A Structural Profile of the Manufactured Housing Industry in Canada, United States, Japan and Germany

Prepared for

Canada Mortgage and Housing Corporation (CMHC)
and
The Canadian Manufactured Housing Association (CMHA)

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HIGHLIGHTS

- The value of total manufactured housing factory shipments in 1993 was $778 million, 11.4 % lower in current dollars than the 1989 peak year of $880 million; approximately 19% lower in constant dollars. In a non-recessionary year the value of factory shipments would likely top $1 billion.

- In 1994 there were approximately 147 manufactured housing producers in Canada. The overall survey participation rate among all Canadian manufacturers by product type was 52%.

- The survey response rates for the two largest product types, mobile and modular manufacturers was 100%.

- The overall manufactured housing industry rebounded to some extent in 1992 and 1993 but remained 11% lower by value and 17% lower by volume than the pre-recession 1989 peak year.

- The residential/commercial market split of the industry output has historically been relatively stable. The commercial market represents 10% of the total market.

- The Canadian prefabricated housing market is three times as large as the mobile home market by volume and four times by value. While the mobile home market has declined in volume by the same magnitude as the site built housing sector (35% over the 1989-93 four year period), the prefabricated housing market declined by only 11%. The trend however is not uniform geographically. The change in A240/Z277 building code regulations in Alberta has probably influenced the survey figures although an attempt to adjust for this has been made to the survey data.

- Panelized and modular products have improved their market share relative to pre-cut packages and mobile homes.

- Log home sales, often vacation homes, have not been robust during the housing industry recession.

- The modular market declined some 16% by value and 6% by volume over the 1988-1993 five year period. The collapse of the Quebec market is the primary reason for the decline in national modular home sales. Whereby Quebec accounted for 73% of the national modular home market in 1988, by 1993 it accounted for only 30%.

- The pre-cut package home market was severely hit by the recession. Over the five year period, volume decreased by 38.8% and value by 16.6%.

- Panelized manufactured housing experienced the strongest growth of all types of manufactured housing. The panelized product did not experience the trough that all other types of manufactured housing experienced. It steadily increased (40% by volume and 74% by value) over the five year period. Its share of the total manufactured housing market approximately doubled from 7.5 % to 14% over the five year period.

- The survey figures indicated that multi-unit sales values have been increasing (34% over the 1991-93 two year period). Multi-unit sales account for approximately 5% of total manufactured housing industry sales.

- In 1994 Canadian exports of manufactured housing at least doubled their level of the previous year, confirming the contention that foreign market prospects for Canadian housing products are substantial.

- Canadian imports of manufactured housing are small, relative to the size of the Canadian market, and have declined from $24 million to $4 million over the past three years.

POINTS SAILLANTS

- En 1993, la valeur des expéditions totales des usines de maisons préfabriquées a atteint 778 millions de dollars, soit 11,4 % de moins en dollars courants que le sommet de 880 millions atteint en 1989 et environ 19 % de moins en dollars constants. Au cours d'une année non touchée par une récession, la valeur des expéditions d'usine pourrait vraisemblablement dépasser le milliard de dollars.

- En 1994, on comptait environ 147 producteurs de maisons usinées au Canada. Le taux de participation global des fabricants canadiens par type de produit a été de 52 %.

- En ce qui concerne les deux plus importants produits, à savoir les maisons mobiles et les maisons modulaires, le taux de réponse au sondage a été de 100 %.

- Dans l'ensemble, l'industrie de l'habitation usinée a quelque peu repris du poil de la bête en 1992 et 1993, mais elle est tout de même demeurée à 11 % en valeur et à 17 % en volume des sommets qu'elle avait atteints en 1989, avant la récession.

- La division de la production de cette industrie entre le résidentiel et le commercial a, en général, été relativement stable, le marché commercial représentant 10 % du marché total.

- Le marché canadien de la maison préfabriquée est, en volume, trois fois plus important que le marché des maisons mobiles et quatre fois plus en valeur. Bien que le marché des maisons mobiles ait subi une baisse de volume équivalente à celle du marché des maisons construites en chantier (35 % durant la période 1989-1993), le marché de la maison préfabriquée ne s'est affaibli que de 11 %. Cette tendance n'est toutefois pas la même dans toutes les régions. Ainsi, en Alberta, les modifications apportées aux règlements du code du bâtiment (norme A240/Z277) ont sans doute influé sur les données du sondage malgré que l'on ait tenté de rajuster les données pour en tenir compte dans l'analyse du sondage.

- Les maisons modulaires et en panneaux ont connu une meilleure performance sur le marché que les maisons mobiles et les kits de construction à éléments prétaillés.

- Les ventes de maisons en pièce sur pièce, souvent utilisées comme résidences secondaires de loisir, n'ont pas été très robustes durant la récession qui a frappé le secteur du logement.

- Le marché des maisons modulaires a reculé de quelque 16 % en valeur et de 6 % en volume au cours de la période 1988-1993. L'effondrement du marché québécois est la principale cause du déclin, à l'échelle nationale, des ventes de maisons modulaires. Alors que le Québec représentait 73 % du marché national des maisons modulaires en 1988, il ne représentait plus, en 1993, que 30 % de ce marché.

- La récession a fait très mal au secteur des kits de construction à éléments prétaillés. Durant ces cinq années, le volume a diminué de 38,8 % et la valeur de 16,6 %.

- Les maisons usinées en panneaux ont connu la plus forte croissance de toutes les formes d'habitations usinées. Elles n'ont pas subi la dépression dans laquelle sont tombés tous les autres types d'habitations usinées. Leur volume (40 %) et leur valeur (74 %) ont augmenté régulièrement durant les cinq années de récession. Leur part du marché total des habitations usinées a pratiquement doublé, passant de 7,5 % à 14 % durant cette même période.

- L'enquête montre que les ventes d'immeubles collectifs ont augmenté (34 % durant la période 1991-1993). Les immeubles collectifs représentent environ 5 % des ventes totales de maisons usinées.

- En 1994, les exportations canadiennes d'habitations usinées ont au moins doublé par rapport à l'année précédente, ce qui confirme que les marchés étrangers constituent effectivement d'excellents débouchés pour les produits d'habitation canadiens.

- Les importations canadiennes d'habitations usinées sont faibles par rapport à la taille du marché canadien et elles sont même passées de 24 millions de dollars à 4 millions de dollars au cours des trois dernières années.

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A Structural Profile of the Manufactured Housing Industry in Canada, United States, Japan and Germany

1. INTRODUCTION

1.1 Purpose

This study was initiated by and financially supported by Canada Mortgage and Housing Corporation (CMHC) at the request of the Canadian Manufactured Housing Association (CMHA). Its purpose is twofold.

> A statistical profile of the Canadian manufactured housing industry has never been available to industry stakeholders. The absolute size of the industry and the relative shares of the differing market segments have not been known. CMHC and CMHA sought to determine the absolute size of the Canadian manufactured housing industry, the size of the manufactured housing industry relative to the site built housing industry, as well as to identify market trends in the types of manufactured housing that is produced in Canada.
>
> Housing starts in Canada have declined in this decade and are projected to remain lower than the two previous decades for some years to come. This has been an impetus for Canadian manufactured housing manufacturers to more aggressively explore export markets. To assist Canadian manufacturers to evaluate foreign markets CMHA sought to develop a profile of priority export markets; specifically the United States, Japan and Western Europe.

1.2 Types of Canadian Manufactured Housing

Manufactured housing is comprised of several types of factory built product; specifically mobile, modular, pre-cut packages, panelized, timber frame and log homes.[1] Larger manufacturers also produce factory built buildings in two or three dimensions for commercial/industrial uses. Although some larger manufacturers build more than one type, Canadian manufacturers tend to specialize in one or two types of product. To better distinguish the types of product manufactured by Canadian producers CMHA has developed the following definitions for the various types of product produced by their members.

[1] In other countries manufactured housing is often referred to as prefabricated housing. The distinction between manufactured housing and site built housing is that in manufactured housing the structural components are fabricated off site in either two or three dimensions.

CMHA DEFINITIONS OF FACTORY BUILT HOUSING PRODUCT

1.0 **Manufactured Housing** is any building or building module, destined for use as permanent, temporary or seasonal housing accommodation, which is constructed in a factory operation, and transported to the building site.

1.1 **Modular Buildings** applies to a factory-built module or modules, of a house or building, which are joined together on the site; and which are intended for residential, commercial or industrial occupancy.

1.1.1 **Modular Homes** are buildings constructed in conformance with Part 9 of the National Building Code of Canada, or the applicable sections of this code (or legislation) or provincial and municipal building codes if they supersedes the NBC. A modular home is a building constructed in a factory to the requirements of the CAN/CSA A277 Quality Standard.

For export sales of Modular Homes, the CAN/CSA A277 Quality Standard is a quality assurance system for registered manufacturers, that ensures that the product produced meets all of the Codes and Standards governing the district into which the modular home is being shipped and finished for occupancy.

1.2 **Mobile home** is a transportable, single, double, or multiple section single family dwelling unit. Except as otherwise required in this section, a mobile home is a dwelling constructed in accordance with the requirements of CAN/CSA Z240 MH Series-92 Standard. A mobile home is a transportable home, however, the dwelling unit does not necessarily have a transportable frame attached to it.

1.3 **Park Model Trailer** means a manufactured recreational unit that meets the following criteria:

(a) built on a single chassis mounted on wheels;
(b) designed to facilitate relocation from time to time;
(c) designed as living quarters for seasonal dwelling, and may be connected to those utilities necessary for operation of installed fixtures and appliances; and
(d) has a gross floor area, including lofts, not exceeding $50M^2$ when in the set-up mode, and having a width not greater than 2.6M in the transit mode.

Except as otherwise required in this section, a Park Model unit, is intended to be used as a seasonal recreational building for residential occupancy, and constructed in accordance with the requirements of CAN/CSA-Z241 Series-92 Standard.

1.4 **Panelized Housing** are buildings where some or all of the major components are manufactured, in two dimensional panel form (closed or open), in a factory and assembled on site. These panels could be wall, roof or floor panels or a combination of the same. Closed panels for residential and commercial occupancy in Canada, are required to be built in factories certified to the CAN/CSA A277 Quality Standard.

1.5 **Pre Engineered & Panelized** are building units which are prefabricated in a manufacturing facility and shipped to the final site for assembly and completion. The product could be a series of engineered and packaged building components making up some or all parts of the total building components in the project. Packaged components may or may not be assembled into panel form depending on the requirements of the project.

1.6 **Post and Beam** Post and Beam and Timber Frame buildings are manufactured from large dimension timbers of almost any species of wood which is called for by the project designers and/or the manufacturer. These large dimensional timbers are placed vertically (post) and horizontally (beam) when assembled at the project site.

Post and Beam and Timber Frame buildings are fabricated to exact dimensions with custom joinery in order to make up some or all of the structure of a project. In most cases these structural systems are exposed to the inside of the building and become an architectural feature of the project. Exterior panels, open or closed, and other building components are often included as part of the manufacturers products.

1.7 **Log - Profiled** Pre-cut log homes are machine profiled with a tongue and groove on the top and bottom of each log. The logs are precision milled to specific sizes, shapes and lengths to suit a particular design. The pre-cut logs, along with windows, doors, roofing and other finishing materials, form a package which is transported to the building site to be assembled. These packages are offered either from standard plans or customized for the purchaser.

1.8 **Log - Hand-crafted** Hand-crafted log homes are custom fabricated using large full tree size material which is either left in the round or squared to some degree. A variety of joinery is used in the fabrication of these structures by skilled craftsmen and specialized equipment. The hand-crafted logs and structural timbers, along with windows, doors, roofing and other finishing materials form a package which is transported to the building site to be assembled.

1.3 Content

The early years of this decade were characterized by a major recession in the Canadian housing market as well as in Europe, the United States and Japan. The results of this study illustrate that despite adverse overall market conditions, the Canadian manufacturing housing market has, in some aspects, become more competitive both at home and internationally.

This report presents a profile of the Canadian, United States, Japanese and German manufactured housing markets. Section 2 presents a macro view of the industry based upon the survey of manufacturers that was undertaken. Section 3 presents an analysis of each type of manufactured housing over the five year 1989-1993 period. Section 4 summarizes Canada's trade relations in manufactured housing. Sections 5, 6 and 7 profile the United States, Japan and German manufactured housing market respectively.

Difficulties in obtaining market data for western Europe prevented its inclusion in the report. Apart from the Scandinavian countries, manufactured housing has had much lower market penetration than in North America and Japan. Although there is niche market potential in some European countries, the European market of most interest to many Canadian manufacturers is

Germany; especially due to the potential for manufactured housing that reunification has created. A very brief profile of the German market has been included for those Canadian manufacturers who may be considering German market prospects.

1.4 Methodology

Statistics Canada collects sales data for manufactured housing on a sampling basis except in a year that a Census of Manufacturers is undertaken.[2] Census years are usually every five years. Although manufacturers report their sales according to product type, the sales of small producers are not recorded by product type and some sales are recorded by end use (e.g. vacation homes). This data had not been amalgamated for all the types of manufactured housing prior to the research undertaken for this report. Statistics Canada data is not compiled on an industry basis. The data form utilized by Statistics Canada to collect the data from manufacturers is not fully consistent with the aforementioned definitions of Section 1.2.

In order to obtain Canadian industry sales by type of manufactured housing as defined in Section 1.2, a survey of all Canadian manufacturers of manufactured housing was undertaken. The industry profile presented in Section 2 is based on the data collected by this survey. The United States information was obtained from the U.S. Department of Commerce, U.S. industry trade associations and U.S. market research firms. Japanese information was obtained from a Canadian embassy market study and the Japanese External Trade Organization (Jetro). Information on the German market was obtained from U.S. Department of Commerce publications.

The survey was undertaken under the guidance of the Canadian Manufactured Housing Association (CMHA) by mail and electronic facsimile in late 1994 and early 1995. The Canadian industry profile presented in this document was only made possible by the exceptional cooperation of industry members; many of which are members of the Canadian Manufacturing Housing Institute (CMHI) or the Manufactured Housing Association Of Canada (MHAC).

[2] Due to budgetary reasons the survey has not been conducted every year in the 1990's.

2. CANADIAN SUPPLY

2.1 Survey Response

We were able to develop a list of all current Canadian manufactured housing producers through national and provincial industry associations and involved government ministries. Table 2.1 presents a numeric summary of the number of Canadian producers of the varying types of manufactured housing and a summary of the number of producers who participated in the survey. The total number of possible survey entries is 186 as indicated in Table 2.1. Some firms (39) produced more than one product type. This is the reason that the number of entries in Table 2.1 exceeds the number of survey responses.[3]

Response rates to the survey varied from 100% for mobile and modular homes to a low of 13% for post & beam manufacturers. In 1994 there were approximately 147 manufactured housing producers in Canada. The overall survey participation rate among all Canadian manufacturers by product type was 52%. We were able to obtain data for all mobile and modular Quebec manufacturers from the Quebec industry association.

The 100% response rates for the two largest product categories should be noted, namely mobile and modular. Since these two product types represent close to half of the total industry output, we have been able to extrapolate total industry sales value with a high degree of confidence of the magnitude of the extrapolated industry total; as well as these specific product categories.

Table 2.1 SURVEY RESPONSE RATES

Description - MH Type	No. of Producers	Survey Response	Response Rate (%)	No. of entries	% of industry
	#	#	#	#	#
MOBILE HOMES	**19**	**13**	**63**	**19**	**100**
PREFABRICATED HOMES	**168**	**62**	**34**	**73**	**43**
Modular A277	35	25	71	35	100
Pre-cut/Package	31	8	26	8	26
Panel	28	12	43	13	47
Log	34	9	29	9	29
Post & Beam/Timber frame	40	5	13	5	13
Multi-Unit Family	NA	3		3	
COMMERCIAL/INDUSTRIAL	**27**	**15**	**56**	**15**	**56**
Total Industry	**186**	**79**	**42**	**96**	**52**

[3] It is possible that we were not able to identify some small manufacturers of prefabricated housing. These omissions probably would account for only a few percent of industry output. It should be noted that although there are a large number of log and post & beam manufacturers, these product types represent a relatively small proportion of the total manufactured housing industry output. With a few exceptions, they tend to be small producers.

Table 2.2 EXTRAPOLATION SCALARS

MOBILE HOMES	1.0
MODULAR A277	1.0
PRE-CUT/PACKAGE	3.0
PANEL	1.8
LOG	3.0
POST & BEAM/TIMBER FRAME	fixed
MULTI-UNIT FAMILY	1.5
COMMERCIAL/INDUSTRIAL	1.5

To develop an estimate of total industry sales those product types for which there was a less than 100 % survey response rate were projected; based upon the extrapolation scalars of Table 2.2. These scalars were calculated according to the profile of the survey responses of each product type of Table 2.1. The survey response rate for Post & Beam was too low to develop a scalar; an industry estimate was made in consultation with industry experts.

2.2 The Canadian Industry

Table 2.3 presents a profile of the quantity and value of factory shipments of the Canadian manufactured housing industry by type of product, based upon the extrapolated survey returns. The value of total factory shipments in 1993 was $778 million, 11.4 % lower than the 1989 peak year of $880 million. In constant dollar terms, using an annual average inflation rate of 2%, the value of factory shipments was approximately 20% lower in 1993 compared to 1989.

Table 2.3 CANADIAN MANUFACTURED HOUSING SHIPMENTS

Description - MH Type	1988	1989	1990	1991	1992	1993
Units Shipped	#	#	#	#	#	#
MOBILE HOMES	**4,010**	**4,658**	**3,867**	**3,619**	**3,687**	**3,033**
PREFABRICATED HOMES	**13,105**	**13,418**	**12,852**	**10,463**	**10,982**	**11,954**
Modular A277	*4,994*	*4,970*	*5,447*	*3,809*	*4,205*	*4,679*
Pre-cut/Package	*3,603*	*3,510*	*2,886*	*2,448*	*2,052*	*2,208*
Panel	*1,861*	*2,027*	*1,949*	*1,985*	*2,388*	*2,612*
Log	*1,434*	*1,668*	*1,488*	*1,173*	*1,005*	*1,062*
Post & Beam/Timber frame	*119*	*119*	*119*	*90*	*104*	*104*
Multi-Unit Family	*1,094*	*1,124*	*963*	*959*	*1,229*	*1,289*
COMMERCIAL/INDUSTRIAL	**2,845**	**2,831**	**2,970**	**2,157**	**1,818**	**2,343**
INDUSTRY TOTAL	**19,960**	**20,907**	**19,689**	**16,238**	**16,487**	**17,330**
Factory Sales Value (000's)	$	$	$	$	$	$
MOBILE HOMES	**121,797**	**144,431**	**129,733**	**127,618**	**132,760**	**113,623**
PREFABRICATED HOMES	**631,681**	**659,783**	**643,092**	**485,972**	**536,206**	**590,524**
Modular A277	*267,953*	*276,360*	*274,549*	*185,316*	*204,228*	*226,075*
Pre-cut/Package	*216,918*	*226,392*	*207,497*	*160,375*	*171,714*	*180,770*
Panel	*62,113*	*66,862*	*73,107*	*72,618*	*91,444*	*108,417*
Log	*47,188*	*58,366*	*56,233*	*36,528*	*30,049*	*34,040*
Post & Beam/Timber frame	*8,000*	*8,000*	*8,000*	*6,000*	*7,000*	*7,000*
Multi-Unit Family	*29,509*	*23,802*	*23,707*	*25,136*	*31,772*	*34,222*
COMMERCIAL/INDUSTRIAL	**67,688**	**76,124**	**95,227**	**69,517**	**65,653**	**73,991**
INDUSTRY TOTAL	**821,166**	**880,339**	**868,052**	**683,108**	**734,620**	**778,138**

Table 2.4 RETAIL VALUE MARK-UP FACTORS

MOBILE HOMES	2.0
MODULAR A277	2.5
PRE-CUT/PACKAGE	3.0
PANEL	2.5
LOG	2.5
POST & BEAM/TIMBER FRAME	2.5
MULTI-UNIT FAMILY	2.0
COMMERCIAL/INDUSTRIAL	2.0

To develop an estimate of the Gross Domestic Product (GDP) contribution of the manufacturing housing industry, varying mark up ratios were applied to each product type of Table 2.3. These ratios are conservative industry estimates of the retail sales value (excluding undeveloped land costs) of each type of manufactured home. The mark up ratios therefore differ according to product type. Table 2.4 lists the mark up ratios employed in developing the data presented in Table 2.5.

