

# The Theory of Search and the Rental Housing Market

## Introduction

Most texts in housing economics and real estate analysis devote considerable discussion to real estate brokers in fee simple markets. Work by Becker (1972) and Hempel (1970) has investigated the economics of realty. However, there are few discussions of brokerage in rental housing. With the proportion of consumption for tenancy occupation rising rapidly in recent years, it is important to inquire into the nature and efficiency of brokerage in rental accommodation. This paper is a brief survey of the supply of information in rental housing and a discussion of the optimal institutional form for this supply.

The first section outlines the nature of transactions and information costs and discusses the brokerage of rental housing information. The second part presents some empirical data on the supply of rental housing information and surveys the institutions that act to fulfill the demand for information. Finally, the essay concludes with an investigation into the appropriate public policy for information brokerage in the rental housing market. This particular issue has received little policy analysis even though there are sound reasons for supposing that it is important. Aside from the increasing numbers of tenants, even with the limited set of property rights conveyed in the tenancy contract, prospective tenants seem to demand the services of specialists in securing appropriate accommodation, especially during periods of excess demand. The evolution of brokers which supply market data in "tight" market situations afford the economist a good opportunity to study the production and distribution of information in a relatively pure form. An intriguing possibility is that atomistic perfect competition may in fact result in higher costs and lower quantities of information for consumers of information, than were the information brokerage industry more concentrated. This will be explored in the last section.

## I. Transactions Costs, Information Costs and Brokerage

Information is probably the most marketed service in our economy. All services offer, as part of the total package and to varying degrees, a set of skills which are often little more than information. Consider the services offered by a doctor. Provided is medical diagnosis, prognosis and advice, all of which are wholly dependent upon experience and training which of course are different aspects of information. In fact plumbers, teachers, auto mechanics among others all act to sell information.

In the past several years economists have increasingly devoted their attention to the effects of transactions costs upon the traditional conclusions of neoclassical exchange theory. The usual theory states that when these transactions costs become excessive, specialists will arise and sell their services to attenuate the costs to market participants. A considerable body of literature on stock brokerage has evolved to a high level of sophistication.<sup>1</sup> According to Alchian (1969), transactions costs may be categorized into search costs involving the direct acquisition of market data by both buyers and sellers, negotiation costs, and enforcement costs to ensure that the contracted prop-

erty rights are in fact transferred. Each of these three aspects of transactions costs merit brief discussion, for it is easy to show that they are nothing but different aspects of information costs.

#### *Search Costs*

Economists have long recognized that consumers will incur expenditures to discover the lowest price and highest quality in commodities. The initial attempt to model this expenditure was by Stigler (1961) who assumed that the consumer was interested in finding the lowest price, that the distribution of the prices from store to store was known, and that the marginal costs of search were constant. Using this admittedly arbitrary framework, several very interesting rules and predictions about optimal search were discovered. The optimal rule for search is to continue to examine (sample) prices at various locations until the expected marginal costs equal the expected marginal returns. The expected marginal return of search is merely the difference between the expected minimum price after  $n$  searches and the expected minimum price after  $n+1$  searches.

Since Stigler's pathbreaking work, many refinements have been made to the theory of optimal search. Optimal stopping rules have been developed for a variety of information environments.<sup>2</sup> Bayesian techniques have been used to model the searcher under conditions of ignorance about the distribution of prices; surprisingly the search rules developed by Stigler are robust.<sup>3</sup> Others have tackled the problem of storing price offers and the impact this has upon optimal search.<sup>4</sup>

Despite this increasing sophistication, the theory of search has some serious limitations that qualifies its easy application to problems in housing markets. Most important is that little headway has been made on the problem of searchers who desire a complex package of information on several attributes in addition to price. A related difficulty occurs when price and quality are judged to be related in the mind of the consumer. The assumption of constant marginal costs of search is also serious; obviously a spatial market such as housing involves increasing marginal costs as the area of search is expanded.

#### *Negotiation Costs*

Aside from the voluminous literature on market adjustment and tatonnement which is macroeconomic in orientation, the theory of negotiation costs has received only sporadic treatment from economists. Most of the work has concentrated upon bilateral monopoly and oligopoly models,<sup>5</sup> union-management conflicts, and experimental models.<sup>6</sup> The application to rental housing is limited, although the relevance for fee simple markets is obvious.

