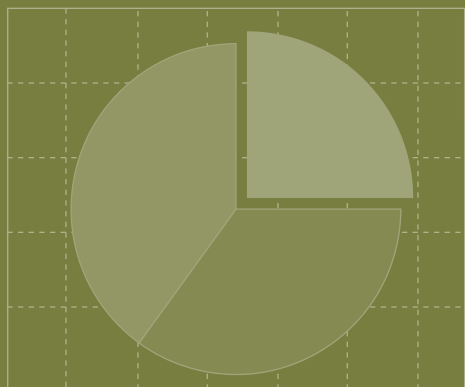
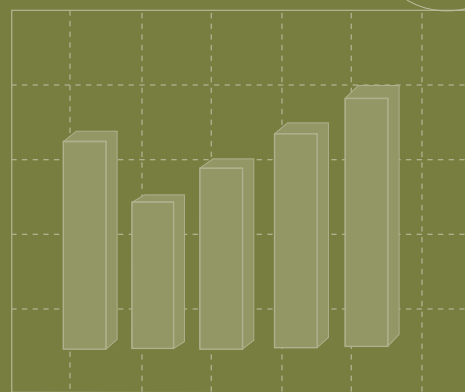




MEASURING NET CAPITAL HOUSING STOCK

CRITICAL ANALYSIS OF THE PERPETUAL INVENTORY METHOD



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¹ For further information on the method used by the Investment and Capital Stock Division, see:

- Statistics Canada, Catalogue 13-603E, No.1, *Guide to the Income and Expenditure Accounts*
- Statistics Canada, Catalogue 13-568, *Fixed capital flows and stocks – historical*

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1. CONTEXT AND ISSUE OF THIS PROJECT

The federal equalization system that currently applies in Canada aims to reduce the wealth gaps between Canadian provinces through annual transfer payments from the federal government to provinces with weaker fiscal capacities. This system relies in particular on measuring the net capital housing stock of each province (including the value of land). Amounts transferred to provinces whose housing asset values are higher than the Canadian average are reduced proportionately, while the amounts received by provinces whose housing stock is below the national average are, conversely, topped up.

Annual equalization budgets are set on the basis of a three-year horizon and can be revised, if necessary, before their final adoption. This was the case with the 1999-2000 fiscal year budget (1999-2002 three-year plan), for which final estimates will have to be produced in the fall of 2002.

The approach currently used by the Investment and Capital Stock Division (ICSD) of Statistics Canada to measure the net stock of the provinces' net capital housing stock involves applying the Perpetual Inventory Method (PIM). This method is used in a number of countries for various purposes, in particular for developing national accounts systems. As we shall see further on, relying on this model requires the use of price indexes. Recent modifications to the method of calculating annual estimates of housing capital stock (in this case, substituting provincial implicit indexes for the Canadian implicit index used before 2001) results in a substantial increase in the value of Quebec housing stock and, consequently, a considerable decrease in the value of equalization payments transferred to Quebec. This decrease is certainly unexpected and is worth examining more closely.

This advice note consists essentially of a critical analysis of the PIM, resorting to the detailed description which the OECD provides in its reference document, the ICSD application procedures for this method, in addition to recent analyses conducted by the *Ministère des Finances du Québec* (MFQ) and our own reflections on this subject.

2. MEASURING NET CAPITAL HOUSING STOCK: HIGHLIGHTS OF THE PERPETUAL INVENTORY METHOD

The OECD recently produced a reference manual titled *Measuring Capital: A Manual on the Measurement of Capital Stocks, Consumption of Fixed Capital and Capital Services*² which takes up the principles laid out in the 1993 National Accounts System and which is intended for users of statistics related to fixed capital formation and consumption around the world. This manual includes a detailed description of the Perpetual Inventory Method (PIM), the mechanics of which we summarize in the following.

2.1 MARKET VALUE OF AN ASSET AND THE PERPETUAL INVENTORY METHOD

The concept of market value of an asset is crucial to measuring net capital stock (section 2.7, p. 14). The value of an asset is obtained by converting real net revenue (RN) to the appropriate rate of return (r) that the asset is likely to generate in the course of its useful life (T); a residual value (Res) is added to this figure at the moment of its availability. This latter value is generally positive, yet may in some cases be negative due to, for example, dismantling or demolition costs. The general equation for the market value of an asset can be expressed as follows:

$$MV = \sum_{t=1}^T \frac{RN}{(1+r)^t} + \frac{Res}{(1+r)^T} \quad (1)$$

This equation achieves our initial goal of an adequate measurement of net capital stock *by establishing the market value for a given year*, a value that directly reflects the value of the service flow derived from this stock. In effect, capital stock can be considered part of the *wealth* of a nation only insofar as it contributes to the production process. The so-called Perpetual Inventory Method (PIM) constitutes, as we shall see further on, only one of the suggested methods for achieving this. By virtue of the traditional approach, the PIM consists essentially of generating an estimate of gross capital stock through the accumulation of successive asset acquisitions throughout their active life, and then of applying a depreciation function to this figure that takes account of fixed capital consumption over the course of the period. The result derived from this provides an estimate of net capital stock.

² This document is available on the Web at www.oecd.org/pdf/M00009000/M00009324.pdf, 124 pages.

This traditional approach requires *a direct estimate* of the depreciation of the assets under consideration. An alternative approach consists of identifying age-yield profiles by asset type, from which age-price profiles can then be derived. Applying these age-price profiles to the value of gross capital stock provides *a direct estimate* of the net stock, with depreciation obtained by deduction. This is the *integrated* approach; so called because it offers the advantage of simultaneously estimating both the service flow produced by the asset (on the basis of age-yield profiles) as well as the net stock and fixed capital consumption (through age-price profiles).

2.2 STANDARD APPLICATION OF THE PERPETUAL INVENTORY METHOD: ESTIMATING GROSS CAPITAL STOCK

Estimating gross capital stock using the PIM requires: (1) the choice of a reference date as a basis for measuring the stock's value; (2) the existence of reliable statistics on gross fixed capital formation up to the reference date; (3) price indexes for the various assets under consideration; (4) adequate information on their average life span; and (5) adequate information on the mortality functions of the various assets.

2.2.1 *Initial estimate of capital stock*

In most cases, the PIM is based on an estimate of capital stock for a base year. This estimate can come from various sources, such as population censuses that also provide information on the volume and value of housing units, fire insurance files, company accounts, the value of equity in publicly traded companies, in addition to administrative files related to financial and real estate assets. These sources generally provide only partial information and often show only the periodically adjusted historical prices rather than market values. However, their likelihood to generate inaccurate gross capital stock estimates using the PIM diminishes the further we are from the reference date.

2.2.2 *Gross fixed capital formation*

Gross fixed capital formation (GFCF) is defined as the value of acquisitions, minus the value of disposals of tangible and intangible fixed assets, plus on-site improvements. This concept of GFCF assets transacted on the resale market at depreciated prices (thus inferior to the "new" value) brings additional complexity to estimating gross fixed capital formation. This problem particularly affects the real estate sector, where assets can be successively applied to different uses (section 6.14, p. 42).

2.2.3 *Asset price indexes*

The problem of identifying "price" and "quantity" among the changes observed in the market value of assets is particularly pronounced for capital goods – especially for real estate – because of their uniqueness. According to the OECD, errors in capital stock estimates arising from the use of faulty price indexes can be just as serious as errors caused by inadequate life spans or mortality functions (section 6.17, p. 42). Various solutions to this problem exist, including standardized *asset models* (which must be adjusted regularly to reflect the technological changes that determine their make-up) the *replacement cost* approach, as well as *hedonic modelling* techniques. All these methods are commonly used in real estate analysis and evaluation where the issue of reconstituting the market value is only one part of the more general problem for which the PIM is applied. In this regard, academic literature related to real estate of recent years has shown an increase in the number of references to the hedonic approach for creating "constant quality" housing price indexes³.

2.2.4 *The life span – or useful life – of assets*

The accuracy of capital stock estimates derived from the PIM depends heavily on the life span of assets, an aspect that a number of countries, including Canada, have considered. In most countries, establishing the useful life of various asset categories is required for tax purposes and to determine depreciation rates. Many information sources are used for this purpose and

³ Statistics Canada itself uses this approach for comparing housing costs among major Canadian cities in its publication of the consumer price index.

their reliability varies. Use is also made of company accounts, statistical surveys, administrative registries (listing the construction and demolition of buildings), expert opinions, and estimates from neighbouring countries.

Adequate measurement of the life span of assets is made more difficult by technological changes that lengthen or shorten their useful life. In principal, applying the PIM requires an empirical ability to gauge precise life spans for an entire series of specific assets, an ability that rarely exists. Measuring errors in this area result in major errors in the value estimates of both the gross and net stock of fixed capital.

2.2.5 *Mortality functions of assets*

In the course of their useful life, assets are progressively dismantled, exported, demolished, or simply abandoned and thus withdrawn from capital stock. "Mortality functions" are probability distributions that emulate various profiles of withdrawal of these assets around their average life span. While a number of "withdrawal patterns" are possible, studies conducted in the Netherlands by Statistics Netherlands using the Weibull distribution method seem to show that, for most assets, the risk of withdrawal increases, although at a declining rate, with the age of the asset. Research conducted in France by the national statistics institute using a log-normal function also gives satisfactory results.

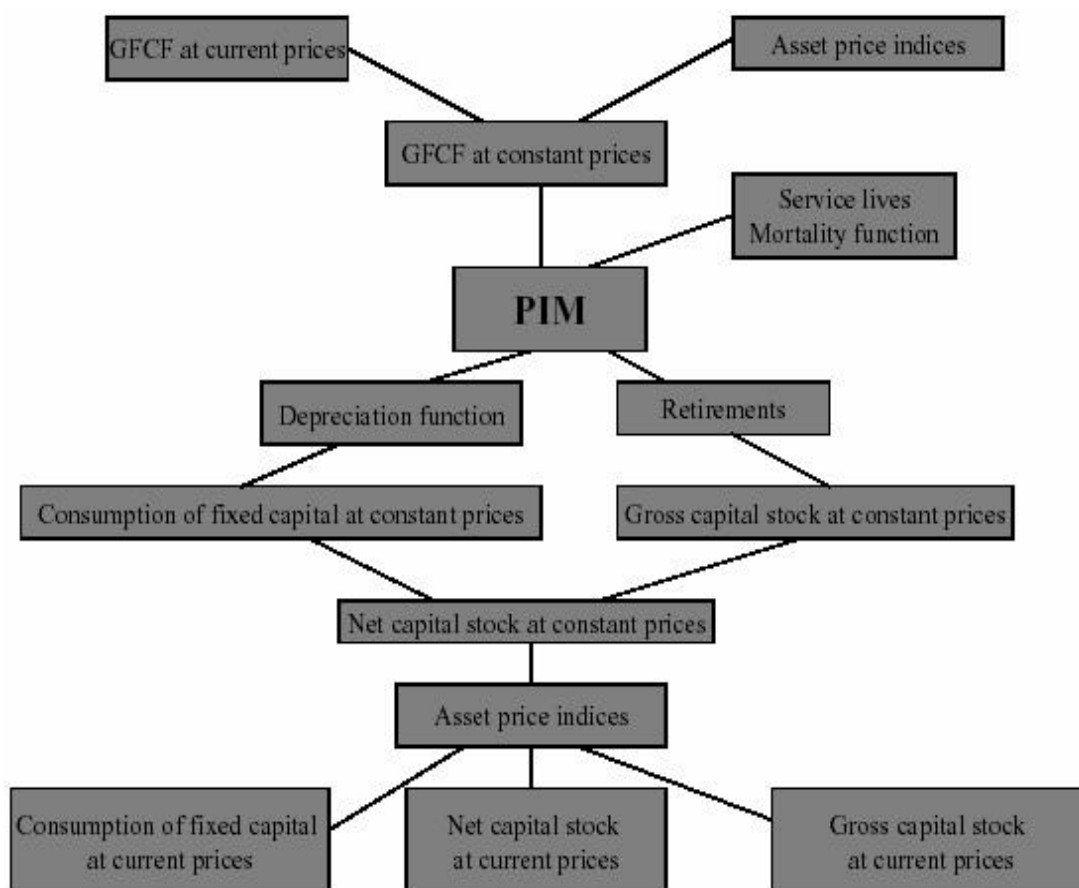
2.3 CONSUMPTION OF FIXED CAPITAL AND NET CAPITAL STOCK

Since consumption of fixed capital, or depreciation, is generally not directly observable, it is assumed that asset prices decline regularly throughout their life span. Several depreciation methods are also applied, including the *linear* method (which deduct a constant amount annually), the *geometric* method (which applies a constant percentage to a tapering balance), and the *sum-of-the-years'-digits* method (SOYD, an annual amount declining on a linear basis). In Canada, the capital cost allocation (or fiscal amortization) applicable to real estate assets held for investment purposes follows a geometric logic, with the depreciation rate set at 4% per year.

Finally, *net capital stock* is defined as the market value of fixed assets. It is obtained by deducting consumption of fixed capital from gross capital stock.

The general PIM application schema is presented below. As can be noted, gross fixed capital formation must first be converted to constant dollars using available price indexes. Gross capital stock, consumption of fixed capital and net capital stock are then derived, always in constant dollars. Only in the final stage of the process are price indexes used again to express the asset values in current dollars for the year in question.

FIGURE 1: Model of the perpetual inventory method



Source: OCDE, op. cit. p.56

3. MEASURING CANADIAN HOUSING STOCK: STATISTICS CANADA'S METHODOLOGY

3.1 THE GENERAL MODEL IN USE AND THE BASIS OF REFERENCE⁴

3.1.1 *The general model*

Statistics Canada uses the perpetual inventory method to calculate the value of housing stock. This method, which is an easy way to determining chronological series of capital stocks, accumulates investment spending to obtain estimates of housing stock for a given year. The perpetual inventory method consists essentially of adding gross fixed capital formation to capital stock each year and of subtracting the amortization. As we saw in the previous chapter, this requires having information on the investment values, price indexes, and on the depreciation method.

Net housing stock is calculating in the following way for period t :

$$NS_t = NS_{t-1} + GCF_t - D_t - PCC_t \quad (2), \text{ where:}$$

NS_t = net stock at period t in 1997 dollars;

GCF_t = gross capital formation at period t in 1997 dollars;

D_t = the value of demolitions at period t in 1997 dollars;

PCC_t = provision for capital consumption at period t in 1997 dollars.

3.1.2 *Choosing a basis of reference*

As indicated in the previous chapter, applying the perpetual inventory method requires choosing a basis of reference. In the case at hand, the *1941 federal census* is used for this purpose. In that year, all owners were asked to provide *an estimate* of the market value of their housing, with land value fixed at 12% of the total value. The value of rental housing stock – adjusted to take account of vacancies – was obtained *by multiplying by 100* the monthly rent

⁴ For further information on the method used by the Investment and Capital Stock Division, see:

- Statistics Canada, Catalogue 13-603E, No.1, *Guide to the Income and Expenditure Accounts*
- Statistics Canada, Catalogue 13-568, *Fixed capital flows and stocks – historical*

declared by the tenants who were there. On this basis, the value of Quebec's housing stock for the year 1940 was estimated at \$1.25 billion.