Table 2.5 CANADIAN MANUFACTURED HOUSING RETAIL SALES VALUE

Description - MH Type	1988	1989	1990	1991	1992	1993
Retail Sales Value (000's)	**$**	**$**	**$**	**$**	**$**	**$**
MOBILE HOMES	**243,594**	**288,863**	**259,466**	**255,237**	**265,521**	**227,246**
PREFABRICATED HOMES	**1,672,907**	**1,750,753**	**1,699,625**	**1,282,551**	**1,410,487**	**1,549,585**
Modular A277	669,883	690,901	686,372	463,290	510,571	565,186
Pre-cut/Package	650,754	679,177	622,490	481,125	515,142	542,311
Panel	155,284	167,156	182,767	181,544	228,609	271,043
Log	117,969	145,915	140,581	91,321	75,121	85,100
Post & Beam/Timber frame	20,000	20,000	20,000	15,000	17,500	17,500
Multi-Unit Family	59,018	47,605	47,414	50,271	63,544	68,445
COMMERCIAL/INDUSTRIAL	**135,376**	**152,248**	**190,454**	**139,034**	**131,306**	**147,982**
INDUSTRY TOTAL	**2,051,877**	**2,191,864**	**2,149,545**	**1,676,822**	**1,807,314**	**1,924,813**

Table 2.5 illustrates that the manufacturing housing industry contributes approximately $2 billion to the Canadian Gross Domestic Product (GDP).[4] Table 2.6 presents the construction industry contribution to GDP. Using the figures of Tables 2.5 and 2.6, manufactured housing represented some 14.3 % in 1993 of the retail sales value of the Canadian single and semi detached housing market and 1.9% of total construction expenditures in Canada.

[4] Imports of manufactured housing into Canada are very low compared to Canadian exports as is illustrated in Table 4.1. There is some degree of overstatement in this figure since about 15% of manufactured housing units produced in Canada are exported and components have an import content. Nonetheless, the rough magnitude of the contribution is of importance.

Table 2.6 Total Construction Expenditures by Structure *

($ thousands)

Type of Construction	1988	1989	1990	1991	1992	1993
Total Construction	**90,871,421**	**100,412,088**	**102,366,980**	**96,124,796**	**99,258,835**	**94,411,261**
Total Building Construction	**63,885,367**	**71,238,271**	**70,046,939**	**62,381,734**	**65,307,270**	**61,315,197**
Residential	**38,935,938**	**42,729,632**	**41,012,053**	**36,776,088**	**41,114,580**	**38,432,467**
Single detached	13,564,103	15,405,031	13,408,342	10,596,454	13,516,090	12,802,046
Semi-detached including duplexes	516,513	545,259	603,049	661,285	665,479	723,108
Apartments including row housing	5,599,283	5,868,938	6,026,216	4,366,032	5,040,051	4,795,268
Other	19,256,039	20,910,404	20,974,446	21,152,317	21,892,960	20,112,045
Industrial	**3,841,878**	**4,487,623**	**4,343,950**	**3,416,024**	**2,840,267**	**2,594,152**
Factories, plants, workshops	3,370,692	4,044,218	4,022,572	3,140,091	2,574,096	2,380,343
canneries, smelters.						
Mine and mine mill buildings	324,618	319,765	193,138	166,832	141,658	93,934
Railway stations, roadway buildings	41,322	50,094	46,891	44,269	52,024	50,832
Railway shops, engine houses, water and fuel	105,246	73,546	81,349	64,832	72,489	69,043
stations.						
Commercial	**14,115,683**	**16,192,642**	**16,574,178**	**14,009,224**	**12,636,822**	**11,146,469**
Warehouses, storehouses, refrigerated						
storage, etc.	1,011,800	1,107,237	1,039,154	885,800	758,524	669,200
Grain elevators	52,522	47,217	64,729	54,833	83,815	76,141
Hotels, clubs, restaurants, cafeterias, tourist cabins	980,606	1,213,796	1,252,851	933,278	699,652	524,524
Office buildings	6,393,079	7,705,570	8,971,689	7,743,033	7,024,670	6,343,708
Stores, retail and wholesale	4,088,356	4,218,735	3,665,818	2,972,422	2,543,988	1,868,060
Garages and service stations	533,870	720,603	592,293	581,842	663,020	707,503
Theatres, arenas, amusement and recreational	1,055,450	1,179,484	987,644	838,016	863,153	957,333
buildings.						
Institutional	**4,540,030**	**5,110,610**	**5,535,512**	**5,630,328**	**6,188,534**	**6,205,352**
Schools and other educational buildings	2,421,730	2,571,305	3,034,504	3,309,902	3,582,417	3,735,220
Churches and other religious buildings	183,958	187,406	163,179	114,833	107,592	79,128
Hospital, sanatoria, clinics, first-aid stations, etc.	1,137,507	1,288,641	1,377,643	1,311,319	1,563,949	1,371,736
Other institutional buildings	796,835	1,063,258	960,186	894,274	934,576	1,019,268
Other building construction	**2,451,838**	**2,717,764**	**2,581,246**	**2,550,070**	**2,527,067**	**2,936,757**
Farm buildings (excluding dwellings)	1,014,897	1,067,596	936,974	905,265	898,691	921,303
Broadcasting, radio and television, relay						
and booster stations, TV exchanges	214,892	315,214	209,955	198,906	197,689	275,370
Aircraft hangers	82,779	75,947	63,862	64,546	63,723	99,790
Passenger terminals, bus, boat, air and other	109,339	128,271	234,254	270,272	273,815	325,177
Armouries, barrack, drill halls, etc.	61,241	91,468	72,178	75,228	84,694	82,797
Bunkhouses, dormitories, camp cookeries,	26,531	24,531	23,421	19,829	20,582	19,201
bush depots and camps						
Laboratories	271,956	294,304	279,222	280,866	295,947	342,152
Other building construction	670,203	720,433	761,380	735,158	691,926	870,967

*Figures include all costs incurred directly or indirectly in the construction of the structure. All permanent built-in equipment forming an integral part of the structure, site preparation and land improvement as applicable are also included.

2.3 Market Share

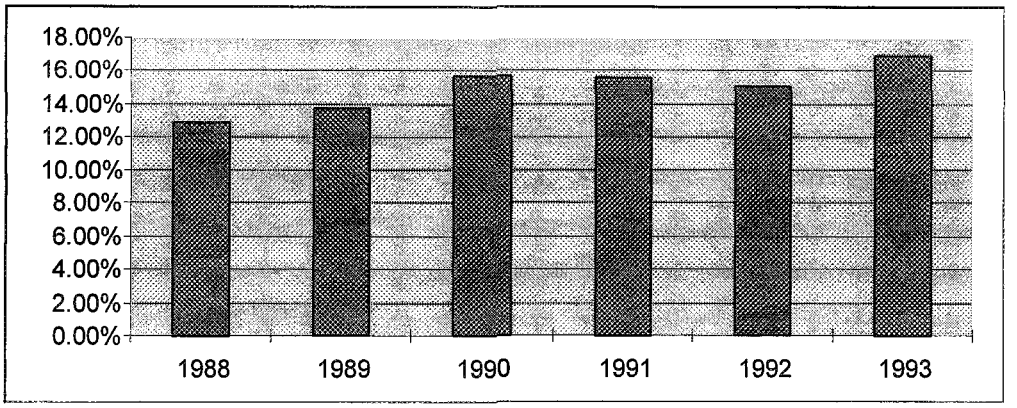
As illustrated in Table 2.7, in terms of housing starts, the manufactured housing market share in 1993 is approximately 17%. Despite the recessionary decline of the housing industry in the 1990's, the manufactured housing industry market share of the total housing industry improved during this period. Table 2.7 also illustrates that while site built housing starts declined 36% over the 1988-93 five year period, manufactured housing declined by only 12.4%.

Table 2.7 MANUFACTURED HOUSING MARKET SHARE - Canada
(as a percentage of housing starts for detached and semi-detached housing)

	1988	1989	1990	1991	1992	1993
Site built [5]	115,378	112,666	89,840	76,125	82,284	73,276
Manufactured	17,115	18,076	16,719	14,082	14,669	14,987
Total starts	132,493	130,742	106,559	90,207	96,953	88,263
Market share	**12.9%**	**13.8%**	**15.7%**	**15.6%**	**15.1%**	**16.9%**

The 4% increase in market share (12.9% to 16.9%) over the five year period (31% increase in terms of market share growth rate) is so significant that it probably is indicative of a structural change in the Canadian housing industry. Although the definitive proof of this conclusion will only be available when the current overall housing start decline is reversed, further analysis of the manufactured housing market by product type presented in subsequent tables of this report tends to support the contention that market acceptance of manufactured housing has increased in Canada. Furthermore, the very high market share of manufactured housing in the United States market that Section 5 of this study profiles, indicates that there is room for a large increase in the manufactured housing market share in Canada.

Figure 2.1 MANUFACTURED HOUSING MARKET SHARE - Canada



[5] We have calculated the site built figure by subtracting the manufactured housing figure of Table 2.3 (industry total less commercial) from the total housing starts data as compiled by CMHC.

3. SURVEY RESULTS[6]

Table 3.1 FACTORY SALES ACTIVITY

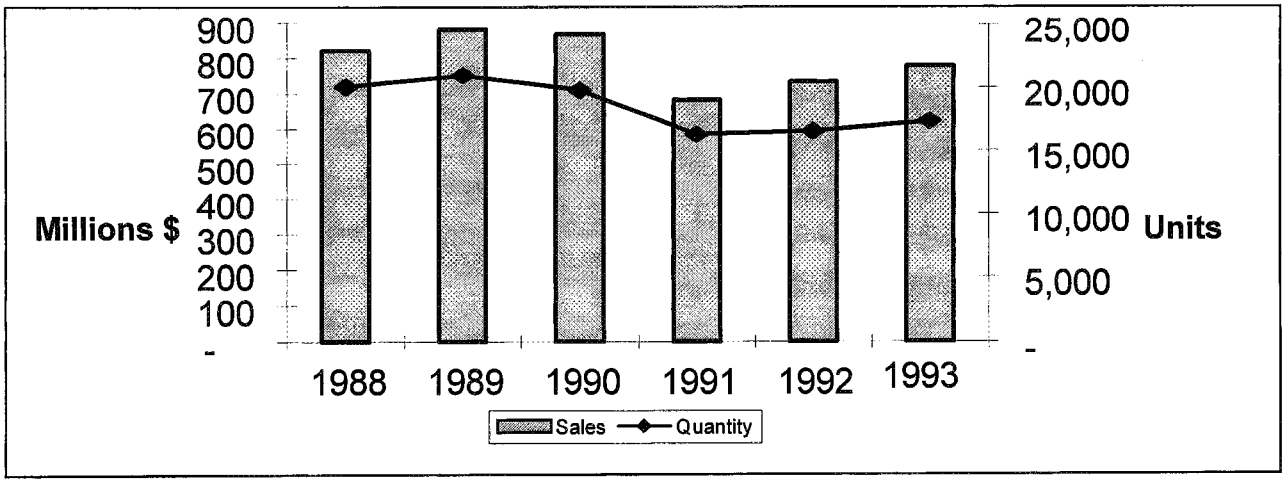
	1988	1989	1990	1991	1992	1993
Sales ($ millions)	821	880	868	683	735	778
Quantity (units)	19,960	20,907	19,689	16,238	16,487	17,330

Total factory sales in units and value by Canadian manufactured housing producers is presented in Table and Figure 3.1. This amount includes both residential and commercial buildings.

Prior to the housing industry recession, factory shipments were in the $900 million range. The early 1990's recession is clearly reflected in the data, particularly the 1991 trough when output declined 21% in value and 17% by volume. The turn of the decade posed a challenge to the Canadian manufactured housing industry. Although this will be of no surprise to those who know of the volatility of the construction industry, the early 1990's recession had an effect on the Canadian housing industry (indeed the construction industry in general) of a more severe magnitude than to the economy as a whole.

The overall manufactured housing industry rebounded to some extent in 1992 and 1993 but remained 11% lower by value and 17% by lower by volume than the pre-recession 1989 peak year. The survey results indicate that, in a non-recessionary year, the value of factory shipments would likely top $1 billion.

Figure 3.1 FACTORY SALES ACTIVITY



[6] Unless otherwise stated, all tables are expressed in "current" not "constant" dollars.

Table 3.2 HOUSING/COMMERCIAL MARKET SPLIT

$ millions

	1988	1989	1990	1991	1992	1993
Housing	753	804	773	614	669	704
Commercial	68	76	95	70	66	74

Table and Figure 3.2 disaggregates the sales value of Table 3.1 into residential and commercial buildings. They demonstrate that the residential/commercial market split of the industry output has historically been a relatively stable 10%.

Figure 3.2 HOUSING/COMMERCIAL MARKET SPLIT

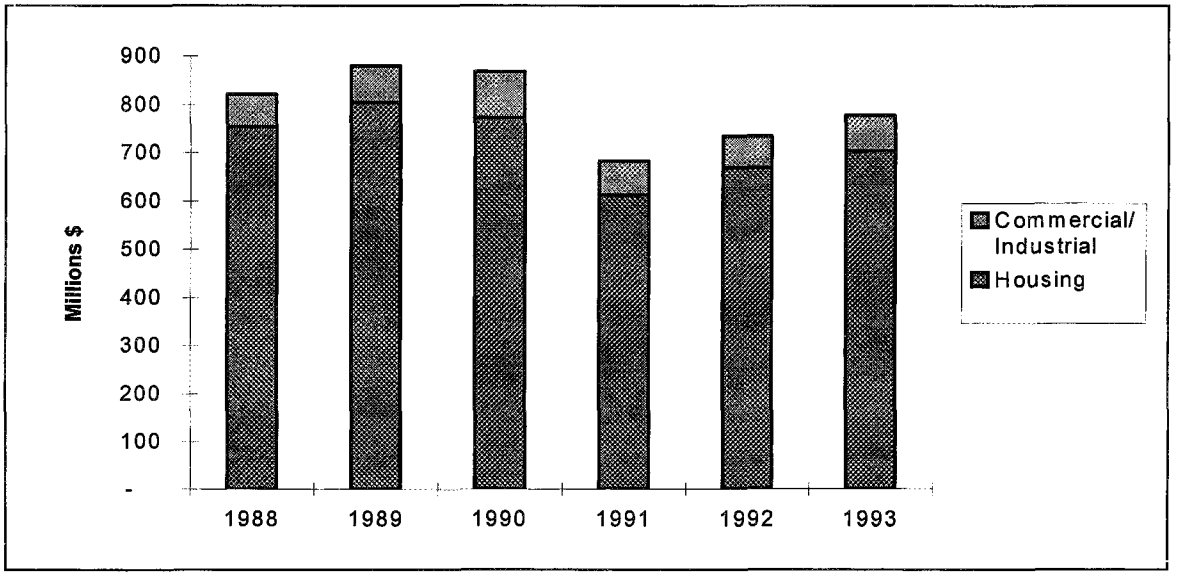


Table 3.3 MANUFACTURED HOUSING SALES ACTIVITY

	1988	1989	1990	1991	1992	1993
Sales ($ millions)	753	804	773	614	669	704
Quantity (units)	17,115	18,076	16,719	14,082	14,669	14,987

The overall housing industry declined 8.4% by value and 32.5% by volume from 1989-93. (see Table 2.6). Manufactured housing sales declined 12.5% by value and volume over the corresponding period. The peak year for manufacturing housing output in Canada was 1989. The two year 1989-91 recessionary period decline in manufactured housing sales was 24% by value and 22% by volume.

The fact that manufactured housing declined at a lower rate by volume than the overall housing industry during the recession has resulted in manufacturing housing increasing its market share as Figure 2.1 previously illustrated.

