The Housing Industry:
Perspective and Prospective

Working Paper Three
The Housing Industry and the Economy in Canada, 1946–86

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and Scanada Consultants

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CONTENTS

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INTRODUCTION

The relationship between the output of the housing industry and the overall economy in Canada over the 1946–86 period is examined. Topics include the economic role of the housing industry, inter-regional economic linkages associated with the housing industry (that is, the implication of residential construction spending in one region on other regions), cyclical and seasonal variations in housing output and the use of the housing industry as a tool of federal monetary and fiscal policy.

FOCUS OF THE PAPER

To prepare this paper, readily available information, including economic and housing production data from Statistics Canada and CMHC, tabulations from the national and inter-regional input-output models of Statistics Canada and existing research studies,[1] was used.

Housing industry output is defined as construction work put in place or housing starts, depending on the topic. The production of serviced residential land is not included.[2]

The economic impact of housing industry output considers both the so-called multiplier effect, as well as the direct impact on the housing industry and other firms in the construction industry, such as special trades, and the indirect impact on firms in associated industries, such as those manufacturing building products or involved in mortgage lending, transportation and retailing. The multiplier refers to the subsequent induced impacts of residential construction spending on the economy (for example, the construction worker buying a car, the lumber company employee purchasing food).

STRUCTURE OF THE PAPER

This working paper comprises the following six chapters:

- Chapter One examines the economic role of housing;
- Chapter Two examines the inter-regional economic linkages flowing from the housing industry;
- Chapter Three discusses cyclical instability in residential construction;
- Chapter Four discusses seasonal instability in residential construction;
- Chapter Five examines the housing industry as a tool of federal monetary and fiscal policy over the postwar period; and
- Chapter Six presents the conclusions.

Footnotes for each chapter are consolidated at the end of the main text.

CHAPTER ONE
THE ECONOMIC ROLE OF HOUSING

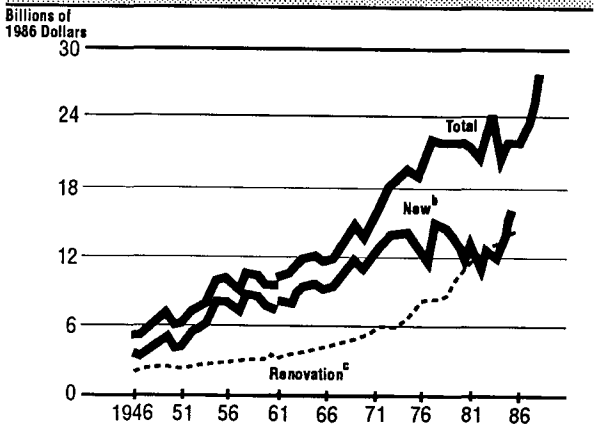
RESIDENTIAL CONSTRUCTION SPENDING AND THE OVERALL ECONOMY

- The importance of residential construction is examined in terms of constant dollar activity and as a proportion of overall economic activity.

Upward Trend in Residential Construction Activity

Real spending on total residential construction increased sharply over the postwar period as a whole.[1] Total spending in 1986 amounted to $27.8 billion, almost six times the real spending of 40 years earlier. (See Figure 1.)

FIGURE 1. REAL RESIDENTIAL CONSTRUCTION EXPENDITURES BY COMPONENT, CANADA, 1946-86[a]



Source: Clayton Research Associates based on data from CMHC and Statistics Canada.

[a] There is a break in the time-series data in 1961.
[b] Excludes supplementary and land costs.
[c] Includes repairs: repairs for the 1946–52 period are estimates.

However, the upward trend was not without interruption. A period of relative stability in total spending occurred in the late 1950s and early 1960s and again in the late 1970s. Declines also occurred in several years, with the most conspicuous in 1982, the time of the worst economic downturn since the 1930s.

Pronounced Shift to Renovation Spending

The variation in the upward trend in total real residential construction spending has occurred mostly in new construction. New construction spending increased sharply, though not continuously, during the first three decades of the postwar period, peaking in the mid-1970s. After 1976, real spending on new residential construction entered a prolonged period of decline and weakness. Even with the recovery of the new housing market in the mid-1980s, not until 1986 did real spending on new construction attain the 1976 level.

Residential renovation expenditures increased continually over most of the postwar period, but especially since the early 1970s. The volume of real renovation spending exceeded new construction spending in the early 1980s for four years. Only with the sharp upturn in new housing production in 1986 did new construction exceed renovation spending.

Real renovation spending has been much more stable than new construction. In fact, during the recession of 1982, the volume of real renovation spending did not decline as much as new residential construction spending, which experienced a sharp drop. Undoubtedly, this was owing to the large-scale government assistance programs in effect at the time.[2]

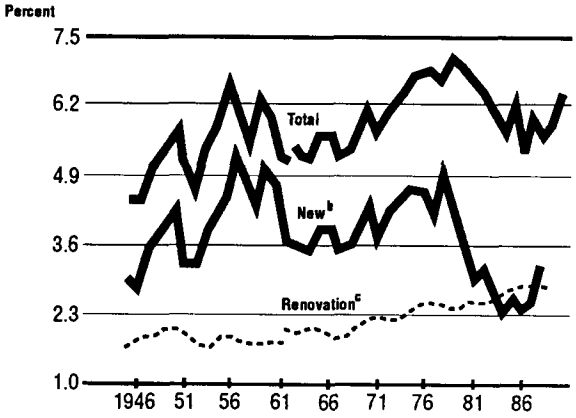
Total Residential Spending as a Proportion of GDP Peaked in Mid-1970s

The share of total Gross Domestic Product (GDP) accounted for by total residential construction expenditures has ranged between four and seven percent over the postwar period. The highest shares were recorded in the mid-1950s and much of the 1970s, when residential construction expenditures accounted for between six and seven percent of total GDP. Although the upsurge in housing starts caused the share to rise to 5.5 percent in 1986, it had remained at approximately five percent the previous three years, about the same share as in the 1960s. (See Figure 2.)

The share of GDP accounted for by new residential construction expenditures has fluctuated between two and five percent throughout the postwar period. It was

at the higher end of this range in the late 1950s before falling to between 3.0 and 3.5 percent through most of the 1960s. The share increased again in the early 1970s, peaking at 4.6 percent in 1976 before falling to between two and three percent in the 1980s.

FIGURE 2. RESIDENTIAL CONSTRUCTION EXPENDITURES AS A PERCENT OF GROSS DOMESTIC PRODUCT (GDP), CANADA, 1946-86[a]



Source: Clayton Research Associates based on data from CMHC and Statistics Canada.

[a] There is a break in the time-series data in 1961.
[b] Excludes supplementary and land costs.
[c] Includes repairs: repairs for the 1946–52 period are estimates.

The share of GDP accounted for by residential renovation expenditures has been increasing steadily: from about 1.5 to 2.0 percent before the mid-1970s to 2.6 percent in 1986.

ECONOMIC IMPACTS OF RESIDENTIAL CONSTRUCTION

The share of GDP by residential construction expenditures is an indication of the direct contribution that residential construction makes to the Canadian economy; yet it does not give a complete picture of the total economic impacts of residential construction. However, input-output analysis can be used to provide insight into these extended impacts.

Input-Output Analysis Provides a Comprehensive Portrayal of Economic Impacts

Three distinct impacts can be identified for any economic activity, including residential construction:

- Direct impacts — jobs and income created on residential construction projects (including both on-site and off-site work by housing firms and special trades);
- Indirect impacts — jobs and income created in other industries, including manufacturing, financing, retailing and transportation, which produce the materials and other inputs necessary for the finished home; and
- Induced impacts — jobs and income created in the total economy as a result of the so-called "Keynesian Multiplier" (that is, the employment and income impacts resulting from the expenditure of incomes generated to households in the first two rounds).

Direct impacts occur mostly on the sites of residential construction projects, whereas indirect and induced impacts are spread across the host region and the rest of the country and, through the use of imports, to other countries as well. The size and distribution of these impacts will depend, of course, on the size and nature of the residential project being constructed: as different types of residential construction require different types of material inputs, they affect different suppliers in different locations. Ultimately, the impacts of residential construction expenditures affect virtually all industries in all parts of the country through the induced round at least — if not through the indirect round.

The Statistics Canada input-output models provide quantitative estimates of these impacts. The 1979 national model is applied to 1986 residential construction spending to generate economic impact estimates.[3]

Alternatively, economic impacts are estimated in terms of employment and income. Not all the impacts occur at the same time as residential spending; in fact, the impacts from the induced round can spread over several calendar quarters.

Residential construction expenditures, defined in the input-output model, are not exactly the same as the definition used in this working paper.[4] However, this should not substantially affect the estimates presented.

Residential Construction in 1986 Generated More Than One Million Person-years of Employment

Estimates indicate that the $27.8 billion spent on residential construction in 1986 generated 1.05 million

person-years of employment throughout the Canadian economy in 1986 and beyond.[5] (See Table 1.)

Table 1. Employment Impacts of Total Expenditures on New Residential Construction by Industry Canada, 1986

Industry	Thousands of Person-years			
	Direct	Indirect	Induced	Total
Construction[a]	318.3	2.5	8.4	329.2
Manufacturing	0.0	135.1	81.1	216.2
Transportation, communication and utilities	0.0	26.1	42.2	68.3
Trade	0.0	53.5	143.5	197.0
Finance, insurance and real estate	0.0	12.7	39.4	52.1
Service	0.0	40.0	98.7	138.7
Other:				
Agriculture	0.0	2.4	33.1	35.5
Forestry	0.0	7.6	1.0	8.6
Fishing, hunting and trapping	0.0	0.1	0.7	0.8
Mining, minerals and related	0.0	3.0	1.7	4.7
Total	318.3	283.0	449.8	1,051.1

Source: Clayton Research Associates based on the Statistics Canada 1979 national input-output model.

[a] Primarily the housing industry plus special trades employment.

Just under 320,000 person-years of this employment was generated directly in the construction industry — mostly on-site; about 285,000 person-years were created indirectly in the industries supplying inputs to the construction industry (for example, building product manufacturers and distributors). The remaining employment was the result of income spending generated in the direct and indirect rounds (the induced or multiplier impact).

Minimal construction-related employment is generated in the indirect and induced rounds. About half of the employment generated in the indirect round is in the manufacturing sector (in particular, the wood products and metal and machinery industries).