3.2 VARIABLES AND STAGES OF THE MODEL

3.2.1 Gross capital formation at period t (GCF_t)

Gross capital formation covers the entire housing sector, whether these are new constructions, renovations (excluding repairs), or costs related to new residential real estate transactions. This includes the construction of new detached or single units, semi-detached or double row housing, and apartment units, as well as mobile homes, cottages, conversions (creation of additional housing units from formerly non-residential buildings), and units transformed from other types of residential buildings. This furthermore includes renovation work and associated costs (sales taxes, closing costs, land improvement and development expenses, costs of file reviews for, among others, mortgage insurances and premiums), these associated costs taken to reflect the investment value in the eyes of the final buyer.

Measuring gross capital formation is based on three main sources of information:

- Using Statistics Canada's *Monthly Building and Demolition Permits Survey*, estimates are made of the average value of a construction start, as well as of the value of transformations, cottages, mobile homes and other closing costs. It is important to note here that, even if the information obtained through this survey is taken from 2,600 municipalities and covers 94% of the Canadian population, it reflects only the *builders' intentions* for the current month and not the real investment in housing construction.
- The monthly survey of housing starts and completions from the CMHC (Canada Mortgage and Housing Corporation) provided the number of housing starts by province as well as the number of units completed by type (detached, semi-detached, row or apartment).
- The third source of information is the National Accounts division of Statistics Canada, which provides quarterly estimates of the value of land development costs as well as of sales taxes and improvements.

3.2.2 Calculating gross capital formation – new housing construction

Investment value for the four types of housing assets covered by the CMHC is based on a model developed by Statistics Canada and on earlier patterns of the monthly completion rate of housing construction. Under this model, housing investment for a particular month is a function of the work carried out on units started the same month in addition to work carried out on all other units under construction, whether or not they are completed in the current month. The monthly investment for new housing construction can be expressed by the following equation:

$$I_t = \sum_{i=0}^{20} (CSC * NCS)_{t-i} CSR_{i+1,t-i} + SC_t \quad (3), \text{ where:}$$

- I_t = Investment in new housing during month t ;
 CSC = Construction start costs for new housing unit;
 NCS = Number of construction starts;
 CSR = Construction start ratio;
 SC_t = Supplementary costs during month t ;
 i = Number of months covered by the calculations.

Four basic values are required for the calculation of the monthly investment in new construction. These are the number of construction starts, the cost of starting construction of a new housing unit, the construction start coefficient for new units, and the level of supplementary costs. The calculation is done in six steps:

Step 1: Using the Building and Demolition Permits Survey, also used for the CMHC survey on construction starts, new investment for a specific period is determined based on the value of permits issued not only for the current month, but also for preceding months.

Step 2: This step consists of determining the cost of starting construction (CSC). First, the average value of building permits issued for a given month and for the four preceding months is calculated. This average value is then adjusted by applying the "blow-up factor" that takes

account of unforeseen costs that arise during the project. This factor ranges from 4% to 24% of the average value of the permits. To take account of the discrepancy between the building plan (reflected in the building permit) and the work actually performed, a completion rate is applied to each of the five months under consideration. This completion rate allocates the proportion of the declared value of the permits onto the period, which then translates into construction starts in the most recent month (t). Even though this completion rate varies according to province and housing type, reflecting the diversity of projects and their economic context, it is fixed in time and *should therefore be revised periodically*. The last part of step 2 is to determine the cost of starting construction (CSC) for month t by adding the products of the average value of monthly permits multiplied by the completion rate.

Step 3: A study carried out monthly by the CMHC for municipalities of over 10,000 inhabitants helps determine the *number of construction starts* (NCS) and the *number of completed units*, broken down by duration of construction. This information serves to establish the "construction coefficient".

Step 4: Housing investment assessment requires that contractors keep track of the time they put into carrying out their investment plans. An added percentage of construction units is attributed to each month of construction activity, reflecting the project completion rate for the months following the start of construction. Though the majority of construction projects are completed within one year, the period under consideration can run up to 21 months. This type of calculation is carried out for each large region of the country (Atlantic provinces, Québec, Ontario, Prairies, and British Columbia) and for each type of housing (single-family, semidetached houses, row houses, and apartment buildings). It is important to point out that this very essential component in estimating the level of investment *has not been reviewed since 1973*.

The matrix of completion rates allows for the *construction coefficient* to be estimated for each month of activity. This is the proportion of total monthly production – expressed in the number of units completed during the month – which is effectively attributable to the current month.

Step 5 On the basis of the preceding steps, it is now possible to determine the *monthly investment level in new housing construction (I_t) without supplementary costs (SC_t)*. This is obtained by applying the first part of equation (3), i.e. by multiplying together, for each month, the number of construction starts, the average costs, and construction start ratio and by then calculating the sum over the entire period under consideration.

Step 6: The sixth step consists of adding the *supplementary costs (SC_t)*, without which the real investment levels would be underestimated. These costs, which vary greatly from one province to another, are provided on a quarterly basis and are composed of four elements:

- *Mortgage insurance expenses and fixed demand rates* that are assumed by property buyers under the National Housing Act, enabling them to reduce their required down payment from 25% to 5% when buying a residence; this information is supplied by the CMHC;
- *Supplementary cost factors*, which include the contractor's profit margin, promotion and advertising expenses, administrative and judicial fees paid by the contractor, insurance expenses, costs of maintaining an office, and all other costs related to construction itself. These costs come directly from the Building Permits Survey;
- *Land development costs*, often assumed by the contractor, referring to the costs of developing the construction site and to land improvement expenses (street openings, installation of water and sewer systems, etc.); this information is provided by the Public Institutions Division;
- Federal and provincial *sales taxes* that are paid by homebuyers.

3.2.3 Calculating gross capital formation in transformations, renovations, and acquisitions

Investment estimates for transformations, cottages, and mobile homes is based entirely on the value of permits issued. This value is adjusted upward by a "blow-up ratio " to take account of undercoverage by the Building Permits Survey.

Renovation estimates are directly related to the National Accounts system and take account of “under-the-table” activity that prevails in this sector of the economy. It is calculated by means of an indicator that combines the growth rate of building permits and those of wholesale wood sales. Applied to the figure of the preceding quarter, the growth rate figures obtained this way provide for estimates at the national level. The redistribution of building permits by province allows to assess provincial levels for the current period. The redistribution is then re-evaluated with the aid of data from the Household Spending section of the Homeowner Repair and Renovation Survey carried out among owner-occupants, and from data pertaining to the physical housing stock.

Acquisition costs include the following:

- *Costs associated with closing a contract:* these costs, normally assumed by the contractor and passed on to the buyer at the signing of the sales contract, are known to represent a certain percentage of the value of completed units;
- *Costs of reviewing files for mortgage insurance purposes, and premiums from the CMHC;*
- *Costs of land development or services,* obtained from the Public Institutions Division;
- *Federal and provincial sales taxes,* from National Accounts.

3.2.4 *The value of demolitions (D_t)*

Demolition value is first established by determining the number of demolished units. This information is provided by municipalities and by the Building Permits Survey. For each demolished unit, a value 40% of start-up costs for new housing units is attributed in the case of single homes and 80% for multiple units. Housing units destroyed by fire are also included in the calculation of this variable. Information about fire losses is available by province and comes from the *Annual Report of the Council of Canadian Fire Marshals and Fire Commissioners*.

To express these figures in 1997 constant dollars, an implicit price index based on gross capital formation is used.

3.2.5 *Estimation of capital consumption (PCC_t)*

Depreciation corresponds to a replacement cost that in some sense is the equivalent of the amount of money required to maintain the capital intact. To calculate capital consumption, a depreciation rate d is applied to the stock of the preceding year. A hypothesis has been established stating that gross capital formation in the current year (GCF_t) was utilized on average in the middle of the period. As a consequence, depreciation of newly formed capital corresponds to one half of new investments, multiplied by the depreciation rate. We can thus state:

$$PCC_t = d NS_{t-1} + d (GCF_{t/2}) \quad (4)$$

or that d is the geometric depreciation rate that Canada applies to housing assets. This rate, fixed at 2%, applies uniformly to all types of housing.

3.2.6 *Net stock for period t (NS_t)*

Equation (2) allows to calculate the value of housing net stocks, the components of which were expressed in 1997 constant dollars. The net stock value is then converted to current dollars for the year in question. For this purpose, it is best to use a series of price indexes that

were recently subject to modifications whose impacts on redistribution of equalization payments among the provinces raise significant financial stakes. This is the question we are now examining.

3.3 THE CHOICE OF PRICE INDEXES AND ITS IMPACT ON THE INTERPROVINCIAL REDISTRIBUTION OF HOUSING CAPITAL STOCK

Before 1997, Statistics Canada produced quarterly and annual estimates of net capital housing stock with the aid of an implicit Canadian price index. As of 1997 however, provincial indexes are used for these quarterly estimates and, since 2001, these indexes are used in producing annual estimates. This change was justified by a consistent improvement in provincial indexes that renders them more reliable as well as by the need for a harmonization of quarterly and annual series with National Accounts.

3.3.1 *The various price indexes*

As we saw above, gross capital formation, and each of its components, – is measured in constant dollars. Various price indexes should thus be applied to new construction, to renovations, and to acquisition costs:

- The value of new constructions is deflated according to the provincial price index of new housing units (buildings only) for single-family houses, semi-detached housing, and row houses. The provincial price index for new apartment constructions (the building component) is used for this type of unit. In both cases, data come from the *Prices Division of Statistics Canada*.
- The renovation values for existing housing units is deflated using a weighted index that was especially calculated from provincial indexes of labour costs (40%) and the Canadian price index for construction materials (60%). The weighting is based on surveys such as the Household Spending section of the Homeowner Repair and Renovation Survey carried out among owner-occupants.
- Indexation of acquisition costs follows the provincial price index of new housing units for federal and provincial sales taxes. For development costs and review costs for mortgage and premiums, a rate is applied to new construction expressed in constant dollars.

The *implicit index for housing construction* for a given year is obtained from the ratio between gross capital formation expressed in current dollars (GCF_c) and in constant dollars (GCF_k).

3.3.2 Impact of index change on the distribution of housing stock

Table 1, which follows, presents the result of a simulation of net capital housing stock by province (in current dollars) for the year 1999 and was obtained by using the implicit housing indexes and the implicit Canadian index. As we can see, the use of these provincial indexes is expressed, for Québec and Ontario, by an increase of this stock value by 5.3% and 3.2 % respectively, while New Brunswick and British Columbia saw a reduction of 11.6 % and 19.7% respectively. We can thus speak of major changes in interprovincial redistribution of housing affluence and, because of this, in transfer payments.

Table 2 presents the period from 1992 to 2000, simulating the impact of this change on the relative share of net capital housing stock attributed in Québec through one method or another; the Québec/Canada share is calculated by using current dollars and constant dollars successively. The detailed calculations and data used for this simulation can be referred to in *appendix 1*. We can note that the use of an implicate provincial index translates into an increase of Québec's relative share in the order of 1.5% for the period studied. Thus, this share for the year 2000 goes from 22.6% of the Canadian total (current dollars) when calculated using the implicit national index, to 23.9% when calculated using the provincial index.

As we will see further from analyses conducted using varied and reliable information sources, including Statistics Canada, an increase of this scale comes as a surprise and puts the reliability of the method used into question.

Table 1: Impact on net housing stock from implicit national indexes to provincial indexes

Net housing stock value, 1999, in current millions of dollars			
	National index	<i>Provincial index</i>	<i>D%</i>
Canada	878,949.7	873,317.4	-0.6
Newfoundland	13,292.0	12,261.6	-7.8
Prince Edward Island	3,207.4	2,909.7	-9.3
Novia Scotia	23,080.8	22,712.3	-1.6
<i>New Brunswick</i>	<i>16,610.3</i>	<i>14,676.8</i>	<i>-11.6</i>
<i>Québec</i>	<i>199,997.9</i>	<i>210,523.5</i>	<i>5.3</i>
<i>Ontario</i>	<i>350,944.2</i>	<i>362,131.7</i>	<i>3.2</i>
Manitoba	26,690.9	25,682.7	-3.8
Saskatchewan	25,781.7	24,927.2	-3.3
Alberta	87,417.5	91,071.8	4.2
<i>British Columbia</i>	<i>129,538.6</i>	<i>103,985.9</i>	<i>-19.7</i>
Yukon	931.2	977.0	4.9
Northwest Territories	953.9	967.4	1.4
Nunavut	503.3	489.7	-2.7

Source: Statistics Canada, Division of investment and capital stock

1. IMPLICIT NATIONAL INDEX							
Year	Net housing stock at end of year		Relative interest Québec/Canada %	Year	Net housing stock at end of year		Relative interest Québec/Canada %
	Québec Millions of current \$	Canada			Québec Millions of constant \$	Canada	
1992	\$157 692,3	\$670 888,1	23,5%	1992	\$155 285,4	\$660 648,1	23,5%
1993	\$165 783,5	\$708 000,0	23,4%	1993	\$158 796,5	\$678 160,9	23,4%
1994	\$173 324,5	\$740 189,0	23,4%	1994	\$163 128,9	\$696 648,4	23,4%
1995	\$175 729,3	\$754 152,9	23,3%	1995	\$164 771,9	\$707 128,8	23,3%
1996	\$179 534,5	\$772 391,6	23,2%	1996	\$167 789,2	\$721 861,3	23,2%
1997	\$185 010,4	\$802 060,6	23,1%	1997	\$170 673,8	\$739 908,3	23,1%
1998	\$191 964,9	\$837 957,5	22,9%	1998	\$173 331,7	\$756 620,8	22,9%
1999	\$199 352,1	\$876 671,2	22,7%	1999	\$176 183,9	\$774 786,7	22,7%
2000	\$205 925,9	\$913 082,6	22,6%	2000	\$178 988,2	\$793 639,8	22,6%
2. IMPLICIT PROVINCIAL INDEX							
Year	Net housing stock at end of year		Relative interest Québec/Canada %	Year	Net housing stock at end of year		Relative interest Québec/Canada %
	Québec Millions of current \$	Canada			Québec Millions of current \$	Canada	
1992	\$166 579,2	\$665 118,6	25,0%	1992	\$180 134,1	\$710 008,8	25,4%
1993	\$174 907,6	\$702 350,4	24,9%	1993	\$183 809,0	\$728 755,6	25,2%
1994	\$183 617,5	\$736 771,3	24,9%	1994	\$188 350,6	\$748 568,2	25,2%
1995	\$188 580,4	\$755 408,2	25,0%	1995	\$190 558,8	\$762 477,6	25,0%
1996	\$193 027,6	\$774 416,7	24,9%	1996	\$193 502,8	\$778 240,9	24,9%
1997	\$196 861,7	\$802 849,4	24,5%	1997	\$196 342,3	\$797 594,7	24,6%
1998	\$202 771,0	\$835 706,3	24,3%	1998	\$199 015,5	\$815 630,3	24,4%
1999	\$210 523,5	\$873 319,6	24,1%	1999	\$201 903,1	\$835 182,7	24,2%
2000	\$217 683,4	\$910 602,0	23,9%	2000	\$204 721,2	\$855 562,0	23,9%
		Average variation Scen.2/Scen.1 1992-2000:	1,5%			Average variation Scen.2/Scen.1 1992-2000:	1,6%

4. INDICATORS FOR OVERESTIMATES OF QUÉBEC'S NET CAPITAL HOUSING STOCK

In the following pages, we will examine the validity of net capital housing stock estimates that were obtained from provincial price indexes. For this we will use a series of indicators pertaining to the housing market in Canada.