Figure 3.3 MANUFACTURED HOUSING SALES ACTIVITY

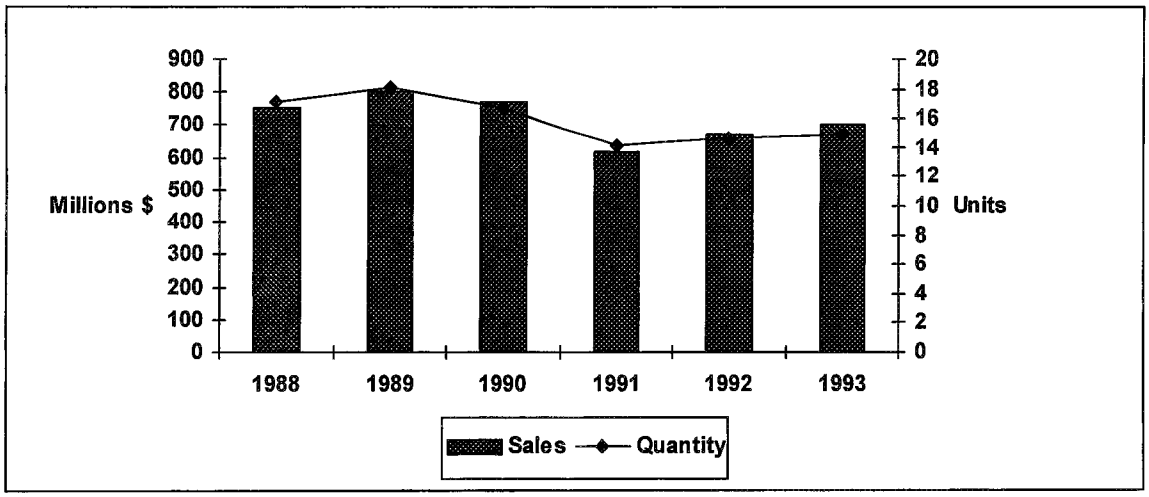
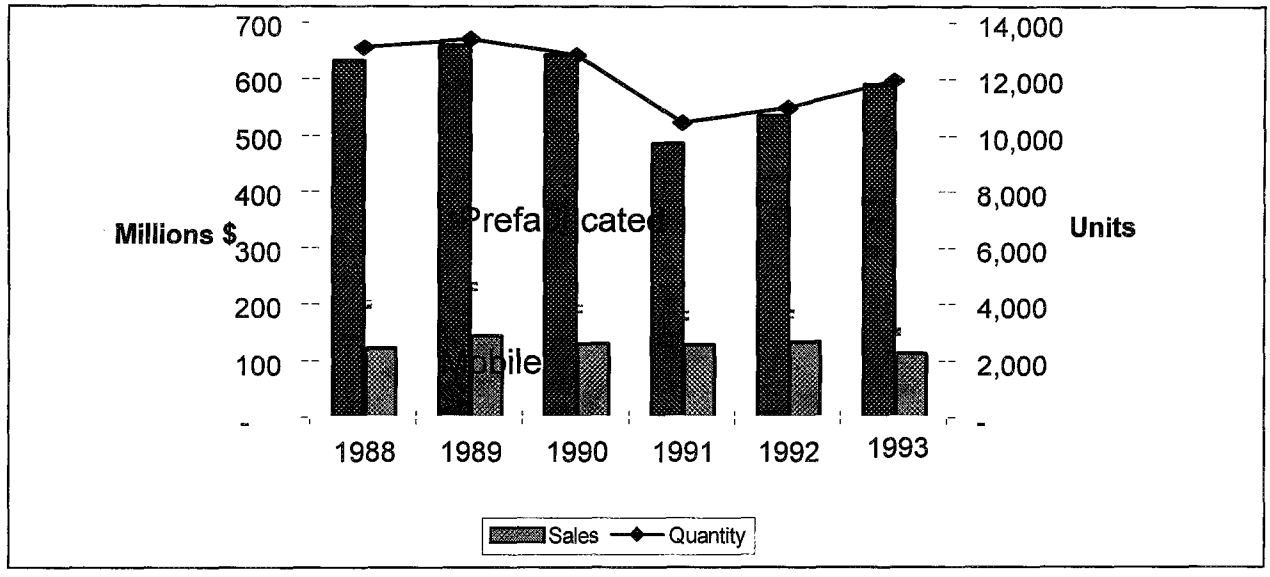


Table 3.4 PREFABRICATED AND MOBILE HOME INDUSTRIES

	1988	1989	1990	1991	1992	1993
Prefabricated Sales ($ millions)	632	660	643	486	536	591
Mobile Sales ($ millions)	122	144	130	128	133	114
Prefabricated Quantities	13,105	13,418	12,852	10,463	10,982	11,954
Mobile Quantities[7]	4,010	4,658	3,867	3,619	3,687	3,033

The Canadian prefabricated housing market is three times as large as the mobile home market by volume and four times by value. While the mobile home market has declined in volume by the same magnitude as the site built housing sector (35% over the 1989-1993 four year period), the prefabricated housing market declined by only 11%. With the exception of pre-cut packages that often are vacation homes, the data would indicate that in a recessionary period, consumers do not opt for lower price mobile homes compared to prefabricated. The ability of the prefabricated producers to out-perform both the mobile and site built sectors during the housing recession indicates that this sector has become more competitive and/or gained increased consumer acceptance.

Figure 3.4 PREFABRICATED AND MOBILE HOME INDUSTRIES



[7] In an attempt to offset the Z240 to A277 reclassification in western Canada we adjusted the mobile figures upwards by 400 units in 1992 and 1993, and decreased modular by the same amount.

Table 3.5 MARKET SEGMENT SALES

Factory Sales Value (000's)

	1988	1989	1990	1991	1992	1993
MOBILE HOMES	121,797	144,431	129,733	127,618	132,760	113,623
MODULAR A277	267,953	276,360	274,549	185,316	204,228	226,075
PRE-CUT/PACKAGE	216,918	226,392	207,497	160,375	171,714	180,770
PANEL	62,113	66,862	73,107	72,618	91,444	108,417
LOG	47,188	58,366	56,233	36,528	30,049	34,040
MULTI-UNIT FAMILY	29,509	23,802	23,707	25,136	31,772	34,222
COMMERCIAL/INDUSTRIAL	67,688	76,124	95,227	69,517	65,653	73,991

Besides confirming what has previously been observed of the mobile market, Table 3.5 disaggregrates the prefabricated market by type of product. It compares market penetration of the differing types of prefabricated housing. Panelized and modular products have improved their market share relative to pre-cut packages and mobile homes. It is not surprising that log home sales, that are often vacation homes, have not been robust during the housing industry recession.

Figure 3.5 INDUSTRY MARKET SEGMENT SALES

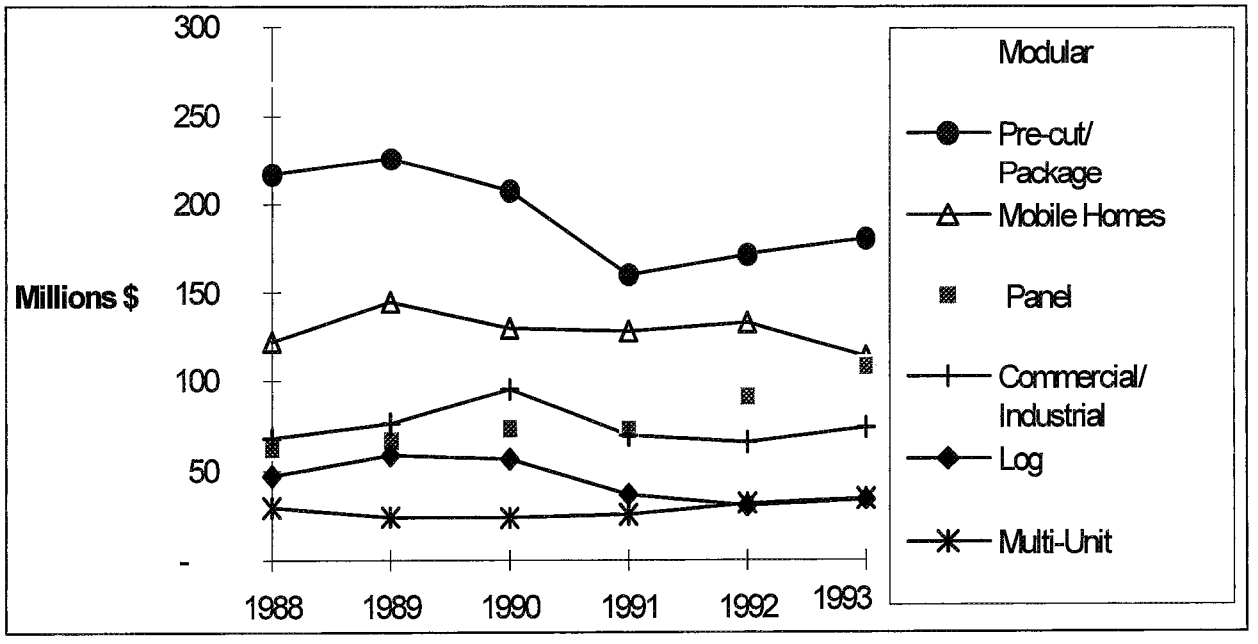


Table 3.6 MOBILE HOME SALES ACTIVITY

	1988	1989	1990	1991	1992	1993
Sales	122	144	130	128	133	114
Quantity	4,010	4,658	3,867	3,619	3,687	3,033

National sales have not recovered from the 1989 peak year; in 1993 they were 35% less in terms of units sold. The trend however is not uniform geographically as Table 3.7 illustrates.

Figure 3.6 MOBILE HOME SALES ACTIVITY

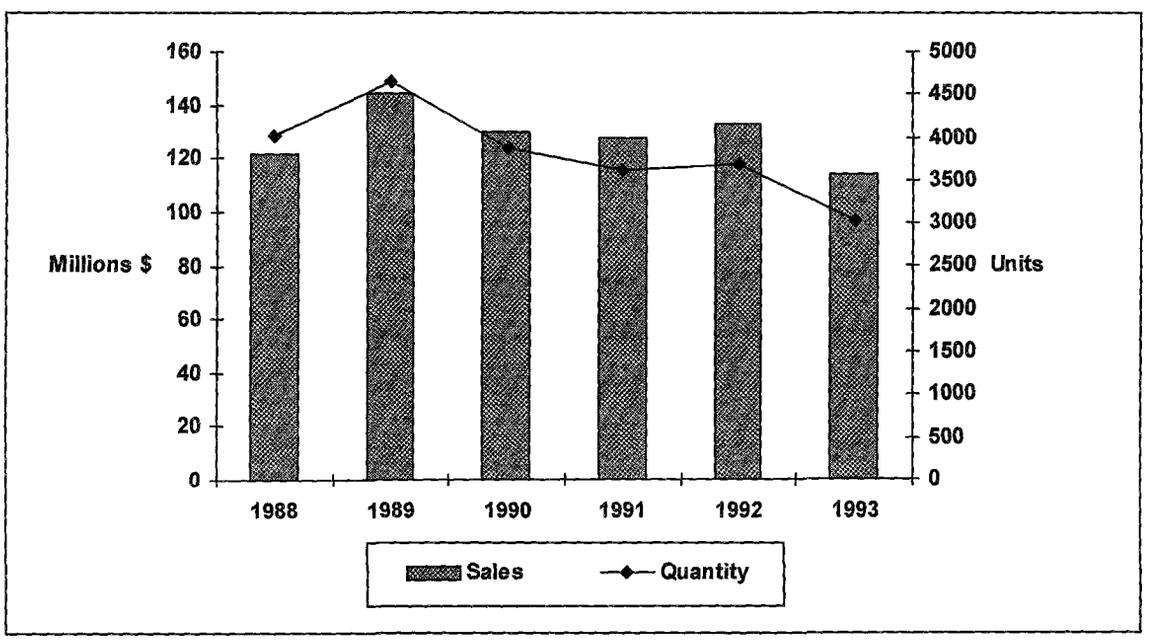


Table 3.7 MOBILE SALES BY REGION

($ millions)

	1988	1989	1990	1991	1992	1993	% change
BC	16.4	24.3	31.8	35.4	45.6	33.8	+ 106%
West	31.3	38.3	25.6	25.6	28.8	28.7	- 8%
Maritimes	19.1	27.1	28.5	25.9	25.4	23.5	+ 23%
Ontario	19.7	20.1	17.0	6.7	5.7	5.7	- 71%
Quebec	26.0	22.3	15.9	23.1	19.4	17.1	- 34%

The decline in mobile home sales in the early 1990's has not been geographically uniform in Canada. Table 3.7 and Figure 3.7 show that the major decline in the central and eastern Canadian market (Ontario, Quebec) contrasts with the doubling of the British Columbia market and modest growth in the Maritimes. The reclassification of Z240 to A277 in the West has probably distorted the data over the five year period for the western provinces.

Figure 3.7 MOBILE SALES BY REGION

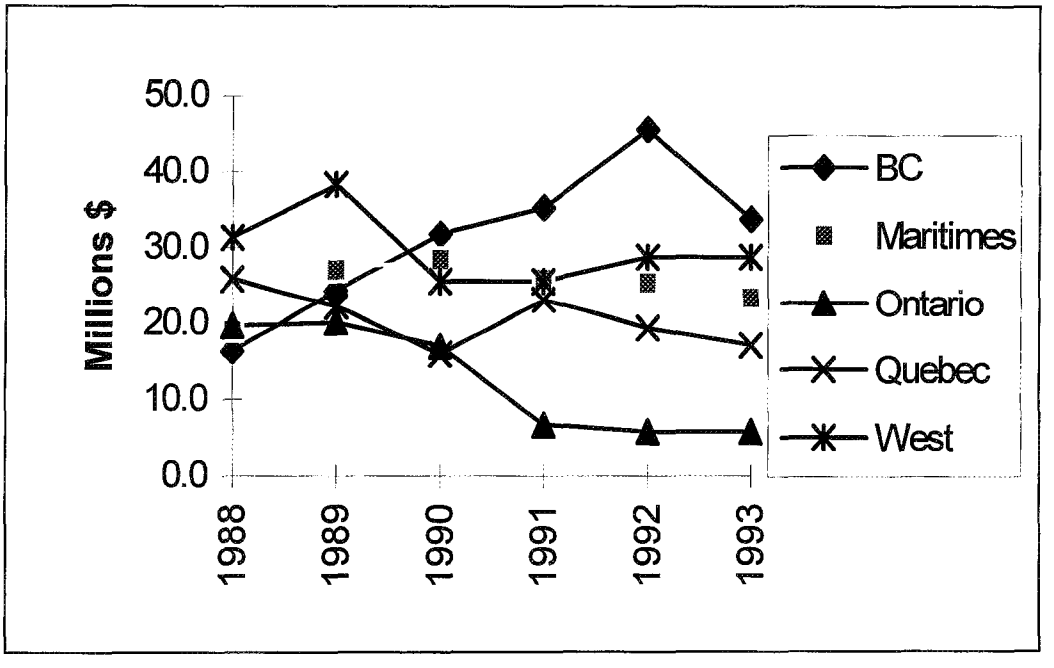


Table 3.8 MOBILE HOME AVERAGE PRICES

	1988	1989	1990	1991	1992	1993	5 year average annual increase
BC	29.248	31.046	34.264	36.491	37.994	40.480	7.7%
West	30,935	32.054	31.991	35.472	35.983	38.335	4.8%
Maritimes	29,212	30.862	33.067	33.270	33.679	34.886	3.9%
Ontario	30,479	28.121	33.266	34.664	33.761	31.473	0.7%
Quebec	30,609	31.163	33.623	35.593	36.337	37.685	4.6%

Average price changes tend to reflect geographical differing supply/demand conditions. Over the past five years prices have increased by 3.2% in Ontario compared to 38.4% in British Columbia.

Figure 3.8 MOBILE HOME AVERAGE PRICES

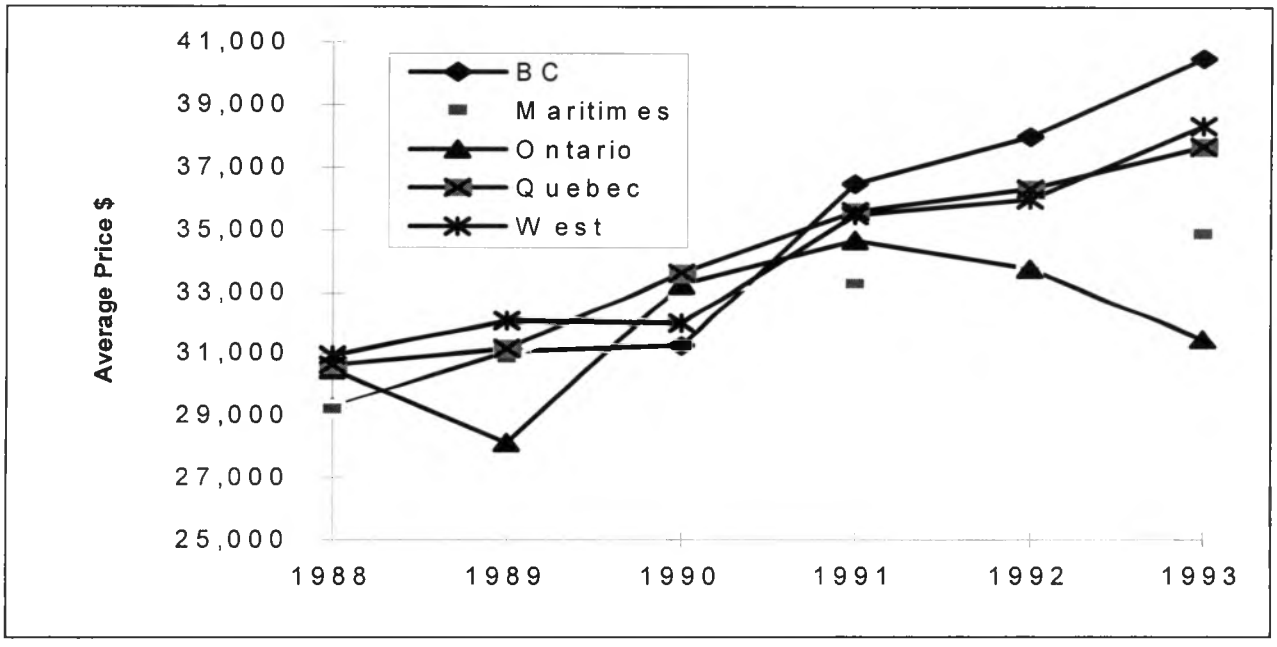


Table 3.9 MODULAR HOME SALES ACTIVITY

	1988	1989	1990	1991	1992	1993
Sales ($ millions)	268	276	275	185	204	226
Quantity (units)	4,994	4,970	5,447	3,809	4,205	4,679

The data of Table 3.9 indicates that the 1991 housing market crash especially hurt the modular market; a decline of 33% by value and 30% by volume over 1990 numbers. An analysis of the geographical markets of Table 3.10 reveals that the collapse of the Quebec market is the primary reason for the decline in national modular home sales.

Figure 3.9 MODULAR HOME SALES ACTIVITY

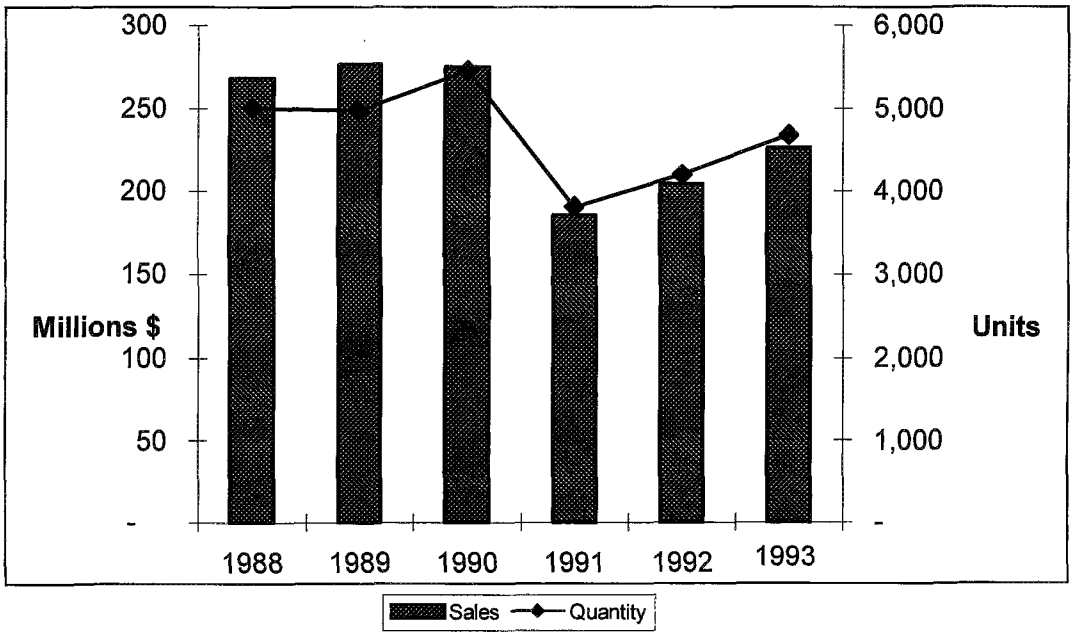


Table 3.10 MODULAR SALES BY REGION

	1990	1991	1992	1993	3 year % change
BC	7.3	11.2	18.8	35.3	+ 484%
West	34.1	29.6	48.7	54.5	+ 60%
Maritimes	12.8	13.2	16.6	18.3	+ 43%
Ontario	56.5	39.3	41.9	46.2	- 18%
Quebec	160.4	89.8	72.6	66.2	- 59%

Table 3.10 reveals that the Quebec market for modular homes collapsed in 1991. In 1991 alone, Quebec sales declined 44%. Over the 1990-93 period the decline was 59%. Ontario also experienced a significant decline in 1991 (30%) but has recovered to some extent. In contrast to the dramatic modular market shrinkage in central Canada. British Columbia, the Prairies and the Maritimes have experienced spectacular growth.