Significant employment is also generated in the trade, service and transportation, communication and utilities industries in the indirect round; even more substantial is the employment generated to these sectors in the induced round. The trade, service and manufacturing industries are the major beneficiaries (in terms of employment) in the induced round.

$1 Billion of Residential Spending in 1986 Created Almost 38,000 Person-years of Employment

Employment impacts can also be expressed as impacts per billion dollars of real spending. A billion dollars spent on residential construction in 1986 resulted in the eventual creation of 11,400 person-years of employment directly in the construction industry, another 10,200 person-years indirectly and 16,200 person-years of employment in the induced (multiplier) round. Thus, the total employment created by a billion dollars of residential construction spending in 1986 was 37,800 person-years.[6]

Overall Employment Multiplier of 2.3

A third method of examining the employment impacts of residential construction is to relate the number of person-years of employment generated in the indirect and induced rounds to the employment created directly in the construction industry (the housing industry plus special trades) — referred to here as the overall employment multiplier.

As demonstrated in Table 1, in 1986, the creation of 318,000 person-years of direct construction employment resulted in 733,000 person-years of employment in the indirect and induced rounds — or 2.3 person-years of additional employment for every person-year of employment in the construction industry.

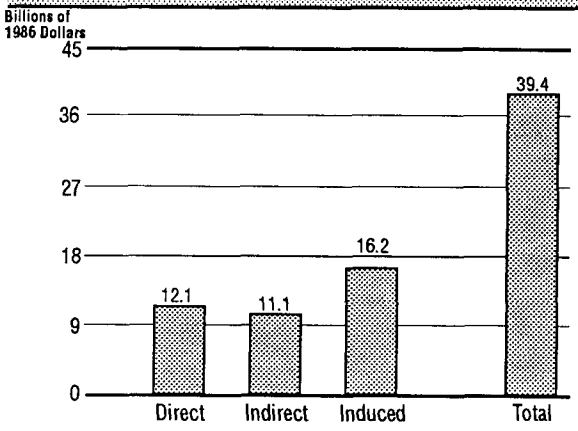
Some Leakage to Imports

These employment impacts measure only domestic employment resulting from expenditures on residential construction in Canada. However, some of the inputs to residential construction are imported materials, which generate employment in the exporting countries (estimates indicate about 14 percent of residential construction material inputs are imported).

Income Impacts Comparable in Size

The total 1986 residential spending in Canada of $27.8 billion is estimated to have generated $39.4 billion in income. About 30 percent was generated in the direct round, with a slightly smaller proportion being generated in the indirect round and the induced round accounting for the remainder. (See Figure 3.)

FIGURE 3. INCOME IMPACTS OF TOTAL EXPENDITURES ON RESIDENTIAL CONSTRUCTION CANADA, 1986



Source: Clayton Research Associates based on the Statistics Canada 1979 national input-output model.

About 55 percent of the income generated from 1986 spending on residential construction in Canada was in the form of wages and salaries, including fringe benefits.

Since the overall income multiplier and the distribution of income impacts among the three rounds are approximately the same as for the employment impacts, the remaining discussion in this chapter (and the discussion on inter-regional linkages in the next chapter) is limited to employment impacts.

Employment Impacts Relatively Larger for Renovator-conducted Renovation Work

A common perception is that the economic impacts generated by a given amount of residential renovation spending are larger than those generated by an equivalent amount of spending on new residential construction. This difference is attributed to the higher on-site labour component in renovation spending.

Unfortunately, the Statistics Canada input-output model cannot be used directly to examine this postulate.[7] However, as part of a study by Clayton Research Associates in 1984 for what was then the Ontario Ministry of Municipal Affairs and Housing, estimates were prepared of the employment impacts of a $100 million expenditure on total residential construction versus a similar expenditure on renovation work (excluding repairs) by contractors.[8]

The hypothesis that there is a higher employment impact for renovation work by contractors is supported by available quantitative evidence.

As shown in Table 2, residential renovation work in Canada undertaken by contractors in 1986 generated an estimated 4,635 person-years of employment for every $100 million expenditure on this type of work. For a similar expenditure on residential construction, an estimated 3,780 person-years of employment was generated.[9]

TABLE 2. EMPLOYMENT IMPACTS OF $100 MILLION EXPENDITURE ON TOTAL RESIDENTIAL CONSTRUCTION AND RESIDENTIAL RENOVATION CONSTRUCTION, CANADA, 1986

	Total Residential Construction	Residential Renovation Construction[a]
	Person-years	
Direct	1,145	2,060
Indirect	1.015	630
Induced	1,620	1,945
Total	3,780	4,635

Source: Clayton Research Associates based on Statistics Canada data.

[a] Includes only renovation work done by the housing industry and special trade contractors.

The estimates suggest the on-site labour requirements associated with renovator-conducted renovations are considerably higher than the on-site labour requirements for an equivalent amount of new residential construction. However, this is offset, if only in part, by the smaller employment impacts generated by the indirect round owing to the relatively smaller building materials inputs for renovation work.

Employment Impacts per New House Have Likely Declined Over Time

Three studies completed during the postwar period estimated the number of on-site and off-site person-years of employment generated by new housing construction on a per dwelling unit basis. Although they are not consistent in approach and estimating procedures or with the input-output model used in this study, and although the nature of the housing product has changed over the years, these studies provide some insight into changes in employment impacts. The studies are as follows:

■ *Manpower and Material Requirements for a Housing Program in Canada*[10]

This 1946 study estimated the on-site and off-site person-hours of employment required for the construction of a variety of housing units using various kinds of building materials (Table 3). On-site employment refers to the people who build the unit on-site, while off-site employment refers only to those producing and distributing building materials and transporting them to the site. Therefore, the definition of off-site employment is more narrow than the definition of indirect employment used in the input-output model.[11]

The study estimated that the employment associated with the construction of an average new housing unit (a mix heavily oriented to single-detached houses) totalled 2.66 person-years or slightly more than 5,000 person-hours. Approximately 45 percent of the person-years of employment generated was on-site.

■ *Residential Real Estate in Canada*[12]

O.J. Firestone's landmark study (see Table 4) adjusted the employment estimates of the 1946 study to make them applicable to 1948–49: He expanded the scope of construction expenditures to allow for supplementary buildings (for example, garages) and the finishing of grounds (for example, landscaping); he allowed for an increase in efficiency; and he enlarged the number of person-hours in a person-year to reflect actual work experience. Again, the data relate to a mix of housing very much oriented to single-detached dwellings.

Firestone's estimate of the number of person-hours of employment associated with the construction of an average new housing unit is higher than in the 1946 study. However, because he used a higher number of person-hours per person-year, the number of person-years

TABLE 4. ESTIMATED ON-SITE AND OFF-SITE EMPLOYMENT GENERATED BY THE CONSTRUCTION OF AN AVERAGE NEW HOUSING UNIT CANADA, 1946 AND 1948–49

	1946	1948–49
Person-hours		
On-site[a]	2,177	2,346
Off-site[b]	2,842	3,063
Total	5,019	5,409
Number of Person-hours Per Person-year		
On-site[a]	1,760	1,900
Off-site[b]	2,000	2,200
Person-years		
On-site[a]	1.24	1.23
Off-site[b]	1.42	1.39
Total	2.66	2.62

Source: Previous table and O.J. Firestone, Residential Real Estate in Canada *(Toronto: University of Toronto Press, 1951), pp. 255-258.*

[a] Does not include construction industry employees who work off-site.
[b] Non-construction industry persons engaged in producing and distributing building materials and transporting them to the site.

TABLE 3. ESTIMATED ON-SITE AND OFF-SITE EMPLOYMENT GENERATED BY THE CONSTRUCTION OF AN AVERAGE NEW HOUSING UNIT BY DWELLING TYPE AND BUILDING MATERIALS USED CANADA, 1946

	Person-hours			Person-years[c]		
	On-site[a]	Off-site[b]	Total	On-site[a]	Off-site[b]	Total
Single House						
Wood frame and brick veneer	2,364	3,120	5,485	1.34	1.56	2.90
Wood frame with stucco on lath	2,287	3,018	5,305	1.30	1.51	2.81
Multiple House (2–6 Units)						
Wood frame and brick veneer	1,776	2,344	4,120	1.01	1.17	2.18
Row and Apartment (7+ Units)						
Wood frame and brick veneer	1,729	2,282	4,010	0.98	1.14	2.12
Solid masonry; brick facing and masonry blocks	1,969	2,598	4,567	1.12	1.30	2.42
Weighted Average	2,177	2,842	5,019	1.24	1.42	2.66

Source: Clayton Research Associates based on Department of Reconstruction and Supply, Manpower and Material Requirements for a Housing Program in Canada, *1946, pp. 43-47.*

[a] Does not include construction industry employees who work off-site.
[b] Non-construction industry persons engaged in producing and distributing building materials and transporting them to the site.
[c] The study assumes an on-site person-year consists of 1,760 person-hours, and an off-site person-year consists of 2,000 person-hours.

required to build an average new housing unit is approximately the same as in the 1946 study — 2.62 versus 2.66 person-years. Slightly less than half this employment comprised on-site jobs.

Firestone noted that the off-site employment estimates did not allow for the employment of others such as builders, contractors, architects, lawyers and real estate agents.[13] He estimated that an allowance for these occupations would increase the total employment impact by about four percent to 2.73 person-years per average dwelling unit built.

Firestone also noted that some of this employment, to the extent that building materials are imported, would accrue to other countries. Since building material imports were small at the time, he concluded that no more than five percent of the employment generated by the average new housing unit would accrue to other countries.

■ *Labour Requirements for the Residential Construction Industry*[14]

The third study providing estimates of the on-site and off-site employment associated with the construction of various types of housing was authored by Lea Hansen in 1976. (See Table 5.)

TABLE 5. ESTIMATED ON-SITE AND OFF-SITE EMPLOYMENT GENERATED BY THE CONSTRUCTION OF AN AVERAGE NEW HOUSING UNIT BY DWELLING TYPE, CANADA, 1969–74

	Type of Housing Structure			
	Single-detached	Two-family	Row	Apartment
On-site[a]	0.62	0.50	0.43	0.36
Off-site				
Construction	0.14	0.14	0.14	0.05
Manufacturing[a]	0.25	0.22	0.19	0.25
Trade and transportation	0.16	0.13	0.11	0.09
Primary and semi-finished goods	0.10	0.08	0.07	0.06
Total				
On-site, manufacturing and trade, and transportation	1.03	0.85	0.73	0.70
On-site and all off-site	1.27	1.07	0.94	0.81

Source: Lea B. Hansen, Labour Requirements for the Residential Construction Industry, *CMHC, 1976, p. 40.*

[a] A person-year of on-site construction employment was assumed to consist of 1,700 person-hours; for manufacturing employment, 2,128 person-hours per person-year was assumed.