#### *Enforcement Costs*

A common example of enforcement cost is the extra price paid by consumers to support local service centres for major appliances and cars. Warranties and title insurance for land are also excellent examples.

It should be apparent that all three aspects of transactions costs are in fact information costs. In the case of negotiation costs, were all market participants fully informed about the utility functions and reaction curves of other participants, then negotiations would close instantaneously. Similarly, with perfect foresight, warranties would be redundant since early product failure would be discounted into the selling price of the product. Thus, the institutions that have arisen to mitigate the effects of transactions costs actually provide information.

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Writers on real estate have long recognized the primary role of the real estate agent in fee simple markets as a "clearing house for economic information".<sup>7</sup> Case (1965) points out that real estate brokers serve as informants on current housing prices and price trends, act as negotiators for inexperienced buyers and sellers, and act to promote competition in the housing market by providing accurate assessments of the "market value" of various types of property. The last point is another way of saying that the realtor acts to reduce the complex bundle of attributes embodied in a house to a homogeneous flow of housing services. The role of information broker has been clearly established for agents operating in the fee simple market. The institutions that provide information to tenants have been less well studied.

### **II. Rental Information Brokerage: An Overview**

There are four general sources of information that can be tapped by the searching tenant and these can, to varying degrees, be isolated and empirically studied. Some sources of information have very substantial bodies of data by which they may be quantified and analyzed; others have almost nothing but casual empiricism, yet intuitively are very important. An important problem that recurs constantly in the study of information and economics is quantifying the service flow of information. In addition to problems of comparing information flows at a given point in time, it is obvious that information decays rapidly. These theoretical problems, as yet, have not been solved in the literature and will be ignored here.

There are four categories of informants in rental housing.

First there is what Hempel (1970) refers to as the casual information source. This consists of friends, professional colleagues and other acquaintances. In addition, street advertising is included in this category.<sup>8</sup> Second, there are dwellings managed by professional property managers which consist largely of real estate companies. Typically these firms provide free information about the properties they manage. Third, and most importantly, there are classified advertisements in major daily newspapers. Fourth, there are rental information agencies (RIAs). These firms are common to England, well established in the United States and a recent phenomenon to Canada.

#### *Casual Search*

Data on this aspect of housing search is extremely difficult to obtain. Only wide-ranging studies of the allocation of resources within the household could begin to reveal the nature of this aspect of housing search.

Some inroads into the nature of the process can be inferred using studies completed by Hempel (1970) for the home ownership market in Connecticut. These studies indicate that there is a hierarchy of information acquisition. A considerable proportion of searchers begin by first consulting casual sources, then after "feeling out" the market, move on to more formal information sources such as newspapers and real estate brokers. A significant number, however, tend to by-pass the casual sources of information and proceed directly to utilization of brokers. There tends to be a positive correlation between level of education, professional status and the elimination of casual information sources of market data. Hempel's studies do not investigate the extent to which casual search was the only source of information. In the home purchase process, where investment motives play an important role, it is unlikely that many of the searchers could gain sufficient market knowledge without resorting to formal sources of information. In the rental housing market the amount of information required is much smaller and casual sources, if

available, can often yield useful information. At any rate, empirical verification of the relation between market conditions and the amount of information from casual sources is extremely involved and beyond the scope of this paper.

#### *Professional Property Managers*

Many firms offer management services to landlords. These services include maintenance, rent collecting and locating suitable tenants. The number of firms specializing in this form of brokerage varies widely from city to city. There seems to be great regional variation in the corporate structure of these firms. For example, in Vancouver much of the property is managed by real estate firms, while in Winnipeg and Montreal there are many firms which appear to specialize in the management of large apartments.

These firms employ a variety of information dissemination techniques to secure tenants. Aside from casual search (especially signs in front of the building) and classified ads, these firms appear to employ a system of waiting lists whereby prospective tenants register in order to be considered prior to general advertising. Of course, the firms are interested in this system since it lowers their information costs and permits a certain amount of control over the type of tenant.

