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HOUSING IN CANADA: AN ANALYSIS OF INTERURBAN VARIATIONS
IN THE CONCENTRATION OF CANADIAN HOME OWNERSHIP
STIMULATION PLAN GRANTS

by

MICHAEL J. NEALS, B.A.

A thesis submitted to
the Faculty of Graduate Studies and Research
in partial fulfilment of
the requirements for the degree of
Master of Arts.

Department of Geography

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ABSTRACT

Housing has been a focus of geographical research in a variety of spatial and subjective contexts ranging from neighborhood scale analyses to national level modelling. The implementation of home ownership assistance programs on a national basis adds a new dimension to geographical housing research as individual cities respond differently to the availability of home buyer grants. Following a review of the dynamic processes which influence the level of house building activity within and between markets, this thesis focuses on the causal factors which influenced interurban variations in the concentration of Canadian Home Ownership Stimulation Plan grants, the federal government's most recent home ownership assistance program. A cross-sectional statistical analysis of housing market indicators isolates those variables which are most amenable to grant concentration and therefore provides an explanatory model of housing demand for the CHOSP period as well as a unique geographically based program evaluation tool.

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CHAPTER I

INTRODUCTION

The provision of new housing in urban areas is a dynamic process which balances the needs and desires of the population with a complex set of forces which determines its cost, quality, and availability. The structural heterogeneity of these components inherently produce what economists label as market imperfections which sometimes conflict with the goals of public policy and result in circumstances that are counter-intuitive in a normal market process. An inflationary economic environment coupled with high interest rates is one such imperfection which has had a disproportionate impact on first time home buyers since interest payments under these conditions reduce disposable income as mortgage credit becomes more expensive and less available. In order to assist potential home buyers the federal government has,

on a number of occasions, intervened by offering cash grants or loans, reinforcing its historical commitment to promote home ownership as the most acceptable form of housing tenure for Canadians. The factors which influence the spatial concentration of that assistance as well as its impact on localized housing markets is what primarily constitutes the focus of this thesis.

During the global recession which peaked in the early 1980's the domestic economy was burdened with high inflation and volatile interest rates. The resulting impact on the housing sector was far reaching, - new housing starts and resale activity had reached their lowest levels in twenty years. In an attempt to mitigate the effect of sustained economic uncertainty and to stimulate activity in a multiplier-oriented sector, the federal government announced in a budget speech on June 28, 1982 that a \$3,000 grant would be available to Canadians to assist them in purchasing a home and labelled the program as the Canadian Home Ownership Stimulation Plan (CHOSP). Those who qualified for the grant included all purchasers of new homes and first time purchasers of existing homes. Eligibility for the grant was further limited by the following conditions:

- (1) CHOSP homes had to be intended for occupancy as the grant recipient's principal residence,

- (ii) payments were limited to one grant per purchaser,
- (iii) home buyers were to provide a minimum 10% of the purchase price from their own resources for the downpayment,
- (iv) when downpayments represented the minimum 10%, the \$3,000 grant had to be used solely to reduce mortgage debt,
- (v) the purchase price of the home was not to exceed \$100,000 except in the Census Metropolitan Area of Toronto, Victoria (Capital Regional District), the Greater Vancouver Regional District, Calgary, and Edmonton where the purchase price was not to exceed \$150,000,
- (vi) for new house CHOSP grants, houses had to be constructed and previously unoccupied, under construction or beginning construction before May 1, 1983. The close of sale had to have had taken place after June 28, 1982 and the signed and accepted Offer to Purchase had to be dated no later than December 31, 1983,
- (vii) for existing home CHOSP grants, the close of sale had to have taken place after June 28, 1982 and the signed Offer to Purchase dated no later than December 31, 1982.

It is the primary objective of this thesis to show how localized housing markets responded to the availability of the CHOSP program by delineating the configuration of conditions most amenable to CHOSP grant concentration. As a surrogate measure of housing demand, the concentration of CHOSP grants can be causally linked to fundamental supply and price conditions which vary spatially as well as across particular submarkets of the urban population. These variations are largely due to structural

characteristics that are heterogeneous and dynamic in nature and therefore result in differential responses to externally induced demand stimuli such as national home ownership assistance programs.

Geographical studies in housing have dealt with a variety of topics including urban ecology, demography, spatial economics, and more recently, public policy. There has been an equally diverse range of geographical scales employed in these analyses, ranging from microspatial processes at the neighborhood scale to aggregate components of the housing sector at the national scale.. Chapter 2 of this thesis accordingly provides an overview of the major contributions geographers have made to Housing research.

Chapter 3 follows with a descriptive review of the structural components of the Canadian housing sector and the interactive response mechanisms which determine demand, supply, and prices in the market. Particular attention is given to the relationship of rents, vacancies, and prices to subsequent levels of housing demand. In order to fully understand this relationship, the mechanisms triggering new construction are described in a theoretical stock-adjustment model.

Canadian housing policy has traditionally reflected the ideology that housing is a social right which generates intangible as well as economic benefits and, therefore, that its provision is not solely determined by normal market forces. Chapter 4 reviews the degree and nature of the federal government's involvement in the housing market through monetary and fiscal policy as well as through specific programming interventions aimed to influence the demand and supply of various types of housing. The review then focuses specifically on opposing views of public sector home ownership assistance and its viability as a vehicle for redistributing income and for reallocating housing through the downward filtering process. The chapter concludes with an examination of the market conditions which dominated the pre-CHOSP period and ultimately influenced the decision to implement the program.

In order to gauge empirically the impact of the program, Chapter 5 is devoted to a statistical analysis of the geographical distribution of CHOSP grants and the housing market conditions correlating to their spatial concentration. A multiple regression analysis of cross-sectional housing market indicators isolates the factors contributing most to CHOSP grant concentration and

shows how specific submarkets emerge as implicitly targeted groups of the urban population. Finally, post-CHOSP housing market indicators are compared to those preceding the program period in order to determine the extent to which the federal government's program objectives had been realized.

The concluding chapter summarizes the results of the empirical analysis and highlights the major themes emerging from the literature review. The appropriateness of home ownership assistance is readdressed in view of the performance of previous programs and of the issues which will likely influence the orientation of future policy and programming initiatives.

CHAPTER II

SELECTED GEOGRAPHICAL CONTRIBUTIONS TO HOUSING RESEARCH

From a geographical perspective, residential land users are the largest consumers of urban space, thus the planning, quantity, and quality of housing collectively determine the urban fabric or physical morphology of an area. In addition to its obvious link with the urban landscape, housing has also been an explicit focus of research in migration studies, social area analyses, urban ecology, and a variety of other aspects of human and economic geography.

A review of the geographical literature in housing reveals three major schools of thought from which the majority of studies are based. The first is that of the urban ecologists (i.e., Park, Burgess, and McKenzie, 1925 and Hoyt, 1939, 1966) who trace spatial patterns in residential development to socially oriented processes. The second major school is comprised of the neo-classical economists (i.e., Alonso, 1964 and Muth, 1969) who attribute the allocation of urban land and the development of

residential housing to a competitive bidding process whereby higher order land uses and location are determined by the conventional forces of supply and demand. The Marxist literature (i.e., Harvey, 1978) constitutes the third major school which interprets differential rates of spatial development as a result of the capitalist system's inherent requirement to accumulate capital.

Park, Burgess, and McKenzie (1925) contended that the flow of new housing would arise from a process of "invasion and succession" whereby new groups would penetrate and eventually dominate areas previously occupied by groups of a lower social class. This social displacement process would yield a similar spatial pattern as that resulting from the competitive bidding process except higher land values are replaced by different levels of social status.

While the process of invasion and succession is primarily socio-ecological, Park, Burgess, and McKenzie also acknowledged the relative importance of purely economic forces in the urban land market;

Land values are the chief determining influence in the segregation of local areas and in the determination of the uses to which an area is to be put.

(Park, Burgess, and McKenzie, 1925, p. 203).

From a similar socially oriented perspective, Hoyt (1939) concluded that the residential location of higher status individuals determined the pattern of subsequent development in a city. Expansion of high status sectors would occur outward from the centre of the city, parallel with major transportation arteries and usually adjacent to the most popular environmental amenities. As an extension to his sectoral growth theory of residential neighborhoods, Hoyt (1966) mapped the location of high and low income households from the 1960 Census for 69 metropolitan areas in the United States. The results clearly delineate separate nodal concentrations of high and low income households but since his data were cross-sectional and static, no attempt could be made to depict variations in the pace or direction of growth. Hoyt's work did nevertheless, provide a benchmark inventory upon which future comparisons ensued.

Following a more classical economic approach, Alonso (1964) argued that competing land uses are spatially sorted according to their relative ability to pay the costs associated with locating closer to the centre of the city. This ordering process resulted in the traditional pattern of concentric zones, each consisting of homogenous land uses and values, radiating outward from the city centre. In reality, such a rigid separation of land uses

distorts what has been observed as a heterogenous mix of land uses at all distances from the centre of the city. In theory, however, Alonso's model provided the framework from which the classical bid-rent relationship is based, benefiting subsequent models of urban land use. Furthermore, the bid-rent relationship allowed changes in income, population, and transportation to be conceptualized in an urban spatial model. For example, Alonso's explanation of the tendency for some higher income households to locate in peripheral areas is based on the tradeoff between relatively more housing space and distance;

Given any combination of land and distance, a small increase in distance will produce dissatisfaction, and will have to be compensated for by a small increase in the quantity of land for satisfaction to remain the same.

(Alonso, 1964, p.26)

In economic terms, Alonso's theory holds true when the income elasticity of demand for space exceeds the income elasticity of the marginal cost of travel. Other geographers, notably Muth (1969) and Mills (1970) have based similar analytical models on the bid-rent relationship which originated from Von Thunen's classical agricultural land use model (1826).

An interesting and often cited alternative explanation of urban residential decentralization is that offered by Park and Burgess (1925). Their theory attributes outward movement of the middle and upper classes to the growth, development, and aging of the inner city over time. Specifically, their rationale is based upon empirical observations of the spatial characteristics of the Chicago housing market. It was found that wealthier social classes, originally based in central areas, moved outward because rapid urban growth encroached their neighborhood amenities and since central area housing was the oldest, it was the first to become obsolete. Park and Burgess's interpretation of the spatial arrangement of urban social classes as explained by the growth and aging of central areas formed the basis of what became widely accepted as the concentric zone theory of housing.

The demand for new housing is a principal factor in determining the spatial structure of a city, thus the quantitative estimation of that demand is important for developing explanatory models of urban growth within and between cities. Geographers have often disaggregated the housing market according to various criteria in order to interpolate and predict variations in the level of housing demand and corresponding adjustments to the overall

stock. Such disaggregation allows for flexibility in terms of choice of analytical technique and scale of analysis. Accordingly, the housing market has been analyzed at the neighborhood, urban, regional, and national scales as well as according to demographic profile and functional submarket (i.e., renters, owners, first time buyers).

Variations in demand have also been quantitatively estimated according to other criteria such as housing quality. For example, Muth (1969) estimated the income elasticity of what was classified as substandard housing at -2.5; indicating that a 10% increase in income would result in a 25% reduction in the incidence of substandard housing, a substantial decrease (Muth, 1969 p.199). Perhaps the most significant finding of the analysis was that dwelling unit conditions adjusted to changes in the income level of its inhabitants over time. Employing multiple regression analysis, Muth found that with all other variables controlled for, there emerged a significant inverse relationship between the proportion of housing in Chicago classified as substandard by 1960 Census definitions and median income levels. This particular observation is often referred to in the literature to question the functional existence of the

"filtering process" which purports that the quality of low income housing could be improved if additions to the stock are made exclusively at the top end of the market. Subsequent studies (DeLeeuw 1971, Smith 1971, Carliner 1973) have estimated elasticities to be somewhat lower than those calculated by Muth but the literature generally supports a strong causal relationship between changes in household income and housing quality.