Hansen defined on-site labour to include workers employed in assembly processes carried out in builders' or contractors' workshops, as well as all construction workers employed by home builders and special trade contractors. Hansen provides employment estimates for manufacturing, trade and transportion (which appear to correspond to the off-site employment coverage in the two previous studies), as well as off-site construction industry employment (supervisory, administration, professional staff) and primary and semi-finished goods employment (for example, raw materials and other products used by manufacturers).

Using U.S. estimates for apartments, Hansen estimated employment impacts separately for single-detached dwellings, two-family structures and row units. She noted that the typical single-detached house in 1969 contained 1, 240 square feet, was of wood frame construction and had a brick exterior. Typical two-family dwellings and townhouses were smaller — 1,160 and 1,090 square feet, respectively. About one-half of the apartments were walkups, and one-half were high-rises.

According to Hansen, the total employment impact was substantially higher for single-detached houses (1.27 person-years) than for apartments (0.81 personyears). The on-site component of total employment was also somewhat higher for single-detached houses — 49 percent versus 44 percent.

Significantly, the employment impacts associated with the construction of new houses fell dramatically between the late 1940s and the early 1970s. Hansen's estimates for combined on-site and off-site employment (defined narrowly to include only manufacturing, trade and transportation) associated with the construction of a typical single-detached house is only 1.02 person-years versus the estimate of 2.66 person-years for single-detached houses in 1946 and 2.62 person-years for all new housing in 1948–49.

While recent studies are not available, the employment generated by the construction of a typical single-detached house in the mid-1980s is likely larger than Hansen estimated. The average house size has increased since the late 1960s, and little improvement has been made in construction labour productivity during the past two decades.

CHAPTER TWO
INTER-REGIONAL LINKAGES IN RESIDENTIAL CONSTRUCTION

In a country as large as Canada, with a widely dispersed population and regions having diverse economic bases, the regional dimension of the economic impacts of residential construction is an important consideration.

THE FRAMEWORK

Statistics Canada's inter-regional input-output model is the source of the information presented in this chapter. To undertake an analysis of regional economic linkages, it is first assumed that an equivalent amount of residential construction spending occurs in each province (the amount could be $10 million or $100 million; the level of expenditure is irrelevant). Second, the employment generated by this expenditure at all three rounds of impact (direct, indirect and induced) is calculated for both the host province (where the residential construction expenditure occurs) and each of the provinces. These employment impacts for each impact round are then expressed in percentage distribution terms as the percentage of person-years of employment created in the host province and each of the others.

Data have been taken from a 1981 study by Clayton Research Associates for the Canadian Home Builders' Association (then named the Housing and Urban Development Association of Canada).[1] That study used the 1974 inter-regional input-output model as its base.[2]

Residential construction in the inter-regional input-output model is defined the same as for the national input-output model.[3] As in the previous chapter, only employment impacts are considered.[4]

THE FINDINGS

The detailed results of the input-output analysis (by region and round of impact) are presented in Table 7.

Direct Employment Impact Highest in the East, Lowest in the West

The direct employment generated by an equivalent level of expenditure on residential construction in each province varies widely depending on the province in which the expenditure is made. (See Table 6.) Using Ontario as a reference, the direct employment impact ranges from 12 to 29 percent higher in three of the four Atlantic provinces (Newfoundland, Prince Edward Island and Nova Scotia) to nine to 22 percent lower in the three most westerly provinces.

TABLE 6. PROPORTIONATE DIRECT EMPLOYMENT IMPACT ARISING FROM AN EQUIVALENT EXPENDITURE ON RESIDENTIAL CONSTRUCTION BY PROVINCE

	Ontario=100
Newfoundland	112
Prince Edward Island	129
Nova Scotia	112
New Brunswick	102
Quebec	101
Ontario	100
Manitoba	110
Saskatchewan	78
Alberta	91
British Columbia	78

Source: Clayton Research Associates based on the Statistics Canada 1974 inter-regional input-output model.

These differences reflect several factors, including the composition of residential construction activity and differences in labour and material costs, overhead and profit margins and labour productivity.

One Hundred Percent of Direct Employment Generated in Province of Construction Work

By definition, the province in which the residential construction work takes place is the recipient of 100 percent of direct person-years of employment. (See Table 7.)

Significant Employment Generated in Central Canada from Residential Construction in Other Provinces

- Ontario and, to a lesser degree, Quebec are major beneficiaries of the indirect employment generated by residential construction.

TABLE 7. EMPLOYMENT IMPACTS BY PROVINCE ARISING FROM AN EQUIVALENT EXPENDITURE ON RESIDENTIAL CONSTRUCTION IN EACH PROVINCE

Province of Original Construction Job	Province Receiving Employment (Percent of Total Canada Impact)										
	Newfoundland	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	All Canada
Direct Employment Impacts											
Newfoundland	100	0	0	0	0	0	0	0	0	0	100
Prince Edward Island	0	100	0	0	0	0	0	0	0	0	100
Nova Scotia	0	0	100	0	0	0	0	0	0	0	100
New Brunswick	0	0	0	100	0	0	0	0	0	0	100
Quebec	0	0	0	0	100	0	0	0	0	0	100
Ontario	0	0	0	0	0	100	0	0	0	0	100
Manitoba	0	0	0	0	0	0	100	0	0	0	100
Saskatchewan	0	0	0	0	0	0	0	100	0	0	100
Alberta	0	0	0	0	0	0	0	0	100	0	100
British Columbia	0	0	0	0	0	0	0	0	0	100	100
Indirect Employment Impacts											
Newfoundland	21	1	8	6	24	34	0	0	2	4	100
Prince Edward Island	0	10	13	12	24	34	1	0	1	5	100
Nova Scotia	0	1	34	6	22	32	1	1	0	3	100
New Brunswick	1	0	5	33	25	30	1	1	1	3	100
Quebec	0	0	1	1	65	28	1	0	1	3	100
Ontario	0	0	1	1	18	74	1	0	1	4	100
Manitoba	0	0	0	0	12	30	40	3	6	9	100
Saskatchewan	0	0	0	0	12	31	9	26	11	11	100
Alberta	0	0	0	0	11	28	4	2	40	15	100
British Columbia	0	0	0	0	10	25	1	1	8	55	100
Induced Employment Impacts											
Newfoundland	28	1	5	3	24	35	1	0	1	2	100
Prince Edward Island	0	26	8	6	23	32	1	1	1	2	100
Nova Scotia	0	1	36	4	23	31	1	1	1	2	100
New Brunswick	0	1	4	35	25	30	1	1	1	2	100
Quebec	0	0	1	1	62	30	2	0	2	2	100
Ontario	0	0	1	1	19	73	2	0	2	2	100
Manitoba	0	0	0	0	15	29	45	2	4	5	100
Saskatchewan	0	0	0	0	17	32	6	30	8	7	100
Alberta	0	0	0	0	16	29	3	1	42	9	100
British Columbia	0	0	0	0	14	26	2	1	7	50	100
Total Employment Impacts											
Newfoundland	46	1	4	3	17	24	1	0	1	3	100
Prince Edward Island	0	44	7	6	16	23	1	0	1	2	100
Nova Scotia	0	1	54	3	16	22	1	0	1	2	100
New Brunswick	0	0	3	52	18	22	1	1	1	2	100
Quebec	0	0	1	1	74	21	1	0	1	1	100
Ontario	0	0	1	1	13	81	1	0	1	2	100
Manitoba	0	0	0	0	10	21	59	2	3	5	100
Saskatchewan	0	0	0	0	11	24	6	45	7	7	100
Alberta	0	0	0	0	10	21	3	1	56	9	100
British Columbia	0	0	0	0	9	19	1	1	6	64	100

Source: Clayton Research Associates based on the Statistics Canada 1974 inter-regional input-output model.

The province of Ontario gains between 25 and 35 percent of the indirect jobs generated by residential construction in any other province. Quebec is also an important beneficiary of the indirect employment generated by residential construction in the Atlantic provinces (approximately one-quarter of the indirect person-years of employment generated).

Ontario and Quebec gain a fairly high proportion of the indirect employment generated by residential construction in other provinces because the manufacturers of building materials are centred in these provinces.

- The two central provinces also benefit from the induced impact round.

Ontario and Quebec, though more so Ontario, are also major beneficiaries of the induced round of employment impacts resulting from residential construction expenditures in other provinces. Together, these two provinces are the recipient of 55 to 60 percent of the induced person-years of employment generated by residential construction in the Atlantic provinces and 40 to 50 percent of the induced employment resulting from residential construction in the four western provinces.

- Total employment impacts are largest in Ontario and Quebec.

Ontario and Quebec have highly self-contained economic systems in so far as residential construction is concerned. Some three-quarters to 80 percent of all employment generated by spending on residential construction in these provinces remains in these provinces. For all other provinces except British Columbia, between 45 and 60 percent of the total employment generated remains in the province; British Columbia has a slightly higher proportion (64 percent).

Ontario is also an important recipient of the employment generated by residential construction in other provinces. Between one-fifth and one-quarter of all employment generated by the combined rounds of economic impact accrue to Ontario. For Quebec, the comparable range is 10 to 20 percent, with the proportions being in the higher end of the range for construction in the Atlantic provinces.

CHAPTER THREE
CYCLICAL INSTABILITY IN RESIDENTIAL CONSTRUCTION

Cyclical instability, refering to variations on a long-term trend, is not unique to residential construction. It is characteristic of the overall economy. Periods of rapid growth followed by periods of slow or even negative growth have been a feature of the Canadian economy and the economies of other industrialized countries over the postwar period. Undoubtedly, they will continue.

Cyclical instability has been a particular concern of the housing industry since housing has been historically one of the most volatile sectors of the economy.[1] Instability in residential construction, whether cyclical or seasonal, creates problems for the housing industry and leads to undesirable consequences for the entire economy. Joseph Chung has argued that instability in residential construction has two major adverse consequences: First, instability makes it difficult for home builders to improve efficiency and take advantage of economies of scale, thus leading to higher costs and prices for the consumer; second, the rate of increase of housing costs and prices is partly owing to instability.[2]

Thus, any examination of the relationship between the housing industry and the overall economy cannot ignore the implications of instability, both cyclical and seasonal, for the housing industry.