Figure 3.10 MODULAR SALES BY REGION

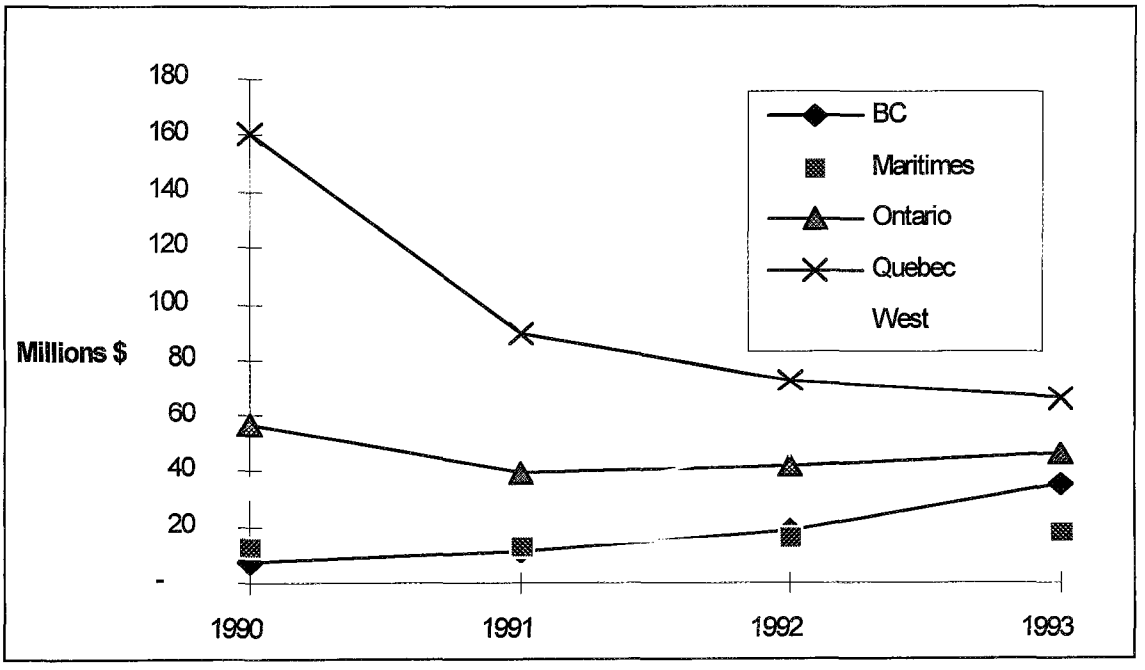


Table 3.11 MODULAR HOUSING RELATIVE MARKET SHARE

	1988	1989	1990	1991	1992	1993
Rest of Canada	27%	32%	41%	51%	63%	70%
Quebec	73%	68%	59%	49%	37%	30%

The free fall in the Quebec market is illustrated in the Figure 3.11. Whereby Quebec accounted for 73% of the national modular home market in 1988, by 1993 it accounted for only 30%.

Figure 3.11 MODULAR HOUSING RELATIVE MARKET SHARE

Quebec vs. Rest of Canada

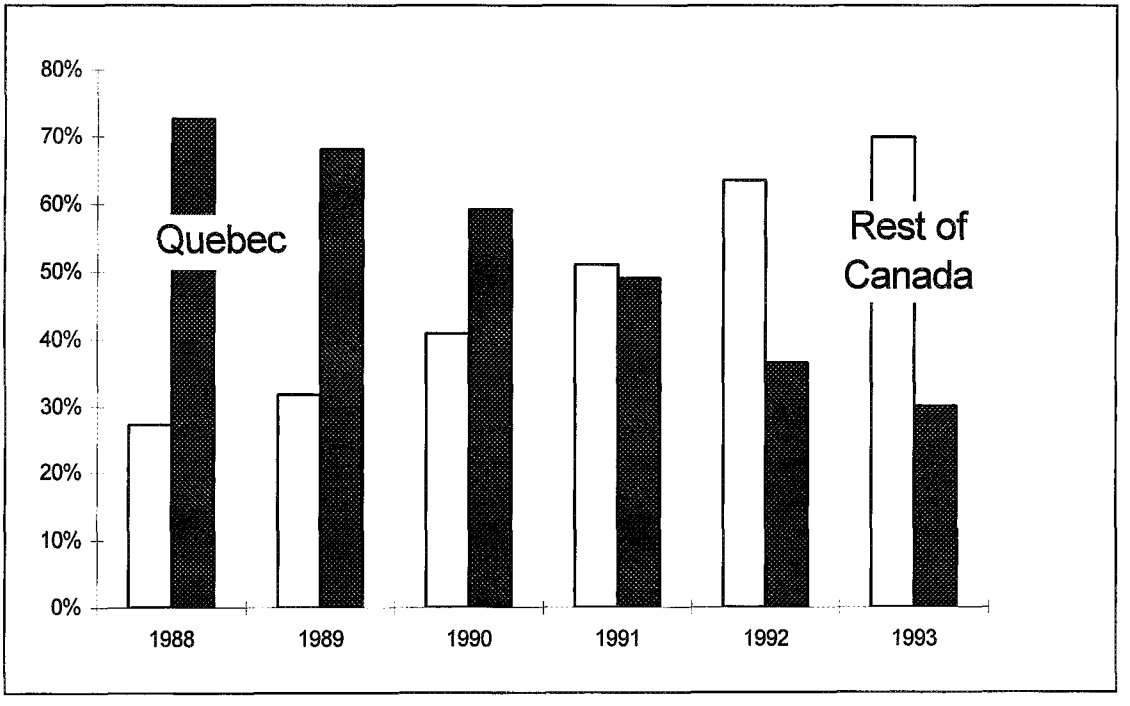


Table 3.12 MODULAR AVERAGE PRICES BY REGION

	1988	1989	1990	1991	1992	1993	Five year growth
BC	48,676	34,781	23,962	31,935	36,247	40,156	-17.5%
Maritimes	39,681	42,148	42,599	42,727	43,423	45,240	14.0%
Ontario	67,847	72,702	82,064	74,581	75,932	79,303	16.9%
Quebec	52,645	54,562	49,621	48,278	47,420	47,831	-9.1%
West	76,100	75,579	40,039	41,258	43,408	41,316	-45.7%
National	53,742	55,723	50,414	48,641	48,376	48,255	-10.2%

Table 3.12 shows the average price of modular homes declining except for Ontario and the Maritimes. The national average can be a misleading figure due to the vast regional differences. The decline in Quebec prices is not surprising given the market collapse. We think that the reclassification of Z240 to A277 in Alberta may have distorted the data over the five year period for the western provinces including British Columbia.

Figure 3.12 MODULAR AVERAGE PRICES BY REGION

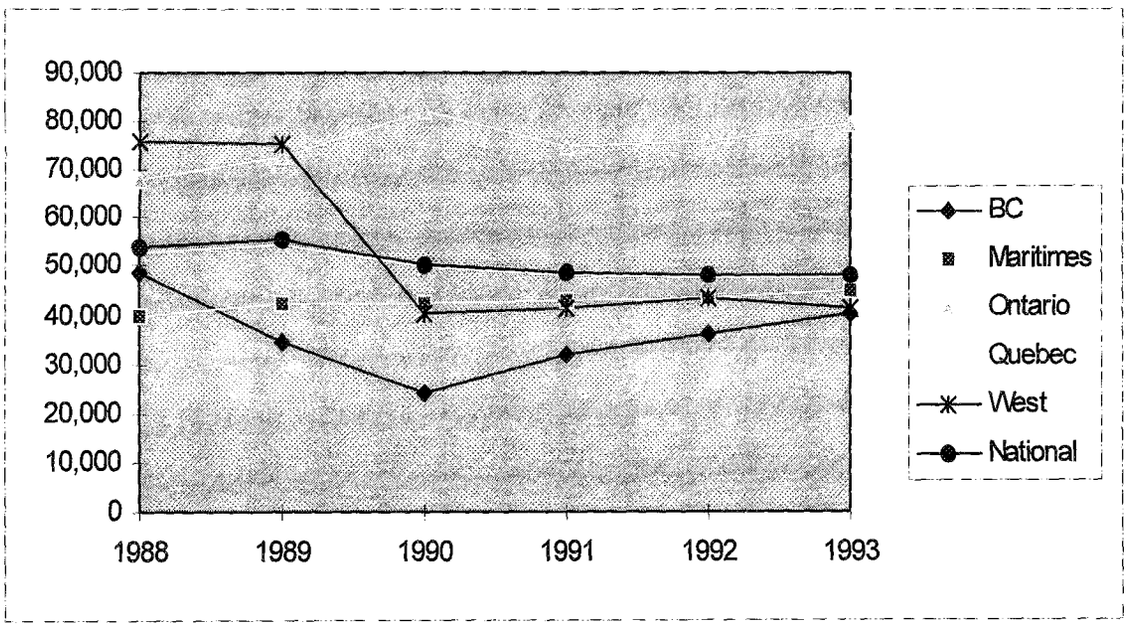


Table 3.13 PRE-CUT SALES ACTIVITY

	1988	1989	1990	1991	1992	1993
Sales ($ millions)	217	226	207	160	172	181
Quantity (units)	3,603	3,510	2,886	2,448	2,052	2,208

The pre-cut package home market was severely hit by the recession. Over the five year period, volume decreased by 38.8% and 16.6 % by value. Despite the sales decline, average prices increased by 36% over the five year period, from $ 60,000 to $ 82,000. The relatively low survey response rate precludes accuracy in contrasting average prices geographically.

Figure 3.13 PRE-CUT SALES ACTIVITY

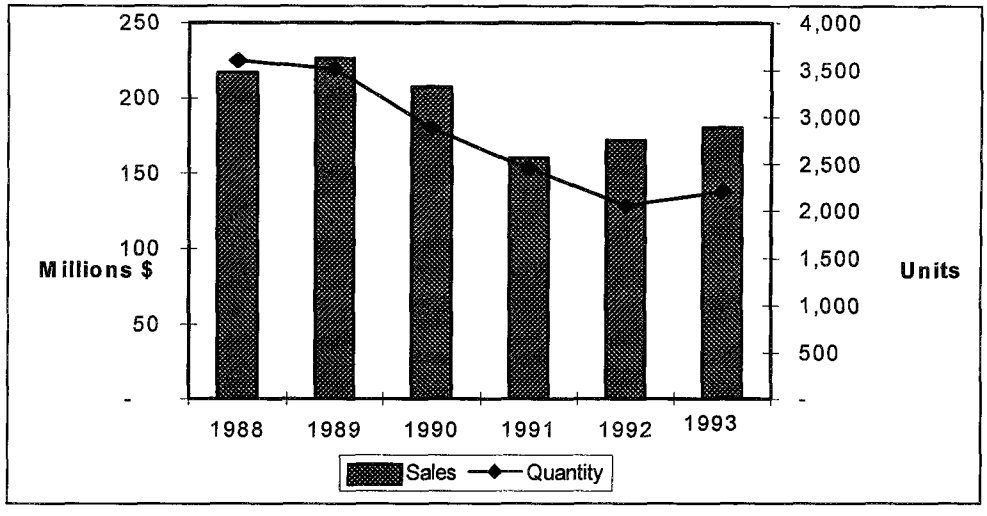


Table 3.14 PANEL SALES ACTIVITY

	1988	1989	1990	1991	1992	1993
Sales ($ millions)	62	67	73	73	91	108
Quantity (units)	1,861	2,027	1,949	1,985	2,388	2,612

Panelized manufactured housing experienced the strongest growth of all types of manufactured housing. The panelized product did not experience the trough that all other types of manufactured housing experienced. It steadily increased (40% by volume and 74% by value) over the five year period. Its share of the total manufactured housing market approximately doubled from 7.5 % to 14% over the five year period.

Figure 3.14 PANEL SALES ACTIVITY

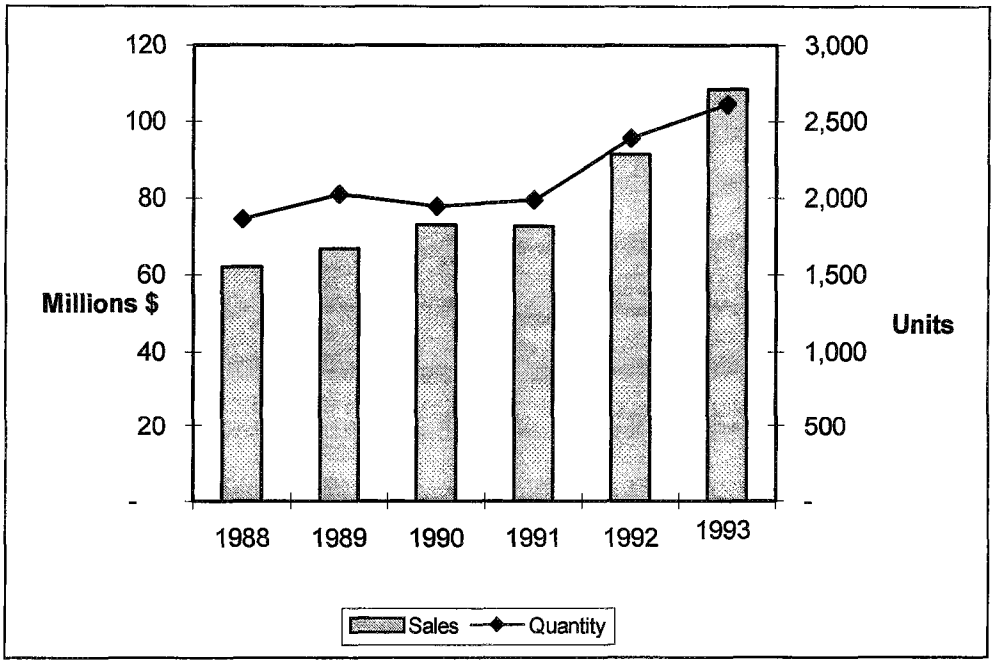


Table 3.15 PANEL AVERAGE PRICES BY REGION

	1988	1989	1990	1991	1992	1993	5 year average annual % change
BC	47.097	45.280	44.966	47.227	48.383	48.129	+0.4%
Maritimes	34.688	33.932	38.984	43.944	38.481	45.820	+6.4%
Quebec	26.395	25.278	22.682	25.088	25.035	26.175	-0.1%
West	33.825	33.318	39.418	36.494	38.785	42.558	+5.2%

Although the panelized market nearly doubled in size over the five year period, prices remained relatively stable. The panelized product is by far the least expensive prefabricated home with average prices in the same range as mobile homes.

Figure 3.15 PANEL AVERAGE PRICES BY REGION

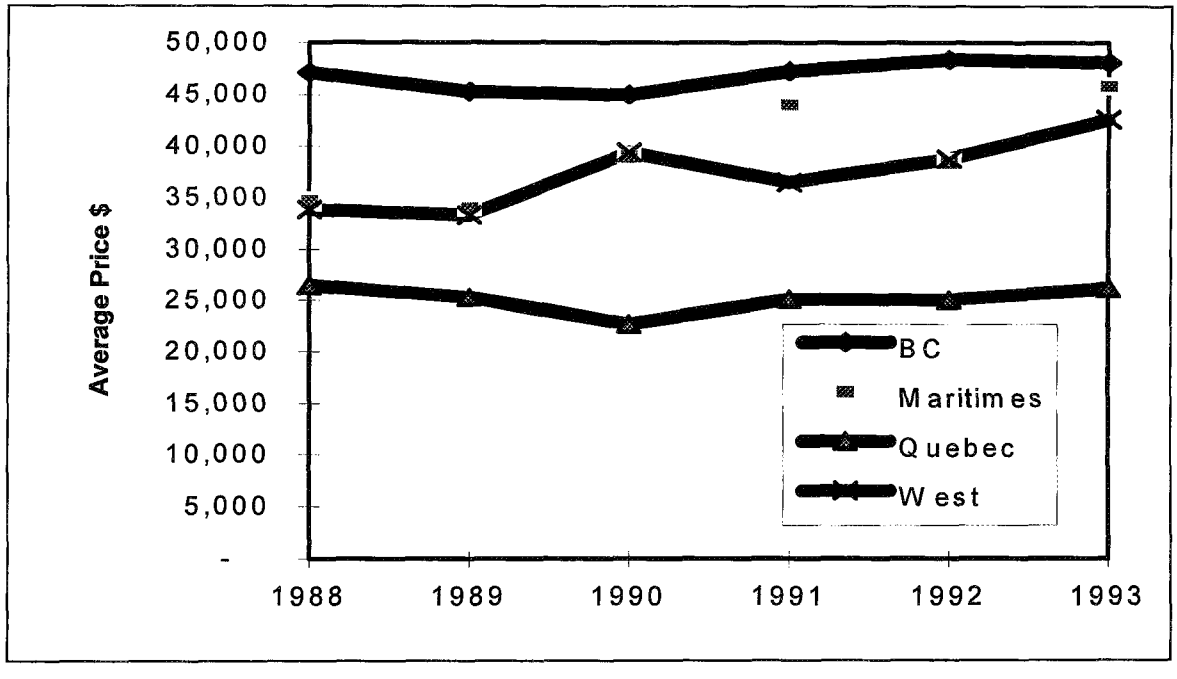


Table 3.16 LOG HOME SALES ACTIVITY

	1988	1989	1990	1991	1992	1993
Sales ($ millions)	47	58	56	37	30	34
Quantity (unit)	1,434	1,668	1,488	1,173	1,005	1,062

Although the survey response rate of log home manufactures was only 29%, we believe that those manufacturers who did respond represent a good cross section of the industry; both large and small responded. Nonetheless, with a few exceptions, log home manufactures tend to be small and the reader should be cautious in using the data we have developed for log homes.

The log home market has declined by some 37% from 1989 to 1993 in terms of volume, probably attributable to the recessionary decline in the vacation and luxury home market.

Since the responses from Post & Beam manufactures was low (13%) we have not attempted to analyze the data.