Another aspect of urban housing which is prevalent in the literature is the cyclical nature of residential building and its effect on city growth and neighborhood change. Due to the uncertainty and instability they create, temporal fluctuations in housing supply are important to gauge and explain particularly because of the functional interdependency between residential construction and other sectors of the economy. One study often referred to in this area is that of Hoyt (1933), a detailed explanatory analysis of movements in one hundred years of land values in Chicago as they related to local economic variables. Similarly, but at a broader scale, Firestone (1951) attempted to explain short and long term building cycles in Canada by national scale variables (i.e., GNP, aggregate expenditures in construction).

Interpretations of building cycles also vary on an ideological basis. Harvey (1978) attributed the existence of such cycles to the capitalist system's requirement to accumulate progressively increasing quantities of capital achieved by maximizing profit through "uneven spatial development of the built environment" (Harvey, 1978, p. 118). Harvey acknowledges the profit motivated movement of capital between economic sectors but does not provide an explanation of why profit potential varies spatially or across economic sectors at specific temporal intervals.

While there are more detailed analyses of building cycles in the neo-classical economic literature (Auer 1975, Swan 1975), these tend to focus primarily on national scale variables and are therefore somewhat deficient in their ability to explain variations between urban markets. The specific processes affecting construction cycles at the urban scale are discussed in detail in Chapter 3.

Urban housing research has more recently concentrated on the effects of specific dynamic processes and spatial patterns particularly in the intraurban context. For example, the apartment building boom and employment decentralization trend of the 1960's and 1970's, and in

more recent years, the impact of inner city rehabilitation and urban transit system development have contributed to the variability and complexity of housing research. In addition to these specific processes and patterns, the recent literature has also been characterized by a certain multidimensionality in that housing has been analyzed as an economic commodity, a social good, or as a public service. Regardless of which analytical approach is taken, however, there are a number of unique characteristics of housing as identified by Bourne (1981) which separate it from other types of geographical or economic phenomena. These include:

- (i) Fixed Location - Unlike its consumers, the housing stock is immobile;
- (ii) Durability - the housing stock has a relatively long life span in comparison to other commodities;
- (iii) Limited Adaptability - as a result of its fixed location and durability, the housing stock is slow to respond to changing demands;
- (iv) Heterogeneity - the housing stock is complex and diverse as are the services it produces;
- (v) Exogenous Influences - housing is highly sensitive to public policy and changes which are external to local markets;
- (vi) Externalities - exert a powerful influence on what happens to any single housing unit or group of units.

In addition to these characteristics which are generally microspatial in nature, the housing stock

possesses unique market properties which contribute to the general condition of the macroeconomy. Briefly, the supply of housing is important vis à vis the economy for three primary reasons. Firstly, it is often used as a macroeconomic policy instrument in countering the impact of business cycles, particularly since activity in the construction industry is transmitted through backward and forward linkages. These linkages provide a vehicle for multiplier effects such as the provision of social services and local infrastructure (i.e., roads, schools, and public utilities). Once in place, additions to the housing stock require the production of consumer durable goods (i.e., furnishings and appliances). Secondly, housing is of great importance to Canadians individually since expenditures on housing, fuel, power and furniture comprise approximately 29% of total personal expenditures (Goldberg, 1983, p. 8). Thirdly, an extremely high volume of financial resources flows through the mortgage market in Canada. In 1980, for example, new mortgage loan approvals equaled all new issues of government bonds, plus all new corporate bond issues, plus all new issues of common and preferred stock (Goldberg, 1983, p. 7).

As a result of these interdependencies with the economy, there has been an increasing degree of government

intervention in the housing sector which has given rise to ~~an~~ additional dimension of geographical housing research. Since World War II, Canada Mortgage and Housing Corporation (CMHC) has been responsible for administering federal housing programs and ensuring the provision of adequate housing at the national level through a multitude of policy and programming initiatives. The frequency and magnitude of these interventions have received much criticism in the literature, especially in the past ten years. For example, Fallis (1980), Smith (1981b), and Dowler (1983) have questioned the underlying economic rationale for selected forms of home ownership assistance while Dennis and Fish (1972) and Archer (1980) have criticized the ideological foundations of housing programs and the lack of a clearly articulated national housing policy.

Given the heterogeneity of characteristics between and within Canadian housing markets, a need has arisen to identify and analyze the differential impact of nationally implemented policies and programs on individual cities. Following a descriptive review of the geographical and economic processes of the housing market, this thesis focuses on the interurban impact of the federal government's most recent home ownership assistance

program, the Canadian Home Ownership Stimulation Plan. By employing multiple regression analysis on cross-sectional urban data, the methodological approach provides a geographically oriented explanatory model of housing demand and serves as a unique evaluation tool for nationally implemented housing programs.

CHAPTER III

HOUSING MARKET COMPONENTS AND PROCESSES

3.1 The Determinants of Demand

The determinants of the demand for housing are similar to those of other durable goods (i.e., demographic factors, income, credit terms, prices, expectations, and consumer preferences). Some are long term determinants (age structure) and others are shorter term determinants (mortgage terms). Unlike demand, the supply of housing is quite inelastic in the short run since it takes time to gear up production and as a result, at least 97% of the total stock is represented by houses that are already built (Bourne, 1981, p. 17).

The age distribution of the population is a particularly important determinant since the type and quantity of housing demanded tends to vary as individuals go through their life cycle. The maturation of the post war baby boom in the 1970's significantly increased

the rate of household formation as did the "undoubling" of families previously sharing accommodation, the increase in the number of households caused by divorce, and the decisions of young and old to maintain independent households (Newman and Clatworthy, 1982, p. 20). Current projections from Statistics Canada indicate a decline in the rate of household formation to 1991; in relative terms, the annual rate of household formation in Canada in 1991 is expected to be half of that in 1971 - from 3.24% to 1.68% (Statistics Canada 91-517 p. 55).

It is this demographic restructuring that will result in far fewer new homes in the future. Table 3.1 shows CMHC forecasts of annual housing requirements for Canada to 1991. Most significant to note is the large decline (-36%) in total requirements and the even more significant decline in rental requirements (-70%). The reliability of these estimates is questionable given their magnitude (particularly in the rental sector) but credence should be given to the fact that the demographic restructuring of the Canadian population will inevitably lead to reduced housing demand. Logically, the nature of that demand will also change since an older population will likely result in a diminished demand for rental housing particularly among newly formed households and students, a reduction in

TABLE 3.1

NEW HOUSING REQUIREMENTS

CANADA

<u>YEAR</u>	<u>RENTAL</u>	<u>OWNERSHIP</u>	<u>TOTAL</u>
1980	99,200	136,000	235,200
1981	97,000	140,300	237,300
1982	92,700	143,100	235,800
1983	87,700	145,300	233,000
1984	79,500	145,000	224,500
1985	69,700	144,200	213,900
1986	58,800	142,700	201,500
1987	47,400	141,600	189,000
1988	37,400	139,300	176,700
1989	28,900	136,800	165,700
1990	28,000	128,200	156,200
1991	29,500	120,100	149,600

Source: (Newman and Clatworthy, 1982, p. 25).

demand from first time home purchasers, growth in the number of second and third time purchasers and a natural increase in demand for self-sufficient housing for the elderly (Newman and Clatworthy, 1982, p. 27).

Relative income is another demand factor to be acknowledged. In general, higher incomes may either be reflected in quality improvements (rehabilitation) or dwelling change (rental to owner - occupied). Although the general effect of changing incomes can be easily identified in the housing market, measurement of the precise impact of an incremental increase in income or of a change in price would require a mathematical estimation of income and price elasticities of demand which is not within the scope of this analysis nor have previous attempts been particularly successful to gauge accurately elasticities.

While demand elasticity estimates could theoretically provide an indication of interurban variations in the market's sensitivity to price changes, there is no unanimity among academics and other industry analysts as to their exact magnitude. Much of the debate centres around empirical estimates of income and prices, variable definition, equation specification, and choice of

analytical technique. Furthermore, their applicability as analytical or predictive tools is constrained by their inability to reflect dynamic processes which are inherently characteristic of housing markets. As Mayo (1981, p. 111) notes,

(elasticities) have been based on static cross-sectional models... By assumption they reveal long-run parameters of housing demand: in fact they reveal little of short-run housing behavior.

Previous analyses have adopted a variety of sample selection techniques in order to correct for the heterogeneity of the housing stock. As Vaughen (1976) indicates, the unintended result of this type of methodology is either selection of a subset of the housing stock that has a supply elasticity which differs from that of the total stock or isolation of a particular subset of the population which has a significantly different demand elasticity. Thus, the wide range of elasticity estimates found throughout the literature may be attributed to variations in sampling techniques as well as measurement or specification error (Vaughen, 1976, p. 46). There are, nevertheless, several order of magnitude generalizations that can be made about price and income elasticities which are relatively consistent throughout the literature. For example, DeLeeuw (1971, p. 1) in his examination of several U.S. housing markets found that income

elasticities appear to be lower for non-white households than for all households and that they generally increase with household size. Similarly, the demand for both owned and rented housing is price elastic but the literature consistently indicates that the price elasticity of demand for owned housing is relatively greater.

The demand for housing is conventionally expected to be inversely related to its price but the relationship is often distorted by the multidimensional nature of the price of housing services. In the case of rental housing, the nominal rental charge usually serves as an adequate indicator of the price whereas in the owner occupied market, the nominal purchase price is not the most important factor - it only reflects part of the total cost of home ownership. Other costs include property taxes, insurance, utilities, maintenance, depreciation, transfer costs, the opportunity costs of the owner's investment, and interest payments on money borrowed to purchase the unit.

The most significant trend with respect to housing prices in the past twenty years was the dramatic increase in lot and house prices in the 1970's. One of the most comprehensive analyses of the supply and price of serviced

residential land in recent Canadian history is the Greenspan Report (Down to Earth, 1978) which concluded that it was the high demand for housing in the 1970's that forced lot and house prices to increase. This demand-pull mechanism was fueled by a number of factors which affected the market concurrently:

- (i) the baby boom generation became house buyers,
- (ii) the number of two income families rose which increased the purchasing power of the average household,
- (iii) an abundant money supply enabled mortgage lenders to finance purchases,
- (iv) rising prices may have fueled expectations of further price increases and encouraged potential buyers to buy sooner,
- (v) dramatic increases in the number of non-family households (Goldberg, 1983, p. 25).

On the supply side, there are a number of cost-push factors particularly with respect to labour and building material inputs which can also be causally linked to rising house prices in the 1970's. Between 1961-1981 construction wage rates rose by 454% while material costs increased 241% (Goldberg, 1983, p. 30). The incremental impact of rising input costs is difficult to gauge since they do not affect prices of the existing stock. They are nevertheless significant in the long run as more expensive houses enter the market.

Another theory that has been forwarded regarding escalating house prices in the 1970's asserts that the ownership of undeveloped land is concentrated and that owners inflate prices by withholding land thereby raising new housing costs and causing a suboptimal stock of housing (Fallis, 1983b, p. 22). Markusen and Scheffman (1977) conversely argue that monopoly ownership of vacant land does not adversely affect the market in terms of efficient resource allocation. Moreover, the Greenspan Report concluded that the degree of ownership concentration is not significantly high in the 13 metropolitan areas which it examined. This may be attributed to the fact that the existing stock is largely privately owned, thus tighter market structures are more likely to exist in the new house or flow market which typically only represents 1-3% of the total stock (Bourne, 1981, p. 17).