This chapter relies heavily on the analytical approach and empirical conclusions of a major research effort by the Economic Council of Canada in the early 1970s. Particular emphasis is placed on the *Study on Cyclical Instability in Construction* released in 1974 and a background study conducted by Chung.[3] For this report, the empirical results of the Economic Council of Canada work have been updated to the year 1986 by Clayton Research Associates.

FINDINGS OF THE ECONOMIC COUNCIL OF CANADA STUDY ON CYCLICAL INSTABILITY

This section reviews the findings of the Economic Council of Canada report and the Chung background study pertaining to the extent and nature of cyclical instability in residential construction and its causes. A 24-year period, from 1949 to 1972, is covered in these reports.

Nature of Cyclical Instability

The work by the Economic Council of Canada identified the following attributes of cyclical instability in residential construction in Canada over the 1949–72 period:

- Canada experienced four complete cycles in housing starts over the period.[4]

The duration of the average upswing in housing starts was longer than the duration of the average downswing — 35 months compared to 20 months. The expansion phase was at times lengthy — 45 months in the early 1950s and 57 months between 1960 and 1964. Swings in housing starts were at the time extremely violent. However, the severity of the swings appears to have decreased during the period under review.

- Residential construction was counter-cyclical, but the degree decreased over the period.[5]

Generally, during contractions or slow-downs of the overall economy, housing starts tended to increase. The 1969–70 recession was the notable exception. During times of economic expansion, housing starts tended to decrease, though this was not as evident as the increase during times of contraction.

However, the degree of counter-cyclical movement was less in the 1960s than in the 1950s.

- Counter-cyclical variation in residential construction expenditures was somewhat less pronounced than for starts.

Expenditures exhibited less counter-cyclical variation than housing starts, particularly during times of economic expansion. This is to be expected given the time lags between the start of a residential structure and when the bulk of the construction work takes place.

- Single-family construction was more frequently counter-cyclical than apartment construction.

A greater counter-cyclical movement in single-family starts was prevalent in both the expansion and contraction phases of overall economic activity.

- Responsibility for much of the instability in residential construction shifted from single-family starts in the 1950s to apartments in the 1960s.

Single-family starts accounted for 84 percent of the residential construction instability in the 1950s compared with 67 percent of total starts. In the 1960s, apartments accounted for 77 percent of the residential construction instability and 54 percent of total starts.

- Cyclical turning points in housing starts were not always coincident in all regions.[6]

The more remote the region from the central part of the country, the more the turning points of the starts cycles lagged behind the national experience. Also, the severity of the swings in housing starts decreased in most regions in the 1960s from the 1950s, with British Columbia an exception.

Severe cyclical housing starts swings were essentially an urban phenomenon — about twice as pronounced in larger urban centres, excluding Montreal, than for the country as a whole.

Causes of Cyclical Instability

The causes of cyclical instability in residential construction are varied and cannot be separated from the issue of stability in the overall economy. As noted in the work by the Economic Council of Canada: "What these findings indicate is that a good part of the instability in housing construction stems from the overall instability of the Canadian economy."[7] However, it remains that residential construction during the 1949–72 period was considerably more volatile than the economy at large.

- Credit market conditions

Typically, though not always, credit demands increase relative to supply during periods of economic expansion and fall short of supply during economic contractions. Frequently, these market reactions have been reinforced by monetary policy.[8] Owing to heavy reliance on borrowed funds, the housing industry is particularly susceptible to changing interest rates.

- Mortgage market conditions

Through much of the 1949–72 period, the supply of mortgage funds was not responsive to changing economic and credit market conditions. The statutory six percent interest rate ceiling on mortgage loans from chartered banks caused the banks to withdraw from the mortgage market at times of high interest rates (for example, in 1958–59). Also, before the late 1960s, the legislative limitation on the NHA mortgage rate also affected the supply of mortgage funds during periods of high interest rates (in 1967, the NHA rate was fixed at two-and-a-quarter percentage points above the long-term Government of Canada bond rate and was allowed to float unrestricted in 1969). Together with the long-term nature of mortgage loan terms (five-year term mortgages were first permitted in 1969; before that only 25-year terms were available), the supply of mortgage funds in times of rising interest rates tended to lag behind the overall supply of capital.

- CMHC lending

By providing funds for new housing, CMHC was an important force in the housing market in the 1950s and 1960s. The Economic Council concluded that, for the 1951–70 period, CMHC lending exercised a stabilizing influence.[9] CMHC lending was found to have had a substantial stabilizing influence during the 1951–57 and 1967–70 periods, but was an important component of instability in 1957–60.

- Demand conditions

While isolating the contribution that demand played in cyclical instability is difficult, variations in housing demand owing to income and demographic changes had been at times a considerable source of instability. In fact, the Economic Council of Canada stated that "the more fundamental sources of housing instability today appear to be found on the demand side."[10]

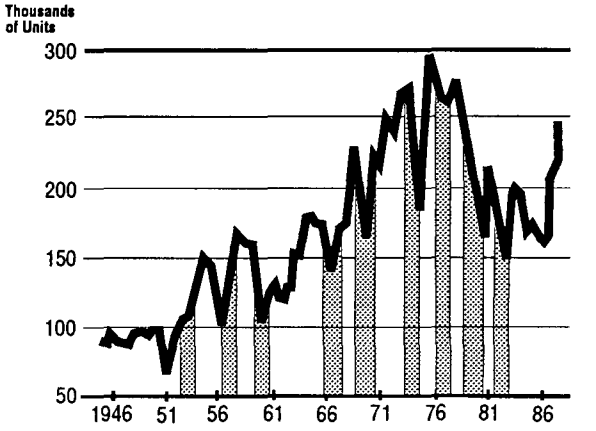
CYCLICAL INSTABILITY IN RESIDENTIAL CONSTRUCTION SINCE THE EARLY 1970s

Nearly 15 years have passed since the Economic Council of Canada conducted its thorough work on cyclical instability. This section concentrates on identifying and examining cyclical trends in residential construction since the early 1970s. Statistical information is provided for the entire postwar period to put the most immediate 15-year period into a longer-term context.

Cyclical Instability in Housing Starts at the National Level

Figure 4 depicts seasonally adjusted total housing starts by quarter for Canada from 1948 to 1986.[11] The shaded areas represent periods of contraction in the overall economy.

FIGURE 4. TOTAL HOUSING STARTS BY QUARTER SAAR CANADA, 1948–86



Source: Clayton Research Associates based on data from CMHC.

Note: SAAR = Seasonally adjusted at annual rate. Data are three-quarter moving averages.

- Four complete housing starts cycles have occurred since 1970.

Eight complete housing starts cycles in Canada have occurred during the postwar period. (See Table 8.) These include the four noted in the Economic Council of Canada report and a further four since the year 1970. This compares to nine cycles in the overall economy during the postwar period.

TABLE 8. DURATION OF HOUSING STARTS CYCLES CANADA, 1951–86

Starts Cycle		Duration (Quarters)	
Expansion	Contraction	Expansion	Contraction
1951(4)–1955(3)	1955(3)–1957(1)	15	6
1957(1)–1958(2)	1958(2)–1960(1)	5	7
1960(1)–1964(4)	1964(4)–1967(1)	19	9
1967(1)–1969(1)	1969(1)–1970(2)	8	5
1970(2)–1974(1)	1974(1)–1975(1)	15	4
1975(1)–1978(1)	1978(1)–1980(2)	12	9
1980(2)–1981(2)	1981(2)–1982(3)	4	5
1982(3)–1983(2)	1983(2)–1985(1)	3	7
1985(1)–			
Average		10.1	6.5

Source: Clayton Research Associates based on data from CMHC.

- Duration of starts cycles became shorter in the 1980s.

The two housing starts cycles in the 1970s both had comparatively long expansion phases; the contraction phases were considerably shorter (as in the 1950s and 1960s). In contrast, the two expansion phases in the 1980s (second quarter of 1980 to the second quarter of 1981 and the third quarter of 1982 to the second quarter of 1983) were short compared to previous expansions. A third expansion began in early 1985 and was continuing at the end of 1986.

Since the contraction phases had approximately the same duration as previous cycles, the duration of the two complete housing starts cycles in the 1980s were considerably shorter than the average postwar cycle. The dramatic changes in interest rates during the 1979 to 1986 period likely have been the most important factor in the shorter duration of the housing starts cycle. The fluctuations in interest rates created wide swings in economic activity and in housing affordability and demand.

- Starts become pro-cyclical.

As previously noted, housing starts generally acted as a counter-cyclical force to overall economic activity from 1951 to 1970, that is, housing starts typically were increasing when overall economic activity was slowing and vice versa. However, beginning with the 1969–70 recession, housing starts have been pro-cyclical — going in the same direction as the cycle in the overall economy.

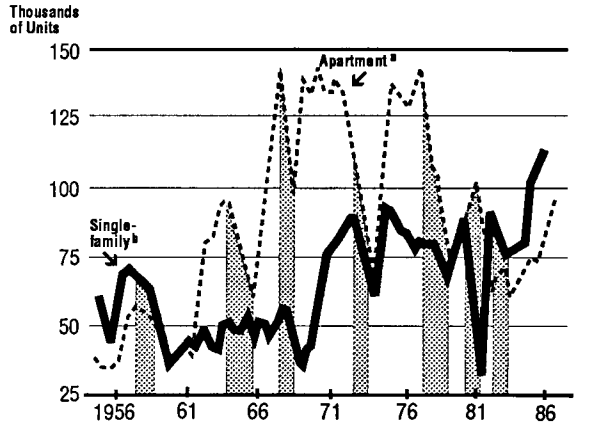
This change appears related to the integration of the residential mortgage market with the overall capital market through the freeing of the NHA mortgage interest rate, the re-entry into the mortgage market of the chartered banks, beginning in 1967, and the advent of shorter-term mortgages. Consequently, the supply and cost of mortgage funds moved in concert with overall capital market trends, which reinforced the pro-cyclical nature of the demand factors for housing (which, as noted earlier, are more important determinants of housing construction).