4.1 THE VALUE OF RESIDENTIAL HOUSING STOCK ACCORDING TO THE 1996 CENSUS

4.1.1 *The total value of the stock*

Based on 1996 census data, *table 3* provides a realistic – and official - estimate of the size and value of private residential housing stock (including land) for Canada and by province. It also distinguishes owned and rented housing stock. As can be seen, Québec, which represented around 24.5% of the Canadian population in 1996, constitutes 26.1% of the country's housing stock. However, the *total value of this stock constitutes only 18.1% of the Canadian total* (18.4 % if only non-farming, non-reserve units are counted), or \$226.4 billion. For the same year (1996), Québec's relative share in net capital housing stock (excluding land value), as determined by Statistics Canada using provincial price indexes, reaches 24.9% (see *table 2* current dollars), with the observed difference between the two figures being as suspicious as it is substantial. The same can be said of British Columbia, which is shown to have 12% of the country's net capital housing stock while, according to the 1996 census, this share seems to be more in the 20% range.

A plausible hypothesis for this difference is that property value is included in census figures but not in figures for net capital stock (NS_t). To validate this hypothesis, we have adjusted the 1996 census data accordingly, allotting Québec a proportion of '*building value/total value*' fixed at 80% and by simulating various ratios for all of Canada. *Table 4* represents the results of this simulation. From this we can see that in order to arrive at the relative share of 24.9% shown for Québec by Statistics Canada, the average property value of Canada's entire residential housing stock should represent *42% of the total value*, which is obviously unrealistic.

Table 3: Estimates of the value of private residential housing stock, including land, according to 1996 census data

	<i>Québec</i>	<i>Canada</i>	<i>Québec/ Canada %</i>
Total number of housing units including band housing	2 822 030	10 820 050	26,1%
Band housing			
Number of units	3 125	37 125	8,4%
Parts in %	0,1%	0,3%	
Value per unit	n.d.	n.d.	
Total number of housing units excluding band housing	2 818 905	10 782 925	26,1%
Owners			
Parts in % (excluding band housing)	56,5%	63,8%	
Number of units	1 593 600	6 877 780	23,2%
- those which are non-farming, non-reserve	1 569 730	6 676 120	23,5%
- others	23 870	201 660	11,8%
- others in % of total number	1,5	2,9	
Value per unit*	103 179 \$	147 877 \$	69,8%
Value of parc (in billions of \$)	164,43 \$	1 017,07 \$	16,2%
- those which are non-farming, non-reserve	161,96 \$	987,24 \$	16,4%
Renters			
Parts in % (excluding band housing)	43,5%	36,2%	
Number of units	1 225 305	3 905 145	31,4%
- those which are not used for farming and out of rese	1 218 145	3 867 880	31,5%
- others	7 160	37 265	19,2%
- others in % of total number	0,6	1,0	
Value per unit*	50 600 \$	59 500 \$	85,0%
Value of parc (in billions of \$)	62,00 \$	232,36 \$	26,7%
- those which are not non-farming, non-reserve	61,64 \$	230,14 \$	26,8%
Total value (in billions of dollars)	226,43 \$	1 249,42 \$	18,1%
- those which are non-farming, non-reserve	223,60 \$	1 217,38 \$	18,4%
Population (1996)	7 274 019	29 671 892	24,5%
* Average value, according to 1996 census data, for private, non-farming, non-reserve housing units ** Estimated value by multiplying by 100 the average monthly cost of living (method suggested in the census) for private non-farming, non-reserve housing.			

Table 4: Variation in Québec's relative share in the value of housing stock according to the "building value/total value" proportion - 1996 census -

<i>Proportion building value/ total value</i>		<i>relative portion of Québec</i>
<i>Québec</i>	<i>Canada</i>	
0.80	0.80	18.1%
0.80	0.75	19.3 %
0.80	0.70	20.7%
0.80	0.65	22.3%
0.80	0.58	24.9%
<i>Net capital housing stock</i>		<i>24.9%</i>

Sources: Statistics Canada and Ministère des Finances du Québec.

4.1.2 *The value of residential property*

Table 3 also shows the profound difference that exists between Québec and the rest of Canada regarding the residential property rate. In Québec, owner-occupied property represents 56.5 % of housing stock, while in Canada as a whole it represents 63.8 %. Furthermore, the average value of a unit is only \$103,179 in Québec compared to \$147,877 in Canada, *which is a difference of more than 30%*. The situation is reversed in British Columbia where the average value of housing units is 62% higher than the Canadian average. Therefore, Québec's relative share in the value of the residential property stock at a national level reached only 16.2% in 1996, whereas its share of owner-occupied units reached 23.2 %.

The differences noted here are also corroborated by other studies whose results regarding the value of housing stock for 1999 and 2000 are perfectly coherent with the information gathered in the 1996 census:

- According to the *Household Expenditure Survey*, Québec households spent an average of \$8,552 in 2000 for housing, compared to \$10,532 in Canada (\$11,773 in British Columbia);
- According to the *Survey of Financial Security*, the average amount for a principal residence in 1999 was \$109,481 in Québec, compared to \$149,661 in Canada (\$225,200 in British Columbia);
- Finally, according to data from the *Canadian Real Estate Association* regarding the housing resale market, the average value of real estate operations in 2000 was \$111,260 in Québec compared to \$164,091 in Canada (\$221,371 in British Columbia);

4.1.3 *The value of the rental housing stock*

The information contained in *table 3* on the structure and value of the rental housing stock reinforces the concerns expressed above regarding Statistics Canada's overvaluation of net capital housing stock in Québec. The number of rental units in Québec (1,225,305) in 1996 is more than proportional to the population, yet the unit value of these housing units (\$50,600) is 15% lower than the national average (\$59,500). This explains why the value of the rental housing stock in Québec, which was 26.7% of the Canadian total in 1996, can only have a downward influence on the value of the housing stock in the province and its relative share in the whole of Canada.

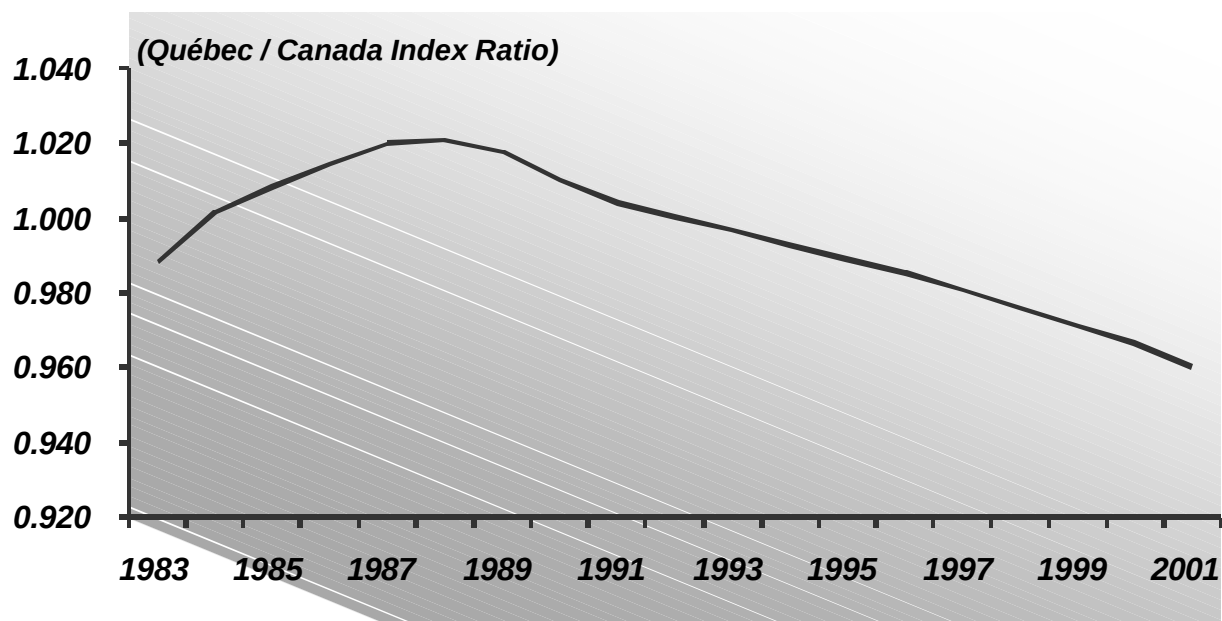
Moreover, other Statistics Canada data on housing stock by province and by type of tenure show that the gaps observed in 1996 between Québec and the rest of Canada have widened since then. *Table 5* shows a slight increase in the number of tenants in Québec between 1996 and 2000, while the opposite took place in Canada. *Graph 1* shows the comparative evolution of price indexes for rental units in Québec and Canada from 1983 to 2001: after a pronounced increase during the real estate boom in the second half of the 1980s, this ratio began to decrease in 1989 and continued to do so in 2001. In this respect, it should be mentioned that at present, the market value of a rental unit in an apartment house (6 or more apartments) in Québec is evaluated at \$47,500, while the gross replacement cost of the unit is evaluated at about \$65,000. This marked difference explains the very low turnover rate of rental housing stock in Québec in recent years. It also shows the flaws in an approach aimed at stating the market value of real estate based on its replacement cost.

Table 5: Evolution of the percentage of tenants, Québec vs. Canada, 1996 & 2000

<i>Year</i>	<i>Québec</i>	<i>Canada</i>	<i>% Gap</i>
1996	44.4%	37.3%	19.3%
2000	44.6%	37.1%	20.2%

Sources: Housing stock: Housing units according to type and tenure (annual data) – Statistics Canada, Table 030-0001, Series V227368 & V227370 (Canada) and Series V227503 & V227505 (Québec)

Graph 1: Evolution of the price index ratio for rental units in Québec/Canada – 1983-2001



Source: Consumer price index, Table 326-0001, Series V735398 (Canada monthly, 1949-2001) and V736187 (Québec monthly, 1978-2001)

4.2 THE VALUE OF HOUSING STOCK AND THE RESALE MARKET

The *Canadian Real Estate Association (CREA)* groups together the different real estate boards throughout the country, managing one of the biggest databases on residential property transactions in Canada. This information is relatively homogeneous, covering more than 80% of the resale market in the country, and it provides both the actual transaction data (asked price, selling price, credit terms) and a description of the properties. This source of information is commonly used by evaluation professionals to establish the market value of homes, and to a lesser extent, rental housing and certain non-residential buildings for which there is a sufficient market volume.

Tables 6 and 7 show the number and average value of housing transactions for the period between 1980 and 2000 (also illustrated in *Graph 2*) on the resale market in Canada and for certain provinces. Strictly speaking, these data do not allow the evolution of housing prices to be measured by taking into account the differences in quality which are likely to exist in time and place – which is possible using a hedonic approach – yet they provide a very representative general picture of trends due to the size of the samples used.

With respect to the *volume of housing transactions*, Québec's share – which remained at 10% to 12% throughout most of the period – increased over recent years to 16.1% of the Canadian total in 2000. After a significant fall at the beginning of the 1990s, Ontario's share has risen to historic levels, reaching 44.1% in 2000. However, the weight of British Columbia on the national resale market – whose peak was reached in 1992 – has since decreased and was situated at 16.2% in 2000.

**Table 6: Evolution of the number of housing transactions on the resale market,
Canada and provinces, 1980 – 2000**

Year	Canada	Québec	Ontario	British Columbia	Québec/ Canada	Ontario/ Canada	BC/ Canada
1980	153,330	19,422	64,208	28,869	12.7%	41.9%	18.8%
1981	149,833	17,097	72,386	19,153	11.4%	48.3%	12.8%
1982	142,670	15,449	68,297	25,040	10.8%	47.9%	17.6%
1983	166,481	9,612	84,768	32,131	5.8%	50.9%	19.3%
1984	180,764	19,959	86,403	30,955	11.0%	47.8%	17.1%
1985	239,317	26,237	111,875	43,523	11.0%	46.7%	18.2%
1986	251,961	29,203	121,430	46,145	11.6%	48.2%	18.3%
1987	259,837	29,909	114,224	56,376	11.5%	44.0%	21.7%
1988	291,725	30,503	132,823	67,460	10.5%	45.5%	23.1%
1989	300,814	30,618	120,902	83,652	10.2%	40.2%	27.8%
1990	235,124	28,067	87,888	58,027	11.9%	37.4%	24.7%
1991	279,753	28,005	104,948	84,554	10.0%	37.5%	30.2%
1992	310,741	31,946	114,405	93,564	10.3%	36.8%	30.1%
1993	288,149	31,875	106,803	80,919	11.1%	37.1%	28.1%
1994	288,112	33,539	115,185	75,270	11.6%	40.0%	26.1%
1995	251,986	29,776	104,993	58,082	11.8%	41.7%	23.0%
1996	321,845	39,135	137,921	72,182	12.2%	42.9%	22.4%
1997	330,265	43,463	140,608	68,182	13.2%	42.6%	20.6%
1998	314,553	45,192	138,463	52,910	14.4%	44.0%	16.8%
1999	335,734	49,792	148,659	58,084	14.8%	44.3%	17.3%
2000	333,698	53,755	147,037	54,179	16.1%	44.1%	16.2%

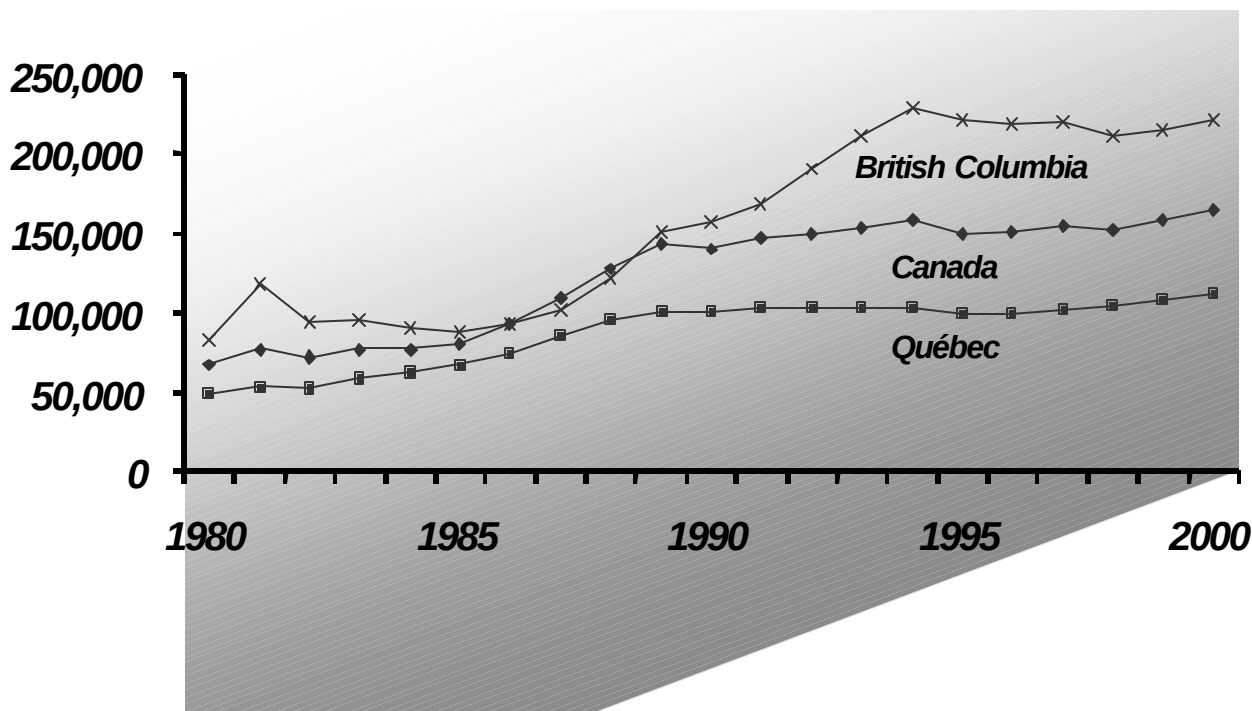
Source: The Canadian Real Estate Association.