Bourne (1977, 1981) notes that the capture of excess and unearned profits by land speculators has also contributed to higher housing prices. Admittedly, this may cause short run prices to diverge from their long run equilibrium levels but as Markusen and Scheffman (1977) argue, the long run effects of speculation may be beneficial since speculators bear risks which would otherwise have to be borne by more risk averse agents.

If the determinants of the demand for housing were to be ranked according to their relative influence, the cost and availability of mortgages would predominate as the most influential determinant, at least in the short term. Particularly in recent years, the combined effect of inflation and high mortgage rates has decelerated the process of converting potential to effective demand. In an inflationary environment characterized by high and variable interest rates, the real returns to mortgage lending fluctuate significantly since lenders borrow at one rate and lend mortgages at a higher rate. If inflation is high and unpredictable, lenders ensure an adequate return by setting rates significantly above those dictated by the prevailing inflation rate. The resulting high mortgage rates lead to what analysts label as the "tilt problem" which occurs when significantly higher costs are imposed on borrowers in the early years of a mortgage.

CMHC's policy response to this disproportionate impact of inflation on home buyers was the Graduated Payment Mortgage which was designed to ensure that initial payments started well below the level dictated by prevailing interest rates. Gains made in the early years of the mortgage, however, were negated by a prespecified

graduated payment scheme. Incremental increases in monthly payments were perceived to be acceptable since the majority of home buyers consist of upwardly mobile families with rising incomes. The obvious criticism to be considered is that there was an inherent degree of financial uncertainty which home owners faced since payment to income ratios increased over the entire mortgage term even if incomes did not increase simultaneously.

In times of increasing demand, the total cost of obtaining mortgage credit not only includes the prevailing interest rate but also the temporal delay resulting from non-price rationing or queuing. Thus the rate of conversion of potential to effective demand is partially determined by the quantity of mortgage credit available and the associated queue length.

Another factor influencing the availability of credit is the degree of alleged mortgage lending discrimination against particular subsets of the market (i.e., rural dwellers, immigrants, and women). While loan application rejections are not conclusive proof of discrimination, the Canadian Council on Social Development identifies credit discrimination as a genuinely serious non-competitive

market imperfection (Canadian Council on Social Development, 1980, p. 160).

3.2 Vacancies and Rents

Apartment prices, or the level of rents, generally depend on the cost and returns to landlords. The primary costs include interest, taxes, depreciation and operating costs while the principal revenues are rents, income tax savings, and capital appreciation, the latter two being particularly sensitive to the inflation rate. Changes in operating expenses or marginal costs will be transmitted to rents directly but fixed costs will increase rents indirectly through starts and future vacancies (Capozza, 1980, p. 80). Thus the equilibrium level of rents is determined by the balance between current income and expenses to landlords.

The existence of vacancies in the housing supply is partly due to the lack of synchronization between supply and demand in the market and partly due to the fact that a substantial degree of new construction is undertaken in advance of its sale or rental. The lack of synchronization is due to intermarket population shifts and the fact that buyers and sellers are not completely

informed of each possible alternative in the market. The conventional level of vacancies tends to be lower in the case of builders of housing than for landlords renting housing and a divergence of vacancies from their normal market levels is expected to produce a more immediate reaction from builders than landlords. This can be explained by the higher carrying costs associated with the holding of vacant houses as opposed to rental units (Stokes, 1979, p. 24).

There are basically two types of vacancies; older units available for re-occupancy and newly constructed units which have yet to be occupied. While both are important indicators of market conditions, the latter have the most significant and rapid impact on starts. Such vacancies slow the rate of sales and lower the prices of competing units to a much greater degree than vacancies in older units.

With respect to the level of rents, it is generally accepted that rents increase as the vacancy rate decreases. To illustrate this relationship, the percentage increase in the CPI Rent Index was plotted against vacancy rates for apartments (Figure 3.1). There is clearly an inverse relationship between the vacancy

FIGURE 3.1
VACANCY RATES AND RENT INCREASES
1967-1980 METROPOLITAN AREAS

rate and the rate of rent increases, however, as Capozza (1980) correctly indicates, there are localized, time-specific instances where the relationship can be positive if high vacancies arise from a period of overbuilding stimulated by high rents. For the most part though, the conventionally accepted adjustment implies lower rents when vacancies are high indicating that supply and demand conditions are the major determinants of rent increases in the long run.

3.3 The Interaction of Market Components

The interaction between supply and demand components in the housing market and their externally induced determinants are well illustrated by Bourne (1981) in Figure 3.2. In any given area, the two major components are the housing stock and the inventory of households which are linked by a transaction mechanism which represents the interactive exchange between households and the housing stock. As Figure 3.2 illustrates, completion of the transaction process produces a set of outcomes, such as changes in the level and locational pattern of vacancies, prices, investment, overcrowding, and neighborhood turnover (Bourne, 1981, p. 74). Thus, the housing market is a dynamic system in that the existing

FIGURE 3.2
COMPONENTS OF AN URBAN HOUSING MARKET

SOURCE (BOURNE, 1981)

stock and its inhabitants change over time through the aging process and through externally induced changes which determine the demand for new housing and the corresponding rate of new house construction. Although the components of the market are interrelated, the causal linkages between components vary in intensity over time and space. For example, an externally induced increase in demand may stimulate the construction industry through increased housing starts or may encourage improvements in the existing stock through rehabilitation, depending on local market conditions. Congruently, and more appropriate to this analysis, externally induced increases in demand resulting from home buyer grants will produce variable outcomes from city to city depending on localized market characteristics.

Essentially, the net flow of new housing becoming available to the market equals the sum of completions plus or minus changes in the vacancy rate. Updated inventories of newly completed and unoccupied units influence the perception of builders as they reformulate initiatives to undertake new starts in subsequent periods. These perceptions and corresponding response lags between demand shifts and construction output generally differ between owner-occupied and rental housing since there are temporal

differences in their turnover rates. Owner-occupied units are usually sold upon completion and therefore return equity to the developer and investor relatively quickly whereas rental housing is more of a longer term investment which returns equity slowly through monthly rental payments, depreciation allowances, and in some cases as an investment tax shelter (Bourne, 1981, p. 100).

The stock-flow model developed by Stokes (1979) represents one of the most comprehensive non-mathematical depictions of the relationship between current housing market conditions and corresponding levels of construction output. The model distinguishes between the total housing market and the construction or flow market (refer to Figure 3.3). The supply of housing in the total housing market is represented by SS which is highly inelastic because the supply of housing is essentially fixed in the short run (i.e., unoccupied new housing and existing units for sale). Housing demand is represented by DD which is considered to be relatively elastic with respect to the price of housing since local market areas are subject to significant inflows and outflows of population and income. The intersection of the supply and demand curves determines a price P_0 which is essentially independent of the volume of new construction since new housing typically

FIGURE 3.3
STOCK FLOW MODEL

SOURCE: (STOKES 1979)

represents less than four percent of the total existing stock (Goldberg, 1983, p. 53).

The supply of new construction as a function of the price of new housing is represented by CC, thus given the current level of prices and rents of existing housing, builders and landlords form expectations as to the future profitability of building new units and the amount they are willing to supply. Beyond a certain level of activity, construction costs are considered to increase with the level of output due to pressure exerted on the availability of resources to the industry, accounting for the irregular kink in the supply curve (CC). Higher prices and rents for existing housing and deviations of the vacancy and turnover rates from their normal levels signal builders and landlords of the general magnitude of current demand for new construction. Given the equilibrium price in the housing market, the volume of construction is determined by the intersection of P_0 and the construction supply curve CC at Q_0 . If P_0 is the long run equilibrium price of housing, the volume of new construction would just be sufficient to replace depreciated units of the existing stock. Therefore, at prices above P_0 , net new construction occurs and at prices below P_0 negative net new construction occurs.¹

As noted earlier a number of demographic and economic variables interact to modify the existing level of housing demand and subsequently construction output. For example, if P_0 represents the long run equilibrium price for housing, an external influence such as an increase in income would shift the demand curve to D' . The short run inelasticity of supply results in excess demand at the original price P_0 and the price is bid up until the market is cleared at P_1 . This new price causes builders to reformulate their expectations as to the future profitability of selling or renting housing and the level of construction rises to Q_1 . The addition to the existing stock results in a rightward shift of SS , thus a new price and a new corresponding level of construction output is determined as in the previous period.

It is the inherent inability to quantify accurately the response lag between price fluctuation and construction output which limits the analytical and predictive power of the Stokes model and others of its kind. Another weakness in the model is the assumption that the housing market always reaches an equilibrium position in the short run. In fact, the price of housing may not adjust quickly enough to clear the total housing

CHAPTER IV

FEDERAL HOUSING PROGRAMS AND POLICIES

4.1 Government Involvement in the Housing Market

As a result of its multiplier oriented impact on the economy, housing is very important to policy makers and politicians who often use it as a vehicle for stimulating the economy through programs geared towards employment creation and increased consumer spending. The degree of government involvement in housing has been substantially high in the past twenty years particularly in its pursuit to promote the opportunity of home ownership through financing programs and direct cash grants. With respect to financing alone, there are more than fifty government finance programs in Canada administered by twelve federal or provincial agencies, the largest of which is CMHC (Economic Council of Canada 1982, p. 8). At the end of 1977, CMHC's assets totalled \$9.835 billion, which ranked it just below the Bank of Canada and the Canada Pension Plan in importance as a government intermediary (Fallis, 1983b, p. 11).

identify the most highly correlated temporal delay between mortgage rate changes and housing starts. The results indicate that a significant relationship exists between housing starts (Y) and mortgage rates (X_1) when a three month lag is applied;

$$Y = 301952 - 8820 (X_1) \quad r^2 = .46$$

Y = Seasonally adjusted quarterly housing starts
1978-83

(X_1) = three month lagged mortgage rate
(t signif. at .0003)

Although a significant relationship was developed, the low r^2 value of .46 indicates that a number of other variables, particularly those which are not spatially constant, substantially contribute to the level of housing starts (ie. localized trends in turnover rates, vacancies, rents, prices).

There is considerable agreement in the literature with respect to the influence of these trends on the level of construction output despite the difficulty associated with quantitatively validating the stock flow

relationship. A stimulus in demand at the urban level will yield variable levels of construction volume when duplicated in a later time period due to the dynamic nature of contingent variables. Similarly, a single demand stimulus originating from a national housing program will produce variable results between cities due to the localized character of urban housing markets. It is the variable impact of such a program which is analyzed in depth in Chapter 5 of this thesis.

Footnotes to Chapter 3

- 1 Negative net new construction occurs when the existing stock depreciates at a faster rate than new construction.

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From a broader perspective, monetary and fiscal policies also affect the level of activity in the housing market. For example, in an inflationary environment, the Bank of Canada restrains credit and consequently reduces aggregate spending and investment. This results in higher interest rates and restricts the availability of mortgage credit. Conversely, when looser monetary policies are in effect, credit is eased and the effective demand for housing increases. Fiscal policy affects the housing market primarily through the Income Tax Act which has traditionally reflected the federal government's commitment to promote home ownership through provisions exempting tax on imputed income on owned housing and on capital gains from the sale of principal residences. These provisions, combined with RHOSP deductions total \$6.3 billion in annual foregone tax revenue, an amount far larger than that allocated to explicit home ownership assistance programs (Fallis, 1983b, p. 38). Smith (1981b) estimates that approximately 80% of federal housing assistance occurs through tax expenditures.