Figure 3.16 LOG HOME SALES ACTIVITY

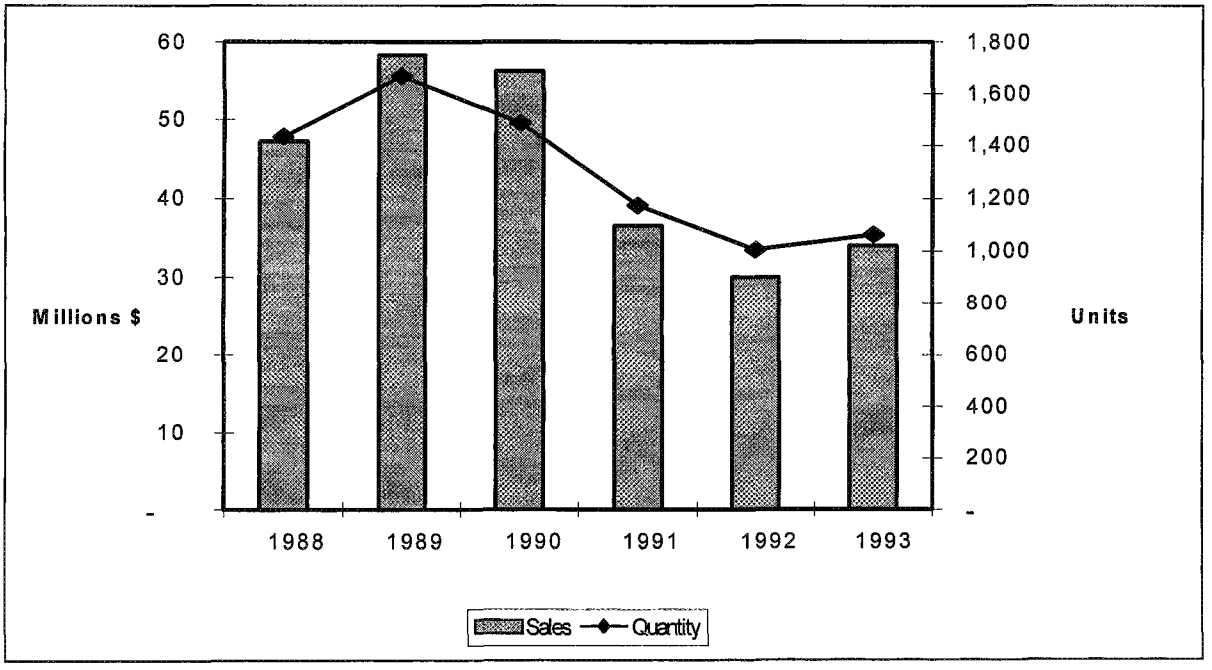


Table 3.17 MULTI-UNIT SALES ACTIVITY

	1988	1989	1990	1991	1992	1993
Sales ($ millions)	30	24	24	25	32	34
Quantity (units)	1,094	1,124	963	959	1,229	1,289

This category generally represents apartment buildings of three stories or less. The survey figures indicate that multi-unit sales values have been increasing (34% over the 1991-93 two year period). Multi-unit sales account for approximately 5% of total manufactured housing industry sales.

Figure 3.17 MULTI-UNIT SALES ACTIVITY

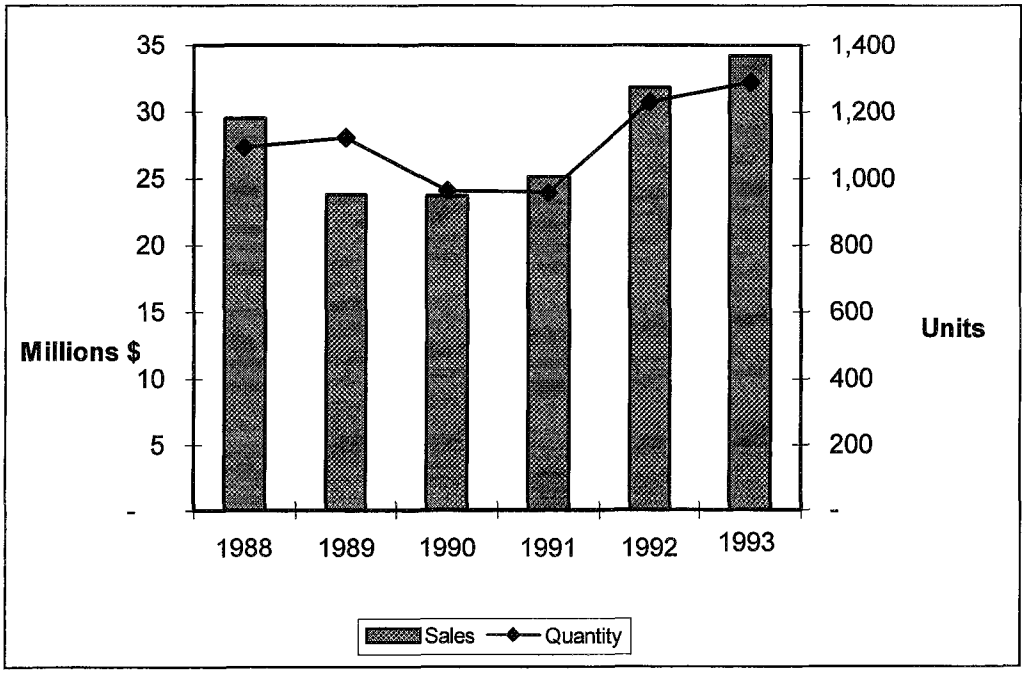
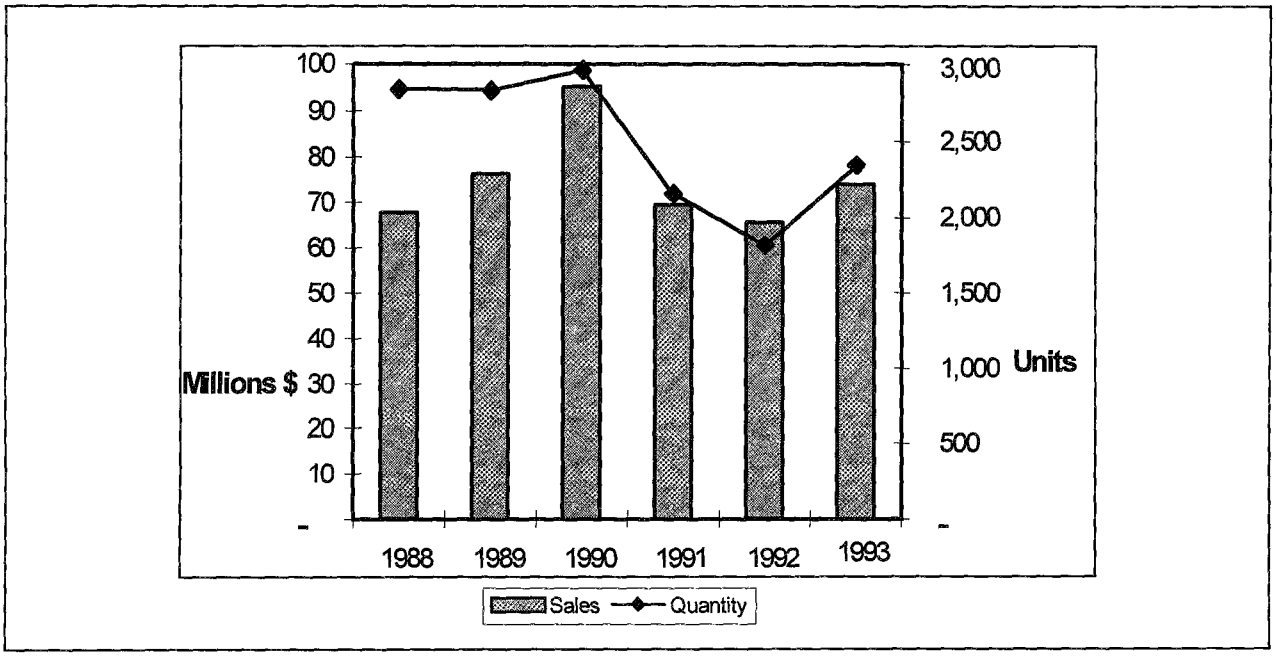


Table 3.18 COMMERCIAL INDUSTRIAL SALES ACTIVITY

	1988	1989	1990	1991	1992	1993
Sales ($ millions)	68	76	95	70	66	74
Quantity (units)	2,845	2,831	2,970	2,157	1,818	2,343

Commercial buildings represented 8.3% of the sales of the manufactured housing industry producers in 1988. Although volume declined significantly in 1993 over 1990 numbers, total value was stable due to higher unit value. The decline in the commercial construction sector illustrated in Table 2.6 undoubtedly influenced the performance of manufactured housing producers in the commercial market. Yet, in 1993 commercial unit sales represented 9.5% of the total manufactured housing industry unit sales.

Figure 3.18 COMMERCIAL SALES ACTIVITY



4. INTERNATIONAL TRADE

4.1 Imports

Canadian Imports of Prefabricated Buildings of Wood have declined significantly over the years. Most Canadian imports are from the United States. Table 4.1 illustrates that the amount, relative to the size of the Canadian market, is small and declining.

Table 4.1 CANADIAN IMPORTS OF PREFABRICATED BUILDINGS OF WOOD AND MOBILE HOMES FROM THE UNITED STATES

(US $ thousands)

	1990	1991	1992	1993	1994
Prefabricated	11,873	6,805	4,858	4,012	2,221
Mobile	12,000	4,800	3,700	2,200	1,500[8]
Total	23,873	11,605	8,558	6,212	3,721

Despite the maturity of the United States manufactured housing industry and the Canadian reputation for high end products in the industry, the competitiveness of the Canadian industry has prevented foreign manufacturers from gaining a foothold in the Canadian market. Undoubtedly the recession in the Canadian housing industry and the decline in value of the Canadian dollar have influenced the dramatic decrease in Canadian imports of manufactured housing.

4.2 Exports

Canadian exports of manufactured housing were long considered in the industry to be approximately 5 to 10 % of Canadian output. We believe that Canadian exports are now much larger, in the range of 15% of total Canadian industry output. Unfortunately Statistics Canada does not publish export figures for prefabricated housing. Aggregate data is published for all prefabricated buildings of materials other than concrete and for all end uses. Table 4.2 summarizes the Statistics Canada data for exports of prefabricated buildings.

Canada does not manufacture prefabricated buildings of aluminum. The exports in Table 4.2, therefore, represent prefabricated buildings of wood and steel for residential and commercial uses. Canadian exports of prefabricated commercial wood buildings are small but we do export a large number of prefabricated commercial steel buildings. We are not able to determine the exact wood/steel split of the data presented in Table 4.2 but it is likely that wood comprises well over half of the total into the Japanese and United States markets.[9]

[8] Estimated

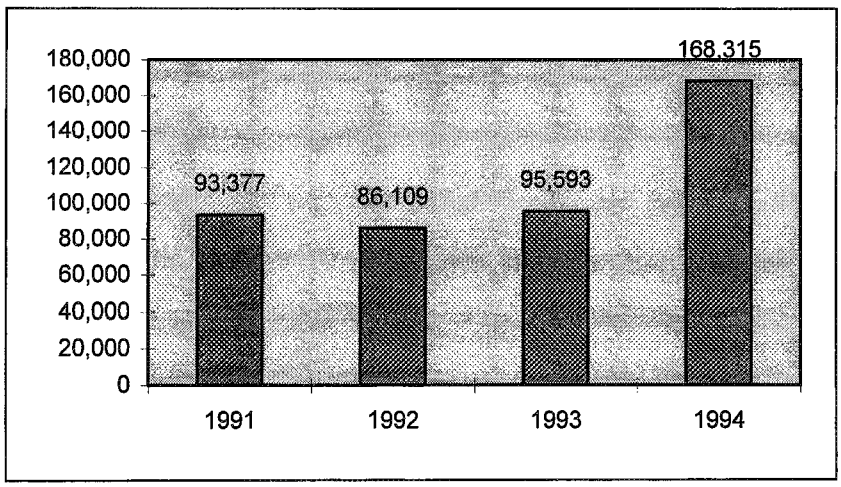
[9] We know from CMHA members that they export little, if any, prefabricated wood commercial buildings. We also know that Canada does not export much, if any, prefabricated steel buildings to Japan. Therefore most of the exports to Japan in this category must be prefabricated buildings of wood. These figures also confirm the export experience of CMHI members.

Table 4.2 CANADIAN PREFABRICATED BUILDINGS EXPORTS (CDN$'000)

Country of Destination	1991	1992	1993	1994	Average Annual Growth Rate 1991 - 1994
					(%)
Japan	28 958	19 651	26 775	54 633	23.6
United States	17 730	15 505	24 110	47 526	38.9
Italy	1 396	81	104	7 960	78.6
Mexico	145	936	205	7 330	269.8
China	96	417	8 705	7 108	319.7
Fed. Rep. of Germany	6 528	6 001	7 111	6 071	- 2.4
France	3 285	3 307	3 125	3 232	- 0.5
Chile	173	52	5	3 209	164.8
Russia	0	0	10 734	3 131	- 70.8
Colombia	0	24	467	2 484	924.3
Other	35 065	40 136	15 252	25 630	- 9.9
Total	**93 377**	**86 109**	**95 593**	**168 315**	**21.7**

Canada has become more competitive and geographically diversified in international manufactured housing markets. In 1994 Canadian exports of manufactured housing at least doubled their level of the early 1990's, confirming the contention that foreign market prospects for Canadian housing products are substantial. Table 4.2 indicates that the United States and Japan each account for one third of Canadian exports with the remaining one third going to the rest of the world.[10] Canadian exports of prefabricated housing to the United States reached the $70 million level in 1986, 93% of Canadian exports, then declined to $18 millions by 1991. In 1994 Canada doubled its sales to both the United States and Japan over 1993 export sales levels. In 1995 exports experienced another substantial increase to both the US and Japan.

Figure 4.1 CANADIAN PREFABRICATED BUILDINGS EXPORTS ($000's)



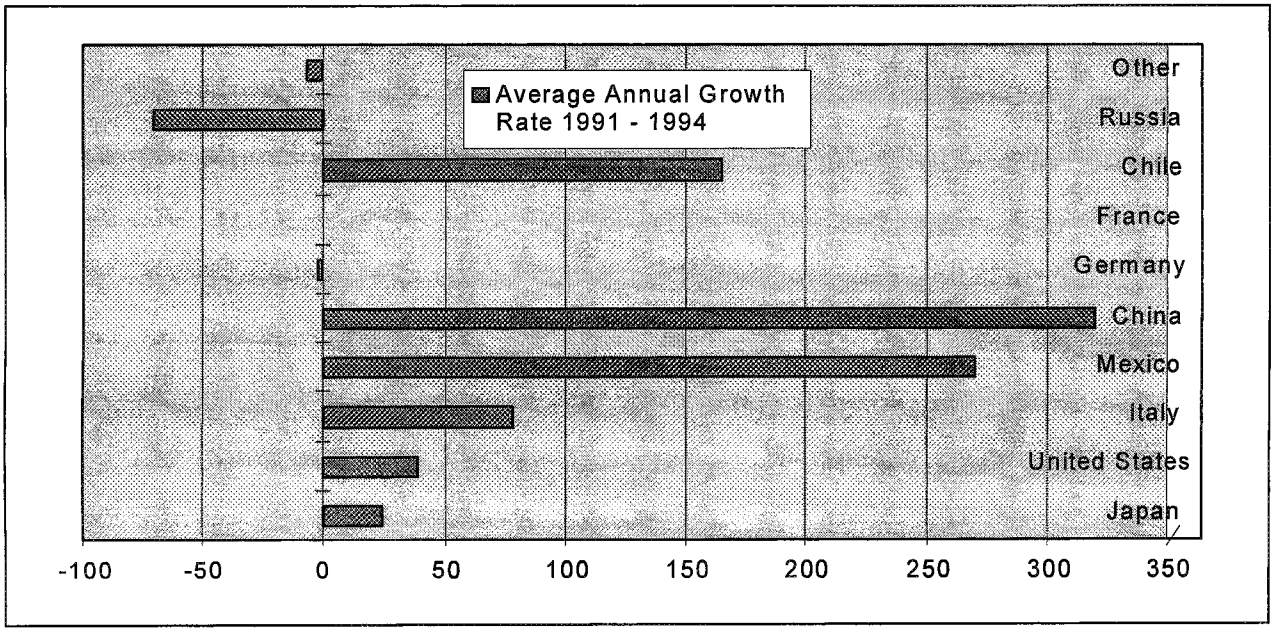
[10] Table 5.11 presents United States imports of manufactured housing. Table 6.10 presents Japan's imports of manufactured housing.

It is likely that Canadian exports of manufactured housing are now as large as those of the United States. We are not able to definitively state this due to the lack of a breakdown of H.S. 9406.00.00.00 by Statistics Canada according to type of building material and commercial or residential use. We therefore have had to utilize United States and Japanese import figures of Sections 5 and 6 to estimate Canadian prefabricated housing exports of wood. Table 5.10 of Section 5 presents United States exports of prefabricated houses which represented US$ 75 million in 1994. In 1993 United States exports also grew by 63%.

We recommend that Statistics Canada break out the export data of H.S. 9406 to at least a six digit level for the benefit of both the Canadian wood and steel industry sectors as well as residential and commercial/industrial building manufacturers.

Figure 4.2 provides a graph of the growth rates of Canadian exports of prefabricated buildings. It illustrates that Canada is exporting to an expanded number of countries including new markets.

Figure 4.2 CANADIAN PREFABRICATED BUILDINGS EXPORTS BY MAJOR COUNTRY OF DESTINATION



Except for Germany, Canada has not been successful in the European market. The Scandinavian countries have the lion's share of this market.

Canadian exports to Germany have been stable; in the Canadian $ 6-7 million range annually. Europe is a heterogeneous housing market comprising differing climatic conditions, social habitation traditions and building systems. Manufactured housing has not achieved a high level of market acceptance in most of Europe. The European market does however offer niche market potential for some types of manufactured housing.

5. The United States Manufactured Housing Industry

5.1 Introduction

5.1.1 Information Availability

This examination of the US prefabricated housing industry is divided in two sections. The first looks at market trends from both a national and regional perspective. The second section examines the structure of the industry through the analysis of domestic and international competition. Within each section, when the information was available, the industry is broken down into two sectors, that of prefabricated homes of wood and mobile homes (referred to as manufactured homes in the US). Also, to the extent that information was available, the prefabricated homes of the wood sector is further segmented into modular, pre-cut, panelized and log homes.

The data gathered for this period is dependent on the market segmentation applied by the different government departments, research firms and industry publications. For this reason, an overview of the market segmentation used by two government departments are described. The data provided in this report is taken directly from these sources, and is not adjusted for inflation.

5.1.2 Segmentation of the Prefabricated Housing Industry

There are several ways to segment the US manufactured housing market which directly influences the type of information that is available to industry analysts. The segmentation used by the US Bureau of the Census makes distinctions based on materials used, as well as providing a breakdown of housing types. The Bureau is considered to be a reliable source for values of product shipments. The US Department of Commerce, a source for trade information, identifies prefabricated houses of wood, however no further distinction is made. The segmentation most frequently used by industry journals for domestic production is made according to the manufacturing process, giving less emphasis to the types of materials used. All three sources of market information identify mobile home activity separately, as they are manufactured according to a national building code (HUD), while others are build according to state controlled building codes.

A comprehensive census of manufacturers is conducted for most industries every five years (1982,1987,1992 etc.) by the Bureau of the Census. Annual partial surveys are conducted and used as the basis to estimate each industry's national activity in the interim periods. Data is collected and compiled based upon Standard Industrial Codes (SIC). The market segmentation along with the SIC codes for prefabricated buildings of wood and mobile homes are identified in Table 5.1. (Prefabricated buildings of metal fall under SIC 3448).