Cyclical Instability in Starts by Type of Unit

Seasonally adjusted data for housing starts in Canada by type of dwelling, available since 1956, are for urban centres only. These data are shown in Figure 5. The shaded areas represent contraction periods for total housing starts.

- Instability in single-family and apartment starts move closer together.

FIGURE 5. URBAN HOUSING STARTS BY TYPE OF UNIT SAAR, CANADA, 1956–86



Source: Clayton Research Associates based on data from CMHC.

Note: SAAR = Seasonally adjusted at annual rate. Data are three-quarter moving averages. Data for 1956–61 based on centres of population of 5,000 or more; subsequent years data based on centres of 10,000 or more population.

[a] Approximated by multiple.

[b] Approximated by single-detached.

As previously noted, Chung found that single-family starts were more unstable than apartment starts in the 1950s, but the situation was reversed in the 1960s. During the 1970s and early 1980s, apartment starts remained somewhat more unstable compared to single-family units. However, in recent years, both single-family and apartment starts have shown similar degrees of instability.

- Duration of single-family and apartment starts cycles diverge.

Although the cycles for single-family and apartment starts displayed similar patterns during the 1957 to 1975 period, little similarity between the two cycles has existed since 1975. (See Table 9.) Likely, the timing and size of government programs aimed at stimulating new rental construction and the imposition of rent controls in the mid-1970s (they still exist in seven provinces) resulted in significant changes to the cyclical pattern of apartment starts over the past decade. Fluctuations in the degree of condominium apartment construction may be a factor as well.

TABLE 9. DURATION OF HOUSING STARTS CYCLES BY TYPE OF UNIT, URBAN CANADA, 1957–86

Starts Cycle		Duration (Quarters)	
		Single-family[a]	
Expansion	Contraction	Expansion	Contraction
1957(1)–1958(2)	1958(2)–1960(1)	5	7
1960(1)–1966(1)	1966(1)–1967(4)	24	7
1967(4)–1969(1)	1969(1)–1970(1)	5	4
1970(1)–1974(1)	1974(1)–1975(1)	16	4
1975(1)–1976(1)	1976(1)–1980(2)	4	17
1980(2)–1981(1)	1981(1)–1982(2)	3	5
1982(2)–1983(2)	1983(2)–1985(1)	4	7
1985(1)–			
Average		8.7	7.3
		Apartment[b]	
Expansion	Contraction	Expansion	Contraction
1957(1)–1958(4)	1958(4)–1960(1)	7	5
1960(1)–1965(3)	1965(3)–1966(4)	22	5
1966(4)–1969(1)	1969(1)–1970(2)	9	5
1970(2)–1972(1)	1972(1)–1975(1)	7	12
1975(1)–1975(4)	1975(4)–1977(1)	3	5
1977(1)–1978(1)	1978(1)–1981(1)	4	12
1981(1)–1982(1)	1982(1)–1984(4)	4	11
1984(4)–			
Average		8.0	7.9

Source: Clayton Research Associates based on data from CMHC.

[a] Single-family starts are approximated by single-detached starts.

[b] Apartment starts are approximated by multiple starts.

Cyclical Instability in Housing Starts At the Regional Level

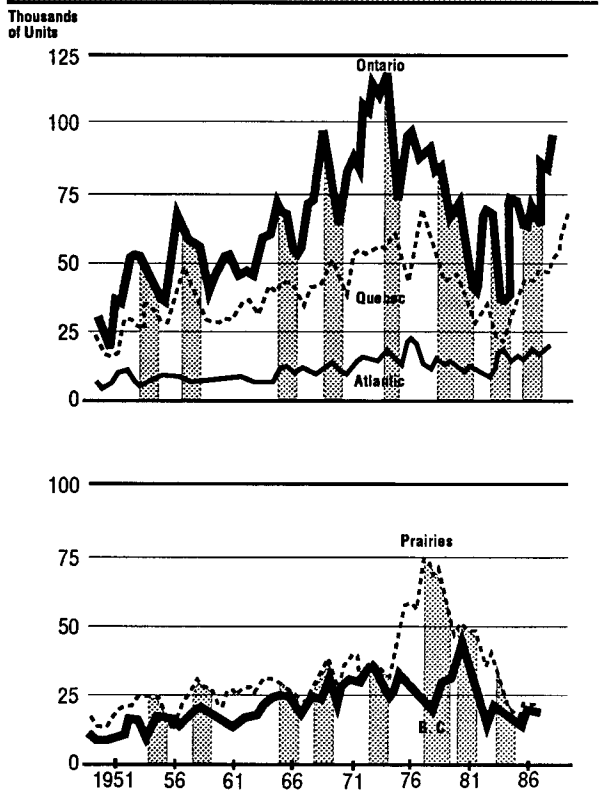
Quarterly data on total housing starts seasonally adjusted at the annual rate by region are available for the 1951–86 period. The graphs in Figure 6 present these data for the five regions. The shaded areas represent contraction periods in Canada-wide starts cycles.

- Fairly high degree of similarity exists in regional starts cycles.

In general, the timing and duration of the housing starts cycles in the five regions correspond closely. Ontario starts cycles exhibit the most similarity with those of Canada as a whole, reflecting the fact that

Ontario accounts for the largest share of Canada-wide starts.

Figure 6. Total Housing Starts by Region SAAR, 1951–86



Source: Clayton Research Associates based on data from CMHC.

Note: SAAR = Seasonally adjusted at annual rate. Data are three-quarter moving averages.

■ There are some differences, however.

Neither Quebec nor Atlantic Canada participated to a significant degree in the increased level of housing activity in 1981 experienced in other parts of Canada. In general, over the past 35 years, Quebec starts have been less volatile than other regions. Starts in the Prairies displayed more volatility over the period since 1951 than any other region. British Columbia's housing starts followed a different pattern to that of the rest of Canada in the mid-1970s.

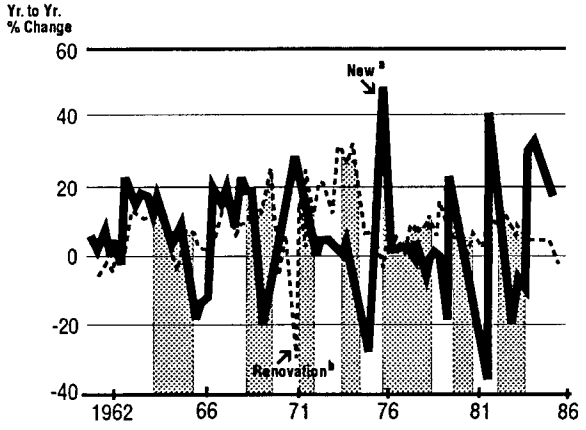
These differences in individual regional cycles largely reflect differences in regional economic conditions.

Cyclical Instability in New and Renovation Construction Spending

Consistent quarterly data on seasonally adjusted real residential construction expenditures are available for the 1961–86 period from the National Accounts. Although these data are not fully consistent with the definition of housing industry output used in this study, they still provide useful insights into overall trends.[12]

Figure 7 shows seasonally adjusted year-to-year percentage changes in quarterly new and renovation (excluding repairs) expenditures. The shaded areas show contraction periods in total residential construction spending.

Figure 7. Real Residential Construction Expenditures by Quarter by Type of Work SAAR, Canada, 1962–86



Source: Clayton Research Associates based on data from Statistics Canada.

Note: SAAR = Seasonally adjusted at annual rate.
[a] Includes supplementary costs.
[b] Excludes repairs.

■ Much less volatility has occurred in renovation spending.

The severity of the swings in renovation spending (excluding repairs) is much lower than the severity of the swings in new construction.[13] In addition, the swings in renovation expenditures became even less volatile beginning in the mid-1970s.

A number of reasons can explain the lower volatility in renovation spending. A significant component of renovation spending consists of inexpensive types of improvements by homeowners, which are not sensitive to changing economic conditions. Also, some of these expenditures could be counter-cyclical since unemployed

persons would have more time to work on their homes. Additionally, at times of high interest rates and economic uncertainty, some homeowners likely opt to make improvements to their existing home rather than buy a larger and better quality, but more expensive, home.

- Different cyclical patterns exist for renovation and new construction.

While both new and renovation construction expenditures experienced five complete cycles over the 1961–86 period, the duration of the expansion and contraction phases were quite different. In general, the expansion phases have been longer and the contraction phases shorter for renovation than for new construction. The average duration of the expansionary phase for investment in new residential construction was 5.2 quarters, compared to 12.2 quarters for renovation expenditures. The average length of the contraction phase for new construction expenditures was 8.5 quarters, which is much longer than the 5.2 quarters for renovation expenditures.

The growing proportion of renovation spending in the residential sector implies an increasing stability in total residential construction spending. The lower volatility, longer expansion phases and shorter contraction phases associated with renovation construction produce this result.

IMPACTS OF CYCLICAL INSTABILITY ON THE HOUSING INDUSTRY

The negative impacts of cyclical instability on the housing industry have been stated by J.V. Poapst in a 1962 study.[14] He concluded that instability in homebuilding increases the cost of housing (he also stated that instability in other industries would also increase the cost of their products). A number of reasons were given for this:

- The greater risk of unemployment must be compensated with higher wage rates;
- The risk of slack demand means profits must be higher in favourable times; and
- Market fluctuations promote turnover of both labour and entrepreneurs, which inhibits the improvement of skills in the homebuilding industry.

Poapst concluded that market fluctuations are particularly disruptive to large-scale builders who undertake the construction of entire neighbourhoods.

These observations appear self-evident. Unfortunately, virtually no information is available for the homebuilding industry, or its inputs to quantify the magnitude of these impacts. Most available relevant statistics (for example, on the labour force, unemployment, bankruptcies) are for the entire construction industry.

Chung questioned whether stability alone is sufficient to guarantee sudden productivity improvements in the homebuilding industry. He argued that small builders are unlikely to be affected much. However, "even the beneficial effects of stability to large builders will not be secured unless they improve their management skills and production planning on the basis of competent market research and better techniques of production."[15]

The negative impacts of cyclical instability on the housing industry likely have persisted through to the mid-1980s.

CHAPTER FOUR
SEASONAL INSTABILITY IN RESIDENTIAL CONSTRUCTION

Seasonal instability in residential construction refers to fluctuations in the volume of housing construction, which generally are related to climatic factors. Owing to problems associated with winter construction ("winter" referring mainly to the first quarter of the calendar year), such as frozen ground, snowfalls and temperatures too cold to permit reasonable on-site working conditions, less residential construction occurs in winter.