There are also other much more manageable and easily targeted demand and supply oriented policies as identified by Goldberg (1983) which are designed to ease the financial burden of home ownership and the high cost of

construction projects. Examples of demand oriented policies include:

- (i) providing rent subsidies/grants and home ownership subsidies/grants (i.e., CHOSP).
- (ii) allowing the deductibility of mortgage interest and property taxes from gross income in the calculation of taxable income (exists in the U.S.; proposed by Clark government in 1979 in Canada),
- (iii) flexible mortgage payment schemes and mortgage rate insurance (i.e., Mortgage Rate Protection Program; introduced in the federal budget, February, 1984).

The problem with such demand oriented policies are their high budgetary costs and generally regressive nature as the benefits accruing from them increase with income. For example, with respect to the benefits from the non-taxation of imputed rent and capital gains exemptions, the average benefit to a household with an income over \$100,000 is over 200 times greater than that accruing to a household with an income under \$5,000 (refer to Table 4.1).

In contrast, supply-oriented policies are designed to stimulate construction and therefore contribute to longer term strategies. Some of these include:

- (i) the Assisted Rental Program and the Canada Rental Supply Plan which offered builders interest and tax subsidies,
- (ii) federal land banking and servicing programs which provide additional supplies of serviced land for residential development,

Table 4.1

AVERAGE BENEFITS FROM IMPUTED RENT AND
CAPITAL GAINS EXEMPTIONS, 1978

<u>Income Group (\$)</u>	<u>% of Total Tax Filers in Group</u>	<u>Average Benefits per Tax Filer(\$)</u>
Under 5,000	31	32
5,000-10,000	22	171
10,000-15,000	18	314
15,000-20,000	13	619
20,000-25,000	8	964
25,000-30,000	4	1312
30,000-50,000	4	1994
50,000-100,000	1	3760
100,000 and over	2	6753

Source: Canada, Department of Finance
Analysis of Federal Tax
Expenditures for Individuals
 November, 1981, pages 12-13.

- (iii) federal cost savings programs such as the removal of federal tax on building materials and the subsidization of land assembly and subdivision. (Goldberg, 1983, p. 65).

Thus, there are two principal mechanisms for allocating housing. The first is the market mechanism which allocates housing on a competitive basis in terms of the values people attach to housing and their relative ability to pay the current market price. The competitiveness of the market, however, is interrupted by the degree of intervention by public agencies which constitutes the second allocation mechanism. Under public sector allocation, governments distribute housing according to the collective needs of the population and on the objectives of public policy which are carried out through broad macroeconomic measures or specifically targeted housing programs.

4.2 Home Ownership Assistance Programs

Archer (1980) identifies an evolutionary stage in federal housing policy and programming initiatives prompted largely by the perception of a housing affordability gap in the early 1970's. These new programs appeared to signal the acceptance at the political level

of an evolution in social welfare values - the right to housing and support for the attainment of home ownership through government became an accepted component of social policy. An extension to this observation is offered by Fallis (1980) who acknowledges a polarization in the recent direction of housing policy to one geared almost exclusively towards middle income households through home ownership assistance programs.

In Ontario, the first of these was the Home Ownership Made Easy (HOME) program which was established in 1967 to encourage home ownership among moderate income groups and to stimulate the residential construction industry. It was generally perceived at the time that house prices were increasing much more rapidly than incomes and that initial costs were going to force potential purchasers to remain in the rental market causing increased demand for public housing. The program eventually facilitated ownership for approximately 25,000 households but forced the entry of lower priced and therefore lower quality homes on the market (Canadian Council on Social Development, 1980, p. 49).

The next major stage in Canadian home ownership policy saw the introduction of the Assisted Home Ownership Program (AHOP) in 1973 which again represented a significant shift in housing policy through its direct subsidy approach. Under the initial structure of the program, CMHC provided annual loans and grants which were used to reduce the cost of principal, interest, and taxes to 25% of income. In an attempt to target specific submarkets of the population, several threshold eligibility provisions were established: households had to have incomes below a certain level, had to be purchasing a house priced below a specific ceiling which varied by city, and had to have one or more dependent children (Fallis, 1983b, p. 48).

In retrospect, it is questionable whether the threshold eligibility provisions established at the outset of the program were appropriately structured for households that could afford the monthly carrying costs associated with owning a home. Moreover, there is evidence which suggests that the program had a tremendous negative economic and social impact in some regions. In the Peel County region in Ontario, for example, AHOP purchasers in the later stages of the program were facing gross debt services (housing cost to income ratios) of

between 46-55% of household incomes. (Canadian Council on Social Development, 1980, p. 45).

As is the case with most medium-long term housing programs, AHOP evolved during its implementation period. In 1976, interest reduction loans replaced AHOP grants and in 1978, the program was converted into the Graduated Payment Mortgage which, as indicated in Chapter 3, offered home owners reduced initial payments which escalated over time but provided lenders with a full market rate of return on loans.

Although proponents of home ownership assistance contend that public sector financial assistance has led to positive economic and social consequences, there is evidence in the literature to suggest the opposite. Smith (1981b) concludes that AHOP did little but distort the normal market process in the 1970's, created unwarranted long term financial commitments for the federal government and contributed significantly to the size of the federal deficit. Fallis (1983b) contends that both AHOP and HOME were unnecessary interventions since they effectively reduced the price of housing to households who were not previously underconsuming housing. In the context of welfare economics, benefit recipients of middle

income home ownership assistance programs would not be net gainers in a Pareto optimal social policy model (Fallis 1983b, p. 102). Fallis (1983b, p. 111) writes:

Mortgage lending and housing assistance are inappropriate instruments. Much of the assistance flows to households who neither under consume housing nor require income transfers. It is there that a change in policy would yield the greatest increase in social welfare.

Thus, as an income redistribution tool, previous housing assistance programs have not represented a socially optimal allocation of resources since they are either explicitly or implicitly targeted to middle-upper income households. Furthermore, from an economic perspective Smith (1981b) and Fallis (1980, 1983a, 1983b) have argued that there is no rationale for the use of home ownership assistance to redistribute income since it can be achieved more cheaply through direct cash grants.

A contrasting argument to the general regressivity of home ownership assistance programs and implicit tax subsidies is made by those analysts who argue that middle-upper income housing assistance can benefit lower income households through the filtering process (i.e., additions to the stock at higher value levels releases higher quality homes for lower income groups). Thus, advocates of the filtering process argue that as long as

the rate of depreciation of the existing stock is lower than the rate of new construction, lower income households benefit from higher quality housing. There is, however, evidence which raises questions as to whether the filtering process actually functions in a manner consistent with the theory.

Lowry (1960) notes that the decline in housing quality through the filtering process burdens low income households with overdue maintenance costs which are often beyond affordable limits. Sweeney (1974) demonstrates that new construction subsidies can actually raise prices on low quality housing, and Bourne (1981) categorically discounts the occurrence of the filtering process since reasonable quality housing will always be occupied by middle and upper income households or converted to other forms of tenure. Thus, the evidence in the literature indicates that the subsidization of housing at the high end of the market primarily benefits middle-upper income households and the extent to which lower income groups gain through the filtering process is highly debatable.

At the political level, one factor which partially explains the government's favouring of home ownership assistance is that home owners constitute a large block of

voters (i.e., accounting for about 60% of all Canadian households) (Dowler, 1983, p. 59). In view of recent trends in the national level of unemployment, particularly in the construction industry, employment creation is another factor often cited in the rationalization of home ownership assistance programs. Although the goals and objectives of specific programs vary somewhat they all essentially reflect the view which is held by most Canadians, that housing is a social right and that home ownership is the most acceptable form of tenure.

A complete inventory of public sector policy and programming initiatives in the housing sector would reveal a myriad of federal and provincial home ownership assistance programs over the past twenty years but it appears that there is little evidence to support or dismiss their effectiveness as appropriate policy responses nor have detailed studies been undertaken to assess or even delineate their spatial incidence or urban market impact. The balance of this thesis focuses on the distributional aspect of CMHC's most recent home ownership plan, CHOSP, in order to highlight where the grants are concentrated and the market conditions correlating to their spatial distribution. A complete market impact evaluation is not possible at this time since demand,

prices, and rents have not yet stabilized in the aftermath of the program (in fact stabilization may have occurred, but the data required for such an analysis were not available at the time this thesis was written).

Indications of the spatial allocation of grants, however, reveal some interesting trends and policy objectives which have not been explicitly stated by CMHC but are implicitly obvious in view of the evidence which follows. It is necessary, however, to first review the market conditions existing prior to the program's implementation in order to identify the forces which influenced its rationalization.

4.3 The Pre-CHOSP Housing Market

The general effect of the recession in 1981 rippled through the housing sector as interest rates effectively reduced the demand for new housing thereby increasing the rate of unemployment in the residential construction industry. As Figure 4.1 illustrates, during the 17 months prior to the implementation of CHOSP, single detached housing starts decreased from a seasonally adjusted rate of 85,000 to 33,000 starts. As might be expected, the largest monthly decline occurred between September, 1981 and October, 1981 which exactly coincides with the highest monthly level of mortgage rates (20.54%, September,

FIGURE 4.1
SEASONALLY ADJUSTED SINGLE DETACHED STARTS
JANUARY, 1981 TO MAY, 1982

1981). Thus, the short term economic climate prior to CHOSP forced the construction industry to reduce activity to levels well below those implied by previous forecasts. In addition, there appeared to be a certain level of inertia within the industry which delayed the adjustment to lower demand levels, resulting in an unprecedented number of construction firm bankruptcies and equally high unemployment.

As Table 4.2 indicates, there were 1,521 construction firm bankruptcies in 1982 compared to 992 in 1978. With projected housing requirements decreasing annually (Table 3.1, Chapter 3), further structural contractions in the industry can be expected. While construction industry contraction is primarily a long-term phenomenon, the costs and effects of firm closures are far-reaching in the short-term.

Those that are principally affected by construction firm bankruptcies include sub-contractors, suppliers, creditors, and workers through a variety of direct and indirect costs:

- (i) lost or not easily recoverable debts,
- (ii) delays in payments,

TABLE 4.2
BANKRUPTCIES IN THE CONSTRUCTION INDUSTRY
1978-1982

	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>
Newfoundland	3	0	1	4	6
P.E.I.	4	0	3	2	
Nova Scotia	10	13	8	16	12
New Brunswick	5	5	5	7	4
Quebec	234	363	387	471	464
Ontario	391	477	612	578	593
Manitoba	21	21	33	44	54
Saskatchewan	14	24	30	29	60
Alberta	83	113	116	144	172
British Columbia	227	148	109	107	154
CANADA	992	1164	1301	1403	1521

Source: Canada, Consumer and
Corporate Affairs,
1984

- (iii) capital tied up in uncompleted projects,
- (iv) delays in project completion for buyers,
- (v) higher cost of completed products,
- (vi) higher collection costs from creditors,
- (vii) secondary or domino effects, i.e., where a sub-contractor or supplier is forced into insolvency because of another insolvency.
(Currie, Coopers, and Lybrand, 1978, p. 6)

Thus, the level of insolvent closures resulting from high interest rates and lower housing demand between 1981 and 1982 has had a significant impact on the stability of the Canadian construction industry and can be directly linked to the unprecedented level of construction unemployment during that period (réfer to Figure 4.2). As the graph illustrates, unemployment in construction has traditionally been higher than the Canadian average, reflecting the unstable and seasonal nature of construction activity. Most significant to note from Figure 4.2 is the large increase in the construction unemployment rate between 1981-1982, from 13.9% to 20.6%.

It was this high level of unemployment, coupled with the decline in house building activity which prompted the implementation of CHOSP. CMHC's 1982 Annual Report describes the program's objectives:

FIGURE 4.2
AVERAGE UNEMPLOYMENT RATES
(1978 - 1982)

The Canadian Home Ownership Stimulation Plan (CHOSP), introduced in the government's June Budget, was implemented to stimulate the construction of new housing units, thereby creating, employment, and improving access to home ownership.