Table 5.1 MARKET SEGMENTATION OF MANUFACTURED HOUSING USED BY THE BUREAU OF THE CENSUS

SIC	Industry Segment
2452	Prefabricated buildings of wood
24521	Pre-cut: incomplete packages
24522	Pre-cut: complete packages
24522	Log Homes
24523	Panelized homes
24524	Modular homes
2451	Mobile homes (HUD-Code)
24511	Residential (more than 10.6 meters in length)
24512	Non-residential (less than 10.6 metres in length)

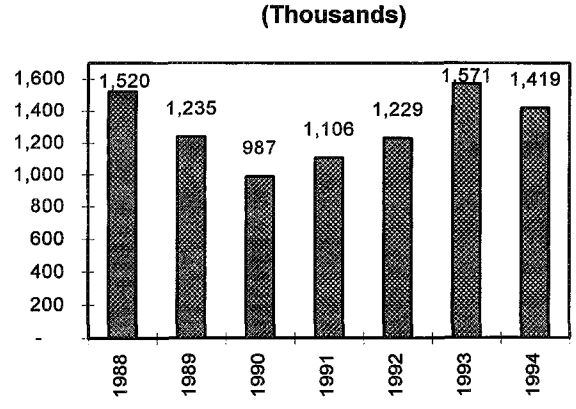
International trade information is compiled by the Department of Commerce and is based on the Harmonised System (HS) codes. The segmentation upon which the compilation of information is based does not go to the level of detail available with national production. The segmentation for prefabricated buildings of wood and mobile homes used by the Department of Commerce is summarised in Table 5.2. Mobile home industry analysts regard trailers less than 10.6 meters in length as non-residential.

Table 5.2 MARKET SEGMENTATION OF MANUFACTURED HOUSING USED BY THE DEPARTMENT OF COMMERCE

HS CODE	INDUSTRY SEGMENT
9406.00.00.00	Prefabricated Buildings
9406.00.40.00	Prefabricated Buildings of Wood
8716.10.00.00	Trailers for Housing or Camping
8716.10.00.30	Trailers and Semi-Trailers for Housing <10.6 meters
8716.10.10.75	Trailers and Semi-Trailers for Housing >10.6 meters

5.2 Housing Starts

Figure 5.1 US HOUSING STARTS 1988-1994



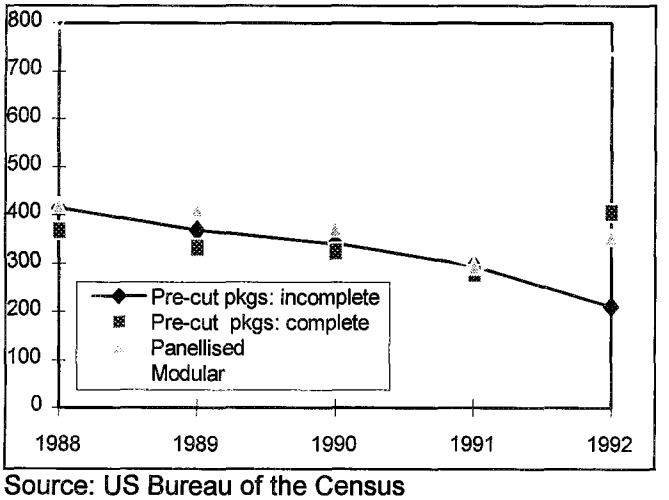
Source: US Department of Commerce

With the US housing market coming out of the recession in 1992 a considerable increase in demand for housing was encountered. Annual housing starts rose 42% between 1991 and 1993, placing a considerable strain on domestic production capacity. However housing start activity in 1994 declined 7.5% compared with the previous year.

5.3 Market Analysis

5.3.1 Modular, Pre-cut and Panelized Homes

Figure 5.2 US PREFABRICATED HOUSING SHIPMENTS 1988-1992



Source: US Bureau of the Census

The overall market size of the US prefabricated wood housing market, excluding mobile homes, in 1992 is estimated at $US 2.06 billion based on shipment values. For the period 1987-1991 there was a general decline in the modular, pre-cut and panelized segments. With the economic recovery that began in 1992 this trend was reversed with one exception. While the modular, panelized and complete pre-cut packages recovered well, production of incomplete packages continued its decline at a constant rate.

Table 5.3 ANNUAL GROWTH RATES OF VALUE OF SHIPMENTS OF MANUFACTURED HOUSING 1989-1992

Annual Growth Rate	1988	1989	1990	1991	1992
Pre-cut pkgs.: incomplete	3%	-11%	-7%	-13%	-28%
Pre-cut pkgs.: complete	-2%	-9%	-2%	-14%	45%
Panelized	4%	-2%	-10%	-21%	20%
Modular	30%	-11%	-1%	-5%	11%

Source: The US Bureau of the Census.

This observation regarding incomplete pre-cut packages may be explained by the unsatisfied demand through the recession placing high demand on builders in 1992. Due to strong pressures on delivery times builders chose complete packages in order to reduce times for construction. Table 5.3 lists annual growth rates for each of these segments for the period 1989-1992. While complete pre-cut packages saw growth of 45% in their shipments nationally between 1991 and 1992, during this same period incomplete pre-cut packages decreased an additional 28% after the economic recovery began.

5.3.2 Prefabricated Housing Market, 1987-1992

Table 5.4 provides a comparison of prefabricated housing segment shipments between 1987 and 1992. During this period annual housing starts dropped from 1.38 million to 1.22 million, a decline of 11%. Despite this decline, shipments in the mobile home and pre-cut complete segments grew 11%. The mobile home segment accounts for over two-thirds of the industry, the next largest segment being modular with an 11% market share. The most significant decline is seen in the pre-cut incomplete packages.

Table 5.4 PREFABRICATED HOUSING SHIPMENTS BY TYPE

1987 vs. 1992 ($US Millions)

Industry Segment	Segment Total, 1992	Market Share, 1992	Growth 1987-1992	Residential	Non-Residential	NSK (*)
Mobile	4,472	68%	11%	3,976	130	366
Modular	738	11%	-8%	561	132	45
Panel	356	5%	-12%	261	39	56
Precut-Complete	285	4%	11%	87	195	4
Precut-Incomplete	212	3%	-47%	172	36	5
Log Homes	121	2%	3%	121	0	0
Not Specified	352	5%	0%	0	0	352
Grand Total	6,537	100%	2%	5,178	533	826

Source: US Bureau of the Census. (*) Not Specified by Kind

In Table 5.5, the distribution of sales shipments, for each segment, is provided according to end use; either residential, non-residential, or not specified. Apparent from this table is the significant increase of non-residential market penetration of the Pre-cut Complete segment. While the other segments demonstrate a much larger proportion of residential housing, the trend is reversed in the case of the pre-cut segment. When the same tables are prepared with data from the 1987 census similar distributions are observed, with again the exception of the pre-cut complete package. In 1987, 71% of pre-cut complete packages were for residential use, compared with 30% in 1992. In absolute terms this represents a decline from $US 299 million in 1987 to $US 172 million in 1992 for residential use and an increase in non-residential use to $195 million in 1992 from $66 million in 1987.

Table 5.5 DISTRIBUTION OF HOUSING TYPE WITHIN SEGMENTS, 1987 AND 1992

Segment	Residential 1992	Residential 1987	Non-Residential 1992	Non-Residential 1987	NSK [11] 1992	NSK 1987
Mobile	89%	86%	3%	6%	8%	8%
Modular	76%	76%	18%	22%	6%	2%
Precut Complete	30%	71%	68%	26%	1%	4%
Precut-Incomplete	81%	75%	17%	20%	2%	5%
Panel	73%	67%	11%	30%	16%	3%
Log Homes	100%	100%	0%	0%	0%	0%

Source: US Bureau of the Census.[12]

In order to provide an indication of industry developments since 1992 the results of market research provided by an industry publication, *Automated Builder*, are of interest. Table 5.6 describes the relative market shares of three segments of the prefabricated housing industry. The following information is based on the number of housing shipments, and not their dollar value.

[11] NSK — "not specified by kind"

[12] For budgetary reasons, the Survey of Manufacturers for prefabricated housing will not be undertaken for 1993 and 1994.

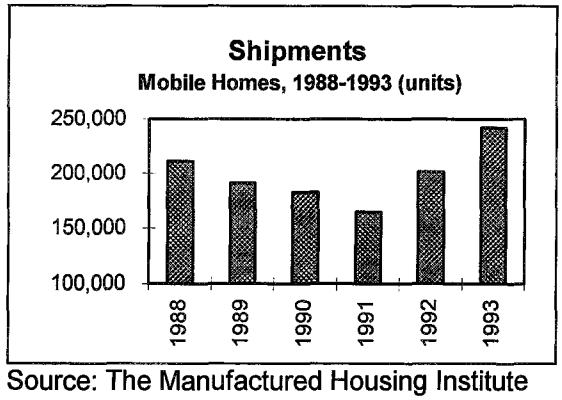
Table 5.6 RELATIVE MARKET SHARE OF PREFABRICATED HOUSING SEGMENTS, EXCLUDING HUD CODE HOMES

	1988	1989	1990	1991	1992	1993	1994
Production Builders	55.6%	57.1%	53.6%	49.0%	47.3%	46.7%	46.3%
Panelized	38.3%	36.9%	40.0%	43.8%	45.2%	45.7%	45.8%
Modular	6.2%	6.0%	6.4%	7.2%	7.5%	7.6%	8.0%

Source: *Automated Builder*

From this table it is seen that modular and panelized homes combine to account for over 50% of the domestic housing market. Also apparent is that the rate of growth of the panelized and modular segments at the expense of production builders is now slowing relative to the period preceding the recession in 1991. While production builders lost 6.6% of their annual relative market share in the three years preceding the end of the recession, this segment has lost 2.7% of its share in the three years following 1991.

Figure 5.3 ESTIMATED SIZE OF THE US MOBILE HOME MARKET



Source: The Manufactured Housing Institute

Until 1991 the mobile home market was in slow decline. Between 1988 and 1991 annual retail sales dropped an estimated 13.7% as a result of a general decline in the economy. With the recovery beginning in 1992, considerable growth in domestic production was observed, estimated annual sales from 1991 to 1993 grew by 64%.[13]

5.4 Regional Markets

5.4.1 Information Availability — Modular

Regional market information is provided primarily from industry publications and analysts that conduct surveys of manufacturers. This self-reported information from manufacturers does have value when examining trends from year to year. In order to gain a more objective perspective of the industry we commissioned a study from an independent US consulting firm specializing in the housing market. They gathered the data presented below by contacting individual state government housing departments that collect housing start statistics.

[13] Mobile homes are always referred to separately as there is a national building code that applies to them. This code is from the Housing and Urban Development (HUD) department of the federal government, and is referred to as the HUD code.

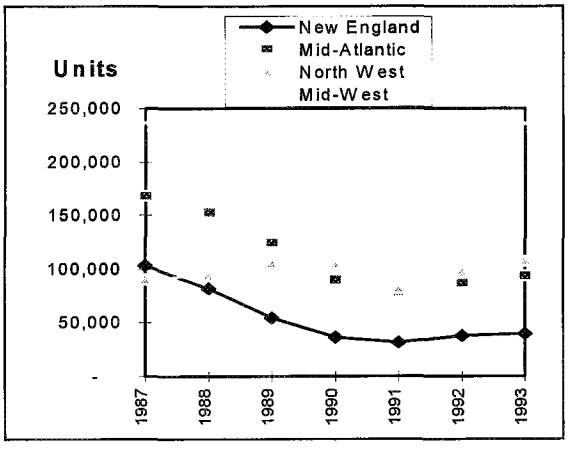
Because of considerable transportation costs encountered in shipping modular housing this study has, when information was available, examined the US market in the regions closest to the Canadian border. It is believed that overall these regions present the highest market attractiveness for Canadian manufacturers. The states included in these regions are summarized in Table 5.7. More detailed information on individual states can be obtained for those interested by contacting the CMHA.

Table 5.7 DEFINITION OF REGIONS BY STATE

REGION	STATES
New England	Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont
Mid-Atlantic	New Jersey, New York, Pennsylvania
Mid-West	Illinois, Indiana, Michigan, Ohio, Wisconsin
North-West	Washington, Oregon, Idaho, North Dakota, South Dakota, Minnesota

5.4.2 Housing Starts

Figure 5.4 US HOUSING STARTS BY REGION

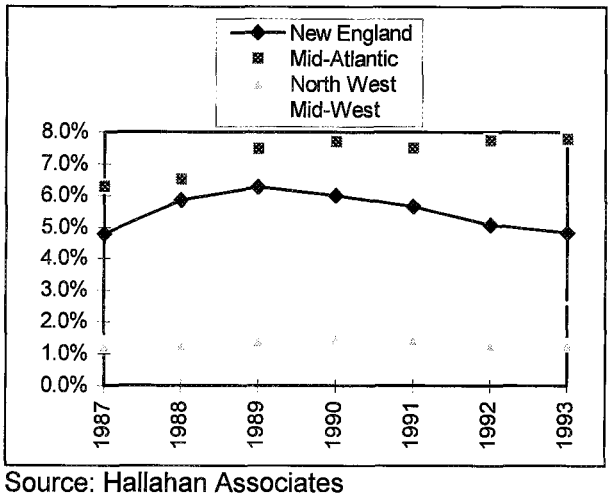


Analysis of these regional market segments demonstrates considerably different levels of sensitivity to the national housing market. For example, while the national market saw considerable decline into 1991, followed by a period of strong activity, the North-West region experienced relative stability in its housing market during this same period. In contrast the Mid-West did see strong growth coming out of the recession, with annual housing starts growing 29% between 1991 and 1993.

The markets in the North-Eastern region of the United States have seen a strong but slower recovery. New England experienced growth in annual housing starts of 25% from 1991 to 1993, while during this period the Mid-Atlantic states saw annual growth of 20%.

5.4.3 The Modular Housing Market

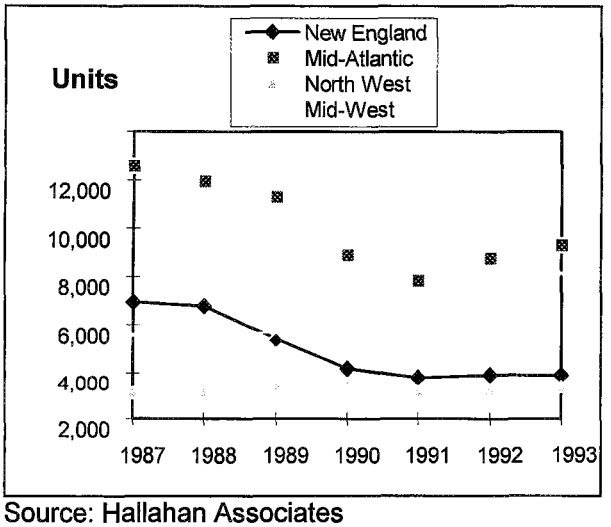
Figure 5.5 REGION MARKET SHARE OF MODULAR HOUSING



Source: Hallahan Associates

Figure 5.5 demonstrates the considerable variability in regional market shares and market growth rates of modular housing. The data reflects differences in regional economies; fairly stable economic development in the mid-west through the late 1980's and early 1990's while other regions were facing declining market share conditions. In terms of the different regional relative market shares, some of the variations are attributed to differences in state government building codes, as well as differing demographic characteristics. Using the mid-west as an example again, their growth in relative market share is largely attributed to increasing acceptance of modular homes in rural areas.

Figure 5.6 REGIONAL TRENDS IN MODULAR CONSTRUCTION

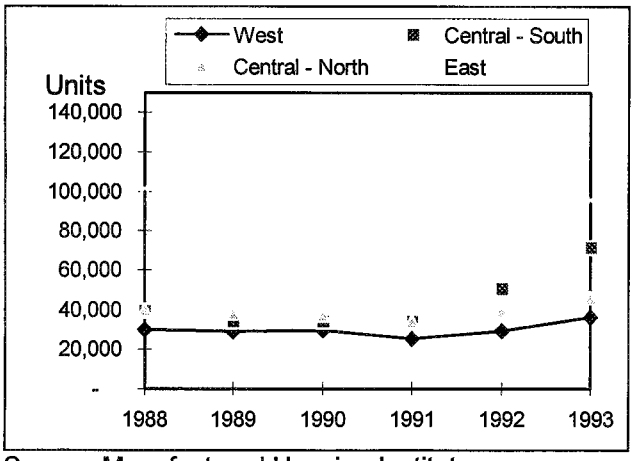


Source: Hallahan Associates

Regional trends in modular housing markets show a strong correlation with housing start figures for the same region, with one exception. In the Mid-Atlantic region declines in housing starts of 14.5% and 13% were experienced in 1989-1990 and 1990-1991 respectively. During these same periods, modular housing deliveries grew by 15.9% and 7.5% respectively. Thus despite significant drops in housing start activity, modular housing continued to gain market share at a relatively strong rate. Much of this growth was seen in Wisconsin and Michigan, where modular construction as a percentage of annual housing starts grew from 2% for both states in 1989, to 4.4% and 4.8% respectively in 1993.

5.4.4 Mobile Homes

Figure 5.7 SHIPMENTS OF MOBILE HOMES, 1988-1993



Source: Manufactured Housing Institute.

The US market for mobile homes is divided into three large areas, the western, central, and eastern regions. The west is in turn divided into two sub-regions, the Pacific and Mountain regions. The central region is divided into two sub-regions: Central-North and Central-South. Finally the eastern region is divided into three sub-regions: New England, Mid-Atlantic and South Atlantic. Figure 5.7 demonstrates the significant recovery in this industry observed in 1992.

The recovery was particularly strong in the South Central region where shipments went up 49% in 1992 and continued at a still very strong rate of 41% in 1993. While an economic recovery was underway during this period, part of the growth may be attributed to severe weather conditions experienced in the region. Overall, the average annual growth rate in the industry in 1990 and 1991 was a decline of 7%, while it experienced growth of 23% in 1992 and 1993.

5.5 Domestic Competition

5.5.1 Industry Concentration

Table 5.8 provides a summary of industry production growth rates, measured in number of units sold. This table details, by size of company, what the growth rates are for these industry groups. What this data seems to demonstrate is that larger manufacturers increased their capital investment in 1992 in anticipation of rising demand. This group experienced a relatively low 4% growth of production in 1992, with the small and medium groups increasing production by 23% and 11% respectively. The results of increased production capacity of larger firms is seen in 1993, as their production grew 23% at the expense of medium sized manufacturers whose production dropped 11%. Part of this drop in growth of medium-sized manufacturers may also be attributed to increasing consolidation in the industry, as larger players acquired medium-sized manufacturers during the expansion of the economy. Small producers were especially devastated by the 1991 US housing market slump.

Table 5.8 ANNUAL GROWTH RATES OF US MANUFACTURERS, BY COMPANY SIZE

Company Sales Volume	1988	1989	1990	1991	1992	1993	1994
Over 20 $US millions	-8%	-11%	-14%	-13%	4%	23%	14%
5-20 $US millions	0%	-6%	-3%	-13%	11%	-11%	13%
Under 5 $US millions	-5%	-3%	-13%	-50%	23%	30%	17%
Total Industry Growth	-5%	-8%	-9%	17%	9%	7%	14%

Source: *Automated Builder*

5.5.2 Modular Homes

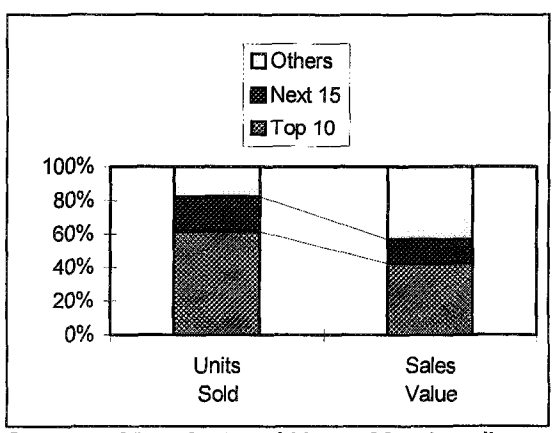
An indication of the competition among modular manufacturers is provided by the 1993 survey results of 36 modular manufacturers in the US. From this self-reported information, the top 25% of the companies had 60% of the market by value and 61% by volume.

