efficiency.[133] In addition, such cooperation may lead to the adoption of a uniform educational/entrance requirements for licensing across Canada.[134]

(v) The CREA also justifies the superiority of

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[130](cont'd) across different provinces.
[131] See the CREA Report, (1974) pp 20-21.
[132]Note that federal legislation has the advantage over provincial legislation in that the latter may result in non-uniform rules regulating brokerage activities (eg. price fixing, price discrimination and restrictive MLS practices) across Canada. For example, if provincial legislation differs with respect to price fixing, this activity might be legal in some provinces and illegal in others. Note that non-uniformity across different provinces has arisen in the case of licensing requirements (see CREA Report (1975b).
[133]ECC Report (1976), pp 147-148.
[134]These requirements currently vary widely across Canada (see CREA Report (1975b)).

"self-regulation" of the industry by the local real estate boards over regulation by the federal government. It claims that federal regulations would not serve any purpose in promoting the public interest. This argument is also very difficult to accept given the fact that self-regulation by local boards serves the interests of the members, who happen to be real estate brokers rather than consumers (home buyers or sellers), while federal regulation looks to the general well-being of society.

(vi) Since the brokerage industry operates on a local basis, the extent of monopoly power exercised by relatively larger firms may be quite high. Note that if the Edmonton (and other local markets) market consists of sub-markets, monopoly power would even be higher.

(vii) Unlike many other product markets, the brokerage and other service industries are characterized by the absence of foreign competition (as an ultimate check on abuse of market power). Therefore, competition policy may be needed more in the service markets than those product markets facing foreign competition, even though relatively easy entry in this industry provides some check on the abuse of market power.

(viii) Real estate boards at various levels have attempted to standardize services provided to the home buyers and sellers. It has already been argued in Chapter 3 that such practices may be conducive to price standardization and, therefore, have the potential of reducing price competition.

They also reduce the consumer's choice among various
price-quality combinations.

6.3 THE 1976 COMBINES INVESTIGATION ACT AS IT APPLIES TO THE BROKERAGE INDUSTRY

Given the need for strong enforcement of competition
policy, this section is devoted to the identification and
examination of the various sections of the 1976 Combines
Investigation Act as they apply to the Canadian brokerage
industry. The ECC Report (1969) strongly recommended that
the service industries be included within the jurisdiction
of competition policy.[135] More specifically, the Report
referred in general and specific terms to 'real estate' (p
141) and 'services provided in connection with the sale or
rental of land and buildings' (p 147), Two years later, a
bill known as the 'Competition Bill' was introduced in the
House of Commons (June 1971). It incorporated most of the
recommendations of the ECC report, but the bill did not
receive second reading because of tremendous opposition from
various interest groups. In any case, in 1976, Parliament
amended the Act so as to incorporate some of the ECC
recommendations. In the spirit of the Report, the Act
included service industries under its jurisdiction. In
incorporating the service sector, section 2 of the Act reads
as follows: 'product' includes an 'article' and a 'service';

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[135] See Chapters 6 and 7 of the ECC Report (1969) which
deals with the case for the inclusion of service industries
within the scope of competition policy.