(CMHC Annual Report, 1982, p. 14)

Although not explicitly stated in the program's objectives, CHOSP may have also been designed to relieve some of the downward pressure on urban vacancy rates. As shown in Figure 4.3 the average CMA vacancy rate in 1981 was 1.2%, well below the theoretically optimal level of 3.0%. Thus, by making owner-occupied housing more accessible via the \$3,000 grant, potential home owners in tight rental markets were given an added incentive to consider in their decision to purchase.

In summary, the pre-CHOSP housing market was dominated by high interest rates, high construction industry unemployment, an increasing number of construction firm bankruptcies and a relatively tight rental market. In order to evaluate the program's effectiveness in responding to these problems, the following chapter examines the spatial incidence and concentration of CHOSP grants and identifies the housing market indicators correlating to their distribution.

FIGURE 4.3
AVERAGE OMA VACANCY RATES
(1977-81)

CHAPTER V
EMPIRICAL OBSERVATIONS OF CHOSP

5.1 Statistical Analysis of CHOSP Grant Distribution

There has been a variety of provincial and federal home ownership assistance programs over the past 10 to 15 years but little evidence to support or dismiss their effectiveness as appropriate policy responses nor have detailed studies been undertaken to assess their spatial market impact. The balance of this thesis focuses on the distributional aspect of the most recent federal home ownership assistance program (CHOSP) in order to highlight where CHOSP grants are concentrated and the market conditions correlating to their spatial allocation. While the primary objective of the program was to stimulate home ownership thereby creating employment, inter-CMA variations in the per capita concentration of grants reveals some interesting policy objectives which have not been explicitly stated by the federal government but are implicitly obvious in view of the evidence which follows.

The general objective of the following statistical analysis is to evaluate the impact of CHOSP on the Canadian market as a whole and on specific submarkets. Specifically, the spatial distribution of grants will be analyzed in order to identify those cities where CHOSP grants are mostly concentrated, and more significantly, to determine the housing market conditions which dominate those areas.

There are basically three stages to the following section. The first involves a multiple regression analysis of the market conditions contributing most to the urban allocation and concentration of CHOSP grants. This is followed by a Z-score grouping of those CMA's with the highest and lowest degrees of grant concentration and a comparative analysis of their housing market indicators. Finally, a brief discussion of seasonally adjusted trends during the CHOSP program period follows.

The general hypothesis to be tested in the analysis is that renters, particularly those in high rent cities, benefited from the program since the propensity to purchase a home can be expected to increase as the cost of rental tenure increases.

The population studied in this analysis includes 23 CMA's as defined in the 1981 Census of Canada. There are, by definition, 24 cities currently classified in the CMA category but insufficient CHOSP grant data warranted the exclusion of Trois-Rivières.

In analyzing the incidence and concentration of CHOSP grants, it is important to differentiate between grants for new houses and those for existing houses. Since the existing house portion of the program only extended through the first six months of the total program period, it is equally important to distinguish between two demand regimes: Period One (July 1982 to December 1982) and Period Two (January 1983 to June 1983). This temporal separation is necessary since as Table 5.1 indicates, 70% of CHOSP grants during Period One were allocated for existing houses while all CHOSP grants during Period Two were allocated towards new houses.

As the variables listed in Table 5.2 show, six dependent variables were selected for the regression analyses which are distributional indicators of the spatial allocation of CHOSP grants. Variable One (Y_1) to Variable Three (Y_3) are absolute measures while Variable Four (Y_4) to Variable Six (Y_6) reflect per capita concentration of the distribution of grants. Twelve

TABLE 5.1
DISTRIBUTION OF CHOSP GRANTS
JULY 1982 - DECEMBER 1982 (PERIOD ONE)

	<u>New Houses</u>	<u>Existing Houses</u>
Calgary	1212	1195
Chicoutimi	169	427
Edmonton	1155	824
Halifax	176	377
Hamilton	126	723
Kitchener	257	707
London	95	630
Montreal	1165	1789
Oshawa	243	410
Ottawa	703	1474
Quebec	238	473
Regina	252	818
St. Catharines	40	544
Saint John	18	236
St. Johns	27	242
Saskatoon	271	645
Sudbury	11	90
Thunder Bay	24	266
Toronto	1799	2951
Vancouver	508	3124
Victoria	59	424
Windsor	10	323
Winnipeg	214	1459
TOTAL	8772 (30%)	20151 (70%)

TABLE 5.2

VARIABLE LIST

(Y ₁)	NWGRANT1	-	Period One total of approved CHOSP grants for new houses (July 1982 to December 1982)
(Y ₂)	NWGRANT2	-	Period Two total of approved CHOSP grants for new houses (January 1983 to June 1983)
(Y ₃)	EXGRANT	-	Total approved CHOSP grants for existing houses
(Y ₄)	NEWCONC1	-	Period One concentration of new house CHOSP grants (NWGRANT1/CMA Population) x 100)
(Y ₅)	NEWCONC2	-	Period Two concentration of new house CHOSP grants (NWGRANT2/CMA Population) x 100)
(Y ₆)	EXCONC	-	Concentration of existing house CHOSP grants (EXGRANT/CMA Population) x 100)
(X ₁)	RENTCPI	-	Rent Component of Consumer Price Index; 1982 average
(X ₂)	PIND1	-	New Housing Price Index; first quarter, 1982
(X ₃)	PRICE82	-	Average 1982 price of NHA financed single detached houses
(X ₄)	EXPRICE	-	Average 1982 sale price of existing houses
(X ₅)	OWN%	-	Percent of CMA population owning housing
(X ₆)	RENT%	-	Percent of CMA population renting housing
(X ₇)	VACAP82	-	CMA vacancy rate; April, 1982
(X ₈)	NCUDPC	-	Newly completed and unoccupied dwellings per capita; second quarter, 1982
(X ₉)	APTCH	-	Percentage change in apartment starts 1982-1983
(X ₁₀)	NETMIG	-	Net migration 1976-1981
(X ₁₁)	INCOME	-	Average household income; 1981
(X ₁₂)	URATE	-	Average unemployment rate; 1982

independent variables were selected which, as indicated in Chapters 3 and 4, can theoretically determine, or contribute to, the level of demand or supply for various types of housing. Since the data are cross-sectional in nature, mortgage rates are assumed to be spatially constant.

The multiple regressions were run employing the SPSS NEW REGRESSION program using the stepwise selection procedure for independent variables which is designed to isolate those variables which contribute most to the statistical significance and analytical power of the regression equation. Under the stepwise procedure, each variable is examined for entry and reexamined for possible removal based on specific entry/removal criteria (refer to Appendix A for a more detailed methodological description of this procedure).

In Equation One, the absolute distribution of new house CHOSP grants during Period One is entered as the dependent variable.

$$(1) \quad Y = -3669.01 + .01(X_4) - 43.54(X_5) + .07(X_{11})$$

$$r^2 = .70 \text{ where,}$$

Y	= NWGRANT1	<u>(t-signif.)</u>
X ₄	= EXPRICE	(.05)
X ₅	= OWN%	(.00)
X ₁₁	= INCOME	(.02)

The results show that, in absolute terms, more grants were allocated in those cities where existing house prices (X_4) and household incomes (X_{11}) are higher than average and where a smaller proportion of dwellers are owners (X_5). Stated differently, the positive existing house price regression coefficient (X_4) indicates that the propensity for purchasing new houses increases as current prices for existing houses increases. Since the dependent variable is an absolute measure, the equation also indicates that existing house prices and average incomes increase with city population while the proportion of the urban population owning housing decreases. Table 5.3 demonstrates the validity of this hypothesis. While average incomes are only slightly higher in larger cities, statistically significant differences were found between existing house prices and the percentage of owners. For example, in the high population quartile, the average

TABLE 5.3
SELECTED HOUSING MARKET INDICATORS IN THE
HIGHEST AND LOWEST POPULATED CMA'S

	Average Existing House Price	Average Household Income	Average % of Population Owning Housing
High Population Quartile			
Toronto			
Montreal			
Vancouver			
Ottawa			
Edmonton	\$74,843	\$25,697	53.6
Calgary			
Low Population Quartile			
Oshawa			
St. John's			
Sudbury	\$47,766	\$24,287	64.9
Chicoutimi			
Thunder Bay			
Saint John			
T-Value	-3.26	-0.84	3.60
Significance Level	.01	.43	.01

existing house price was \$74,843 compared to \$47,766 in the low population quartile of CMA's. Consistent with this price differential, 53.6% of the CMA population in larger cities are owners compared to 64.9% in smaller cities.

During Period Two significantly more CHOSP grants were approved for new houses (refer to Table 5.4). The large difference in the number of new house grants allocated between these two periods is primarily due to two factors; firstly, there was a temporal delay in housing starts in the initial stages of the program due to the stock adjustment mechanism and the prespecified eligibility provision that a foundation had to be in place in order to qualify for the grant; and secondly, resale activity dominated Period One since the deadline for existing house grants was December 31, 1982.

In Equation Two the absolute distribution of new house CHOSP grants for Period Two is run as the dependent variable.

$$(2) \quad Y = -2654.43 + .09(X_4) + 12.24 (X_1) \quad r^2 = .66$$

Y = NWGRANT2 (t-signif.)

X₄ = EXPRICE (.00)

X₁ = RENTCPI (.01)

TABLE 5.4
DISTRIBUTION OF NEW HOUSE CHOSP GRANTS
JANUARY 1983 - JUNE 1983

Calgary	5127
Chicoutimi	1230
Edmonton	8068
Halifax	3914
Hamilton	1967
Kitchener	2291
London	1471 —
Montreal	2544
Oshawa	4083
Ottawa	4817
Quebec	5502
Regina	3739
St. Catharines	1172
Saint John	940
Saskatoon	4756
Sudbury	608
Thunder Bay	740
Toronto	9268
Vancouver	7409
Victoria	3020
Windsor	458
Winnipeg	<u>5767</u>
TOTAL (Period Two)	83626
TOTAL (Period One)	8772

The results show that the number of new house grants increases as existing house prices and rents increase. Both Equation One and Two support a hypothesis which is critical to this analysis - that renters, particularly those in high rent markets, reacted favourably to the program and emerge as a specifically targeted submarket of the urban population. This hypothesis is reinforced by the results shown in Equation Three which illustrates that during Period One more new house grants per capita occurred in those cities where rents are higher since the propensity for home ownership increases as rental housing becomes more expensive.

$$\begin{aligned}
 (3) \quad Y &= -.443 + .003(X_1) & r^2 &= .61 \\
 Y &= \text{NEWCONC1} & & \underline{(t\text{-signif.})} \\
 X_1 &= \text{RENTCP1} & & (.00)
 \end{aligned}$$

For Period Two, the same dependent variable yields somewhat different results, as shown in Equation Four.

$$\begin{aligned}
 (4) \quad Y &= 6.45 - 1.00 (X_6) - .0001 (Y_3) & r^2 &= .54 \\
 Y &= \text{NEWCONC2} & & \underline{(t\text{-signif.})} \\
 X_6 &= \text{RENT} & & (.01) \\
 Y_3 &= \text{EXGRANT} & & (.01)
 \end{aligned}$$

TABLE 5.6
TOTAL NEW HOUSE CHOSP GRANT CONCENTRATION
(GRANTS PER 100 PEOPLE)

High Concentration Quartile

Saskatoon	3.57
St. John's	3.43
Oshawa	3.09
Regina	2.68
Halifax	1.60
Edmonton	1.54
Victoria	1.42
Calgary	1.17
Chicoutimi	1.15
Winnipeg	1.11
Quebec	1.09
Kitchener	0.97
Saint John	0.92
Ottawa	0.84
Thunder Bay	0.69
Vancouver	0.68
London	0.62

Low Concentration Quartile

Sudbury	0.45
St. Catharines	0.43
Hamilton	0.42
Toronto	0.40
Windsor	0.21
Montreal	0.14

Thus, as the supply of rental units increased the absolute number of existing house grants tended to decrease. The low r^2 value of .36 and the selection of only one independent variable indicates a low correlation between existing house grants and all of the independent variables. When the per capita concentration of existing house grants was entered as a dependent variable, there were no independent variables which met the entry requirements specified in the stepwise selection procedure, therefore, no equation could be developed. In an alternative procedure, the independent variables were forced into a linear equation without consideration of any diagnostic safeguards of their significance parameters which resulted in a high proportion of explained variance but statistically insignificant regression coefficients, rendering the equation uninterpretable.