The major real estate firms which advertise property management services were surveyed by telephone in order to gain some notion of their quantitative impact on the supply of information in the rental housing market. All firms were either reluctant to divulge information or could not take the time to provide data on the number of rental suites handled, the advertising devices employed, or the revenues obtained from property management. Some crude concept of the number of suites handled by property management firms can be inferred, however.

There are two large trade associations of apartment owners. First, there is the Greater Vancouver Apartment Owners Association with approximately 6,000 members controlling some 40,000 suites and second, there is the Pacific Apartment Owners Association with approximately 600 members and 20,000 suites. Property management firms typically belong to the second organization. Since there are approximately 100,000 rental suites in the Vancouver area, property managers (large ones who manage in excess of twenty suites) who tend to use waiting lists account for twenty percent of the supply. However, this overstates the influence of waiting lists as a source of information for two reasons.

First, only the very large management firms would find it viable to employ a waiting list. Smaller firms would undoubtedly employ casual search techniques such as placing a sign in front of the building. In recent public hearings the president of the Greater Vancouver Apartment Owners Association stated that casual search and classified ads were the predominant form of advertising for its members.

Second, it is apparent that the usefulness of waiting lists depends upon market conditions. At low vacancy rates they are highly favoured by landlords since advertising costs are low and the deluge of enquiries characterized by excess demand is avoided. At higher vacancy rates more aggressive techniques are required.

#### *Classified Advertisements*

At vacancy rates of 2 - 3%, classified advertisements are the most important source of market information in rental housing. Casual empiricism suggests that for vacancy rates in excess of 3% "on street" advertising becomes more prevalent, while as indicated by the analysis below, for lower vacancy rates, the rental information agency is the important supplier of information.

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In order to judge the role of classified ads in providing information, some proxy for information quantity is required. For the most part, information is viewed as unidimensional; this was alluded to previously. Certainly, a classified ad contains much more than information on price alone; frequently there is data on other characteristics of the accommodation and in many cases the searcher can infer locational attributes upon learning the address of the suite. There appears to be no successful method for including this aspect of information into the analysis. A proxy variable that comes the closest is the number of column inches weighted by the number of ads. As this ratio rises it could be argued that the informational content of the advertisement is increasing. Unfortunately, it is apparent that the measure is subject to bias. Advertising and persuasion play an important role in the length of the advertisement. In addition, the same landlord saves by listing several properties in the same space normally occupied by one ad. Even so, it is possible to use this type of data to obtain some reasonably significant relationships between the vacancy rate and information in rental housing. Table A presents column inches and total ads for rental housing that appeared in the *Vancouver Sun* from June 1971 to June 1974. June and December were chosen since these are the months for which the Central Mortgage and Housing Corporation publish vacancy rates. There appears to be a straightforward relation between the decline in column inches and total ads placed and the vacancy rate. Not so understandable is the inverse relation between vacancy rates and the ratio of column inches to total advertisements. When rental information agencies are analyzed, a plausible explanation is that these firms tend to achieve economies of space by placing many vacancies within one advertisement. As will be shown, the proportion of total rental housing ads purchased by these agencies has risen sharply recently.

**TABLE A**  
**CLASSIFIED AD INFORMATION BY MONTH**

<b>Month</b>	<b>Column Inches 1</b>	<b>Total Ads 2</b>	<b>Column Inches Total Ads</b>	<b>Vacancy Rates</b>
June 1971	12047	24633	.489	4.1
Dec. 1971	9226	15354	.601	2.8
June 1972	11206	22564	.497	2.4
Dec. 1972	6272	12312	.509	.6
June 1973	11767	17424	.676	1.0
Dec. 1973	8541	9526	.896	.4
June 1974	9657	10557	.915	.2

Using time series analysis these relationships may be more formally studied; there is no pretense that this represents a complete statistical study, for much more data would be required. However I conjecture that these relationships stand up for North American experience in general. Since total ads and column inches are obviously correlated (see Table B), only one can be used as the independent variable. The total number of ads corresponds more closely to the limited conception of information used in the literature and also results in better specification.