As with cyclical instability, seasonal instability can create significant inefficiencies in the residential construction industry and has caused concern for both government and the industry. The largest inefficiency resulting from seasonal variations in the level of residential construction activity concerns labour. With only seasonal work available for many employees, it is more difficult to maintain a stable work force. "Safety nets," such as unemployment insurance benefits and high wage rates, counteract this problem to some degree. However, the combination of seasonal and cyclical fluctuations in employment likely contribute to a higher turnover rate in the housing industry's labour force than in many other sectors.

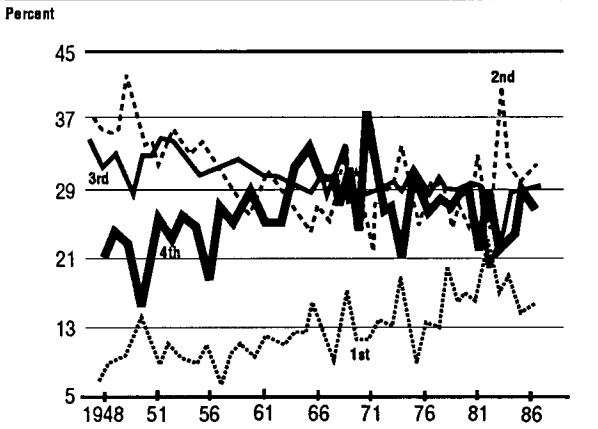
A second inefficiency created by seasonal instability that existed to a greater degree in past years was the increased cost to builders of having to speculate every fall on the sales volume for winter months. To maintain sales levels in winter, builders often installed basements in the fall. Not only did this tie up capital, but it also increased the risk if sales did not materialize. However, since the recession of 1982, speculative building has been less evident in the Canadian homebuilding industry with many builders now not starting construction before the houses are sold.

SEASONAL INSTABILITY IN HOUSING STARTS

A Pronounced Seasonal Pattern in Total Housing Starts

The share of total annual starts accounted for by starts in each of the yearly four quarters over the 1948–86 period are presented in Figure 8.

FIGURE 8. TOTAL HOUSING STARTS EACH QUARTER AS A PERCENT OF ANNUAL CANADA, 1948–86



Source: Clayton Research Associates based on data from CMHC.

Obviously, seasonal variations in total housing starts are significant. Most notable is the sharply lower level of housing starts in the first quarter of each year. For most of the 1948–86 period, less than 15 percent of the housing constructed was started in the first quarter.

In the early postwar years, the fourth quarter was also characterized by lower housing starts than the middle two quarters. By the mid-1960s, this was no longer the case.

Seasonal Differences Have Gradually Narrowed Over the Postwar Period

Seasonal variations in total housing starts clearly have narrowed over the past 40 years. In the late 1940s and early 1950s, starts were highest in the second quarter, followed by the third, fourth and first quarters, respectively.

However, since the late 1950s, the share of total annual starts accounted for by starts in each of the second, third and fourth quarters no longer vary greatly. While fewer starts still occur in the first quarter, the gap between the first quarter and the other quarters has narrowed since 1948.

Seasonal Differences Evident in All Regions

Seasonal differences in total housing starts (that is, lower levels of winter activity) exist in all regions in Canada, but the differences are more pronounced in some regions than others. In general, first-quarter starts in the Atlantic provinces, Quebec and Ontario have accounted for a smaller share of annual starts than in British Columbia, and since the early 1970s, the Prairies. The more moderate winter climate in British Columbia is a factor in its higher levels of winter-building. (See Table 10.)

TABLE 10. FIRST QUARTER STARTS BY REGION AS A PERCENT OF ANNUAL HOUSING STARTS, CANADA, 1951–86

	Atlantic Provinces	Quebec	Ontario	Prairies	B.C.	Canada
1951–55	5.7	10.1	12.6	5.5	16.9	10.7
1956–60	4.1	10.6	10.2	6.1	16.7	10.0
1961–65	6.6	15.2	10.3	13.0	18.6	12.9
1966–70	10.4	16.1	12.6	13.7	19.9	14.5
1971–75	9.2	15.5	13.2	15.9	16.9	14.4
1976–80	11.4	16.0	14.6	19.9	19.6	16.8
1981–86	12.4	15.9	14.1	20.0	23.9	16.9

Source: Clayton Research Associates based on data from CMHC.

Some decline in seasonal differences in total starts was evident in all regions, with the most significant occurring in the Prairies. In the 1950s, only five to six percent of annual housing starts in the Prairies occurred during the first quarter of the year. This proportion increased to roughly 20 percent in the late 1970s and early 1980s.

The share of annual total housing starts accounted for in the first quarter also increased in the Atlantic provinces, Quebec, Ontario and British Columbia between the early 1950s and 1980s, although the decline in seasonal differences in total starts in Ontario was marginal.

SEASONAL INSTABILITY IN RESIDENTIAL CONSTRUCTION SPENDING

The actual value of construction work put in place is a better indicator of seasonal instability than are housing starts. The repercussions of construction work on the industry and the overall economy is influenced more by actual construction activity than by the commencement of construction.

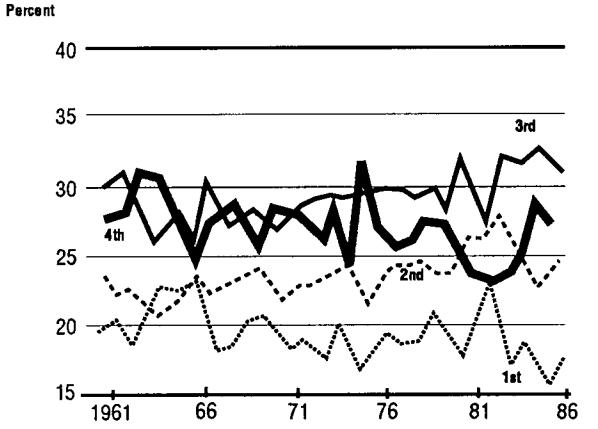
Consistent quarterly residential construction spending data are available from the National Accounts for the 1961–86 period. As previously noted, these National Accounts data are not fully consistent with the definition of housing industry output used in this study.

New Residential Construction Spending

- A more consistent seasonal pattern has been demonstrated for expenditures than for starts.

As with housing starts, the first quarter accounts for the lowest proportion of residential construction expenditures. Approximately 15 to 20 percent of yearly construction work is done in the first quarter (Figure 9.) regions than others.

FIGURE 9. NEW RESIDENTIAL CONSTRUCTION EXPENDITURES EACH QUARTER AS A PERCENT OF ANNUAL CANADA, 1961–86



Source: Clayton Research Associates based on data from Statistics Canada.

Note: Expenditures include supplementary costs.

However, unlike housing starts, the second quarter also has had a consistently lower share of construction spending than the latter two quarters of all year — in the range of 22 to 25 percent. Nearly 60 percent of the construction work takes place in the second half of the year.

- No notable change has been shown in first quarter's share of annual new construction spending.

Rather surprisingly, given the gradual rise in the share of starts accounted for by the first quarter, there is no similar trend for the share of new residential construction expenditures. With the exception of the early 1960s, when the federal government's Winter

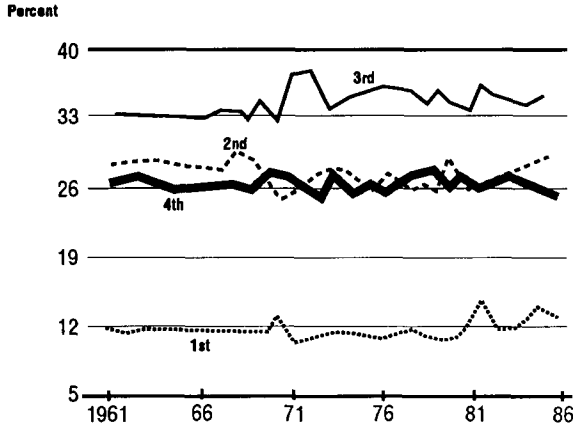
Housebuilding Incentive Program was in place, and in 1982, when MURB construction was artificially high, the first quarter's share of annual construction work has been in the vicinity of 15 to 20 percent. In fact, the first quarter's share of annual new construction expenditures has been slightly lower in recent years than for the entire period.

Residential Renovation Spending

Renovation spending is much more seasonal than new residential construction expenditures.

The disparity between the first quarter's share of spending is much greater for renovation (excluding repairs) than for new construction (Figure 10). Over the 1961–86 period, the first quarter has accounted for only about 10 percent of annual renovation spending whereas the third quarter has accounted for a relatively high share of total spending — around one-third.

FIGURE 10. RESIDENTIAL RENOVATION CONSTRUCTION EXPENDITURES EACH QUARTER AS A PERCENT OF ANNUAL CANADA, 1961–86



Source: Clayton Research Associates based on data from Statistics Canada.

Note: Expenditures exclude repairs.

Part of the reason for this greater quarterly disparity has to do with the nature of renovation work — the work on exterior improvements is very much concentrated in the summer months. As well, the exclusion of repairs likely understates the amount of work done in the first quarter. Finally, the data have to be regarded with caution since they are derived estimates and are not based on actual survey results.[1]

THE IMPACT OF THE WINTER HOUSEBUILDING INCENTIVE PROGRAM

By the early 1960s, the federal government and the housing industry had become increasingly concerned about the sharp drop in new residential construction undertaken during the winter. In mid-1963, the federal government launched the Winter Housebuilding Incentive Program. Under this program, a payment of $500 per dwelling unit was granted for single-detached houses (and multiple dwellings with four units or less) that were substantially completed in the period of December 1, 1963, to March 31, 1964. This program continued through three winter building seasons. In the first two years the program was in effect (that is, 1963–64 and 1964–65), a total of 28,050 and 33,573 units, respectively, were approved. The grants were given to speculative builders.

The objective of the program was to change the seasonal pattern of construction activity for new low-density ownership dwellings. Some industry observers feel the program was quite successful as the $500 grant got many builders interested in winter construction. Other observers are less positive: They contend that a trend to more winter construction was already under way without the grant.[2]

The quarterly data on new and renovation residential construction activity since 1961, presented in Figure 10, suggest that neither viewpoint is entirely accurate. There was a modest upward trend in the share of total annual construction spending accounted for by the first quarter during the 1950s, but this trend peaked in the three years (1964–66) when the winter building incentive was in place. After 1966, with the expiry of the program, immediately the proportion of annual residential construction activity accounted for by the first quarter dropped sharply; a slight downward shift over the next 20 years followed.