In an attempt to identify the major differences between CMA's with the highest and lowest degrees of CHOSP (existing house) grant concentration, Z-scores for the existing house grant concentration variable (EXCONC) were calculated and the CMA's were grouped according to the greatest positive and negative deviation from the mean. As Table 5.5 indicates only three CMA's had Z-scores greater than 1.00 and three less than -1.00. Nine variables were isolated which differed substantially between the two groups.

grant concentration quartiles (Table 5.6). A comparative examination of several housing market indicators between the high and low grant concentrated cities reveals why the program has a differential impact in terms of its per capita concentration. As Figure 5.1 illustrates, high grant concentrated cities exhibited tighter rental markets characterized by higher rents, lower vacancy rates, and a 1982-83 deceleration in additions to the rental stock. All three indicators show that rental markets were tighter in the high concentrated cities when compared to either the low concentrated cities or to the CMA average. Also significant to note from Figure 5.1 is the relatively higher average price for existing houses in the high grant concentrated cities.

These findings, therefore, reinforce the results of the regression analysis illustrating that the CHOSP grants were primarily concentrated in those cities with low vacancies, high rents, and high prices for existing houses. This high rent versus home ownership substitution relationship is also consistent with the findings of an econometric analysis of the U.S. housing market by Rabianski and Spitzer (1978). Their analysis concludes that rental and owner-occupied housing are substitute goods since the sign of their cross-elasticity coefficients are positive (i.e., reduction in the price of

The high grant concentrated group exhibited higher prices for new houses and rents indicating that first time buyers were previously occupying high rent accommodation and the new house prices may have influenced their decision to purchase an existing house. The tendency to move to owned accommodation may have also been influenced by the fact that rental markets were tighter in the high grant concentrated cities. This is reflected by the relatively lower vacancy rate (2.0) during October 1982 and the fact that apartment starts were decreasing and continued to do so throughout 1983. It is interesting to note that despite the percentage decrease in apartment starts, vacancy rates in the high grant concentrated cities had increased between October 1982 and April 1983 indicating that both resale and new house activity had relieved the downward pressure on the vacancy rate (the higher degree of new house activity is reflected in part by the relatively higher degree of CHOSP (new house) grant concentration. Finally, Table 5.5 also illustrates a higher level of potential demand in Regina, Saskatchewan, and Chicoutimi since net migration and average incomes were higher while unemployment rates were lower in 1982. Thus, the CHOSP program facilitated the conversion of this potential demand into effective demand by making new and existing housing a viable alternative to high rent accommodation.

In order to evaluate market responsiveness to the new house portion of the CHOSP program, a new variable RESPOND, was created which equals the number of new house grants approved divided by the number of single detached starts. Thus a higher ratio of grants to starts would indicate a higher degree of demand, or market responsiveness. The RESPOND variable was run as a dependent variable in order to isolate the factors contributing to market responsiveness:

$$(6) \quad Y = -1.554 + .001(X_1) \quad r^2 = .81$$

Y	= RESPOND	<u>(t-signif.)</u>
X ₁	= RENTCP1	(.00)

The results indicate that a higher degree of market responsiveness occurred in those cities with higher rents; again reinforcing the home ownership versus high rent substitution relationship.

A similar hypothesis is reflected in Equations Seven and Eight where the dependent variable is single detached housing starts for Period One and Period Two respectively. Data for the dependent variable for both periods were logarithmically transformed in order to correct for high positive skewness.

$$(7) \text{ Log (Y) Period 1} = 11.05 - 1.08(X_5) + .00003(X_4)$$

$$r^2 = .66$$

$$(8) \text{ Log (Y) Period 2} = 10.48 - 0.11(X_5) + .00004(X_4)$$

$$r^2 = .62$$

Y	= STARTS	<u>(t-signif.)</u>
X ₅	= OWN%	(.00)
X ₄	= EXPRICE	(.00)

Both equations show that starts increase with the existing proportion of renters and the price of existing houses or alternatively, the demand for new housing decreases as the proportion of home ownership increases and the price for existing houses decreases. The normal response lag between existing prices and subsequent starts has been estimated by stock-flow analysts, notably Stokes (1979), as being at least one year in length. This would appear to be a reasonable estimate under normal market conditions but one can hypothesize that the existence of a time constrained home ownership assistance program effectively reduces the normal length of the response lag since builders have less time to ensure adequate supply.

In order to identify those CMA's where total new house grants were the most and least concentrated, grant per capita data were ranked and subdivided into high and low

grant concentration quartiles (Table 5.6). A comparative examination of several housing market indicators between the high and low grant concentrated cities reveals why the program has a differential impact in terms of its per capita concentration. As Figure 5.1 illustrates, high grant concentrated cities exhibited tighter rental markets characterized by higher rents, lower vacancy rates, and a 1982-83 deceleration in additions to the rental stock. All three indicators show that rental markets were tighter in the high concentrated cities when compared to either the low concentrated cities or to the CMA average. Also significant to note from Figure 5.1 is the relatively higher average price for existing houses in the high grant concentrated cities.

These findings, therefore, reinforce the results of the regression analysis illustrating that the CHOSP grants were primarily concentrated in those cities with low vacancies, high rents, and high prices for existing houses. This high rent versus home ownership substitution relationship is also consistent with the findings of an econometric analysis of the U.S. housing market by Rabianski and Spitzer (1978). Their analysis concludes that rental and owner-occupied housing are substitute goods since the sign of their cross-elasticity coefficients are positive (i.e., reduction in the price of

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Low Concentration Quartile

Sudbury	0.45
St. Catharines	0.43
Hamilton	0.42
Toronto	0.40
Windsor	0.21
Montreal	0.14

FIGURE 8.1

owner-occupied housing significantly reduces the demand for rental housing) (Rabianski and Spitzer - 1978, p.5).

From a broader perspective, the high grant concentrated cities also exhibited generally healthier local economies (refer to Figure 5.2). Specifically, they were characterized by positive net migration, higher than average incomes, and lower unemployment rates than cities in the low concentration quartile. While these indicators do not directly reflect current housing market conditions, they do in part reflect the level of potential housing demand in a market area. In this context, CHOSP was successful in converting this latent potential demand into effective demand by making new housing a viable alternative to expensive existing and rental housing.

Evaluating the net impact of CHOSP is a difficult task since its implementation period coincides with a significant downturn in mortgage rates. In retrospect, some have argued that the \$3,000 grant was more of a gift than an incentive since housing starts would have naturally increased with the decline in most mortgage rates and the increased availability of longer term credit. Kuz (1983, p.4) writes:

It can be easily argued that to some applicants, the CHOSP grant made no difference in their decision to buy a home; they took advantage of it simply because it was available to them.

Although it is difficult to separate quantitatively the relative impact of lower mortgage rates from the effectiveness of CHOSP, both factors have been consistently cited by industry analysts as contributing most to house building activity during the program period.

A brief analysis of monthly patterns in seasonally adjusted starts and monthly mortgage rates does, however, reveal some interesting trends. As Figure 5.3a illustrates, mortgage rates declined steadily during the CHOSP period corresponding in Figure 5.3b to a more erratic but nevertheless significant increase in seasonally adjusted single detached housing starts. The most interesting point to note is the significant decrease in starts after the expiry of the program. This thstrengthenens the causal relationship between CHOSP and house building activity, particularly in view of the fact that the significant decline in housing starts coincided with a bottoming out in mortgage rates.

The reduction in construction activity during the aftermath of the program was forecasted by many analysts,

including CMHC, but in spite of this, Canada's real estate organizations had, at the time, appealed for more government assistance to home buyers in order to stimulate the industry. Specifically, the Canadian Institute of Public Real Estate, the Canadian Real Estate Association, and the Urban Development Institute called for more government stimulus but opposing the view, among others, was the Housing and Urban Development Association of Canada (now the Canadian Home Builders Association) which argued that additional intervention would simply result in a postponement of significant reductions in residential construction activity (Ottawa Citizen, November 11, 1983). It should also be noted in support of HUDAC's argument that the significant post-CHOSP period decline in starts was partially offset by an increase in the rate of seasonally adjusted completions in the aftermath of the program (refer to Figure 5.4). The increase in completions can be explained by the fact that many CHOSP grant recipients had previously only had the foundations for their new homes laid in order to qualify for the grant and actual occupancy did not take place until late 1983.

5.2 Program Evaluation - The Post-CHOSP Housing Market

The cross-sectional analysis of CHOSP grant distribution in the previous section revealed that more

FIGURE 5-4
 SEASONALLY ADJUSTED COMPLETIONS
 JANUARY 1982 - JULY 1983

new house grants were allocated in those cities with higher than average existing house prices and rents. Grants for existing houses were found to be concentrated mainly in those cities with relatively tight rental markets characterized by low vacancy rates and high rents.

While the CHOSP program period exactly coincides with a significant increase in house building activity, the degree of causality between grant distribution and housing starts is difficult to determine since the program period also coincides with a substantial reduction in mortgage rates. The inability to differentiate between the relative impact of CHOSP grants and lower mortgage rates effectively limits the scope and reliability of a normative program evaluation. The major determinants of housing demand are clearly dynamic by nature and therefore affect housing starts and other market indicators in the same direction simultaneously. Thus, it is difficult to isolate the relative effect of several demand variables, particularly in a cross-sectional statistical analysis.

As is the case with many federal government housing programs, CHOSP is difficult to evaluate in terms of performance since there are no evaluation criteria which can accurately gauge its overall impact. An attempt should be made, however, to evaluate the effectiveness of

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the program in terms of its differential impact in high grant concentrated cities as well as its appropriateness as a policy response in view of pre-CHOSP period housing market conditions.

Hulchanski and Patterson (1984) in their critique of CMHC's social housing programs limit their analytical framework to the most practical form of program evaluation criteria,

...the performance of government programs can be evaluated only against the goals and objectives established initially for the programs.

(Hulchanski and Patterson, 1984, p. 29)

To reiterate, the objectives of CHOSP as identified in CMHC's 1982 Annual Report were to stimulate the construction of new housing units, thereby creating employment, and improving access to home ownership'. Due to the concurrent decline in mortgage rates during the CHOSP period, the extent to which the program was responsible for increased house building activity is unknown. The data indicate, however, that housing starts dropped substantially immediately following the expiry of the program while mortgage rates continued to decline, indicating that the program had at least accelerated the decision to build, particularly in the period immediately

prior to the program's expiry. Thus, the program was successful in meeting the objective to stimulate construction but its impact cannot be translated into a precise number of housing starts.