5.5.3 Panelized Homes

An indication of competition among the panelized manufacturers is provided by the 1993 survey results of 43 companies in this segment of the prefabricated housing industry. This survey was conducted in the same manner as the survey of modular manufacturers described above. From this self-reported information, the top 10 companies had 76% of the market by value and 78% by volume. The 43 respondents gross sales volume was $493.6 million. These firms also reported that they manufactured 17,176 housing units and 989 commercial buildings in 1993.

5.5.4 Mobile Homes

Figure 5.8 MOBILE HOME INDUSTRY CONSOLIDATION 1993



Source: Manufactured Home Merchandiser, National Conference of States on Building Codes and Standards

Consolidation in the $US 7.75 billion mobile home industry is significantly different to that of the consolidation seen in modular and panelized industries. While market share of the top 10 by volume and value are of the same order in these segments, in the mobile home segment the 42% market share by value of the top 10 suppliers accounts for 62% of the 254 thousand units shipped. This observation is largely attributed to the orientation of the US mobile home industry towards a lower end market from that targeted by the modular and panelized manufacturers. With increased harmonisation expected between the building codes of HUD code and non-HUD code manufactured homes, some analysts anticipate increased competition between these segments.

While limited information is available on inter-state competition of mobile homes, data is available for two regions giving some indication of their inter-state exports. These figures are obtained by subtracting shipments made in the region from production in the region. Assuming inventory levels remained stable and imports from other states are negligible, Table 5.9 provides an indication of the high concentration of US production activity in two regions. Using these figures, approximately 30% of production from the South East region is exported to other regions in the country.

Table 5.9 INDICATIONS OF REGIONAL TRADE BALANCES OF MOBILE HOMES IN UNITS

REGION	1988	1989	1990	1991	1992	1993
North East Central	5,594	4,261	3,943	2,567	2,432	2,061
South East Central	11,464	11,673	13,137	14,171	16,806	17,785

5.6 International Competition

5.6.1 Prefabricated Buildings of Wood

The US has exported prefabricated buildings of wood to over 120 different countries between 1989 and 1994. Exports to many of these countries are largely sporadic to meet specific short term demand. The stable trade relationships are primarily with Japan, Canada and Mexico, with exports to Japan taking the lead. Since the US and Japanese recoveries in the housing industry in 1992 indications of increased exports are present. Exports rose 24.4% to Japan in 1992-1993, with this trend continuing as exports in 1994 were up 50% over the same period in 1993.

Table 5.10 US EXPORTS OF PREFABRICATED BUILDINGS OF WOOD

($US 000 FAS)

Destination	1990	1991	1992	1993	1994
Japan	18,731	16,026	14,576	18,148	32,114
Algeria	1,089	—	—	—	16,874
Russia	—	—	8,751	1,404	5,389
Mexico	196	1,640	1,607	1,965	3,262
Venezuela	—	8	4,779	5,194	2,253
Canada	11,873	6,805	4,858	4,012	2,221
Germany, West	72	439	628	587	1,527
Peru	—	—	—	—	1,251
Korea, South	509	1,725	248	550	1,097
Other	3,355	59,761	24,478	14,292	9,282
World	35,825	86,404	59,925	46,152	75,270

Source: US Department of Commerce

Canada is the leading exporter of prefabricated buildings of wood to the US; in 1993 total United States imports were 226% higher than the 1993 level, of which 77% came from Canada. Total Canadian exports of prefabricated buildings of all materials to the US in 1994 were C$ 60 million of which approximately 25% are estimated to be wood. Further analysis of US imports from Canada is provided in the Section 4 on the Canadian industry.

Table 5.11 US IMPORTS OF PREFABRICATED BUILDINGS OF WOOD 1991-1993

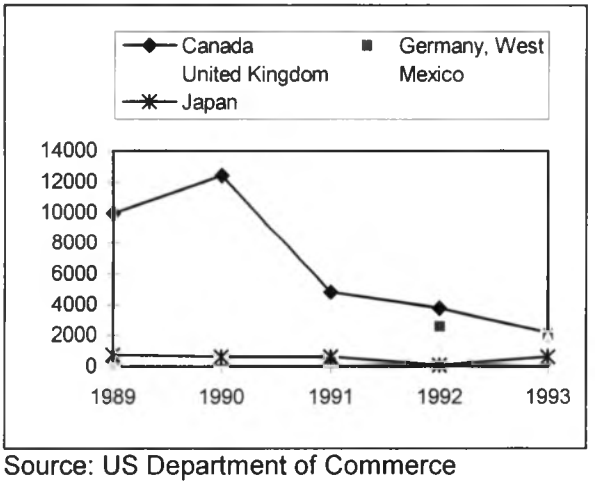
($US 000 Customs value)

Destination	1991	1992	1993	1994
Canada	5,551	5,935	7,696	16,310
Indonesia	—	34	26	2,043
United Kingdom	584	1,152	990	1,743
Finland	5	113	134	524
New Zealand	63	91	203	256
Netherlands	—	—	3	162
Japan	233	198	52	140
Other	2,134	968	346	206
World	8,570	8,491	9,450	21,384

Source: US Department of Commerce

5.6.2 Mobile Homes Imports

Figure 5.9 MOBILE HOME EXPORTS (US$ 000 FAS)



Source: US Department of Commerce

Although overall exports are a very small component of domestic production, the US housing industry recovery had a direct impact on exports This recovery, combined with the continuing recession in Canada, resulted in production being re-directed towards domestic markets. This in turn resulted in a drop of 61% in US exports of mobile homes to Canada to $4.8 million in 1991, and from 1991 to 1993 an additional drop of 55% occurred with a similar trend expected in 1994.

Despite the significant increase in demand for mobile homes in the US following the recession, minimal increases in imports were observed to meet this demand. Most of these imports came from Canada. In 1993 and 1994, this amounted to approximately US $500,000. Based on import figures for the first six months of 1994, imports from Canada are expected to remain stable compared with 1993.

6. The Japanese Prefabricated Housing Industry

6.1 Introduction

The Japanese housing market is one of the largest and most attractive in the world. At its peak in 1990 the market grew to over 1.7 million housing starts, compared with the US which had 987 thousand. Although the costly and labour-intensive traditional Post & Beam Japanese home accounts for approximately 72% of the wooden home segment, with increased automation and rising labour costs the prefabricated housing industry continues to make inroads at the expense of traditional producers. Even though housing starts dropped 20% in 1991, the prefabricated housing industry maintained its output in 1991 at 1990 levels, followed by strong growth during the recovery.

This examination of the Japanese prefabricated housing market will look at the underlying market characteristics influencing demand in this industry and then, through an analysis of market research information, report on trends relevant to the exporter or prospective exporter to Japan. An examination of each of these characteristics from the perspective of the supplier to the prefabricated housing market will reveal several major trends.

First, prefabricated housing starts as a percentage of total housing starts, despite significant fluctuations of the latter, have trended upwards. Thus the prefabricated housing industry in Japan has demonstrated viability in the market for the long term; it is an industry that has maintained its market position through the economic cycles of recession and growth. A second observation is that while there are significant differences in the acceptance rate of prefabricated housing in different regions, within each region this rate remains relatively stable over time.

Another major trend that will be demonstrated is that the proportion of prefabricated homes made of steel, wood, or concrete remains constant relative to the total number of prefabricated housing starts in a given year. This means that while the market share of prefabricated housing is rising, this has not resulted in a changing rate of acceptance of one construction material over another. Despite this observation, there are indications that wood is beginning to play an even more important role in this industry where steel is the most frequently used construction material.

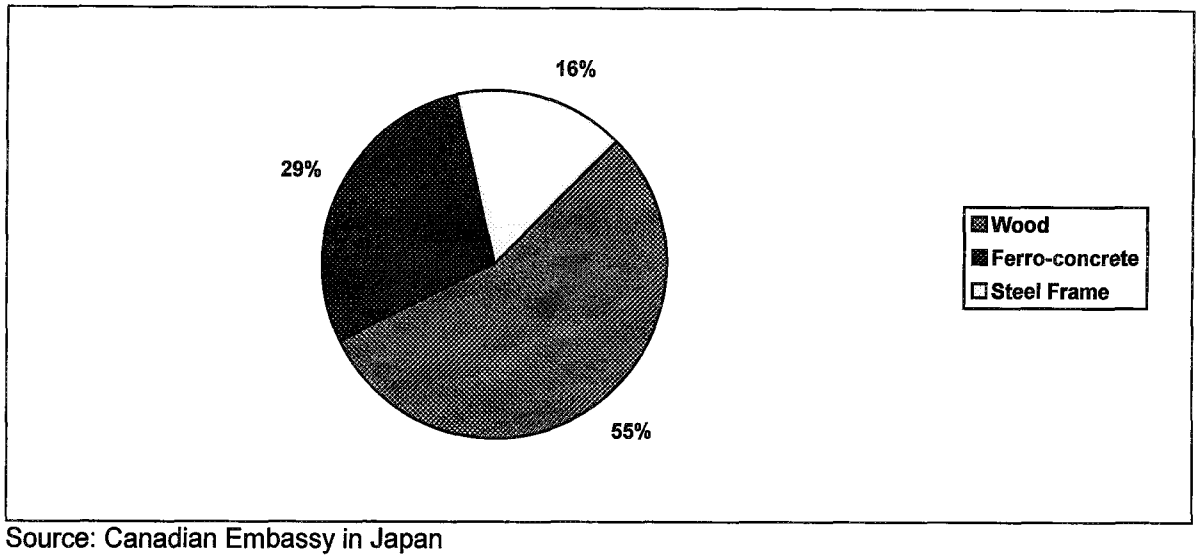
6.2 The Japanese Housing Industry

6.2.1 Industry Overview

The Japanese Housing market may be divided into three segments as follows:

1) Traditional Homes 2) Prefabricated Homes 3) 2x4 Homes

Figure 6.1 MARKET SHARE BY STRUCTURE OF TRADITIONAL HOMES, 1991

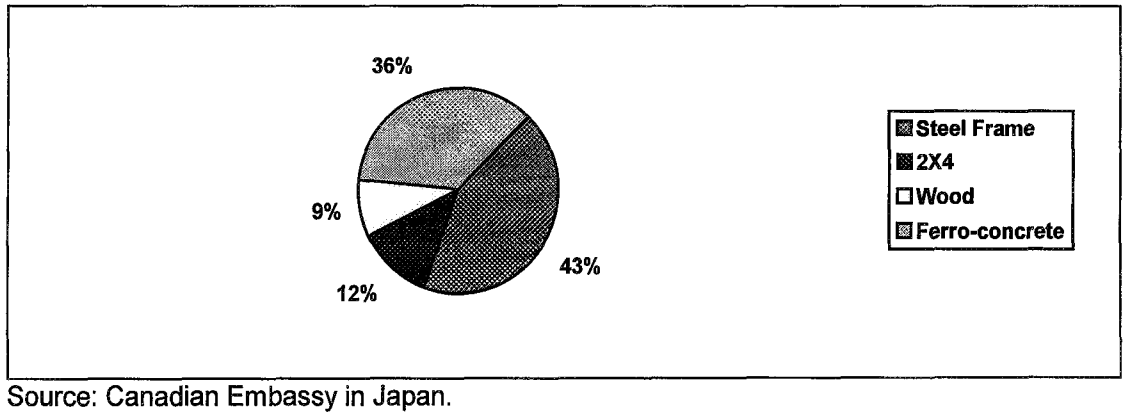


Source: Canadian Embassy in Japan

While the traditional home segment accounts for roughly three quarters of the wooden home industry, this proportion is decreasing with the rising popularity of prefabricated and 2x4 homes. The traditional home relies heavily on skilled craftsmen using traditional methods and materials that are highly labour intensive. This segment largely employs a Post & Beam system based on 105mm x 105mm and to a lesser extent 120mm x 120mm, which is generally thicker than those used in Canada. Wood continues to be the dominant construction material, accounting for 55% of structures for this segment. This can be contrasted to the prefabricated housing segment, where steel is primarily used and accounted for 76% of this segments structural materials in 1993.

The prefabricated and 2x4 market segments have enjoyed growth as a shrinking skilled labour force combined with lengthy lead times have shifted demand away from traditional homes. In 1991 the prefabricated segment accounted for approximately 85% of the non-traditional home market. Figure 6.2 identifies the market share by type of structure for non-traditional homes.

Figure 6.2 MARKET SHARE BY STRUCTURE OF PREFABRICATED AND 2X4 HOMES, 1991



Source: Canadian Embassy in Japan.

Table 6.1 COMBINED SIZE OF THE PREFABRICATED AND 2X4 MARKETS

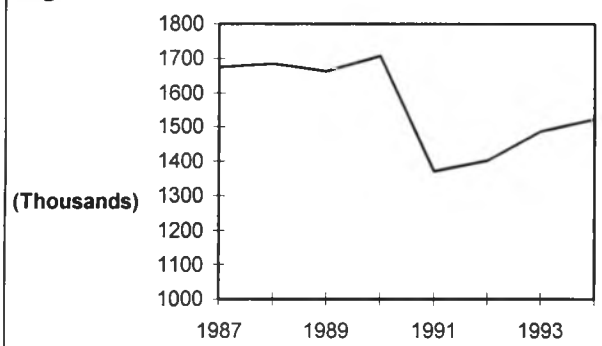
$US Million	1990	1991	1992	Avg. Annual Growth
Domestic Production	45,992	52,853	61,751	16%
Imports	104	110	111	3%
Exports	22	33	52	53%
Prefab & 2x4 market	46,074	52,930	61,810	16%
Ratio of prefab to 2x4 housing starts	0.81	0.83	0.82(*)	
Estimated Prefab Market size	37,319	43,932	60,684	17%

Source: US Embassy in Japan, 1993 (*) Estimate.

The size of the prefabricated and 2x4 markets are identified in Table 6.1. The 1992 prefabricated housing market is estimated at $60.6 billion.[14] The market is huge and has rebounded from the 1990 housing market collapse. Table 6.1 also demonstrates that imported manufactured housing accounts for a very small proportion of the prefabricated market; .002%. Barring barriers to trade, the Japanese market potential for Canadian manufactured housing manufacturers is substantial.

6.2.2 Housing Starts

Figure 6.3 TRENDS IN HOUSING STARTS.



Source: Japanese Ministry of Construction

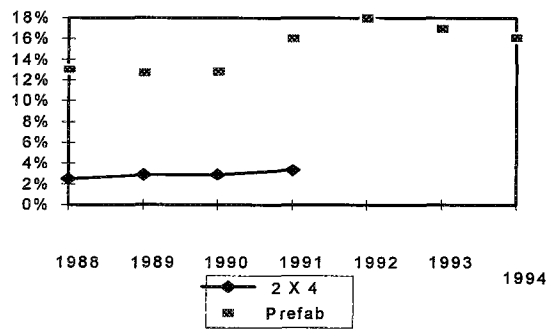
Comparing Figures 6.3 and 6.4 illustrates that during the severe recession in the housing industry in Japan in the early 1990's, prefabricated housing increased its market share; demonstrating the viability of this industry for the long term. Its growth has been attributed in part to the Japanese Government's Five Year Economic Plan which has as one of its principle objectives to lower the cost of housing from eight to five times the average annual income. This initiative involves a number of programs in land tax reform as well as the provision of low interest loans.

Some analysts believe that the 5 year plan created a rapid increase in demand that is most easily satisfied by the prefabricated housing industry due to the short lead times for prefabricated housing construction relative to traditional homes. Examples of this change in public policy include the 8.7% drop in national average residential land prices in 1992, while commercial prices dropped 11.4 percent. Land prices in the centre of Tokyo dropped up to 25% as policy initiatives to expand urban development around urban centres began to take effect.

[14] We have calculated the market size by assuming prefabricated and 2x4 homes are similarly priced, and allocating the aggregate market size according to the ratio of prefabricated housing starts to 2x4 housing starts.

6.3 The Prefabricated Housing Market

Figure 6.4 TRENDS IN PREFABRICATED HOUSING STARTS AS A PERCENTAGE OF TOTAL HOUSING STARTS.



Source: Japanese Ministry of Construction.
Note: 1992-1994 figures for 2x4 not available.

The Japanese housing market enjoyed considerable stability preceding the 1991 recession when there was a 20% drop in housing starts. As indicated in Figure 6.3, despite this significant drop, the prefabricated segment maintained starts at 219 thousand in 1991, and grew an additional 15% in 1992 while total housing starts grew only 2.3%. Prefabricated housing starts continued to grow 18% in 1993. The significant gains enjoyed by the industry were largely at the expense of the traditional home builders, as the 2x4 housing starts remained stable through to 1991. Japanese prefabricated home manufacturers anticipate increased competition from the 2x4 builders who hope to double their output through the 1990's, from 46,000 units in 1991 to 100,000 units by the end of the century.

6.3.1 Regional Demand

Significant variations in the housing market are found among Japan's nine regions. Due to the high population density in certain areas of the country, this can be a determining factor in selecting target markets for prefabricated housing manufacturers. As demonstrated in Table 6.2 however, the rate of growth of this market is relatively constant across the country. This is seen by stable regional rates in prefabricated housing starts as a percentage of total prefabricated housing starts, despite growth in this market.

Table 6.2 PREFABRICATED HOUSING START SHARES BY REGION

	Kanto	% of Prefab Starts	Chubu	% of Prefab Starts	Kansai	% of Prefab Starts	Other	% of Prefab Starts
1988	94.3	46%	34.3	17%	30.4	15%	46.9	23%
1989	96.8	45%	35.7	17%	31.3	15%	50.8	24%
1990	98.7	45%	38	17%	31.1	14%	50.2	23%
1991	105.2	46%	41.4	18%	30.6	13%	49.7	22%

Source: "Housing Starts Statistics", Ministry of Construction

6.3.2 Construction Material Usage

Table 6.3 lists prefabricated housing start trends by type of construction material. Steel continues to maintain its share of three-quarters of the market. Similarly, wood and concrete are maintaining their relative market share in the industry as the market grows. Although wood is predominant in traditional homes, Japanese manufacturers deliver primarily steel based manufactured housing.