Table 7: Evolution of the average value of housing transactions on the resale market, Canada and provinces, 1980 – 2000

Year	Canada	Québec	Ontario	British Columbia	Québec/ Canada	Ontario/ Québec	BC/ Québec
1980	\$66,977	\$48,715	\$62,808	\$83,172	72.7%	93.8%	124.2%
1981	\$76,164	\$53,587	\$69,841	\$117,575	70.4%	91.7%	154.4%
1982	\$72,243	\$52,132	\$69,594	\$93,951	72.2%	96.3%	130.0%
1983	\$76,518	\$58,357	\$74,897	\$95,620	76.3%	97.9%	125.0%
1984	\$76,195	\$61,438	\$78,049	\$90,923	80.6%	102.4%	119.3%
1985	\$80,139	\$67,258	\$85,807	\$87,962	83.9%	107.1%	109.8%
1986	\$93,105	\$74,506	\$106,896	\$92,852	80.0%	114.8%	99.7%
1987	\$108,326	\$86,003	\$133,037	\$101,916	79.4%	122.8%	94.1%
1988	\$127,050	\$95,367	\$157,758	\$121,040	75.1%	124.2%	95.3%
1989	\$143,846	\$100,517	\$179,040	\$151,400	69.9%	124.5%	105.3%
1990	\$139,870	\$100,811	\$171,979	\$157,616	72.1%	123.0%	112.7%
1991	\$146,959	\$102,795	\$171,232	\$168,235	69.9%	116.5%	114.5%
1992	\$149,572	\$102,311	\$161,493	\$189,999	68.4%	108.0%	127.0%
1993	\$152,888	\$102,447	\$156,555	\$211,992	67.0%	102.4%	138.7%
1994	\$158,299	\$102,181	\$160,158	\$229,514	64.5%	101.2%	145.0%
1995	\$150,328	\$98,685	\$154,606	\$221,860	65.6%	102.8%	147.6%
1996	\$150,822	\$98,435	\$155,662	\$218,687	65.3%	103.2%	145.0%
1997	\$154,616	\$101,715	\$164,382	\$220,512	65.8%	106.3%	142.6%
1998	\$152,366	\$103,947	\$167,115	\$212,046	68.2%	109.7%	139.2%
1999	\$158,030	\$107,501	\$174,049	\$215,283	68.0%	110.1%	136.2%
2000	\$164,091	\$111,260	\$183,869	\$221,371	67.8%	112.1%	134.9%
Index							
1980-2000	245.0	228.4	292.7	266.2			

Source: The Canadian Real Estate Association.

Graph 2: Evolution of the average value of housing transactions on the resale market, Canada and provinces, 1980 – 2000



Sources

Generally speaking, the Canadian trend over the past twenty years suggests a strengthening of the resale market, with the annual number of transactions having more than doubled during that period.

However, the picture is different for the *value of housing transactions*. While the average value of property sold in Ontario and British Columbia has always been higher than the Canadian average, except during a few rare years – with a 35% gap in 2000 in the latter case – the average value of Québec homes has never exceeded 84 % of the national average over the past two decades and *since 1991 has been below the 70% threshold*. As the 1980-2000 index shows, the increase in the price of homes during this period was significantly lower in Québec (228.4) compared to Ontario (292.7), or British Columbia (266.2). Based on information provided by the CREA, the overall value of housing sales which passed through Canadian Real Estate Boards reached \$54.8 billion in 2000, with Québec, Ontario, and British Columbia accounting for \$6.27 billion, \$27,1 billion and \$12 billion respectively. The relative share of

these three provinces in the national total is therefore 10.9 % for Québec, 49.4 % for Ontario, and 21.9 % for British Columbia.

The resale of existing homes does not include all housing assets which are put on the market every year, and not all resale activities pass through CREA agents, yet the real estate bank of the CREA constitutes a representative sample of the Canadian real estate situation and should therefore reflect the share of housing assets per province. ***If this is the case, the statistics presented here also cast serious doubt on the evaluations of net capital housing stock derived from the application of the Statistics Canada PIM method.***

5. FLAWS IN THE PERPETUAL INVENTORY METHOD (PIM) IN THE LIGHT OF COMMENTS MADE BY THE OECD

In the following chapter, we shall make a critical analysis of the *PIM* method used by Statistics Canada in the light of comments made by the OECD. First, it should be mentioned that this method – recognized by the OECD and adopted by many countries – has the main advantage of *ensuring coherence between the different components used in establishing national accounts*. Although it is a major advantage, the range of assets which are part of the production process is especially wide, and a special measure of the net fixed capital stock does not necessarily guarantee the quality of evaluations that ensue.

More precisely, certain categories of assets, which are regularly subject to market transactions, lend themselves more easily than others to a direct measure of their market value, in accordance with equation (1) that establishes the guiding principle of the evaluation system for net capital stock. *This is precisely the case with real estate assets – particularly residential – for which several sources of detailed and reliable information exist that can be used to this end.* It is thus in keeping with the objectives of the present mandate – that is, the choice of a reliable and fair approach regarding the redistribution of equalization payments between the provinces – that we have the following comments to make.

5.1 THE MULTIPLICITY OF ADJUSTMENT PARAMETERS

The first comment concerns the large number of adjustment parameters required by the method. To this effect, in the reference document of the OECD (section 8.1, p. 71) it is stated that:

*“The perpetual inventory method (PIM) is a cheap and convenient method, but it requires many assumptions, and the estimates obtained **are probably less reliable than most other official statistics.**”*

As we shall see, this issue goes far beyond the issue of the choice of price indexes.

5.1.1 *The comparison base and the absence of inter-census validation references*

The current Statistics Canada method uses the 1941 federal census as a basis of reference. However, the application of the perpetual inventory method becomes problematic when the point of origin is too remote, despite the fact that, as the point of origin becomes more remote, its nominal value becomes negligible. Indeed, the “geometric” accumulation of errors – though limited to the error margin of associated with estimators and with hypotheses that should have been adopted – becomes problematic over a long period, because the probability of errors increases with the distance of the estimate from its point of origin.

Let us recall that the initial market value of homes is essentially based on an estimate made by their owners, *and not on an objective evaluation of current transaction values* (p.10). Furthermore, the value of the rental housing stock is estimated by multiplying the monthly rent of units by 100 (p.11), *which corresponds to a gross income multiplier of 8.33, equal to a discount rate of 12%*. The discount rates used to establish the market value of buildings vary greatly from one sub-market to another and from one type of property to another. They depend on present economic conditions (interest rates and inflation), the structure of rental markets, the relative scarcity of housing (balance in supply-demand and vacancy rate), and micro-spatial factors that characterize the surrounding environment of buildings (quality of surroundings, clientele profiles, crime rates, nature of urban circumstances, etc.). These parameters vary greatly in place and time. The use of only one gross income multiplier for the whole country is therefore inadequate, since the same market value per dollar of gross income

is attributed to all buildings, be they in Toronto, Vancouver, or Montreal. Note that the historical gross income multiplier which prevails in Québec is situated at about 5, and that it is only on rare occasions – for example, during the building boom of the second half of the 1980s – that multiples of 7 or 8 were recorded⁵.

Finally, the number of inaccuracies which ensue from the choice of a remote comparison base could be reduced by the use of *inter-census validation references* in the method, allowing adjustments to be made periodically, which is common with demographic forecasting models and housing demand models (CMHC).

5.1.2 *The subjective character of building permits as an investment index*

As emphasized by Statistics Canada, the monthly *Building and Demolition Permits Survey* of Statistics Canada, which is crucial for estimating capital housing stock, reflects only the *intentions of builders* for the current month and not the actual investment in housing construction. This forces the organization to make a certain number of adjustments, each of which constitutes a potential source of error.

5.1.3 *The calculation of the cost of construction start*

The cost of a construction start based on information on building permits is determined using a five-month moving average procedure. No further information is revealed justifying the length of the averaging period.

5.1.4 *The blow-up factor*

The “blow-up factor” takes account of hidden costs that affect construction projects. The coefficient varies between 4% and 24% of the value of projects, but no details are provided about the calculation of these rates; there is no information about whether the blow-up factors are set in time and whether they are applied evenly to all provinces.

⁵ A verification by the evaluation services of Montréal and Québec City established that, at present, with an active rental demand and with additions to the existing rental stock being rare, the gross income multipliers in use – which are based on transactions – are situated at about 5.5 for the best buildings (i.e. of recent construction with heating paid by tenants) and between 4.5 and 4.8 for the others.

5.1.5 *The project completion rate*

The “monthly completion rate” spreads the amount of the declared value of permits over the five-month period resulting in construction starts during the current month. This completion rate varies according to province and type of housing to reflect the diversity of projects and economic contexts - in accordance with methods the details of which are nonetheless not provided. Nevertheless, it is fixed in time, *which does not allow changes in structure and economic conditions affecting the industry to be taken into account*. Furthermore, as indicated by Statistics Canada, these rates have not been updated in recent years, which may *cause imbalances in the spatial distribution of housing investments*.

5.1.6 *The construction start ratio*

The **construction start ratio (CSR)**, which allows the level of investment (i.e. the proportion of total monthly production of finished units attributable to the same month) for each month of activity to be estimated, is based on the establishment of a *monthly completion rate* of projects, which varies according to the region and the type of housing. This rate, considered to be an essential part of the level of housing investment, *has not been revised since 1973*.

5.1.7 *The value of alterations and the blow-up factor*

The estimation of investments in alterations, cottages, and mobile homes is based entirely on the value of the permits issued, which is revised upwards by a “*blow-up factor*” to compensate for inadequate coverage in the *Building and Demolition Permits Survey*. No information is provided regarding the calculation for this parameter or its exact nature.

5.1.8 *The value of renovations and the measurement of the “underground economy”*

In order to take account of the underground activity which prevails in this sector , the value of renovations is estimated using a projector that combines the growth of the number of building permits and wholesale lumber sales. The way in which these indexes are combined to produce a final estimate is not explained.

5.1.9 *Estimating demolitions*

The value of demolitions is estimated based on information gathered from municipalities and from the *Building and Demolition Permits Survey*. For each demolished unit, 40% of the average starting cost for new units is attributed in the case of homes, and 80% is attributed in the case of multiple-housing units. There is no information for validating the choice of these rates or the underlying logic involved; it is also unclear if these rates are constant and applied evenly throughout Canada.

5.1.10 *The depreciation factor*

The measurement of fixed capital consumption is a central and particularly complex element in the PIM, as seen in Chapters 6 (sections 6.19 to 6.69) and 7 in the reference document of the OECD. The estimation of the useful life of various assets and the depreciation factors which ensue constitute an important methodological problem in the establishment of net capital stock:

*“The accuracy of capital stock estimates derived from a PIM is **crucially dependent on services lives** – i.e. on the length of time that assets are retained in the capital stock, whether in the stock of the original purchaser or in the stocks of producers who purchase them as a second-hand asset.”* (section 6.19, p. 43)

This problem is magnified by limited knowledge about changes in the useful life of assets, which have been the object of few empirical studies (section 6.35, p. 46). For this reason, constant depreciation profiles can generally be used - a highly controversial practice.

In its application of the *PIM* method for the estimation of Canadian capital housing stock, Statistics Canada uses a *geometric depreciation rate of 2%*. This rate is based on a 1956 study by Grebler, Blank, and Winnick – i.e. a study now almost half a century old –which surveyed 1,500 single-family houses that were 20 years old on average. *The rate is applied evenly to all categories of housing across Canada and remains constant in time.* The depreciation rate of buildings varies according to the category of building, the average age of the stock, and the construction quality. For example, our analyses of the last fifteen years on the single-family housing market in the Québec City region using a hedonic approach clearly show that, once all the other factors (size, quality, physical and fiscal attributes, vicinity, and location) have been verified, the annual depreciation rate of property *generally decreases with age*; however, the value of “high-quality” properties depreciates more slowly than others.⁶

In this perspective, the OECD suggests an approach based on the empirical resale analysis:

“A third approach is to use evidence drawn from empirical studies of second-hand asset prices to determine the declining balance rate appropriate to each asset. This has been done in the United States where the Bureau of Economic Analysis (BEA) uses R values that range from 0.8892 for most office and commercial buildings to 2.2664 for federal government vehicles. An R value of 1.6500 is used for most types of industrial machinery and equipment and a value of 0.9100 is used for housing structures.” (section 7.23, p. 68)

5.1.11 *The perpetual inventory method and price indexes*

The quality of estimates obtained using the *PIM* method depends mainly on the reliability of price indexes used to restore values in constant dollars, and then in current dollars. In this respect, the comments made by the OECD are edifying:

⁶ Thus, a sample of 2,400 two-story dwellings sold in the Québec City region between 1993 and 1997, whose average age was 15 years and whose average price was \$123,000, generates an annual depreciation rate of 0.8%. This rate reaches 1.3% per year when all types of single dwellings whose average age is 19 years and whose average price is \$112,000 (N=760) are considered. Finally, the annual depreciation based on a sample of 3,638 bungalows sold between 1990 and 1991, whose average age was 12 years and whose average price was \$87,694 was measured at 2.6%.

*“The problems of separating value changes into price and volume components are generally agreed to be more difficult for capital goods and services because many capital goods are unique. This is the case, for example, with most buildings, construction work, special purpose industrial plants, aircraft and ships. **The errors that may be introduced into capital stock estimates through incorrect price deflators may be as large as errors caused by the use of incorrect service lives and mortality functions.**”* (section 6.17, p. 42)

In conclusion it is important to note that the estimates derived from the Statistics Canada *PIM* method include many parameters that are in themselves only estimates and to which adjustments based on yet other estimates are applied. Furthermore, the present method remains unclear regarding the definition of certain parameters and their calculation methods. In this respect, the Ministère des Finances du Québec has found a series of additional information required to evaluate the pertinence of the Statistics Canada methodology. This information is presented in *appendix 2*.