**TABLE B**  
**CORRELATION MATRIX FOR COLUMN INCHES, TOTAL ADS**  
**AND VACANCY RATES IN RENTAL HOUSING**

	Column Inches (COLINC)	Total Ads (TOTADS)	Vacancy Rates (VACRAT)
Column Inches	1.000	.7462 (s = .027)*	.5846 (s = .007)
Total Ads	.7462 (s = .027)	1.000	.5559 (s = .098)
Vacancy Rate	.5846 (s = .007)	.5559 (s = .098)	1.000

\* indicates level of significance

SOURCE OF DATA; *Vancouver Sun* and Central Mortgage and Housing Corp.

Regression analysis results in the following set of equations:

$$\text{COLINC} = 8546.81 + 772.90 (\text{VACRAT}) \quad R^2 = .30908$$

(2.237)

$$\text{TOTADS} = 10491.89 + 3384.94 (\text{VACRAT}) \quad R^2 = .73026$$

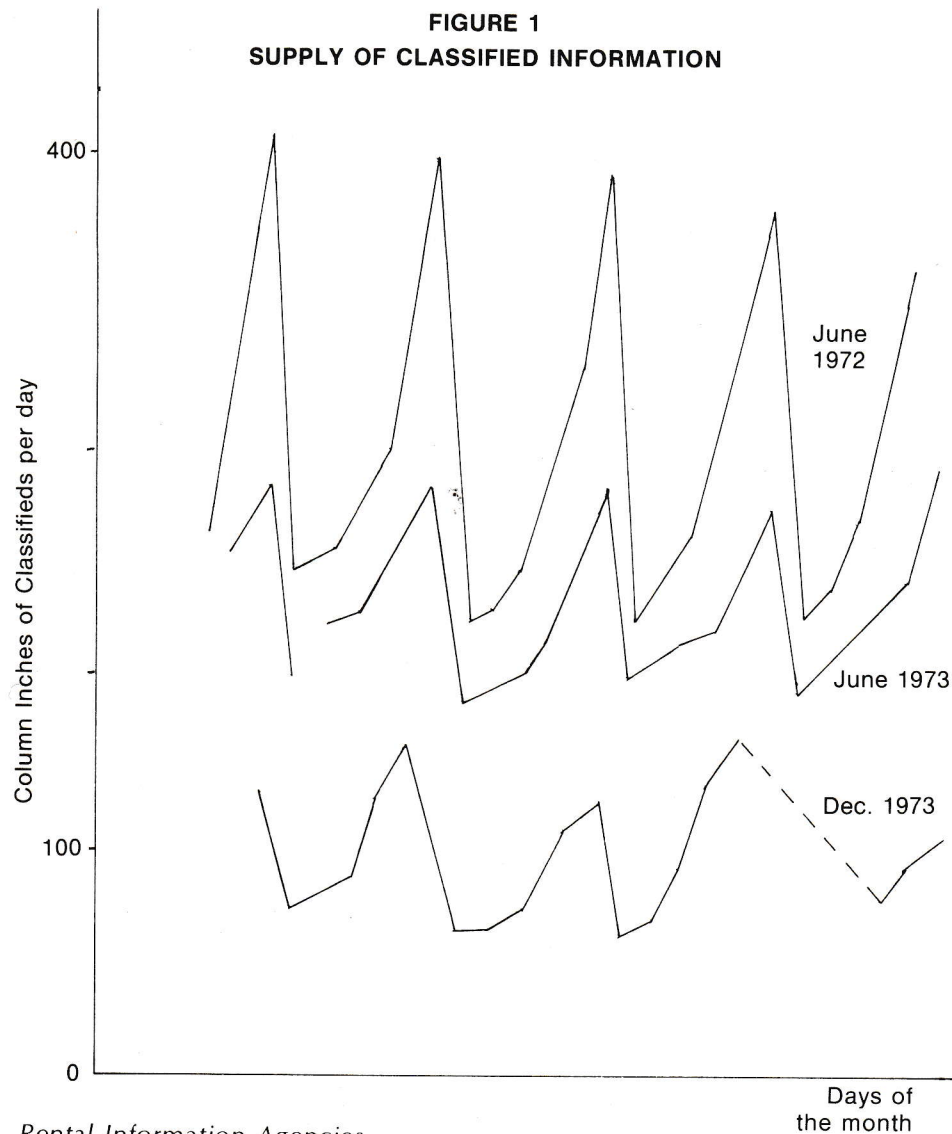
(13.536)\*

\* Significant at .01 level

Aside from variation in the total number of ads that results from fluctuations in the vacancy rate (hardly a surprising finding), classifieds exhibit a pronounced daily cycle that has a marked effect on search behaviour. Examples of this variation are shown in Figure 1. Apparently Mondays are the low point in the supply of classifieds while Saturdays are the high point. It is difficult to know *a priori* whether landlords are second-guessing searchers and placing ads when they believe searchers will be most responsive, or whether landlords are attempting to control the responses of searchers. In particular, this second line of reasoning would argue that in times of low vacancy rates, landlords would restrict their advertising effort simply to reduce the amount of time spent in dealing with searchers once the dwelling has been rented. There is evidence that some landlords have received up to 300 applications for one suite in Vancouver.<sup>9</sup>

A test of this would be to measure the variation in daily ads and examine the relationship between this variation and the vacancy rate. If there is a positive correlation (i.e., if the variation grows as the vacancy rate grows) the hypothesis is rejected; otherwise it remains plausible to argue that searchers respond to variation in the supply of classifieds, rather than landlords are catering to the schedules of searchers. Undoubtedly, a pronounced inverse relationship would indicate that in times of tight markets, searchers are faced with highly variable supplies of information and must adjust to this.

**FIGURE 1**  
**SUPPLY OF CLASSIFIED INFORMATION**



#### *Rental Information Agencies*

Rental information agencies are a recent phenomenon to the Vancouver area; however, they have been incorporated in North America and England for at least a decade. These firms operate as pure information brokers while the other sources of information (classifieds and property managers) offer their information jointly with other services, which tends to obscure the marketing of information. By providing a free advertising service to buyers or sellers, these rental