CHAPTER FIVE
THE HOUSING INDUSTRY AND STABILIZATION POLICY

This chapter examines the influence of general monetary and fiscal policies, as well as specific housing initiatives implemented by the federal government, over the postwar period on the cyclicality of housing output. Monetary policy refers to specific actions undertaken by the Bank of Canada to influence the level of overall economic activity through changes in the supply and cost of credit. General fiscal policy refers to adjustments in tax rates or expenditure levels designed to influence the level of overall economic activity. Housing initiatives refer to federal housing programs aimed specifically at influencing the cyclical pattern of housing production.

Undoubtedly, general monetary policy has had the greatest impact on the cyclical pattern of housing production during the postwar period, followed in importance by housing initiatives and general fiscal policy, respectively. Lawrence Smith argues that a typical fiscal policy change has approximately one-tenth the impact on housing starts as a typical monetary policy change.[1]

THE ARGUMENTS FOR AND AGAINST THE USE OF RESIDENTIAL CONSTRUCTION TO PROMOTE OVERALL ECONOMIC STABILITY

The housing industry often has criticized the use of residential construction by governments as an economic stabilization vehicle. Many in the industry have argued that housing is cyclical in nature and, rather than being a tool of overall economic stabilization, requires its own stabilization policy. A stabilization policy aimed specifically at housing, it is argued, would have important benefits for both the housing industry itself and consumers, as it would help to increase efficiency, lower prices and reduce bankruptcies.

While implementation of a housing-specific stabilization policy might be favourable for the industry, such a policy directive ignores the features of residential construction that make this sector a useful economic stabilization tool. Housing is in a unique position since stimulative policy aimed at the housing sector can be translated quickly into employment.

Historically, there has been about a three- to four-month lag between the time a housing-specific stimulative policy is initiated and when construction occurs for single-family residential construction (for apartment units, especially those in high-rise buildings, the lag is typically longer). Moreover, since residential construction is labour intensive and occurs in all parts of the country, its stimulation translates quickly into jobs in many municipalities. Finally, a high proportion of the employment benefits associated with increased levels of residential construction accrue to the Canadian economy; in many non-construction industries, imported products benefit to a much greater extent, so that many of the employment benefits actually accrue outside the country.

Smith and the Economic Council of Canada point out the policy dilemma inherent in choosing between stabilizing the production of new housing *per se* and the stabilization of the overall economy. They both conclude that, under most circumstances, general stabilization priorities outweigh the priority of stabilizing new housing production.[2]

GENERAL FISCAL POLICY

General fiscal policy refers to adjustments made to overall tax rates or expenditures targeted at slowing the economy during times of rapid expansion and at stimulating the economy during sluggish periods. General fiscal policy affects the housing market indirectly through its impact on the economic well-being of families and individuals and, as a result, on the demand for new housing. To illustrate, reduced personal income taxes increase disposable incomes, which should result in an increase in consumer demand, including the demand for housing.

The housing market can also be indirectly affected by changes in corporate income tax rates and in capital cost allowances.

MONETARY POLICY

Monetary policy has much larger repercussions on the production of new housing than general fiscal policy.

Smith has stated: "In fact, residential construction is probably the sector most significantly affected by monetary policy and it provides one of the major arteries, if not the major one, by which monetary policy is transmitted to the economy."[3]

Monetary policy affects primarily the production of new housing through its impact on mortgage interest rates. Given its heavy reliance on borrowed funds, the housing sector is greatly affected by changes in interest rates.

Tight money policies have had a negative impact on new housing production in the past. The declines in housing starts in the latter part of 1958 through 1959, in 1965–66 and in 1970 were partly owing to tight money policies pursued by the Bank of Canada. Likewise, a relatively loose monetary policy contributed to the upturn in starts in 1967–69. The determined effort of monetary authorities to bring inflation under control in the early 1980s, through the pursuit of an extremely tight monetary policy, caused the production of new housing to plummet and brought the economy to a standstill. The subsequent easing of monetary policy, with the corresponding decline in interest rates, had a very positive impact on the level of new housing constructed in the mid-1980s.

HOUSING INITIATIVES

Over the postwar period, the principal counter-cyclical housing initiative was CMHC's program of direct loans to homeowner-applicants and speculative builders, implemented from time to time through the 1957–73 period. Over the period, other ad hoc counter-cyclical housing programs also were introduced on a short-term basis. The impacts of these direct loans and of one of the ad hoc programs for new housing — the Canadian Homeownership Stimulation Plan (CHOSP), in effect from June 1982 to mid-May 1983 — are discussed here. The counter-cyclical effects of a program aimed at stimulating renovation spending in 1982–83 are explored also.

- The counter-cyclical record for direct lending is mixed.

Between 1957 and 1973, CMHC instituted a direct lending program to builders and owner-applicants on several occasions. Smith counted a total of nine major changes in CMHC's direct lending program during this period.[4]

Chung concluded that between 1957 and 1960, CMHC loans contributed in a major way to instability in total housing starts; that from 1960 to 1967, CMHC lending made a modest contribution to instability; and that between 1967 and 1970, CMHC lending activity contributed significantly to stability in starts.[5]

- Housing construction is stimulated by the Canadian Homeownership Stimulation Plan.

In the June 28, 1982, budget, the Minister of Finance announced a program of $3,000 grants to all purchasers of new homes on which construction had started before the end of the year, as well as to first-time buyers who purchased existing homes before the end of the year. The program subsequently was extended to purchasers who bought new homes before May 5, 1983 (June 15 in rural areas).

Econalysis Consulting Services concluded that CHOSP played a positive role in stabilizing housing construction:

> The CHOSP program smoothed housing construction activity by shifting starts from the period after the program when declining interest rates were stimulating activity to the late 1982 to early 1983 period when interest rates were still high enough to be depressing new housing starts. However, the tail end of the program overlapped with the period when the impact of declining interest rates was already being felt.[6]

The Conference Board of Canada estimated that "CHOSP generated upward of 67,000 person-years of additional employment through the economically lean years of 1982 and 1983."[7]

By stimulating housing starts, CHOSP aided the economic recovery that began in the fourth quarter of 1982, though there is evidence the program was in effect longer than was necessary.

- Much smaller favourable stabilization impacts result from the Canada Home Renovation Plan.

The Canada Home Renovation Plan (CHRP), introduced in early 1982, provided grants of up to $3,000 to homeowners undertaking eligible renovation work. The size of the grant was inversely related to income, with the grant being zero for households with incomes exceeding $48,000. This program was unique since it

represented the first effort by the federal government to use the renovation sector as the focus of housing incentives designed to achieve economic stabilization objectives.

The program had much less economic benefit per dollar of subsidy for the economy than did CHOSP. The Conference Board of Canada concluded that CHOSP created 11 times more person-years of employment in 1982–83 than CHRP, even though its program costs in these years was only 3.7 times higher.[8] The reason was that the CHOSP subsidies generated substantially more private investment than did the CHRP subsidies.

CHAPTER SIX
CONCLUSIONS

The housing sector has been and continues to be an important component of the Canadian economy. Residential construction spending in 1986 is estimated to have generated more than one million person-years of employment.

However, its importance in the 1980s is less than it has been during much of the postwar period, particularly the 1950s and 1970s. This reduced role reflects a secular decline in new residential construction. While countered by growth in renovation spending, this growth has been insufficient to keep total residential construction spending increasing at the same rate as the growth in the overall economy.

The employment implications of a given level of residential construction activity have changed over time depending on the composition and efficiency of the construction work force. Renovation work by contractors has a much larger on-site labour component than new construction, but this is offset by: (a) less spending on building materials, which generates fewer jobs off-site in manufacturing and other industries; and (b) the large numbers of do-it-yourselfers undertaking renovations.

Available data suggest a marked decline in the number of direct and indirect person-years of employment created by the construction of a typical single-detached house occurred during the first 25 years of the postwar period. While this is negative for economic stabilization policy, it is highly beneficial to the economy at large since it suggests a substantial improvement in the productivity of the single-family homebuilding industry during this period.

Residential construction spending has a considerable direct employment impact in the form of increased construction industry employment in the province where the spending takes place. However, indirect and induced impacts are spread more widely. For Ontario and, to a lesser degree, Quebec, most of the total employment impacts flowing from residential construction spending remain in the province. For the remaining provinces, a significant proportion of the total employment generated by residential construction spending in the province flows to other provinces, in particular to Ontario and in a smaller extent to Quebec.

Cyclical instability has characterized the housing sector over the entire postwar period. While not unique to the housing sector, it has been much more pronounced than for the economy as a whole. This results largely from the heavy dependence of the housing sector on borrowed funds.

The cyclical pattern of new residential construction has altered over the postwar period. For most of the first 25 years, new housing construction tended to be countercyclical, moving in the opposite direction of the economy at large. Over the past 15 years, the pattern has been pro-cyclical. The steps taken in the late 1960s to integrate the mortgage market with the overall capital market appears to have contributed to this change.

Renovation spending has exhibited much lower cyclical volatility than new construction, especially since the mid-1970s.

The housing industry also has been characterized by instability related to seasonal changes. Traditionally, the level of construction activity is much lower in the first quarter of the year and somewhat lower in the second quarter compared with the final two quarters. Contrary to popular perception, new construction activity has not been characterized by reduced seasonal instability, at least not since the early 1960s; in fact, the proportion of new residential construction work done in the first quarter has declined slightly. Renovation spending is even more seasonal than new construction.

Arguments can be presented both for and against using the housing sector to promote economic stabilization in the overall economy. The arguments for promoting stability in housing output include increased efficiency, lower prices and reduced bankruptcies in the housing industry. Conversely, it is argued that housing is uniquely suited as an economic stabilization tool since stimulative policy aimed at the housing sector translates quickly into increased employment.

Over the postwar period, monetary policy has had the greatest impact on the cyclical production of new housing, followed by housing initiatives generally targeted at protecting housing from periods of instability in

the overall economy. General fiscal policy has been much less important in this regard.