5.2 ALTERNATIVE APPROACHES

The above mentioned inherent deficiencies in the application of the PIM method were also underlined in these terms by the OECD, which recognizes that there are more reliable ways to estimate capital stock:

*“The perpetual inventory method (PIM) is a cheap and convenient method, but it requires many assumptions and **the estimates obtained are probably less reliable than most other official statistics.** »* (section 8.1, p. 71)

In particular, the pertinence of conducting a physical inspection of all property considered to be earning assets is mentioned:

*“One way to proceed would be to make an inventory of all the objects considered to be capital assets **through physical inspection by teams of enumerators.**”* (section 8.2, p. 71)

Administrative records can also be particularly useful, or at least a complement to the PIM method, in making direct estimates of capital housing stock,:

*“In most countries, administrative records are maintained on the stocks of certain types of assets. **This may be done because ownership or use of the asset in question is taxed; examples are motor vehicles and residential buildings.**”* (section 8.28)

*“In some cases, administrative records may be available only for selected years. For example, detailed information on the housing stock may be available only for population census years. In these cases, the stock of assets in the inter-censal periods can be obtained by the PIM or by using records on new construction and demolitions. **Using a combination of benchmark estimates and PIM estimates provides an opportunity to test the critical parameters of the PIM, notably service lives and mortality functions.**”* (section 8.30)

*“Administrative records are potentially an excellent source for estimates of the stocks of dwellings and commercial buildings. Both France and Denmark make extensive use of administrative records for these assets. **Given the fact that buildings typically account for the largest part of the capital stock, the uncertainty surrounding capital stock estimates can be substantially reduced if the estimates for buildings are based on reliable administrative records.**”* (section 8.31)

*“Administrative records are used in several countries to estimate stocks of certain types of assets, notably road vehicles, dwellings, aircraft, and nuclear fuel rods. The stocks of publicly owned assets, including roads, public buildings, and other structures, may also be calculated from government records. **Such estimates are usually to be preferred to estimates based on the PIM.**”* (section 8.37)

These comments lead us to propose two alternative approaches: the first – elaborated by the MFQ – is based on Statistics Canada information (the CANSIM series and the 1996 census), while the second is based on data from assessment rolls which are used at local and regional levels for property taxation.

6. TWO ALTERNATIVES TO THE PERPETUAL INVENTORY METHOD

It should be remembered that the main objective of the *PIM* is to estimate the market value of the net capital stock in the economy. The method begins by assessing the upstream production process up until a reference date that will serve as a point of departure. Aside from baseline costs, a yearly estimate is then made of the gross capital formation, from which the

accumulated demolitions and depreciations are then deducted. This is an *indirect* procedure that is both imprecise and fragile due to its complexity and the great number of parameters and adjustment factors which it requires.

This method may be adequate for estimating capital asset stocks that do not have a secondary market. However, it is certainly not adequate for estimating real estate assets, in particular residential ones, for which vast quantities of reliable and recurrent data on the prices and transaction conditions are needed. It is thus desirable to substitute the PIM with a *direct approach that estimates the market value of net capital housing stock directly*. This prevents the risk of adjustment errors and circumvents the problem of measuring depreciation, because market prices already integrate this factor, whether through physical depreciation, functional depreciation, or economic obsolescence. We are here dealing with a common problem in real estate evaluation where recourse to a "direct proof" (in this case, the *technique of comparables* that relies on studying sales prices) is systematically preferred to indirect methods, in particular to a "*costs of depreciated replacement*" approach which is the "poor cousin" in the estimator's arsenal and which is very similar to the *PIM*⁷.

The two approaches that we are here proposing show, in varying degrees, the advantages of a more direct estimate of net capital housing stock as opposed to the estimate produced through the *PIM*.

6.1 ESTIMATES BASED ON THE VALUE OF HOUSING UNITS

The MFQ (*Ministère des finances du Québec*) approach is simple, transparent, needs only minimal adjustment, and resorts to official Statistics Canada data (CANSIM series and 1996 census data). It consists of, at first, multiplying the number of owner-occupied or rented

⁷ The *approach per income*, in order to be an "indirect" proof of the value, relies just as much on very solid conceptual bases, being the discounting of revenue flows (or cash reserves), and that it is systematically used to estimate the market value of residential assets that generate revenue (e.g. office buildings, shopping centres, hotels). Moreover, the approach per cost of depreciated replacement remains useful for assets for which there is no market (e.g. special single-purpose industrial buildings, institutional buildings for the education and health sector, farm buildings).

housing units by their average value. This figure is then adjusted by the "*building value/total value*" ratio that can vary from one province to the other. This last operation consists of multiplying the total by the *deflator of the residential gross capital formation* (1997=100), respectively for each province. The portion of the net capital housing stock attributable to each province for a given year is obtained by dividing the estimate of the stock for each province by the national total.

The method is based on the premise that the value of unoccupied units is equal to the average value of their category. As for the "*building value/total value*" ratio, it is ideally based on an empirical analysis of housing sales and vacant property transactions by region. In the simulation presented in *table 8* (estimates expressed in current dollars) and *table 9* (constant dollars), building value is estimated to constitute 80% and 75% of the total value of housing units in Québec and Canada respectively. As we can see, the comparison of the two methods (PIM vs. MFQ) generate similar results, whether estimates are expressed in current or constant dollars: the portion of net capital housing stock attributed to Québec lies somewhere between 19% and 20% (19.1% in 2000) according to the MFQ method, and between 24% and 25.5% (23.9% in 2000) using the Statistics Canada approach. Calculated on the basis of constant dollars, the average difference between the two methods on the entire period under consideration (1990-2000) is 5.3% (4.8% in 2000). This difference would, of course, be larger if "*building value/total value*" ratio attributed to Québec was reduced.

Table 8: Net capital housing stock
Relative portion of Québec, 1990 - 2000,
MFQ vs. Statistics Canada

		Québec	Canada
Building value/Total value ratio:		<i>0,80</i>	<i>0,75</i>
Year	MFQ	Stat-Can	Difference
1990	19,0%	24,9%	-5,9%
1991	19,4%	25,2%	-5,8%
1992	19,4%	25,0%	-5,7%
1993	19,2%	24,9%	-5,7%
1994	19,3%	24,9%	-5,7%
1995	19,3%	25,0%	-5,7%
1996	19,6%	24,9%	-5,3%
1997	19,4%	24,5%	-5,1%
1998	19,2%	24,3%	-5,0%
1999	19,2%	24,1%	-4,9%
2000	19,1%	23,9%	-4,8%
Average:	19,3%	24,7%	-5,4%

MFQ estimate:

$$\frac{((\#UP_q \times VMUP_q + \#UL_q \times VMUL_q) \times PB/T_q \times DÉFL_q)}{((\#UP_c \times VMUP_c + \#UL_c \times VMUL_c) \times PB/T_c \times DÉFL_c)}$$

Où:

#UP _q = Number of housing units owned in Québec	v227504	Source
VMUP _q = Average value of an owned unit in Québec	Census 96	
#UL _q = Number of housing units rented in Québec	v227505	
VMUL _q = Average value of a rented unit in Québec	Census 96	
PB/T _q = Share of building / Total in Québec	Estimation	
DÉFL _q = Deflator of gross fixed residential capital formation in Québec	v3822140 / v3822200	
#UP _c = Number of housing units owned in Canada	v227369	
VMUP _c = Average value of an owned unit in Canada	Census 96	
#UL _c = Number of housing units rented in Canada	v227370	
VMUL _c = Average value of a rented unit in Canada	Census 96	
PB/T _c = Share of building / Total in Canada	Estimation	
DÉFL _c = Deflator of gross fixed residential capital formation in Canada	v3822120 / v3822180	

Table 9: Net capital housing stock - constant dollars
Relative portion of Québec, 1990 - 2000
MFQ vs. Statistics Canada

		Québec	Canada
Building value/Total value portion:		0,80	0,75
Year	MFQ	Stat-Can	Difference
1990	19,9%	25,6%	-5,8%
1991	19,9%	25,5%	-5,7%
1992	19,8%	25,4%	-5,6%
1993	19,7%	25,2%	-5,5%
1994	19,7%	25,2%	-5,5%
1995	19,6%	25,0%	-5,4%
1996	19,5%	24,9%	-5,4%
1997	19,4%	24,6%	-5,2%
1998	19,4%	24,4%	-5,0%
1999	19,3%	24,2%	-4,9%
2000	19,2%	23,9%	-4,8%
Average:	19,6%	24,9%	-5,3%

MFQ estimate:

$$\frac{((\#UP_q \times VMUP_q + \#UL_q \times VMUL_q) \times PB/T_q)}{((\#UP_c \times VMUP_c + \#UL_c \times VMUL_c) \times PB/T_c)}$$

Où:

#UP _q = Number of housing units owned in Québec	v227504
VMUP _q = Average value of owned unit in Québec	Census 96
#UL _q = Number of housing units rented in Québec	v227505
VMUL _q = Average value of rented unit in Québec	Census 96
PB/T _q = Share of building / Total in Québec	Estimation
#UP _c = Number of housing units owned in Canada	v227369
VMUP _c = Average value of an owned unit in Canada	Census 96
#UL _c = Number of housing units rented in Canada	v227370
VMUL _c = Average value of an rented unit in Canada	Census 96
PB/T _c = Share of building / Total in Canada	Estimation

Source

6.2 ESTIMATES ON THE BASIS OF VALUES USED IN ASSESSMENT ROLLS

Property tax constitutes, in Canada as in the United-States, the main source of revenue for municipalities and regional organizations. In Québec, about 70% of autonomous revenues of the municipalities comes directly from property taxes, and this percentage can reach and even surpass 85% in some cases. For this reason, issuing and updating quality assessment rolls is a priority on the local level and has been accorded, for many years now, significant resources by many provincial Canadian governments.

This holds particularly for Québec, where the property tax system in place since the early 1970s has enabled – for better or worse – a standardization of practices and, above all, the establishment of real estate data banks that are detailed and reliable. Since 1991, assessment rolls in Québec are updated on a triennial basis. Even though the issuing of assessment rolls is not synchronized, the assessment roll summary, produced annually by the *Ministère des Affaires municipales et de la Métropole*, provided all of Québec with standardized values that allow for development to ensue. We are reminded that the values attributed to the roll of a municipality that takes effect on January 1 of a given year (t) reflect the market conditions that prevailed 18 months prior, i.e. on July 1 of year $t-2$. Thus, the 2001 roll is based on property market values of July 1, 1999.

Administrative information contained in assessment rolls of Québec municipalities are particularly helpful for estimating, on an annual basis, the net capital housing stock for Québec. ***The information presents, in effect, all the characteristics required by the OECD manual:***

- It is based on an individual and periodical inspection of all buildings registered in the assessment roll, each assessment unit being the object of an inspection at least every nine years;
- It is established – at least the information regarding residential buildings – on the basis of sale samples representative for each of the analyzed sub-markets;
- It is subject, prior to submission of each roll, to a rigorous validation procedure by the *Ministère des Affaires municipales et de la Métropole* that inspects the quality of the presented value estimates;

- It also sheds light on a great number of building and housing categories, the market dynamics of which can differ substantially in terms of space and time;
- It allows for a coherent and regular procedure for estimating, even annually, the value of the housing stock;
- It also allows, for fiscal purposes, for the "land" and "building" components to be isolated from the total value;
- The fact that the assessment roll data is effectively and systematically used for the financing of local bodies (municipalities), supra-local bodies (school commissions), and regional municipalities, is a guarantee of their quality and of the continuity of the assessment procedure.

The procedure of assessing values placed on the roll also has the advantage of being much more transparent than the perpetual inventory method and its adaptation by Statistics Canada. It provides for direct identification of the stocks' net value, thus avoiding, among other things, the tricky problem of estimating depreciation that is implicitly included in sales prices. The *tables 10* and *11* present below, for the housing building category only, the assessment roll summaries for 2000 and 2001. Full data of the summary are presented in *appendix 3*.

Table 10: Net capital housing stock in Québec - values of the 2000 assessment roll

Category of utilisation	Imposable and non-imposable values				Building/Total %
	No. of units #	Property value 000 \$	Building value 000 \$	Total value 000 \$	
RESIDENTIAL TOTAL	2 131 962	53 881 042	159 626 353	213 507 395	74,76%
10- Housing units	1 850 405	49 564 180	149 203 435	198 767 614	75,06%
1 housing unit (condo)	136 833	1 739 270	10 282 283	12 021 553	85,53%
1 housing unit (except condo)	1 371 906	33 424 045	95 512 273	128 936 318	74,08%
2 housing units	177 638	5 331 899	14 167 127	19 499 026	72,66%
3 housing units	73 472	2 619 877	7 690 540	10 310 417	74,59%
4 housing units	31 660	1 157 383	3 766 815	4 924 198	76,50%
5 housing units	11 053	509 984	1 523 401	2 033 384	74,92%
6 to 9 housing units	29 649	1 362 196	4 919 948	6 282 144	78,32%
10 to 19 housing units	11 113	961 361	3 222 770	4 184 131	77,02%
20 to 29 housing units	3 104	462 677	1 573 172	2 035 849	77,27%
30 to 49 housing units	2 366	577 250	1 874 327	2 451 577	76,45%
50 to 99 housing units	1 016	533 178	1 707 020	2 240 198	76,20%
100 to 199 housing units	457	510 898	1 677 692	2 188 590	76,66%
200+ housing units	138	374 161	1 286 067	1 660 229	77,46%
11- Cottages, vacation homes	179 591	2 473 679	4 936 224	7 409 903	66,62%
12- Mobile homes, trailers	47 131	368 972	1 292 782	1 661 753	77,80%
15- Communal dwellings	5 325	758 363	3 525 247	4 283 610	82,30%
16- Residential hotels	46	18 215	63 748	81 962	77,78%
7- Trailer and mobil home parks	6 379	56 078	201 215	257 293	78,20%
& 19- Other residential buildings	43 085	641 556	403 704	1 045 260	38,62%

Source: Summary of property assessment roll 2000 - Ministère des Affaires municipales et de la Métropole, July 25, 2001.