information agencies (RIAs) assemble a list which is offered, for a front-end fee, to the opposite side of the market. During times of excess demand, sellers are organized and the list of vacancies sold to tenants; during times of excess supply, tenants are organized and a list of tenants sold to landlords. It seems reasonable to suppose that there is some "grey" area of market condition (perhaps vacancy rates between 2-6 percent) where neither side could be profitably organized.

Recently rental housing markets in North America have been characterized by excess demand (low vacancy rates) and RIAs have entered, offered free advertising to landlords or in some other way obtained a list of vacancies, and sold the right to examine this list to tenants. The right to examine the list lasts for a year and costs approximately \$25-\$35. The RIA does not permit the removal of the list and limits the time spent in examination. Policing costs are relatively high since information tends to have very low transaction costs.

With a free advertising service, landlords face little constraint in specifying the attributes of the desired tenant or the attributes of the dwelling in some detail. There is some evidence to suggest that private information agencies aid in the process of racial, sexual and ethnic discrimination; however I found no evidence to support this.

Searchers become aware of the existence of the RIAs either through word of mouth or through the classified ads. Most of the RIAs placed ads (known as "teasers") in the classified ads which outline the general attributes of properties on the list and then invite the searchers to come to the central office where the complete information on the property is available (for the front-end fee). Teasers never supply enough information that the searcher can contact the landlord without paying for additional information possessed by the RIA.

The front-end fee is slight in comparison to brokerage charges imposed on home buyers, however there are two points to emphasize. First, the aggregate transfer from tenant to RIA is considerable (as is the aggregate transfer from home buyer to real estate broker). A recent study for the Consumer Affairs Department of the city of Seattle estimated that \$300,000 had been paid to RIAs in that city during 1973. A similar estimation made by the Social Services Committee of the city of Vancouver estimated the aggregate transfer as \$800,000 for the same year. Second, the transactions charges borne by homeowners are simultaneously a consumption and investment cost. Well spent, they enhance not only current consumption but future investment gains. In the rental housing market, brokerage charges, even if they are well spent, only enhance the current and future consumption levels. Rent and search costs can never be recaptured in future land and building values by tenants.