The counter-cyclical record of specific housing initiatives of the federal government has been mixed. The direct lending programs launched at various times between the late 1950s and the early 1970s had both stabilizing and destabilizing consequences. The Canadian Home Ownership Stimulation Plan (CHOSP) introduced in mid-1982, during the worst economic downtown since the 1930s, had positive repercussions on housing starts. A unique program aimed at stimulating renovation spending in 1982–83, the Canada Home Renovation Plan (CHRP) had much smaller economic impacts than CHOSP owing to a smaller amount of private investment stimulated per dollar of subsidy.

The conclusions of this working paper would imply that the federal government is less likely to rely on the housing sector to stimulate the economy than in the past. Current public policy, supported by the private sector, is to avoid the use of the housing sector in this way because of the reduced economic importance of housing and the apparent relatively small economic impacts associated with subsidies to the increasingly important renovation sector. However, the housing sector does still have a number of advantages for stabilization purposes, and it may be possible to design programs to stimulate renovation spending, which would have considerably larger positive economic impacts than CHRP.

NOTES
WORKING PAPER THREE

INTRODUCTION

1. Input-output models are quantitative models based on a system of national accounts, which trace the economic relationships (inputs and outputs) among a large number of industries, including residential construction. In general, input-output tables can be derived for an industry that provides, among other things, information on the following:

   - the quantity of commodity and primary (for example, labour) inputs used to produce a given level of output and the industry origin of the commodities used;
   - a breakdown of the destinations of the output of an industry (for example, to be used as inputs for other industries); and
   - the employment and income generated by a given expenditure on an industry, both directly in that industry and ultimately throughout the overall economy.

   The latter information has been employed in this study.

   Research studies used primarily include: O.J. Firestone, *Residential Real Estate in Canada* (Toronto: University of Toronto Press, 1951); Joseph H. Chung, *Cyclical Instability in Residential Construction in Canada* (Ottawa: Economic Council of Canada, 1976); and Lawrence Berk Smith, *The Postwar Canadian Housing and Residential Mortgage Markets and the Role of Government* (Toronto: University of Toronto Press, 1974).

2. Ongoing data on the production of serviced residential land are not available.

CHAPTER ONE

1. Real spending removes the effect of inflation from the residential construction spending data. Real spending on total residential construction includes spending on both new housing and renovations to the existing housing stock.

2. These programs included the Canadian Oil Substitution Program (COSP), the Canadian Home Insulation Program (CHIP) and the Residential Rehabilitation Assistance Program (RRAP). The Canada Home Renovation Plan (CHRP), introduced in early 1982, also buoyed the level of renovation spending during 1982. Commitments under these programs amounted to more than $600 million in 1982. However, the total spending generated by these programs would have been significantly higher since homeowners also had to commit funds.

3. Based on a given expenditure on a given economic activity, the input-output model derives, first, the direct impacts of that expenditure (in terms of both labour and other input requirements) and then, in turn, the indirect and induced impacts. The analysis in this working paper is based on the Statistics Canada national (1979) and inter-regional (1974) input-output models for residential construction (which includes new construction, conversions, additions, alterations and improvements, supplementary costs and transfer costs but excludes repairs), with adjustments made by Clayton Research Associates to reflect the 1986 dollar equivalents.

   These models are not the most recent available. Tabulations were acquired from Statistics Canada for this study using the latest input-output models (1981 national and 1979 inter-regional). However, a comparison of the models for the different years showed little difference, indicating that input-output structures change slowly over time. Since the 1979 national and 1974 inter-regional models were used in previous work by Clayton Research Associates (the 1979 national model was employed in *Renovation Construction — Economic Impacts,* prepared for the Ontario Ministry of Municipal Affairs and Housing in 1984, and the 1974 inter-regional model was employed in *Technical Appendix for Housing Construction in Canada,* prepared for the Housing and Urban Development Association of Canada in 1981), they were used for this working paper. The model results are based on unrevised National Accounts data (major revisions to National Accounts data were released by Statistics Canada in mid-1986; however,

input-output models based on the revisions to the National Accounts have not yet been produced).

4. Residential construction expenditures as defined for input-output purposes exclude repairs but include supplementary costs and transfer costs. The differences are substantial. Based on the input-output definition, total residential construction spending in Canada in 1986 amounted to $30.7 billion compared to $27.8 billion, as defined for this working paper.

5. A person-year of employment refers to the number of hours worked by a typical person during the course of a year; it does not mean a single person is employed for an entire year.

6. As a result of inflation, the employment impact of current residential construction spending will decrease over time. For example, if the residential construction inflation rate in 1987 is five percent, the employment impact per billion dollars of 1987 spending would be 36,000 person-years of employment (the 1986 employment impact divided by 1.05).

7. No disaggregation of residential construction by component is available in the Statistics Canada input-output model. This is true even for residential repairs, which are combined with non-residential building and engineering repairs in the model.

8. Clayton Research Associates, *Renovation Construction — Economic Impacts*, prepared for the Ontario Ministry of Municipal Affairs and Housing, Housing Renovation and Energy Conservation Unit, 1984, pp. 9-15. The estimates do not include renovation work by homeowners or repair work. The estimates presented in this earlier work, which pertained to the year 1983, have been updated to reflect 1986 dollars.

9. It is not possible to derive similar estimates for new construction alone. Total residential construction expenditures also include repair work and renovations by homeowners (so-called do-it-yourselfers or DIY). Although the direct employment impacts for DIY could be assumed to be zero, the employment impacts of residential repair work are unknown. Therefore, subtracting the estimated employment impacts generated by renovation spending on non-repair work by contractors from the total employment impacts would not yield estimates of the employment impacts generated by new construction alone.

10. Department of Reconstruction and Supply, *Manpower and Material Requirements for a Housing Program in Canada* (Ottawa: King's Printer, 1946).

11. The input-output model indicates that the manufacturing and transportation, communications and utilities industries accounted for just over one-half the total indirect employment generated by residential construction expenditures in 1986.

12. O.J. Firestone, *Residential Real Estate in Canada* (Toronto: University of Toronto Press, 1951).

13. *Ibid.*, p. 257.

14. Lea B. Hansen, *Labour Requirements for the Residential Construction Industry* (Ottawa: CMHC, 1976).

CHAPTER TWO

1. Clayton Research Associates, *Technical Appendix for Housing Construction in Canada*, prepared for the Housing and Urban Development Association of Canada, 1981, Appendix C.

2. A variety of comparisons undertaken using the (since released) 1979 inter-regional input-output model show that the results generated by employing either the 1974 or1979 models were quite similar. For example, data for Ontario based on the 1974 model indicate that 81 percent of the total employment impacts generated by an expenditure on residential construction in Ontario actually occurs in Ontario (100 percent of the direct impacts, 74 percent of the indirect impacts and 73 percent of the induced impacts). The 1979 model shows similar results: 77 percent of the total impacts occur in Ontario, comprised of 100 percent of the direct impacts and 67 percent of both the indirect and induced impacts.

3. In both the national and inter-regional input-output models, residential construction is defined to include transfer costs and supplementary costs and exclude repairs and land development costs.

4. The magnitude of the multipliers for employment and income are quite similar.

CHAPTER THREE

1. According to Joseph Chung, cyclical fluctuations in residential construction, measured in terms of mean percentage deviation from the trend line, are twice as pronounced as those in overall economic activity. See Joseph H. Chung, *Cyclical Instability in Residential Construction in Canada* (Ottawa: Economic Council of Canada, 1976), p. xvii.

2. *Ibid.*, pp. 107-108.

3. Chung, *op. cit.*, and Economic Council of Canada, *Toward More Stable Growth in Construction* (Ottawa: ECC, 1974).

4. A complete cycle consists of an expansion period, which runs from a relatively low level of activity (trough) through a relatively high level of activity (peak), followed by a slow-down or contraction period (peak though trough). The duration of the expansion phase is measured by the number of quarters from trough to peak; similarly, the duration of the contraction phase is measured from peak to trough.

5. Counter-cyclical refers to the situation when residential construction activity moves in the opposite direction to general economic activity (for example, expanding when the overall economy is contracting); when residential construction activity moves in the same direction as general economic activity, it is termed pro-cyclical.

6. Cyclical turning points occur at peaks or troughs. A turning point at the peak occurs when a cycle has reached its highest point (or close to it) and where there is a definite downward trend after that point. Similarly, a turning point at the trough is when a cycle reaches its lowest point (or close to it) and when there is a definite upward trend after that point.

7. Economic Council of Canada, *op. cit.*, p. 167.

8. The implications of monetary and fiscal policy on the housing industry are examined in Chapter Five.

9. Economic Council of Canada, *op. cit.*, p. 153.

10. *Ibid.*, p. 158.

11. Seasonally adjusted housing starts data by quarter are not available before 1948.

12. These data include supplementary costs in the new construction data series and exclude repairs in the renovation data series.

13. The swings in total renovation spending (that is, including repairs) would likely be less severe than these data indicate as the methodology used to derive estimates of repairs (which are only available on an annual basis) roughly assumes constant real repair spending per dwelling unit. Thus, in terms of the data available on repairs, cyclical instability is not an issue.

14. J.V. Poapst, *The Residential Mortgage Market*, prepared for the Royal Commission on Banking and Finance, November 1962, p. 150.

15. Chung, *op. cit.*, p. 107.

CHAPTER FOUR

1. The quarterly renovation series (excluding repairs) is derived by Statistics Canada based on seasonal patterns in certain types of retail spending.

2. The references to "industry observers" are based on the interviews conducted as part of this study.

CHAPTER FIVE

1. Lawrence Berk Smith, *The Postwar Canadian Housing and Residential Mortgage Markets and the Role of Government* (Toronto: University of Toronto Press, 1974), p. 139.

2. Smith, *op. cit.*, pp. 151-153 and Economic Council of Canada, *Toward More Stable Growth in Construction* (Ottawa: ECC, 1974), pp. 209-212.

3. Smith, *op. cit.*, p. 133.

4. *Ibid.*, pp. 150-151.

5. Joseph H. Chung, *Cyclical Instability in Residential Construction in Canada* (Ottawa: Economic Council of Canada, 1976), p. 19.

6. Econalysis Consulting Services, *The Effect of CHOSP on Housing Starts* (Ottawa: CMHC, 1986), p. iii.

7. The Conference Board of Canada, *The Economic Impact of the Canadian Homeownership Stimulation Plan and the Canada Home Renovation Plan* (Ottawa: CMHC, 1986), p. 2.

8. *Ibid.*, Table 1.