Table 11: Net capital housing stock in Québec - values of the 2001 assessment roll

Category of utilisation	Imposable and non-imposable values				Building/Total %
	No. of units #	Property value 000 \$	Building value 000 \$	Total value 000 \$	
RESIDENTIAL TOTAL	2 154 856	54 025 015	164 605 969	218 630 983	75,29%
10- Housing units	1 873 833	49 655 641	153 878 619	203 534 261	75,60%
1 housing unit (condo)	142 123	1 838 168	10 927 686	12 765 854	85,60%
1 housing unit (except condo)	1 390 328	34 032 768	99 409 749	133 442 517	74,50%
2 housing units	176 619	5 261 162	14 313 504	19 574 666	73,12%
3 housing units	73 091	2 593 053	7 806 948	10 400 001	75,07%
4 housing units	32 269	1 157 874	3 869 971	5 027 845	76,97%
5 housing units	11 216	513 714	1 537 175	2 050 888	74,95%
6 à 9 housing units	30 186	1 339 561	4 870 953	6 210 514	78,43%
10 à 19 housing units	10 333	829 884	2 939 035	3 768 919	77,98%
20 à 29 housing units	3 109	413 068	1 480 848	1 893 916	78,19%
30 à 49 housing units	2 342	492 759	1 808 608	2 301 367	78,59%
50 à 99 housing units	1 030	448 273	1 718 691	2 166 964	79,31%
100 à 199 housing units	461	427 354	1 770 584	2 197 938	80,56%
200 + housing units	151	302 733	1 388 319	1 691 053	82,10%
11- Cottages, vacation homes	177 852	2 555 170	4 971 678	7 526 848	66,05%
12- Mobile homes, trailers	48 178	382 332	1 330 206	1 712 538	77,67%
15- Communal dwellings	5 436	714 735	3 690 965	4 405 699	83,78%
16- Résidential hotels	41	17 200	91 656	108 856	84,20%
17- Trailer and mobil home parts	5 785	52 071	186 894	238 965	78,21%
18 & 19- Other résidentiel buildings	43 731	647 866	455 952	1 103 818	41,31%

Source: Summary of property assessment roll 2001 - Ministère des Affaires municipales et de la Métropole, July 25, 2001.

Three major observations arise from these compilations:

1. For the entirety of the housing category, *the relative building portion in the total value of housing units is in the order of 75%*, a figure noticeably below the one used in the prior simulations. However, distinct differences exist in this regard between the types of property: for condominiums this figure is above 85%, while for cottages and vacation homes it is only 67%.

Moreover, the value of housing stock ("building" component) for the 2001 roll amounts here to **\$164.6 billion**. When comparing this figure with a *PIM* estimate, we must remember that the latter produces the net capital housing stock at the end of the period, while the estimate taken from the roll reflects the units' market value from July 1, 1999. An average of the 1998 and 1999 *PIM* estimates should thus be taken, a value that amounts to **\$206.8 billion**⁸. In other words, recourse to data from the assessment roll generates an estimate of net capital housing stock that is **20.4% lower than that of Statistics Canada**.

3. Comparing the 2000 and 2001 rolls, finally, provides for a measurement of growth of housing stock growth within this period (new constructions, renovations, repairs, and adjustments to rolls). According to this calculation, between July 1998 and July 1999, ***net capital housing stock in Québec ("building" component) experienced a total growth of 3.1%. However, this rate reaches 4.1% and 6.3% respectively for single-family housing (1 unit) and condominium units, while stock values of rented housing units in multi-unit buildings (6+ units) experienced a decrease of 1.8%.***

In conclusion it is worth confronting Québec estimates obtained using with the *PIM* with the 1996 Census and with the 2001 assessment roll summary. These estimates are presented in *table 12*, where values including property values are also indicated.

⁸ The calculation is $(\$202.8 \text{ million} + \$210.7 \text{ million}) / 2 = \206.8 million

Table 12: Net capital housing stock in Québec according to three different methods

Method	Period	Without property	With property
PIM	July 1998	\$206.8 million	-
1996 Census	July 1996	\$169.8 million (Building/Total) = 75%)	\$226.4 M million
Roll summary	July 1998	\$164.6 million	\$218.6 million

Despite differences between the estimated periods under consideration that were summarized to the month of July to simplify the comparisons, it can be observed that estimates of net capital housing stock obtained with the assessment roll and 1996 Census data are relatively similar to each other and noticeably lower than estimates obtained from Statistics Canada *PIM* calculations.

7. CONCLUSION

The main conclusion that can be drawn from this critical analysis of the application of the perpetual inventory method by Statistics Canada is that, even though this method is undoubtedly adequate for estimating net fixed capital stock relative to assets for which there is no secondary market, this is not the case for real estate assets. This applies in particular to housing real estate assets, which constitute a large portion of annual resale activity and for which data banks exist that give both extensive and reliable information on transaction prices and conditions. The complexity of the method and the numerous parameters and adjustment factors which it requires, all based on approximations of an often obsolete reality, constitute a source of errors. This source is possible to avoid by applying a more *direct method of estimating net capital housing stock using real estate asset values as reflected in their sales prices*.

For this reason, and to ensure an improved methodological transparency as well as a fairer redistribution of equalization amounts paid to the provinces, we have proposed two alternatives to the *PIM* method. The first alternative is based on the indicators of the number and value of housing units drawn from the CANSIM series and from the 1996 census, while the second alternative uses data from the municipal assessment rolls. *This second approach, which conforms fully with the OECD guidelines, is particularly promising and merits further examination.*

Undoubtedly, it will still take a long time before a new alternative can be applied uniformly throughout the entire country. Nevertheless, most Canadian provinces have launched "rejuvenation" campaigns for their property tax evaluation systems by integrating, in particular, current statistical analysis techniques and new information technologies (geographic information systems) that improve performance and efficiency. This applies particularly to Québec, Ontario, British Columbia, Alberta, and New Brunswick, opening the possibility of a return to annual assessment rolls over the next few years.

TECHNICAL APPENDIX

**APPENDIX 1: ESTIMATION OF NET CAPITAL HOUSING STOCK
AND CANADA / QUÉBEC SHARES,
1992 - 2000**

Québec

Year	Gross Fixed Capital Formation	Demolitions	Provisions for Capital Consumption Allowances	Net Fixed Capital Formation	End-Year Net Stock	Gross Fixed Capital Formation	Demolitions	Provisions for Capital Consumption Allowances	Net Fixed Capital Formation	End-Year Net Stock
<i>Millions of Current Dollars</i>						<i>Millions of Constant Dollars</i>				
1992	7325.1	261.4	3099.7	3964.0	157692.3	7325.1	261.4	3099.7	3964.0	155285.4
1993	7140.1	246.8	3273.4	3619.9	165783.5	6925.4	239.4	3175.0	3511.1	158796.5
1994	8262.6	243.6	3439.6	4579.4	173324.5	7817.0	230.5	3254.1	4332.5	163128.9
1995	6264.3	322.2	3534.0	2408.1	175729.3	5865.5	301.7	3309.0	2254.8	164771.9
1996	7225.7	430.4	3581.9	3213.4	179534.5	6784.7	404.1	3363.3	3017.3	167789.2
1997	7108.7	329.2	3678.6	3100.9	185010.4	6612.8	306.3	3421.9	2884.6	170673.8
1998	7051.5	345.0	3801.4	2905.1	191964.9	6451.5	315.6	3478.0	2657.9	173331.7
1999	7529.0	364.0	3964.9	3200.2	199352.1	6710.3	324.4	3533.7	2852.2	176183.9
2000	7665.9	369.0	4097.2	3199.7	205925.9	6718.5	323.4	3590.9	2804.3	178988.2

Housing sector - Implicit national index (before November 1, 2001)

Canada

Year	Gross Fixed Capital Formation	Demolitions	Provisions for Capital Consumption	Net Fixed Capital Formation	End-Year Net Stock	Gross Fixed Capital Formation	Demolitions	Provisions for Capital Consumption	Net Fixed Capital Formation	End-Year Net Stock
<i>Millions of Current Dollars</i>						<i>Millions of Constant Dollars</i>				
1992	33653.9	1065.2	13160.9	19427.8	670888.1	33653.9	1065.2	13160.9	19427.8	660648.1
1993	33057.8	1048.9	13953.1	18055.8	708000.0	32063.8	1017.4	13533.6	17512.9	678160.9
1994	35407.7	1176.0	14690.4	19541.3	740189.0	33498.3	1112.6	13898.2	18487.5	696648.4
1995	30304.2	1193.0	15127.6	13983.6	754152.9	28374.7	1117.0	14164.5	13093.2	707128.8
1996	32346.6	1271.2	15385.3	15690.1	772391.6	30372.4	1193.6	14446.3	14732.5	721861.3
1997	36512.0	1226.3	15885.1	19400.5	802060.6	33964.6	1140.7	14776.9	18047.0	739908.3
1998	36024.6	1223.3	16534.6	18266.7	837957.5	32959.4	1119.2	15127.8	16712.5	756620.8
1999	38824.8	1236.4	17370.1	20218.3	876671.2	34603.2	1102.0	15481.4	18019.9	774786.7
2000	40851.4	1250.8	18089.1	21511.4	913082.6	35803.1	1096.3	15853.8	18853.1	793639.8

Portions Québec/Canada

Year	Gross Fixed Capital Formation	Demolitions	Provisions for Capital Consumption Allowances	Net Fixed Capital Formation	End-Year Net Stock	Gross Fixed Capital Formation	Demolitions	Provisions for Capital Consumption Allowances	Net Fixed Capital Formation	End-Year Net Stock
<i>Millions of Current Dollars</i>						<i>Millions of Constant Dollars</i>				
1992	21.8	24.5	23.6	20.4	23.5	21.8	24.5	23.6	20.4	23.5
1993	21.6	23.5	23.5	20.0	23.4	21.6	23.5	23.5	20.0	23.4
1994	23.3	20.7	23.4	23.4	23.4	23.3	20.7	23.4	23.4	23.4
1995	20.7	27.0	23.4	17.2	23.3	20.7	27.0	23.4	17.2	23.3
1996	22.3	33.9	23.3	20.5	23.2	22.3	33.9	23.3	20.5	23.2
1997	19.5	26.8	23.2	16.0	23.1	19.5	26.8	23.2	16.0	23.1
1998	19.6	28.2	23.0	15.9	22.9	19.6	28.2	23.0	15.9	22.9
1999	19.4	29.4	22.8	15.8	22.7	19.4	29.4	22.8	15.8	22.7
2000	18.8	29.5	22.6	14.9	22.6	18.8	29.5	22.6	14.9	22.6

Source: Statistique Canada, Division de l'investissement et du stock de capital, 15 janvier 2002.

**Housing sector - Implicit provincial indexes
Québec**

Year	Gross Fixed Capital Formation	Demolitions	Capital Consumption Allowances	Net Fixed Capital Formation	End-Year Net Stock	Gross Fixed Capital Formation	Demolitions	Capital Consumption Allowances	Net Fixed Capital Formation	End-Year Net Stock
<i>Millions of Current Dollars</i>						<i>Millions of Constant Dollars</i>				
1992	7,325.1	261.4	3,283.7	3,780.0	166,579.2	8,031.0	286.6	3,600.1	4,144.3	180,134.1
1993	7,140.1	246.8	3,448.5	3,444.8	174,907.6	7,617.0	263.3	3,678.9	3,674.8	183,809.0
1994	8,262.6	243.6	3,632.9	4,386.1	183,617.5	8,555.6	252.2	3,761.7	4,541.6	188,350.6
1995	6,264.3	322.2	3,769.3	2,172.8	188,580.4	6,366.2	327.4	3,830.7	2,208.2	190,558.8
1996	7,225.7	430.4	3,865.3	2,930.0	193,027.6	7,260.2	432.4	3,883.8	2,944.0	193,502.8
1997	7,108.7	329.1	3,940.5	2,839.1	196,861.7	7,109.8	329.2	3,941.2	2,839.5	196,342.3
1998	7,051.5	345.0	4,018.8	2,687.8	202,771.0	7,013.3	343.1	3,997.0	2,673.2	199,015.5
1999	7,529.0	364.0	4,184.1	2,980.9	210,523.5	7,293.5	352.6	4,053.2	2,887.6	201,903.1
2000	7,665.9	369.0	4,329.1	2,967.7	217,683.4	7,279.3	350.4	4,110.9	2,818.1	204,721.2

**Housing sector - Implicit national indexes
Canada**

Year	Gross Fixed Capital Formation	Demolitions	Capital Consumption Allowances	Net Fixed Capital Formation	End-Year Net Stock	Gross Fixed Capital Formation	Demolitions	Capital Consumption Allowances	Net Fixed Capital Formation	End-Year Net Stock
<i>Millions of Current Dollars</i>						<i>Millions of Constant Dollars</i>				
1992	33,653.9	1,065.2	13,059.3	19,529.4	665,118.6	36,126.8	1,137.5	14,144.5	20,844.8	710,008.8
1993	33,057.8	1,048.9	13,821.9	18,187.0	702,350.4	34,371.3	1,080.6	14,543.9	18,746.8	728,755.6
1994	35,407.7	1,176.0	14,593.0	19,638.7	736,771.3	35,925.0	1,178.0	14,934.4	19,812.6	748,568.2
1995	30,304.2	1,193.0	15,142.2	13,969.0	755,408.2	30,377.7	1,193.2	15,275.1	13,909.3	762,477.6
1996	32,346.6	1,271.2	15,421.3	15,654.2	774,416.7	32,618.0	1,279.0	15,575.7	15,763.3	778,240.9
1997	36,512.0	1,226.2	15,930.9	19,354.8	802,849.4	36,509.9	1,226.2	15,929.9	19,353.8	797,594.7
1998	36,024.6	1,223.2	16,521.3	18,280.1	835,706.3	35,556.3	1,213.2	16,307.5	18,035.7	815,630.3
1999	38,824.8	1,236.4	17,289.8	20,298.7	873,319.6	37,440.6	1,203.4	16,687.1	19,550.2	835,182.7
2000	40,851.4	1,250.8	18,033.8	21,566.7	910,602.0	38,669.0	1,199.4	17,090.3	20,379.3	855,562.0

Portions Québec/Canada

Year	Gross Fixed Capital Formation	Demolitions	Capital Consumption Allowances	Net Fixed Capital Formation	End-Year Net Stock	Gross Fixed Capital Formation	Demolitions	Capital Consumption Allowances	Net Fixed Capital Formation	End-Year Net Stock
<i>Millions of Current Dollars</i>						<i>Millions of Constant Dollars</i>				
1992	21.8	24.5	25.1	19.4	25.0	22.2	25.2	25.5	19.9	25.4
1993	21.6	23.5	24.9	18.9	24.9	22.2	24.4	25.3	19.6	25.2
1994	23.3	20.7	24.9	22.3	24.9	23.8	21.4	25.2	22.9	25.2
1995	20.7	27.0	24.9	15.6	25.0	21.0	27.4	25.1	15.9	25.0
1996	22.3	33.9	25.1	18.7	24.9	22.3	33.8	24.9	18.7	24.9
1997	19.5	26.8	24.7	14.7	24.5	19.5	26.8	24.7	14.7	24.6
1998	19.6	28.2	24.3	14.7	24.3	19.7	28.3	24.5	14.8	24.4
1999	19.4	29.4	24.2	14.7	24.1	19.5	29.3	24.3	14.8	24.2
2000	18.8	29.5	24.0	13.8	23.9	18.8	29.2	24.1	13.8	23.9

Source: Statistique Canada, Division de l'investissement et du stock de capital, 14 janvier 2002.