At issue in recent political debates has been the actual contribution made by these firms to the economic welfare of tenants. Various consumer activist groups have alleged that the information provided by these firms tends to be wrong, duplicated by other firms, and has diverted rental housing information from low cost classifieds to these higher cost private information agencies. Since the quality of information cannot be inspected prior to its consumption by the searcher (since this would leave the RIA with nothing to sell), it has been alleged that tenants can be trapped into paying the front end fee out of desperation (in markets with very low vacancy rates) and end up getting nothing for this money. Since the front-end fees are not scaled in accordance with incomes it is argued that this bears heavily on low income tenants.

These allegations are quite difficult to test. Naturally these firms are extremely circumspect about releasing information on their current listings so the allegation of duplication cannot be evaluated. Similarly the charge that they often list vacancies which have been filled is extremely difficult to treat since that would require the investigator to have complete market knowledge and the complete lists provided by these firms. The allegation that listings have been diverted from classifieds to RIAs can be tested by using the teasers as a measure of RIA activity.

Cross-section analysis is a convenient way of testing the relationship



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between the vacancy rate and the level of RIA activity. Table C presents data which indicates that there tends to be an inverse relation between the vacancy rate and the level of RIA activity.

**TABLE C  
INFORMATION IN CLASSIFIEDS BY CITY**

<b>City</b>	<b>Vacancy Rate (Dec. 1973)</b>	<b>Level of RIA activity* ADACT</b>
Montreal	2.0	.17
Toronto	1.5	.25
Winnipeg	3.5	.05
Calgary	7.9	.10
Edmonton	5.3	.12
Vancouver	.4	.40

\*Column inches of ads placed by RIAs divided by total column inches of rental housing advertising (monthly averages for the largest evening newspaper).

Regressing advertising activity on the vacancy rate results in the following relation:

$$\text{ADACT} = .29479 - .03295 (\text{VACRAT}) \quad R^2 = .51971$$

It is probable that the usage of RIAs is affected by the population of an area and the average incomes. Certainly small villages with very low vacancy rates are unlikely to induce any one to enter into information brokerage. Also, as average incomes rise, the Linder Theorem (Linder, 1971) suggests that time intensive activities are dropped from consumption. In other words, brokers who offer saving in search time are utilized to a greater degree. Introducing these variables into the regression improves the specification; the  $R^2$  rises by .1 and the variable VACRAT becomes less important in explaining the variation in ADACT.

The diversion of information from low cost classified advertisements – low cost to the consumer that is – to higher cost rental information agencies can be seen in the following table. Even though the rental information agency uses the classified ads to promote its existence, the space purchased does not represent the same quality of information than advertisements purchased by landlords directly. The data presented in Table D is for Vancouver.

**TABLE D**  
**THE PENETRATION OF RENTAL INFORMATION AGENCIES**  
**INTO THE SUPPLY OF RENTAL HOUSING INFORMATION**

Month	Vacancy Rate	Percent of Housing Classified Ads by Rental Information Agencies
		0
June 1970	3.1	0
Dec. 1970	2.3	0
June 1971	4.1	1
Dec. 1971	2.8	5*
June 1972	2.4	11
Dec. 1972	.6	20
June 1973	1.0	26
Dec. 1973	.4	31
June 1974	.2	30**
Dec 1974	.1	

\*Rentex, a multinational Rental Information Agency, enters the Vancouver area.

\*\*The rate of growth slows due to impending legislation requiring service for fees.

SOURCE OF DATA: *Vancouver Sun* and C.M.H.C.

### III. Public Policy Towards the Brokerage of Information in Rental Housing Markets

Intervention in a free market has been advocated for several reasons, the most common being that the private sector has failed to provide a socially optimal level of service at prices which are "just". Regulation can range from setting quality restraints on outputs or factor inputs (drug testing and the licensing of drivers), price and quality controls (rent control and farm quotas), and at the extreme, public provision of the good or service.

Most economists have despaired of finding an objective rule for when to intervene in a market. For example, in the provision of public goods Buchanan writes;

"Decisions on the demand and supply of public goods are made through the political not market institutions and there is no analogue to competitive order that eases the analytical task."<sup>10</sup>

The consensus among economists appears to be that various options ought to be evaluated as objectively as possible, the evidence presented to public decision makers and then the political process ought to be allowed to choose the optimal policy.