With respect to the employment creation objective, the data indicate that no substantial benefits were gained in terms of construction industry employment growth. In fact, as Figure 5.5 indicates, employment in the Canadian construction industry in 1983 totalled 471,000, a 15% decline from the 1981 level of 552,000. In addition, the number of construction firm bankruptcies increased to 1,563 in 1983 (Refer to Table 5.7). Admittedly, the bankruptcy data may reflect interregional shifts in housing demand (i.e., Alberta out-migration), but when considered with the construction employment statistics, reveal a much more significant longer term contraction of the industry. This trend, combined with declining housing requirement forecasts raises questions as to the appropriateness of this type of policy response. Previous home ownership incentive plans aimed to mitigate cyclical fluctuations in construction activity but evidence indicates that the industry is now facing a fundamental structural change which cannot be counteracted by short-term demand oriented programs.

FIGURE 5.5
AVERAGE CONSTRUCTION EMPLOYMENT
(1977 - 1983)

TABLE 5.7
BANKRUPTCIES IN THE CONSTRUCTION INDUSTRY
1978-1983

	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>
Newfoundland	3	0	1	4	6	10
P.E.I.	4	0	0	3	2	1
Nova Scotia	10	13	8	16	12	19
New Brunswick	5	5	5	7	4	15
Quebec	234	363	387	471	464	453
Ontario	391	477	612	578	593	514
Manitoba	21	21	33	44	54	41
Saskatchewan	14	24	30	29	60	54
Alberta	83	113	116	144	172	234
British Columbia	227	148	109	107	154	222
CANADA	992	1164	1301	1403	1521	1563

Source: Canada, Consumer and Corporate
Affairs, 1984.

The appropriateness of CHOSP is further questioned by the high budgetary costs of cash grant incentives. By the end of 1983, CMHC had committed \$782.4 million for CHOSP grants, an amount equivalent to 43% of the total grants, contributions, and subsidies allocated for all program expenditures in 1983 (CMHC Annual Report, 1983, p. 10,48). Although this may appear to represent a regressive allocation of government funds, the program was successful in raising vacancy rates, making rental accommodation less expensive for lower income groups.

As Table 5.8 illustrates, a comparison of average vacancy rates prior to, and following the implementation of CHOSP indicates that vacancies had increased to a statistically significant degree in high grant concentrated CMA's. Vacancy rates in the low grant concentrated CMA's had only increased 0.3% by April, 1983 and then decreased 0.7% by October, 1983. Evidently, CHOSP was successful in loosening the low vacancy rental market and effectively acted as a catalyst in a decreasing mortgage rate environment by converting potential home ownership demand to effective demand in a short period of time.

The fact that the average vacancy rate in the high grant concentrated CMA's increased 2.3% before the program

TABLE 5.8
 VACANCY RATES IN HIGH AND LOW GRANT
CONCENTRATED CMA'S

<u>CMA'S</u>	<u>Month/Year</u>	<u>Average Vacancy Rate</u>	<u>T-Value</u>	<u>Signif.</u>
<u>HIGH GRANT CONCENTRATION</u>				
Saskatoon	October,	1.4	-	-
St. John's	1982			
Oshawa	April,	3.7	5.08	.004
Regina	1983			
Halifax	October,	3.4	2.98	.031
Edmonton	1983			
<u>LOW GRANT CONCENTRATION</u>				
Sudbury	October,	1.8	-	-
St. Catharines	1982			
Hamilton	April,	2.1	1.21	.279
Toronto	1983			
Windsor	October,	1.4	1.05	.343
Montreal	1983			

had expired shows that the existing house grant portion of the program was particularly effective in the rental market since existing houses are generally priced lower than newer houses and are, therefore, more affordable for first time buyers.

In summary, the post-CHOSP housing indicator data show that starts had dropped substantially immediately following the expiry of the program, indicating that its availability had at least accelerated the decision to build. The net impact of CHOSP in terms of urban housing starts is difficult to ascertain. Such an estimate would require separation of CHOSP starts which were net contributions to production from those which were substituted for unassisted starts which would have taken place without federal assistance. Due to the strong relationship between mortgage rates and subsequent levels of construction activity and due to their steady decline throughout the CHOSP program period, it is impracticable to determine the level of net contributions to production.

An evaluation of CHOSP based on its initial objectives shows that it did not have a significant impact in terms of employment creation but did facilitate access to home ownership, particularly in tight rental markets. The statistical analysis of CHOSP grant distribution and

concentration clearly demonstrates that renters, especially those in high rent, low vacancy markets reacted favourably to the program and emerged as an implicitly targeted submarket of the total CMA population.

CHAPTER VI

CONCLUSION

It has been demonstrated that the traditional thrust of housing policy and programming initiatives in Canada has been one directed towards facilitating and promoting access to ownership housing. Several forms of direct and indirect assistance have been used to impose home ownership policy on the housing market including:

- (i) home ownership assistance plans (i.e., cash grants, loans),
- (ii) flexible mortgage payment schemes (i.e., variable rate mortgage, Graduated Payment Mortgage),
- (iii) mortgage rate insurance (i.e., Mortgage Rate Protection Plan),
- (iv) income tax provisions (i.e., capital gains exemption for sales of principal residences, the non-taxation of imputed rent, RHOSP's).

Despite the relative success of these vehicles in stimulating housing demand, their appropriateness has been questioned in view of their high implementation costs and

generally regressive nature. Smith (1981) and Fallis (1983a and 1983b) in particular have argued that future levels of home ownership assistance should be substantially reduced because of its high budgetary costs and relative ineffectiveness as an income redistribution tool. Both authors concede, however, that selected home ownership assistance programs are necessary in order to mitigate the effects of tight monetary policy and specific market imperfections such as mortgage credit discrimination and the disproportionate impact of inflation on first time home buyers. If such externalities did not exist, government intervention aimed to facilitate the conversion of potential to effective demand would not be required and the flow of private sector resources into housing during periods of high demand would be sufficient to ensure adequate supply. In fact, market imperfections and externalities do exist, thus an argument can be made for selected home ownership assistance.

The literature is somewhat deficient in its treatment of home ownership assistance programs as there is little evidence to support or dismiss their effectiveness as appropriate policy responses. Even less attention has been given to the relative performance of such programs between local markets. The cross-sectional analysis of

CHOSP grant concentration in this thesis provides a unique program evaluation technique which statistically isolates the factors contributing to, and resulting from, a national home ownership assistance program. The results clearly indicate that the initial effect of the program was an increase in resale activity, as first time buyers of existing homes used the \$3,000 grant to move from low vacancy rental markets. Significantly more CHOSP grants were approved in the later stages of the program which, due to eligibility conditions, were exclusively allocated to buyers of new houses. The multiple regression analysis shows that during the first six months of the program, the cities with the highest levels of CHOSP grant concentration were characterized by higher than average rents. For these grant recipients, CHOSP acted as a catalyst in converting high cost rental tenure to new home ownership. During the second phase of the program, new house CHOSP grants were primarily concentrated in those cities where the existing level of home ownership was high, indicating that many of the grant recipients were second or third time buyers.

The comparative analysis of housing market indicators between high and low grant concentrated cities shows that high grant concentrated cities were characterized by higher existing house prices, higher rents, lower vacancy

rates and a slower rate of additions to the rental stock. Other more general economic indicators of the high grant concentrated cities include higher than average net migration and household income and lower than average unemployment.

It is important to note that these inter-CMA comparisons depict directional relationships but reveal little with respect to the magnitudinal impact of CHOSP on specific markets. The regression equations developed in Chapter 5 reflect national trends in urban housing markets thus it is important to acknowledge that the stability of the regression coefficients and their significance levels are subject to diversion, particularly at higher levels of spatial disaggregation. A more comprehensive and market-specific evaluation would require a time series model of each urban market in order to identify temporal lags in the stock adjustment mechanism and the relative effect of grant per capita concentration. Time series CHOSP data are not available, thus the cross-sectional approach provides the best approach for isolating the variables correlating to the distribution and concentration of grants.

An overall evaluation of CHOSP yields differing conclusions depending on what type of evaluation criteria

are considered. As a policy response to pre-CHOSP market conditions, its appropriateness can only be questioned by its high implementation costs and generally regressive nature as it was implicitly targeted to middle-upper income households who could afford new owner-occupied housing. A number of factors in the year preceeding CHOSP counterbalanced these disadvantages and contributed to the decision to implement the program:

- (i) housing starts had reached a twenty year low,
- (ii) the global economic recession and tight domestic monetary policy had increased the cost of mortgage credit to an unprecedented level,
- (iii) construction industry unemployment reached the 21% level (Figure 4.2), reflecting the reduced level of housing demand and the increasing number of construction firm bankruptcies,
- (iv) urban vacancy rates averaged 1.2% in the year preceding the program (CMHC, Canadian Housing Statistics, 1983, p. 19).

There is also a less tangible political factor to be considered which may have influenced CHOSP's rationalization and implementation. The government in power at the time of CHOSP's inception appeared to be ideologically motivated to provide short term stimulative programs aimed to reduce unemployment and increase consumer spending. The initial budgetary expenditure of \$300 million and subsequent infusions totalling \$482.4 million (CMHC Annual Report 1983, p. 10) were perceived as necessary to sufficiently stimulate the national housing

sector and the \$3,000 grant, bound by no income eligibility conditions, was perceived as the most appropriate program delivery vehicle. Public reaction to the availability of the grant was positive but in view of the program's high budgetary cost and its inherent characteristic as a financial windfall for some recipients, one must question CHOSP's cost-effectiveness and opportunity cost vis-à-vis alternative public expenditures. In retrospect, the steady decline in mortgage rates can be singled out as the most influential factor in determining the level of housing starts throughout the CHOSP period. The extent to which the program contributed to that level of starts cannot be determined statistically since mortgage rates are a leading predictor of resale and house building activity. It is important to note though, that notwithstanding occasional variations between some financial institutions, mortgage rates are for the most part, spatially constant. Interurban variations in the level of CHOSP grant concentration, therefore, reveal demand characteristics which are not geographically homogenous (i.e., demographic factors, rents, vacancy rates, prices). The comparative statistical analysis of those indicators demonstrates the operational process of the stock adjustment mechanism as the spatial concentration of CHOSP grants across urban

markets is strongly correlated to higher prices, higher rents, and lower vacancy rates.

Interurban variations in residential construction levels resulting from nationally implemented housing programs provides geographers with an analytical framework from which explanatory, predictive, and program evaluation analyses can benefit. Conclusions drawn from the cross-sectional methodology employed in this thesis demonstrate the usefulness of a national scale perspective in explaining processes occurring in individual cities.

The orientation of future housing policy and programming initiatives on behalf of the federal government toward potential home owners will likely be de-emphasized as household formation and new housing requirements forecasts indicate a substantial decline in new housing demand. In addition, the magnitude of the current federal deficit and the high cost of delivering home ownership assistance programs significantly reduces the likelihood of future policy responses aimed to mitigate short term fluctuations in residential construction activity.

APPENDIX ASPSS NEW REGRESSION

Under the stepwise selection procedure, the first variable to enter the regression equation is the one with the largest positive or negative correlation with the dependent variable. The variable is then F-tested and can only enter the equation if the F value is greater than or equal to 3.84. From this point, if the first variable meets entry requirements, the second variable is selected based on the highest partial correlation and if it meets the entry criteria then it also enters the equation. Once all of the variables have been examined for entry they are reexamined for possible removal based on a fixed significance level associated with the F-test (i.e., less than or equal to .05).

In order to minimize specification error, only those regressors that can be theoretically linked with the dependent variable are considered for inclusion in the regression equations. Employment of the stepwise selection procedure ensures that independent variables with statistically insignificant regression coefficients are eliminated.

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REFERENCES

Alonso, W. Location and Land Use, Cambridge Mass.: Harvard University Press, 1964.

Archer, J. The Ideological Basis of Federal Government Housing Policy and Programs. M.A. Thesis, Carleton University, 1980.

Auer, L. Construction Instability in Canada, Ottawa: Economic Council of Canada, 1975.