Portions Québec/Canada

Implicit provincial indexes

Year	Gross Fixed	Demolitions	Capital	Net Fixed Capital	End-Year Net	Gross Fixed	Demolitions	Capital	Net Fixed Capital	End-Year Net	
of Current Dollars						Millions of Constant Dollars					
1992	21,8	24,5		25,1	19,4	25,0	22,2	25,2	25,5	19,9	25,4
1993	21,6	23,5		24,9	18,9	24,9	22,2	24,4	25,3	19,6	25,2
1994	23,3	20,7		24,9	22,3	24,9	23,8	21,4	25,2	22,9	25,2
1995	20,7	27,0		24,9	15,6	25,0	21,0	27,4	25,1	15,9	25,0
1996	22,3	33,9		25,1	18,7	24,9	22,3	33,8	24,9	18,7	24,9
1997	19,5	26,8		24,7	14,7	24,5	19,5	26,8	24,7	14,7	24,6
1998	19,6	28,2		24,3	14,7	24,3	19,7	28,3	24,5	14,8	24,4
1999	19,4	29,4		24,2	14,7	24,1	19,5	29,3	24,3	14,8	24,2
2000	18,8	29,5		24,0	13,8	23,9	18,8	29,2	24,1	13,8	23,9

Real indexes (before November 1, 2001)

Year	Gross Fixed	Demolitions	Capital	Net Fixed Capital	End-Year Net	Gross Fixed	Demolitions	Capital	Net Fixed Capital	End-Year Net	
Millions of Current Dollars						Millions of Constant Dollars					
1992	21,8	24,5		23,6	20,4	23,5	21,8	24,5	23,6	20,4	23,5
1993	21,6	23,5		23,5	20,0	23,4	21,6	23,5	23,5	20,0	23,4
1994	23,3	20,7		23,4	23,4	23,4	23,3	20,7	23,4	23,4	23,4
1995	20,7	27,0		23,4	17,2	23,3	20,7	27,0	23,4	17,2	23,3
1996	22,3	33,9		23,3	20,5	23,2	22,3	33,9	23,3	20,5	23,2
1997	19,5	26,8		23,2	16,0	23,1	19,5	26,8	23,2	16,0	23,1
1998	19,6	28,2		23,0	15,9	22,9	19,6	28,2	23,0	15,9	22,9
1999	19,4	29,4		22,8	15,8	22,7	19,4	29,4	22,8	15,8	22,7
2000	18,8	29,5		22,6	14,9	22,6	18,8	29,5	22,6	14,9	22,6

RIATIONS

Year	Gross Fixed	Demolitions	Capital	Net Fixed Capital	End-Year Net	Gross Fixed	Demolitions	Capital	Net Fixed Capital	End-Year Net	
of Current Dollars						Millions of Constant Dollars					
1992	0,0	0,0		1,6	-1,0	1,5	0,5	0,7	1,9	-0,5	1,9
1993	0,0	0,0		1,5	-1,1	1,5	0,6	0,8	1,8	-0,4	1,8
1994	0,0	0,0		1,5	-1,1	1,5	0,5	0,7	1,8	-0,5	1,7
1995	0,0	0,0		1,5	-1,7	1,7	0,3	0,4	1,7	-1,3	1,7
1996	0,0	0,0		1,8	-1,8	1,7	-0,1	0,0	1,7	-1,8	1,6
1997	0,0	0,0		1,6	-1,3	1,5	0,0	0,0	1,6	-1,3	1,5
1998	0,0	0,0		1,3	-1,2	1,4	0,2	0,1	1,5	-1,1	1,5
1999	0,0	0,0		1,4	-1,1	1,4	0,1	-0,1	1,5	-1,1	1,4
2000	0,0	0,0		1,4	-1,1	1,4	0,1	-0,3	1,4	-1,0	1,4

Source: Statistique Canada, Division de l'investissement et du stock de capital, 15 janvier 2002.

**APPENDIX 2: ADDITIONAL INFORMATION REQUIRED
CONCERNING THE PRESENT METHODOLOGY**

ADDITIONAL INFORMATION REQUIRED CONCERNING THE PRESENT METHODOLOGY

- In order to have a better understanding of the methodology used by Statistics Canada and to validate the hypotheses and results, it is important for Statistics Canada to provide the following additional information.
- Net housing stock is established using the following mathematical equation:
 - $NS_t = NS_{t-1} + GCF_t - D_t - PCC_t$
 - in this respect, Statistics Canada needs to provide:
 - the series of net stock and its components according to the old base (base 92 – Canadian price index) for each of the 10 provinces;
 - detailed data from the 1941 census that were have allowed to determine the starting stock level and, if possible, the same data for other censuses.
- $GCF_c_t = New_t + Re\ no_t + Cost_t$
 - New_t
 - detail of the calculations, in particular how the cost averages of the indicated by the building permits is determined:
 - unweighted average of published data (CANSIM ?) or others (indicate precisely);
 - how the blow-up factor is established:
 - is the blow-up factor constant for all periods and is it identical for each province;
 - provide the value(s) for the blow-up factors for each period and for each province;
 - how is the transformation from the cost averages indicated by the building permits carried over to the average value of construction starts:
 - does the transformation always make use of 5 periods, i.e. the present period and the 4 previous periods;
 - are the completion rates associated with the 5 periods used always those that are indicated in the second acetate overlay on page 5 of the presentation made on February 1, 2002, i.e.:
 - completion / time ratio t = 4 %;
 - completion / time ratio t - 1 = 58 %;
 - completion / time ratio t - 2 = 22 %;
 - completion / time ratio t - 3 = 8 %;
 - completion / time ratio t - 4 = 8 %;
 - in short, information required for GCF_c_t :
 - the functional forms used (mathematical formulae);
 - the definition of variables used;

- the value of different parameters used;
 - the sources of data used;
 - processing carried out;
- $Re\ no_t$ and $Cost_t$
- required information:
 - the functional forms used (mathematical formulae);
 - the definition of variables used;
 - the value of different parameters used;
 - the sources of data used;
 - processing carried out.
- $D_t = Demolition_t + Fire_t$
- $Demolition_t$
- required data:
 - the functional form used (mathematical formula);
 - the definition of variables used;
 - the value of different parameters used;
 - was the weighting used for single housing units (40%) and for multiple-housing structures (80%) constant for all periods and identical for each of the provinces;
 - what value (give definition and source) are the percentages applied to;
 - the sources of data used;
 - processing carried out;
- $Fire_t$
- are all of the values used identical to those published in the annual report of the Council of Canadian Fire Marshals and Fire Commissioners? If not, required data is:
 - the functional form used (mathematical formula);
 - the definition of variables used;
 - the value of different parameters used;
 - the sources of data used;
 - processing carried out.
- $PCC_t = dNS_t + \left(\frac{d}{2}\right)GCF_t$
- Confirm that δ is equal to 2% for all periods and for each province.
- $CCFk_t = (New_t / P1_t) + (Re\ no_t / P2_t) + (Cost_t / P3_t)$

— $P1_t$, $P2_t$ and $P3_t$

- required information:
 - the functional forms used (mathematical formulae);
 - the definition of variables used;
 - the value of different parameters used;
 - the different sources of data (variables) used;
 - processing carried out.
- Identify the data for which linkages were made and provide the linkage methods used.
- Provide all calculation worksheets used to make the estimation of the net housing stock (NS_t) in Canada and per province.
- Identify the adjustments made concerning provincial economic accounts and the gross fixed housing capital formation.

Source: Ministère des Finances du Québec, January 2002

**APPENDIX 3: ESTIMATION OF NET CAPITAL STOCK
ACCORDING TO ASSESSMENT ROLL VALUES
QUÉBEC, 2000 & 2001**

2.6.5.C(96/03)

SOMMAIRE DU RÔLE D'ÉVALUATION FONCIÈRE

INFORMATIONS GÉNÉRALES			
Nom du demandeur :	RICHARD BILODEAU	SEF	VALEURS : UNIFORMISÉES
Date d'exécution :	2001 - 07 - 25		FACTEUR COMPARATIF : 1, 00
Heure d'exécution :	0 : 16		UNITÉ DE MESURE : Kilomètre carré (09)
Nombre de copie(s) :	10		RÉDUCTION : En milliers de dollars

1. INTERVENANTS		
MUNICIPALITÉ :	NIL	ENSEMBLE DU QUÉBEC
EXERCICE FINANCIER :	2000	
ORGANISME RESPONSABLE :	NIL	
MRC ou COMMUNAUTÉ URBAINE :	NIL	
ÉVALUATEUR SIGNATAIRE :		
STATUT DE L'ÉVALUATEUR :		
MANDATAIRE EN INFORMATIQUE :		

2. FAITS SAILLANTS			
VALEURS IMPOSABLES		VALEURS NON IMPOSABLES	
Terrains	84 266 640	Terrains	19 424 238
Bâtiments	209 946 773	Bâtiments	34 227 999
Immeubles	294 213 413	Immeubles	53 652 236
Nombre total d'unités d'évaluation		Nombre total de logements	3 322 991
Nombre total d'unités de voisinage		Nombre total d'autres locaux	276 141
VÉRIFICATION DE L'EXACTITUDE DE L'INVENTAIRE		GESTES POSÉS AU COURS DES DOUZE DERNIERS MOIS	Dépôt du rôle
Nombre d'unités dont la dernière vérification remonte à :		- Nombre de certificats délivrés aux fins de la tenue à jour du rôle	- -
- moins d'un an	479 255	559 447	Compilation des données
- entre 1 an et 4 ans	1 357 032	- Équilibration du rôle ? NON	
- entre 4 ans et 8 ans	837 375	Si oui, nombre d'unités d'évaluation dont la valeur a été modifiée	
- plus de 8 ans	305 127	417 679	

9. UNITÉS D'ÉVALUATION POUVANT ÊTRE ASSUJETTIES À LA SURTAXE OU À LA TAXE SUR LES IMMEUBLES NON RÉSIDENTIELS															
CATÉGORIES D'UNITÉS D'ÉVALUATION				IMMEUBLES IMPOSABLES		GOUVERNEMENT DU QUÉBEC (article 210, al. 2 et article 255, al. 1)		GOUVERNEMENT DU CANADA ET SES ENTREPRISES		IMMEUBLES VISÉS À L'ARTICLE 208, AL. 1		TOTAL DES VALEURS	% DU TAUX DE SURTAXE OU DE TAXE	ASSIETTE DE TAXATION	
Code	% de valeur non résidentielle / valeur totale			NOMBRE *	VALEURS	NOMBRE *	VALEURS	NOMBRE *	VALEURS	NOMBRE *	VALEURS				
1	(A, B, C)	0,1% à 1,9%	901	1 472	1 634 098	1	60					1 634 157	0,1%/0,5%/1%	9 235	
2		2% à 3,9%	902	1 664	672 079			2	5 902			677 981	3%	20 339	
3		4% à 7,9%	903	4 636	843 433							843 433	6%	50 606	
4		8% à 14,9%	904	6 153	1 018 158			1	171			1 018 329	12%	122 199	
5		15% à 29,9%	905	7 837	1 409 411	1	775					1 410 186	22%	310 241	
6		30% à 49,9%	906	8 836	1 775 093	1	2 734	2	657			1 778 484	40%	711 394	
7		50% à 69,9%	907	7 949	1 584 467	1	212	3	13 713			1 598 391	60%	959 035	
8		70% à 94,9%	908	3 915	1 255 205	2	1 468	10	409 911			1 666 584	85%	1 416 596	
9		95% à 99,9%	909	690	303 754	2	3 308	12	92 518			399 580	100%	399 580	
10		100%	910	55 555	49 544 109	351	1 573 901	632	3 176 845	367	126 275	54 421 129	100%	54 421 129	
11		100%	911	73	417 782			5	8 604	1	353	426 739	40%	170 695	
TOTAL				912	98 780	60 457 587	359	1 582 458	667	3 708 319	368	126 628	65 874 993		58 591 050