An important instance in which it is strongly argued that the government ought to intervene is the decreasing cost industry. Some authors feel that the production and distribution of information are characterized by increasing returns throughout all ranges of output. An argument advanced by authors such as Zeckhauser (1970) is that the marginal costs of providing additional consumers of information are very low; they postulate that average costs invariably exceed marginal costs over wide ranges of output and that monopoly is the equilibrium structure of the information industry. This conclusion does not conform with even casual empiricism. Many firms disseminate infor-

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mation and, while they are certainly not operating in perfectly competitive environments, they certainly are not monopolies. Examples are the radio and television industry, newspapers and of course, real estate agents.

In addition to casual empiricism, there are good reasons for supposing that information brokerage does not naturally tend toward monopoly. For example, in the rental information industry, entry requirements are very low and the provision of classified advertising space for rental housing by a newspaper is a joint cost which, although difficult to separate from the other costs of production, is probably also very low.

A countervailing tendency that also acts to proliferate information firms is the ease with which information may be duplicated. Once the basic list of vacancies has been assembled, there is no reason why several firms cannot sell the same market data. Information is probably the easiest good to falsely differentiate given the existence of front-end fees and prohibitions against inspecting information prior to its consumption. This tendency towards false differentiation is greatest during periods of excess demand.

The arguments that information brokerage tends towards natural monopoly are suspect and unproven; however it is still possible to advocate government intervention on the grounds that during periods of excessive demand the quantity of information provided per dollar expenditure by the consumer drops dramatically. Of course, a problem that underlies this assertion is the extreme difficulty in measuring quantities of information.

At first glance, estimation of the value of information in any market may appear to be impossible. In theory the matter is straightforward enough. Information is an intermediate good, used by consumers to produce utility (along with the goods and services consumed, of course). By postulating the consumer under various information environments – that is by computing the direct costs of acquiring information with different institutional arrangements – it is possible to gain some intuitive idea of the gains from various policies. The gain is simply the cost saving from alternative legal frameworks. Given that even the direct costs of providing information (accurate information that is) are probably immeasurable, the policy maker is limited to very general guidelines and rules.

There are three possible actions that governments may take with respect to rental housing information. First, they may do nothing. During periods of excess demand as characterized by many North American cities, and given growing consumer and tenant militancy, governments may find this politically impossible. Second, the state may erect a web of legislation in response to consumer pressure to remove the alleged inequities. For example, rental information agencies may be regulated, special subsidies given the handicapped to reduce search costs, etc. Finally, the government may feel that the market has failed completely and decide to provide information in addition to or in place of some or all of the information brokers operating in rental housing.

The second option has been favoured by many governments in North America. Legislation, requiring that payment not be demanded before the consumer has found suitable accommodation has meant that many firms have quit the industry.<sup>11</sup> In most cases these firms found that the collection costs of fees were too high to permit profitable operations. Other legislation has banned these firms completely by revoking business licences with the result that the classified ads once again function as the primary broker of market data. In all cases the number of firms in the rental information industry has declined – something which economists are prone to condemn. In this case, it appears to have

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FOOTNOTES

<sup>1</sup>See West and Tinic (1972) for an interesting account of the economics of stock market brokerage.

<sup>2</sup>McCall (1971) and Rothschild (1974) contain very useful and cogent surveys of the literature.

<sup>3</sup>Rothschild (1974) and Telser (1973) are the relevant articles.

<sup>4</sup>Mason (1975, 1976) contains models of decay in storage vectors of searchers.

<sup>5</sup>See Harnett et. al. (1968)

<sup>6</sup>See Liebert et. al. (1968).

<sup>7</sup>Case (1965) is a representative discussion and Becker (1972) presents an excellent discussion of the entire issue.

<sup>8</sup>On-street advertising includes notices in public places in addition to signs in front of buildings.

<sup>9</sup>Evidence given before the Social Services Commission of the City of Vancouver, August 2, 1974.

<sup>10</sup>J. M. Buchanan, *The Demand and Supply of Public Goods* (Chicago, Illinois: Rand McNalley Publishers, 1968), p.5.

<sup>11</sup>See Mason (1975) for a further account of this legislation. Also, recent issues of *Consumer Reports* contains accounts of such legislation.

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