Table 6.3 PREFABRICATED HOUSING STARTS MARKET SHARE, BY CONSTRUCTION MATERIAL

Year	Steel % of Total	Wood % of Total	Concrete % of Total	Total
1988	73%	18%	10%	218,716
1989	77%	15%	8%	210,910
1990	76%	16%	8%	219,186
1991	76%	15%	9%	219,774
1992	77%	15%	8%	252,398
1993	76%	15%	8%	246,108

Source: Ministry of Construction

6.3.3 Prefabricated Housing Construction by End Use

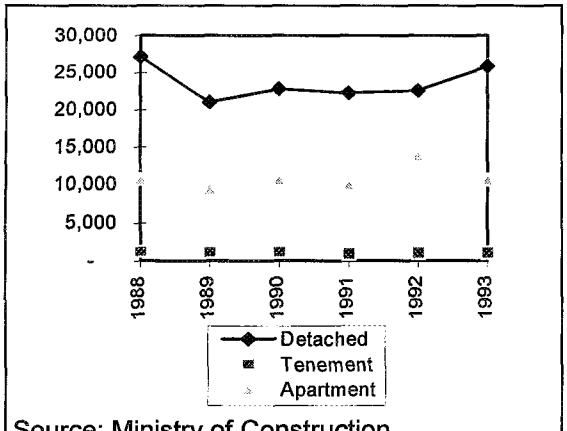
Table 6.4 PREFABRICATED HOUSING STARTS BY END USE

	Detached	Tenement	Apartment
1988	91,107	6,763	120,846
1989	87,842	6,982	116,086
1990	92,583	6,293	120,310
1991	87,563	5,856	126,355
1992	88,746	6,127	157,525
1993	98,935	5,408	141,765

Source: Ministry of Construction

As would be expected, gains made in the detached housing market through the late 1980's were lost to apartment units in the early 1990's housing recession. Despite this significant shift in demand for apartments, tenement housing maintained its position at 3% of the market. The Japan market for tenement housing is not expected to be significant due to the generally mountainous terrain of the country. The trend from detached homes to apartments was reversed following 1992; in fact in 1993 almost 100 thousand prefabricated detached homes were produced, more than were produced in 1990.

Figure 6.5 PREFABRICATED HOMES OF WOOD BY END USE, 1988-1993



Source: Ministry of Construction

The trend towards detached homes in the prefabricated wood homes segment has also seen overall strong growth coming out of the recession. Reflecting the trends observed with prefabricated homes of all types, production remained stable through the recession for apartment, tenement and detached homes of wood, then in 1993 the market for the latter grew by 15% while in the apartment segment a decline of 26% was observed.

6.3.4 Financing of Prefabricated Homes

Financing arrangements for prefabricated housing demonstrated steady trends until 1991 when the Five Year Economic Plan initiatives were brought in with the objective of broadening access to home ownership. Until this policy was brought in there was a visible trend towards reduced public financing for medium and high rise apartment buildings, with participation of the public purse dropping from 53% to 37% from 1987 to 1990. Meanwhile the detached home market saw a reduction from 65% to 60% over the same period.

Table 6.5 RATIO OF PREFABRICATED HOUSING STARTS BY FINANCING BY TYPE

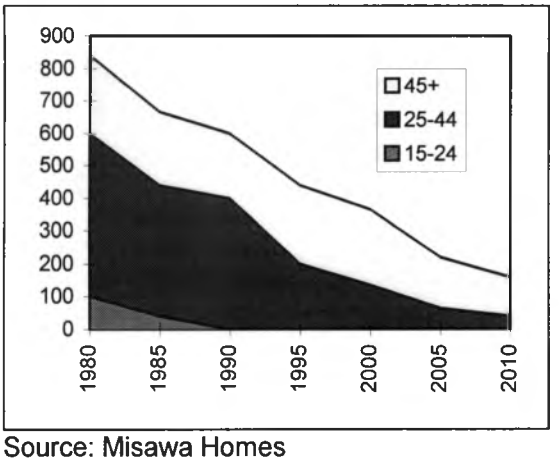
	Detached		Low-rise apt		Med/high rise apt	
	Private	Public	Private	Public	Private	Public
1987	35%	65%	99%	1%	47%	53%
1988	35%	65%	99%	1%	50%	50%
1989	38%	62%	98%	2%	54%	46%
1990	40%	60%	97%	3%	63%	37%
1991	39%	62%	91%	9%	56%	44%

Source: Ministry of Construction.

All three market segments however saw increases in public participation in home financing with the implementation of the plan. Both categories of apartment buildings saw rises of 6% in 1991, while detached homes saw a rise of 2% in the rate of public financing participation.

6.4 Labour Force

Figure 6.6 PROJECTED SIZE OF THE CONSTRUCTION LABOUR FORCE, BY AGE GROUP



Source: Misawa Homes

Profiles of the construction labour force generally present a rapid decline in the number of skilled workers available to meet increasing demand. One such profile, identified in Figure 6.6, produced by a Japanese prefabricated housing manufacturer predicts a 45% reduction in the size of this labour force by the end of the century as young workers avoid the "3-K" occupations (this translates to 3D in English, for difficult, dirty and dangerous). This significant reduction in new workers combined with a rapidly ageing population present opportunities for manufactured housing in Japan.

6.4.1 House Size

Sizes of homes vary significantly by region in Japan. For example in Tokyo two-thirds of the population have less than 100 square meters of living space, while for the national average including Tokyo this number drops to 37% (see Table 6.6). It may be noteworthy that good quality housing is defined as 65 to 70 square metres per unit according to the 5 year economic plan policy. As well, the Government Housing and Loan Corporation will not assist in financing homes that are larger than 240 square meters.

Table 6.6 FLOOR SPACE OF 2X4 HOUSING STARTS IN URBAN AREAS (1991)

	<100sqm	%	>100sqm	%
Tokyo Area	4,812	66	2,471	34
Kanagawa Prefecture	2,399	53	2,151	47
Saitama Prefecture	2,495	55	2,086	45
Subtotal	9,706	59	6,708	41
Nationwide	18,522	37	26,397	63

Source: Ministry of Construction

Table 6.7 COMPARISON OF HOUSING CONDITIONS IN THE UNITED STATES AND JAPAN (1988)

	Japan	US
Average Floor Space for New Homes (sq.m)	81	153
Population	123	246
New Housing Starts (1,000)	1,690	1,490
Owner Occupant Ratio	61	64(*)

(*) This figure is for 1987.
Sources: Construction Prices Investigation Institute, and US Department of Commerce

These housing conditions may be compared with those in the US market. This comparison is made in Table 6.7, where on average newly constructed Japanese homes are a little more than half the size of the American equivalent. The prospective Canadian exporter should bear in mind that new housing in Japan, including apartments and condominiums, is roughly 50% smaller than those in the US.

6.5 Domestic Competition

Table 6.8 TOP 10 DOMESTIC HOUSING MANUFACTURERS (1991)

Company Name	Completed Homes	Market Share
1) Sekisui House	63,938	22.2
2) Misawa Homes	45,937	15.9
3) Daiwa House	39,648	13.7
4) National House Industrial	32,580	11.3
5) Sekisui Chemical	28,500	9.9
6) Nisseki House Industry	13,002	4.5
7) Asahi Chemical Industry	12,660	4.4
8) Taisei Prefab	6,604	2.2
9) S x L Company	5,795	2
10)Kubota House	3,729	1.3
Total for Prefabricated Houses	288,598	
Total for Top Five Companies	210,603	73%
Totals for Top Ten Companies	252,393	87%

Source: The Canadian Embassy in Japan, 1993

Japanese manufacturers currently have considerable domination over their domestic market; it is among the most consolidated manufactured housing industry in the world with the top 10 suppliers accounting for 87% of production (See Table 6.8). The largest manufacturers have all established new manufacturing facilities which use standardised components as a result of co-operation among the companies.

Most competitors are represented in one of the many housing parks for display homes that are found throughout the country. This is the most popular promotion mechanism, however space at these parks can cost more than CDN $25,000 per month. Due to the strong traditional focus of the Japanese culture, which has been characterized by craftsmen serving housing market demand, manufactured home builders are expected to offer flexibility of design to the buyer. A strong emphasis is also placed on brand image development, with some of the larger competitors having name recognition throughout the country.

6.6 Imports

While Japanese brand recognition is strong for domestic manufacturers, there is also a high perceived value of imports among consumers. This is particularly true of wood based building products. Domestic producers also face increasing competition in the international market arena as a result of the appreciation of the yen.

Table 6.9 INTERNATIONAL EXCHANGE RATES BETWEEN THE YEN AND THE US DOLLAR

	1990	1991	1992	1993	1994
Yen per $US	145	135	126	110	102

Table 6.10 JAPANESE IMPORTS OF PREFABRICATED HOUSING, WOOD AND NON-WOOD

1993	US$ (000)	Units	Volume Share	Value Share
USA	27,804	5,676	39.4%	32.9%
Canada	17,436	527	3.7%	20.6%
Sweden	14,202	652	4.5%	16.8%
Finland	10,774	567	3.9%	12.7%
UK	5,361	19	0.1%	6.3%
Germany	1,923	91	0.6%	2.3%
Top 10	80,931	10,892	75.6%	95.7%
TOTAL	84,600	14,401	100.0%	100.0%

1990	US$ (000)	Units	Value Share	Volume Share
US	35,836	6,168	34%	36%
Canada	31,395	709	30%	4%
Finland	12,879	862	12%	5%
Sweden	12,566	464	12%	3%
South Korea	3,469	2,878	3%	17%
Taiwan	1,002	2,340	1%	14%
Philippines	679	1,475	1%	9%
Other	6,642	2,274	6%	13%
Top 10	99,010	15,626	95%	91%
Total	104,467	17,170		

Source: Japanese Tariff Association

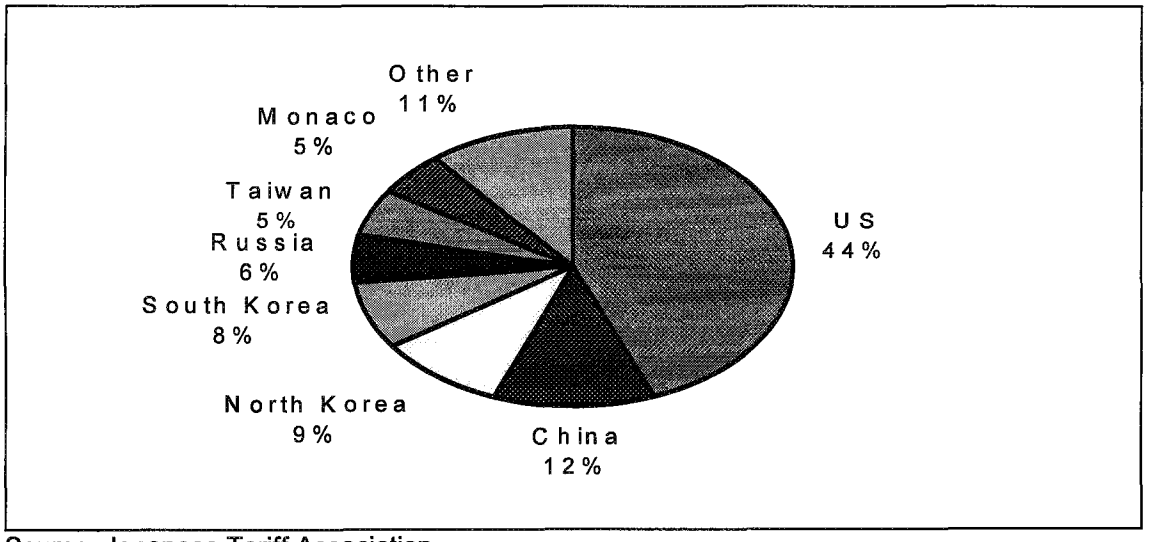
The Japan Tariff Association, which provides the country's trade information, does not specify the type of construction material for its prefabricated home imports. The information in this section relates to both wood and non-wood imports, unless otherwise specified.[15]Average prices of prefabricated homes imported into Japan vary significantly according to the country of origin. The US is consistently the largest exporter in volume, targeting the lower-end market. However Canada, with only 3.7% of Japan's imports by volume, had over 20% of the import market by value. This is consistent with a generally high perceived value of Canadian wood products within the Japanese consumer market. The Canadian manufacturer export strategy continues to be one of targeting high value-added segments of the prefabricated housing industry, an approach that has proven particularly effective in penetrating the Japanese home market.

Imports of mobile homes are also small, amounting to $US 4.9 million in 1993. United States exporters accounted for 63% of this sales activity, while the EC accounted for 34% primarily from Denmark and the UK. Canada's exports of mobile homes to Japan are negligible.

6.7 Japanese Exports

The Japanese Tariff Association provides a breakdown of its prefabricated home exports into two categories: those made of iron and steel, and those not made of iron and steel. Figure 6.7 provides 1992 import shares by country for pre-fabricated homes not made of iron and steel. The US absorbs 44% (US$ 81.4 million) in exports of the latter category by value, but only 15% by volume. Thus while Japan imports relatively low cost prefabricated housing from the US as discussed earlier, its exports to the US are of a much higher value.[16]

Figure 6.7 MARKET SHARES OF EXPORTS BY COUNTRY OF DESTINATION FOR PREFABRICATED HOMES NOT OF IRON OR STEEL (BASED ON VALUE)



Source: Japanese Tariff Association.

[15] Canadian export data contains a similar weakness. Table 4.2 of Section 4 presents Canadian prefabricated building exports to Japan.

[16] The Japan Tariff Association does not provide detail on the type of prefabricated product being exported. We have been unable to identify the type of prefabricated building Japan is exporting to the United States.

6.8 Canada's Position

Canada has played a key role in gaining market acceptance for platform frame construction to the Japanese housing industry. The construction of a model 2x4 home on the Tokyo embassy property in 1973 as well as Canada's technical assistance was instrumental in bringing about an amendment to the building code thereby permitting 2X4 construction in the country. This early market presence has resulted in many builders associating 2X4 housing with Canada.

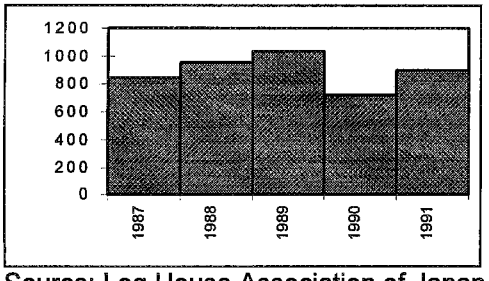
Prefabricated housing exports from Canada to Japan in 1994 are up 115% over 1993. While these figures reflect both wood and non-wood activity, wood homes account for the vast majority. Total volume was $US 37.5 million, an increase of $US 4.2 million over 1990 when housing starts reached a peak of over 1.7 million. Thus despite lower housing starts in 1994 than in 1990, Canadian exporters have been able to increase their market share. This is due in part to the increased acceptance of prefabricated housing throughout Japan.

6.9 Log Homes

Canadian prefabricated housing manufacturers have been successful with log home kit exports, having gained considerable share of this segment during periods of strong economic growth. During the boom years preceding 1991 industry analysts estimated that Canadian exporters controlled one third of the log home market segment.

Log homes are considered a luxury item in Japan, serving largely as vacation homes. This is a lucrative market, however it is highly susceptible to economic down turns as demonstrated in 1991 when drops in demand of up to 90% for these homes in certain regions have been estimated. The overall size of this market decreased from approximately 3500 units per year in the late 1980's to approximately 2000 in 1992.

Figure 6.8 HOUSING STARTS OF MEMBERS OF THE JAPAN LOG HOUSE ASS'N



Source: Log House Association of Japan

Figure 6.8 presents the log housing starts for those companies who are members of the Log House Association of Japan. In 1990 it represented roughly 15% of the country's log home builders, but because of the significant drop in housing starts in 1991 many non-member builders went out of business. It has been estimated that approximately one third of the 450 builders that were in business at the height of the boom were no longer operational in 1992. This is why, despite the recession, the association's membership enjoyed growth during 1991.

7. THE GERMAN PREFABRICATED HOUSING INDUSTRY

7.1 Political Environment

The reunification of Germany resulted in a short-lived period of strong economic growth as initiatives to develop the East German market were begun. The cost of rebuilding the New Federal States (NFS) is now exacting a higher toll than expected, it is estimated that the Old Federal States (OFS) are paying DM 150 billion annually for the reconstruction effort.

The significant shift in public spending to the NFS is expected to continue to negatively affect the OFS construction industry for the next ten years. While GDP in the OFS grew more than expected in 1992 at 5.5%, this trend is not expected to continue as the OFS economy develops, and the wave of strong growth of the commercial construction sector in the 1980's subsides.

A major impediment to the growth in the construction sector in the NFS is the restitution law. This law allows former property owners and their heirs to reclaim their land. Despite an investment acceleration law that gives priority to property development, it is expected that these land claims will impede development into the next century.

Reunification resulted in 1100 non-profit communal housing associations and co-operatives taking ownership of formerly state owned housing. It is estimated that 60% of the 6.6 million housing units in the NFS are now administered by these two types of groups. Due to favourable agreements during the transfer of ownership to these groups, it is estimated that combined they have credit worthiness of DM 30 billion for modernization of the residential construction industry.

7.2 Market Assessment

The OFS and NFS markets must be regarded as completely separate. This is particularly true of the construction market; with the NFS rate of inflation standing at 10% in 1993, almost entirely attributed to the increases in housing costs. While a broad-based recovery in the NFS is not yet fully underway, the construction industry was up 10.3% in 1993. This growth is largely attributed to a 20% growth in the housing market, both renovation and new housing starts.

Table 7.1 Turnover in the German Construction Industry

US $ thousands

	1992			1993		
	Germany	OFS	NFS	Germany	OFS	NFS
Residential	37,771	34,301	3,471	44,497	39,442	5,055
Commercial	43,534	35,898	7,636	46,230	37,960	8,270
Public/Transport	40,144	32,619	7,524	44,182	35,707	8,475
TOTAL	121,449	102,819	18,631	134,909	109,109	21,800

7.2.1 Old Federal States

Estimates place the housing shortfall of Unified Germany at between 2.5 and 3 million units. It is considered that 1 million people have temporary or substandard housing and that over 100,000 are homeless. This shortfall in supply has resulted in smaller living quarters and increased subletting from 800,000 in 1987 to 2.3 million in 1991 in the OFS.

Housing construction permits in the OFS were up in 1992 by 14.5% at 460,000, with permits for funded housing growing by 19%. Single and two family home permits grew only 8.1%. Relatively few Germans own their homes, approximately 40%, although there are significant regional variations. This observation is largely attributed to the fact that the average German home costs 9 times the average annual income, as compared with 5 times for Britain, and 3 times in the US. Home buyers frequently wait 40 years to buy their home, and therefore place considerable importance on ensuring that it is of high quality. A market study by the prefabricator association of Germany determined that there is a limited market for low-cost housing in the OFS.

7.2.2 New Federal States

In contrast to the OFS, home ownership in the former East Germany was not dependent on income level. In fact higher income earners often lived in apartments provided to government and white collar employees. However the NFS housing units are much smaller than those in the OFS, averaging 28 square metres per person as compared to 34.5 square metres in the OFS.

It has been estimated that in order to bring the housing standard in the NFS to western levels US $41 billion would have to be invested each year to the year 2005. While demand is estimated at 140,000 units per year for the next ten to 15 years, current output is at 25-30,000 units per year.

7.3 The Prefabricated Market

In Western Germany in 1992, 9% of the 200,000 single family and duplex houses were prefabricated accounting for US$ 1.6 billion. The prefabricated market is expanding with 90% percent of the market supplied by domestic companies who are members of the Federal Association of German Housing Prefabricators. Schools, kindergartens and commercial construction accounted for 11% of the market. In Eastern Germany prefabrication has a stronger market acceptance than in Western Germany. In 1993, approximately 10,000 prefabricated houses were constructed. Demand far outstrips domestic supply capability.