Awan K. and C. Whitehead, "Policy Changes and the Housing Market", Centre of Environmental Studies Review, No. 9, 1980, pp. 25-19.

Bennett, R.J. The Geography of Public Finance, New York: Methuen, 1981.

Birch, D.L. "Toward a Stage Theory of Urban Growth", Journal of the American Institute of Planners, Vol. 37, 1971, pp. 78-87.

Bourne, L.S. The Housing Supply and Price Debate: Divergent Views and Policy Consequences, Toronto: University of Toronto, Centre for Urban and Community Studies, 1977.

_____, The Geography of Housing, New York: V.H. Winston and Sons, 1981.

Brummell, A. Submarkets in Urban Housing, CMHC Research Project, Ottawa: CMHC, 1983.

Canada, Department of Consumer and Corporate Affairs, Construction Firm Bankruptcy Statistics, telephone interview, April, 1984.

Canada, Department of Finance, Analysis of Federal Tax Expenditure for Individuals, Ottawa: Supply and Services, 1981.

Canada Mortgage and Housing Corporation, Annual Report, 1982.

_____, Annual Report, 1983.

_____, Canadian Housing Statistics, 1983.

- _____, Monthly Housing Statistics, January 1982 to June 1983.
- _____, personal interviews with P. Fuller to acquire CHOSP cross-sectional data. September 1983 to January 1984.
- Canadian Real Estate Association. Housing in Canada: A Continuing Challenge, Conference Proceedings, All Sector National Housing Conference, 1982.
- Capozza, D.R. New Evidence on Rents and Vacancies, Working Paper No. 5, Urban Land Economics Division, University of British Columbia, 1980.
- _____, What Does it Cost to Own a House in Canada? Working Paper No. 26, Urban Land Economics Division, University of British Columbia, 1983.
- Carlner, G. "Income Elasticity of Housing Demand", The Review of Economics and Statistics, Vol. 55, No. 4, 1973, pp. 532-578.
- Census of Canada, Census Divisions and Subdivisions: Selected Social and Economic Characteristics, Cat. 93-X-945, 1981.
- Chambers, Edward J. "Recent Comparative Trends in the Canadian and U.S. CPI's: The Treatment of Homeownership" Canadian Public Policy, Vol. 9, No. 2, 1983, pp. 236-244.
- Clayton, F. "The Outlook for Single Detached Ownership Housing in the 1980's", paper presented at the Housing and Urban Development Association of Canada 40th National Conference, 1983.
- Cohen, M. Housing Policy Analysis Methods: An Evaluation and Strategy For Implementation, CMHC Research Project, 1980.
- Cronin, Francis, J. "Federal Tax Regulations and the Housing Demands of Owner Occupants", Land Economics, Vol. 59, No. 3, August, 1983, pp. 305-314.
- Currie, Coopers, and Lybrand Ltd. Firm Closures in the Residential Construction Industry, CMHC Research Project, 1981.

DeLeeuw, F. "The Demand for Housing: A Review of the Cross Section Evidence", The Review of Economics and Statistics, Vol. 53, 1971, pp. 1-10.

Denis, M. and S. Fish, Programs in Search of a Policy, Toronto: Hakkert, 1972.

Dowler, R.G. Housing Related Tax Expenditures: An Overview and Evaluation, Report No. 22, University of Toronto, Centre for Urban and Community Studies, 1983.

Economic Council of Canada, "How Governments Finance Housing", Au Courant, Vol. 3, No. 2, 1982.

Eger, A.F. A Time Series Analysis of the Effects of Prices and Regulations on Housing Starts in Canadian C.M.A.s, CMHC Research Project, 1983.

_____, Forecasting Housing Starts in Canada's Census Metropolitan Areas: A Stock Adjustment Approach Using Unadjusted Seasonal Data, CMHC Research Project, 1983.

Fair, R. "Disequilibrium in Housing Models", Journal of Finance, Vol. 27, 1981, pp. 207-221.

Fallis, G. Housing Programs and Income Redistribution in Ontario. Toronto: Ontario Economic Council, 1980.

_____, Housing Policy for the 1980's. Toronto: Ontario Economic Council, 1981.

_____, Governments and the Residential Mortgage Market I: A Normative Analysis. Discussion Paper No. 239, Economic Council of Canada, 1983(a).

_____, Governments and the Residential Mortgage Market II: Programs and Evaluations, Discussion Paper No. 240, Economic Council of Canada, 1983(b).

Fallis, G. and L. Smith, "Uncontrolled Prices in a Controlled Market: The Case of Rent Controls", American Economic Review, Vol. 74, No. 1, March 1984, pp. 193-200.

Firestone, O. Residential Real Estate in Canada, Toronto: University of Toronto Press, 1951.

Gau, G. and M. Goldberg, North American Housing Markets into the Twenty-First Century, Cambridge: Ballinger, 1983.

- Goldberg, M. Housing and Land Prices in Canada and the United States, Research Paper No. 46, Urban Land Economics Division, University of British Columbia 1977.
- _____, The Housing Problem: A Real Crisis?
Vancouver: University of British Columbia Press, 1983.
- Greenspan, D., chairman, Down to Earth, Vol. 1, Toronto: Federal-Provincial Task Force on the Supply and Price of Serviced Residential Land, 1978.
- Hamilton, B.W. "Capitalization and Housing Demand Bias", Southern Economic Journal. Vol. 49, No. 2, October 1982.
- Hamilton, S. "House Price Indices: Theory and Practice", reprinted from Housing: It's Your Move Vol. II: Technical Reports, Urban Land Economics Division, University of British Columbia, 1980, pp. 384-417.
- Harvey, D. "The Urban Process Under Capitalism: A Framework for Analysis" International Journal of Urban and Regional Research, Vol. 2, No. 1, 1978, pp. 101-131.
- Heilbrun, J. Urban Economics and Public Policy, Second Edition, New York: St. Martin's Press, 1981.
- Heung, R. The Do's and Don'ts of Housing Policy, Fraser Institute, 1976.
- Hoyt, J. One Hundred Years of Land Values in Chicago, Chicago: University of Chicago Press, 1933.
- _____, Structure and Growth of Residential Neighborhoods in American Cities, Washington, D.C.: Federal Housing Administration, 1939.
- _____, Where the Rich and Poor Live, Technical Bulletin No. 55, Washington D.C.: Urban Land Institute, 1966.
- Hulchanski, D. and J. Patterson, "Two Commentaries on CMHC's Evaluation of its Non-Profit and Co-op Housing Program's", Plan Canada, Canadian Institute of Planners, Vol. 24, No. 1, June 1984, pp. 28-36.
- Jones, E. and J. Eyles, An Introduction to Social Geography, London: Oxford University Press, 1977.

- Jones, Lawrence D. The State of the Rental Housing Market: Implications for CMHC and Federal Government Housing Policy in the 1980's. CMHC Research Project, May 1983.
- Kain, J. and J. Quisley, "Measuring the Value of Housing Quality", Journal of the American Statistical Association, Vol. 65, 1970, pp. 532-548.
- Kau, J.B. and C.F. Sirmans, "The Demand for Urban Residential Land", Journal of Regional Science, Vol. 21, No. 4, 1981, pp. 519-528.
- Kenneally, M. and J. McCarthy, "A Preliminary Econometric Investigation of the Irish Housing Market, 1969-1976", Economic and Social Review, Vol. 14, No. 1, October 1982, pp. 41-66.
- Keyes, B. and D. Caskie, The Structure and Operation of the Construction Industry in Canada. Ottawa: Economic Council of Canada, 1975.
- Kuz, T. The Canadian Home Ownership Stimulation Plan and the Manitoba Housing Market. CMHC Research Project, 1983.
- Lake, R.W., editor. Readings in Urban Analysis: Perspectives on Urban Form and Structure, New Brunswick, New Jersey: Center for Urban Policy Research, 1983.
- Lowry, I. "Filtering and Housing Standards: A Conceptual Analysis", Land Economics, Vol. 36, 1960. pp. 362-370.
- Marks, Denton, "The Effect of Rent Controls on the Price of Rental Housing: An Hedonic Approach", Land Economics, Vol. 60, No. 1, February 1984, pp. 81-94.
- Markusen, J.R. and D.T. Scheffman, Speculation and Monopoly in Urban Development: Analytical Foundations with Evidence From Toronto, Toronto: University of Toronto Press, 1977.
- Mayo, S.K. "Theory and Estimation in the Economics of Housing Demand", Journal of Urban Economics, Vol. 10, 1981, pp. 95-116.
- McClain, J. ed. Is Government Homeownership Assistance The Way To Go? Ottawa: Canadian Council on Social Development, 1981.

- McCracken, M. Macroeconomics Effects of Higher Interest Rates on the Canadian Economy, Ottawa: Informetrica, 1980.
- Mills, E. "Urban Density Gradients", Urban Studies, February, 1970, pp. 5-20.
- Miron, J. On Household Groups and Housing Occupancy, Research Paper, No. 107, University of Toronto, Centre for Urban and Community Studies, 1979.
- Muth, R. Cities and Housing, Chicago: University of Chicago Press, 1969.
- Newman, L. and S. Clatworthy, Structural Change in the Housing Industry, CMHC Research Project, 1982.
- Ontario Economic Council, Issues and Alternatives: Housing, Toronto: Ontario Economic Council, 1976.
- "Industry Split on Need for Home Grants", Ottawa Citizen, November 11, 1983, p. 49.
- Park, R., Burgess E. and R. McKenzie, The City, Chicago: University of Chicago Press, 1925.
- Rabianski, J. and J. Spitzer, "A Two-Sector Cross-Section Econometric Model of the 1970 Housing Stock", Growth and Change, Vol. 9, No. 2, April 1978, pp. 2-8.
- Sharpe, C.A. Supply and Demand Determinants in the Urban Housing Sector. St. John's: Memorial University of Newfoundland, 1977.
- Smith, L.B. "Urban Canada: Problems and Prospects", Housing in Canada, Research Monograph 2, Canada Mortgage and Housing Corporation, 1971.
- _____, "Canadian Housing Policy in the Seventies", Land Economics, Vol. 57, No. 3, 1981(a), pp. 338-352.
- _____, "Housing Assistance: A Re-Evaluation", Canadian Public Policy, Vol. 7, No. 3, 1981(b), pp. 454-463.
- Statistics Canada, Household and Family Projections for Canada and the Provinces to 2001. Cat. 91-517, 1975.

- _____, Consumer Prices and Price Indexes, Cat. 62-010, 1982.
- _____, Construction Price Statistics, Cat. 62-007, 1982.
- _____, The Labour Force, Cat. 71-001, 1982-1983.
- Stokes, E. Housing Markets in Canada: An Econometric Analysis Using Regional Panel Data. Unpublished PhD Thesis, Queen's University, 1979.
- Swan, N. Governments and Construction Instability, Ottawa: Economic Council of Canada, 1975.
- Sweeney, J. "A Commodity Hierarchy Model of the Rental Housing Market", Journal of Urban Economics, Vol. 1, 1974, pp. 288-323.
- Vaughen, G. "Source of Downward Bias in Estimating the Demand Income Elasticity for Urban Housing", Journal of Urban Economics, Vol. 3, 1976, pp. 45-56.
- Weppeler, M. "Short-Term Expansionary Impact Expected From Housing Programs", The Canadian Business Review, Vol. 9, No. 4, Conference Board of Canada, 1982.
- Yates, J. "The Demand For Owner-Occupied Housing", Australian Economic Papers. Vol. 20, No. 37, 1981, pp. 309-324.
- Zerbst, R. Improving Multiple Regression Valuation Models Using Location and Housing Quality Variables. Reprint No. 32, Urban Land Economics Division, University of British Columbia, 1977.

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