* NOMBRE D'UNITÉS D'ÉVALUATION

3. INVENTAIRE PAR UTILISATION

NIL 2000 2001/07/25 P 2

CATEGORIE (Utilisation)		VALEURS IMPOSABLES				VALEURS NON IMPOSABLES				SUPERFICIE DES TERRAINS	09
		NOMBRE *	TERRAINS	BÂTIMENTS	IMMEUBLES	NOMBRE *	TERRAINS	BÂTIMENTS	IMMEUBLES		
1--- RÉSIDENTIELLE	301	2 125 427	53 106 856	157 439 834	210 546 690	6 535	774 186	2 186 519	2 960 705	33 230	
10-- Logements	302	1 847 997	49 475 395	148 966 778	198 442 172	2 408	88 785	236 657	325 443	13 521	
Nombre: 1 (condominium)	303	136 828	1 737 707	10 280 085	12 017 782	5	1 563	3 761	3 761	8	
1 (sauf condominium)	304	1 369 776	33 371 230	95 369 224	128 740 454	2 130	52 815	143 049	195 864	12 474	
2	305	177 467	5 324 999	14 149 078	19 474 077	171	6 900	18 049	24 949	647	
3	306	73 445	2 617 815	7 685 625	10 303 440	27	2 062	4 916	6 978	94	
4	307	31 639	1 156 239	3 763 160	4 919 399	21	1 144	3 655	4 798	28	
5	308	11 043	507 414	1 520 586	2 027 999	10	2 570	2 815	5 385	47	
6 à 9	309	29 628	1 359 447	4 913 165	6 272 612	21	2 749	6 783	9 632	20	
10 à 19	310	11 100	960 263	3 217 517	4 177 780	13	1 098	5 253	6 351	4	
20 à 29	311	3 104	462 133	1 571 651	2 033 784		544	1 521	2 065	1	
30 à 49	312	2 361	572 640	1 865 963	2 438 603	5	4 610	8 364	12 974	2	
50 à 99	313	1 014	528 093	1 702 012	2 230 105	2	5 085	5 008	10 094	1	
100 à 199	314	456	510 147	1 671 512	2 181 659	1	751	6 180	6 931	1	
200 et plus	315	136	367 268	1 257 200	1 624 469	2	6 893	28 867	35 760		
11-- Chalets, maisons de villégiature	316	178 748	2 427 773	4 910 901	7 338 674	843	45 906	25 323	71 229	10 078	
12-- Maisons mobiles, roulottes	317	46 977	325 938	1 283 213	1 609 150	154	43 034	9 569	52 603	2 314	
15-- Habitations en commun	318	3 473	243 995	1 643 053	1 887 048	1 852	514 368	1 882 194	2 396 562	44	
16-- Hôtels résidentiels	319	46	18 215	81 962							
17-- Parcs de roulottes et de maisons mobiles	320	6 350	54 697	200 620	255 317	29	1 381	595	1 975	2	
18-19-- Autres immeubles résidentiels	321	41 836	560 844	371 522	932 366	1 249	80 712	32 182	112 893	7 089	
2-3--- INDUSTRIES MANUFACTURIÈRES	322	13 037	2 740 378	13 021 734	15 762 112	229	300 288	274 566	574 854	752	
2-3--- Industries manufacturières (sauf condominium)	323	12 399	2 718 809	12 943 581	15 662 390	229	300 288	274 566	574 854	751	
2-3--- Industries manufacturières (condominium)	324	638	21 569	78 153	99 722						
4--- TRANSPORTS, COMM., SERVICES PUBLICS	325	28 019	3 170 607	3 906 251	7 076 858	27 581	1 963 246	4 159 419	6 122 665	4 210	
4111 Chemins de fer	326	1 193	747 596	1 384	748 980	162	35 318	1 472	36 790	124	
46-- Terrains et garages de stationnement	327	1 623	384 983	44 115	429 098	412	76 898	81 598	158 496	2	
5--- COMMERCIALE	328	44 648	6 708 922	15 968 551	22 677 473	280	45 434	110 292	155 726	6 810	
50-- Centres et immeubles commerciaux	329	12 634	3 710 779	8 226 853	11 937 632	51	21 188	51 872	73 060	32	
51-- Vente en gros	330	1 830	221 087	809 358	1 030 446	12	1 088	4 147	5 235	3	
5200 à 5999 Vente au détail (sauf 5830)	331	28 056	2 370 604	5 554 329	7 924 933	210	22 750	49 701	72 451	6 675	
5830 Hôtels, motels et maisons de touristes	332	2 128	406 451	1 378 011	1 784 462	7	408	4 572	4 981	49	
5--- Commerciale (sauf condominium)	333	43 061	6 520 083	15 540 567	22 060 650	279	45 258	109 587	154 844	6 810	
5--- Commerciale (condominium)	334	1 587	188 839	427 984	616 823	1	176	706	882		
6--- SERVICES	335	27 384	3 622 867	11 226 257	14 849 124	13 796	5 554 841	23 974 669	29 529 510	681	
60-- Immeubles à bureaux	336	3 784	2 326 271	7 018 358	9 344 628	692	255 118	1 039 820	1 294 938	42	
6--- Services (sauf condominium)	337	25 885	3 316 023	10 090 463	13 406 487	13 730	5 520 179	23 895 281	29 415 461	680	
6--- Services (condominium)	338	1 498	306 844	1 135 794	1 442 637	66	34 662	79 387	114 049		
7--- CULTURELLE, RÉCRÉATIVE ET DE LOISIRS	339	4 876	590 553	1 674 486	2 265 039	8 924	3 797 127	3 412 403	7 209 530	5 241	
7411-7412 Terrains de golf	340	409	128 717	222 339	351 056	29	147 652	177 710	325 363	382	
76-- Parcs	341	493	40 699	22 687	63 386	3 737	2 025 413	371 650	2 397 063	3 393	
8--- PRODUCTION, EXT. DE RICHESSES NAT.	342	127 422	5 949 102	6 584 810	12 533 912	1 205	148 547	100 727	249 274	53 600	
81-- Agriculture	343	107 308	5 257 204	5 354 888	10 612 193	709	35 992	38 137	74 128	38 693	
83-- Exploitation forestière	344	17 740	545 999	141 876	687 875	376	75 146	21 355	96 501	13 890	
85-- Exploitation minière	345	967	109 217	1 015 089	1 124 306	58	33 477	4 590	38 067	639	
9--- IMMEUBLES NON EXPLOITÉS, ÉTEND. D'EAU	346	468 012	8 377 355	124 850	8 502 205	81 550	6 840 568	9 405	6 849 979	507 415	
91-- Terrains vagues	347	420 108	7 666 844	11 128	7 677 972	74 972	5 687 118	4 982	5 851 795	442 145	
9200 Forêts inexploitées qui ne sont pas des réserves	348	34 392	542 187	17 045	559 232	2 657	864 862	705	865 566	57 030	
TOTAL DU RÔLE D'ÉVALUATION FONCIÈRE	349	2 838 825	84 266 640	209 946 773	294 213 413	140 100	19 424 241	34 227 999	53 652 243	612 329	

6. INVENTAIRE PAR DISPOSITION FISCALE				
IDENTIFICATION	NOMBRE *	VALEURS	SUPERFICIE DES TERRAINS	09
IMMEUBLES IMPOSABLES601 (L.R.Q., c. F-2.1, art. 203)	2 838 827	294 213 413	118 511	
IMMEUBLES NON IMPOSABLES Immeubles exemptés en vertu de l'article 204 (L.R.Q., c. F-2.1)				
- Gouvernement du Canada et ses entreprises (par. 1.1) ... 602	3 721	5 330 608	1 866	
- Gouvernement du Québec (par. 1,2.1) • Immeubles visés à l'art. 255, al. 1 (L.R.Q., c. F-2.1) . 603	3 932	1 931 377	608	
• Autres immeubles604	19 405	3 531 584	472 643	
- Réseau de la santé et des services sociaux • paragraphe 1.2605	201	806 480		
• " 14606	1 290	5 051 945	17	
• " 17607	28	188 051		
- Cégeps et universités • paragraphe 13608	499	4 751 635	48	
• " 15609	12	25 981		
• " 16610	13	65 304		
• " 17611	6	115 438		
- Écoles primaires et secondaires • paragraphe 13612	4 413	9 595 217	47	
• " 15613	48	114 246		
• " 16614	159	480 024	5	
• " 17615	75	517 764	2	
- Autres immeubles • paragraphe 2616	15	719 200	4	
• " 3617	74 588	11 816 422	4 104	
• " 4618	969	95 174	496	
• " 5619	1 183	1 125 175	116	
• " 6-a620	10 860	8 740	31	
• " 6-b621				
• " 7622	2 420	340 974	40	
• " 8623	4 700	2 968 650	38	
• " 9624	1 377	572 126	3	
• " 10625	2 471	977 237	114	
• " 11626	47	28 710		
• " 12: terrains627	2 254	525 351	97	
bâtiments628	94	1 305 334		
AUTRES IMMEUBLES NON IMPOSABLES (partie non imposable seulement)				
- Terrains de golf (L.R.Q., c. F-2.1, art. 211) • excédent du plafond à l'hectare (al. 1)629		124 719		
• améliorations (ouvrages d'aménagement) (al. 4)630		152 536		
- Presbytères de cert. Églises (L.R.Q., c. F-2.1, art. 231.1)631	373	49 620		
- Immeubles visés à l'article 210 (L.R.Q., c. F-2.1)632	47	36 486		
- Immeubles visés à l'article 208, al. 1 (L.R.Q., c. F-2.1) ..633	757	182 087	219	
- Biens culturels imm. classés (L.R.Q., c. B-4, art.33)634		12 371		
- Autres immeubles non imposables635	4 142	108 223	12 904	
TOTAL DU RÔLE D'ÉVALUATION FONCIÈRE 636	2 978 925	347 869 406	612 330	

4. RÉGIMES FISCAUX PARTICULIERS				
IDENTIFICATION	NOMBRE *	VALEURS IMPOSABLES	VALEURS NON IMPOSABLES	SUPERFICIE DES TERRAINS 09
Terrains de golf (L.R.Q., c. F-2.1, art. 211) 401	220	164 682	277 088	63
Unités d'évaluation comprenant des exploitations agricoles enregistrées 402	88 599	9 473 302	Non Imposables à des fins scolaires seulement	33 464
- Parties comprises dans l'«EAE» • Entièrement incluses en zone agricole 403	81 442	7 002 805	3 212 069	31 338
• Partiellement incluses en zone agricole 404	3 148	243 603	99 502	2 080
• Exclues de la zone agricole 405	4 012	243 871		
- Parties à vocation non agricole 406	34 784	1 983 070		
Presbytères de certaines Églises (L.R.Q., c. F-2.1, art. 231.1) 407	460	6 026	49 620	
Biens culturels immobiliers classés (L.R.Q., c. B-4, art. 33) 408	299	84 709	12 371	1
Autres régimes fiscaux particuliers 409	263	9 418	3 398	112

5. CONDOMINIUMS RÉSIDENTIELS PAR BÂTIMENT				
IDENTIFICATION	NOMBRE DE BÂTIMENTS	VALEURS IMPOSABLES	VALEURS NON IMPOSABLES	
Bâtiments de: 1 logement 501	12 824	1 214 125	144	
2 logements 502	2 209	354 099	133	
3 logements 503	2 651	724 186	125	
4 logements 504	1 772	606 280	7	
5 logements 505	546	234 427		
6 à 9 logements 506	3 528	1 842 019	441	
10 à 19 logements 507	1 418	1 306 936		
20 à 29 logements 508	376	690 178		
30 à 49 logements 509	333	985 420	65	
50 à 99 logements 510	219	1 449 665	178	
100 à 199 logements 511	135	1 882 502	2 677	
200 logements et plus 512	41	1 021 264	194	

7. TERRAINS VAGUES POUVANT ÊTRE ASSUJETTIS À UNE SURTAXE				
IDENTIFICATION	NOMBRE *	VALEURS	SUPERFICIE DES TERRAINS	09
Unités d'évaluation qui peuvent être assujetties (L.R.Q., c. C-19, art.486 et c. C-27.1, art. 990)				
- UNITÉS IMPOSABLES 701	42 236	3 132 553	141	
- UNITÉS NON IMPOSABLES • Gouvernement du Canada et ses entreprises 702	127	175 204	4	
• Gouvernement du Québec 703	1 648	212 424	7	
TOTAL 704	44 011	3 520 181	155	

8. DONNÉES UTILES AU CALCUL DE LA RICHESSE FONCIÈRE				
IDENTIFICATION	VALEURS			
ÉVALUATION DES IMMEUBLES IMPOSABLES 801	294 213 413			
ÉVALUATION DES IMMEUBLES NON IMPOSABLES • Immeubles visés à l'article 208, alinéa 1 (L.R.Q., c. F-2.1) 802	182 087			
• Immeubles visés à l'article 210, alinéa 2 (L.R.Q., c. F-2.1) 803	36 486			
• Gouvernement du Québec (L.R.Q., c. F-2.1, article 255, alinéa 1) 804	1 931 377			
• Gouvernement du Canada et ses entreprises (L.R.Q., c. F-2.1, art. 204, p. 1.1) ... 805	5 330 608			
• Biens culturels immobiliers classés (L.R.Q., c. B-4, article 33) 806	12 371			
• Réseau de la santé et des services sociaux (L.R.Q., c. F-2.1, art. 255, al. 2) 807	6 046 476			
• Cégeps et universités (L.R.Q., c. F-2.1, article 255, alinéa 3) 808	4 958 358			
• Écoles primaires et secondaires (L.R.Q., c. F-2.1, article 255, alinéa 4) 809	10 707 251			

2.6.5.C(96/03)

SOMMAIRE DU RÔLE D'ÉVALUATION FONCIÈRE

INFORMATIONS GÉNÉRALES			
Nom du demandeur :	RICHARD BILODEAU	D.E.F	VALEURS : UNIFORMISÉES
Date d'exécution :	2002 - 03 - 06		FACTEUR COMPARATIF : 1, 00
Heure d'exécution :	0 : 03		UNITÉ DE MESURE : Mètre carré (05)
Nombre de copie(s) :	10		RÉDUCTION : En milliers de dollars

1. INTERVENANTS		
MUNICIPALITÉ :	NIL	ENSEMBLE DU QUÉBEC
EXERCICE FINANCIER :	2001	
ORGANISME RESPONSABLE :	NIL	
MRC ou COMMUNAUTÉ URBAINE :	NIL	
ÉVALUATEUR SIGNATAIRE :		
STATUT DE L'ÉVALUATEUR :		
MANDATAIRE EN INFORMATIQUE :		

2. FAITS SAILLANTS		
VALEURS IMPOSABLES	VALEURS NON IMPOSABLES	VALEURS TOTALES
Terrains 82 369 091	Terrains 17 372 049	Terrains 99 741 140
Bâtiments 217 050 601	Bâtiments 34 214 839	Bâtiments 251 265 440
Immeubles 299 419 693	Immeubles 51 586 888	Immeubles 351 006 581
Nombre total d'unités d'évaluation 2 993 441	Nombre total de logements 3 345 564	
Nombre total d'unités de voisinage 93 890	Nombre total d'autres locaux 272 242	
VÉRIFICATION DE L'EXACTITUDE DE L'INVENTAIRE	GESTES POSÉS AU COURS DES DOUZE DERNIERS MOIS	Dépôt du rôle
Nombre d'unités dont la dernière vérification remonte à :		- -
- moins d'un an 609 618	- Nombre de certificats délivrés aux fins de la tenue à jour du rôle 516 529	Compilation des données
- entre 1 an et 4 ans 1 265 900	- Équilibrage du rôle ? NON	
- entre 4 ans et 8 ans 833 251	Si oui, nombre d'unités d'évaluation dont la valeur a été modifiée 1 517 422	
- plus de 8 ans 284 888		

9. UNITÉS D'ÉVALUATION POUVANT ÊTRE ASSUJETTIES À LA SURTAXE OU À LA TAXE SUR LES IMMEUBLES NON RÉSIDENTIELS														
CATÉGORIES D'UNITÉS D'ÉVALUATION				IMMEUBLES IMPOSABLES		GOUVERNEMENT DU QUÉBEC (article 210, al. 2 et article 255, al. 1)		GOUVERNEMENT DU CANADA ET SES ENTREPRISES		IMMEUBLES VISÉS À L'ARTICLE 208, AL. 1		TOTAL DES VALEURS	% DU TAUX DE SURTAXE OU DE TAXE	ASSIETTE DE TAXATION
Code	% de valeur non résidentielle / valeur totale			NOMBRE *	VALEURS	NOMBRE *	VALEURS	NOMBRE *	VALEURS	NOMBRE *	VALEURS			
1	(A, B, C)	0,1% à 1,9%	901	1 429	1 654 197	1	368	1	22 539			1 677 104	0,1%/0,5%/1%	9 336
2		2% à 3,9%	902	1 949	794 668			2	5 210			799 878	3%	23 996
3		4% à 7,9%	903	5 108	828 141							828 141	6%	49 688
4		8% à 14,9%	904	6 608	1 043 908			1	172			1 044 080	12%	125 290
5		15% à 29,9%	905	8 058	1 375 376	1	775	1	123			1 376 274	22%	302 780
6		30% à 49,9%	906	8 876	1 727 069	3	3 753	1	394	2	34 548	1 765 763	40%	706 305
7		50% à 69,9%	907	8 250	1 543 736	1	38	4	19 203			1 562 977	60%	937 786
8		70% à 94,9%	908	4 089	1 144 178	1	783	10	424 579			1 569 539	85%	1 334 108
9		95% à 99,9%	909	657	297 804	2	3 211	12	93 758			394 773	100%	394 773
10		100%	910	58 960	50 225 882	376	1 581 311	675	2 872 000	400	143 792	54 822 985	100%	54 822 985
11		100%	911	72	329 253			4	4 176	1	360	333 789	40%	133 516
TOTAL				912										
				104 056	60 964 210	385	1 590 238	711	3 442 154	403	178 700	66 175 302		58 840 564

* NOMBRE D'UNITÉS D'ÉVALUATION

3. INVENTAIRE PAR UTILISATION

NIL 2001 2002/03/06 P 2

CATÉGORIE (Utilisation)			VALEURS IMPOSABLES				VALEURS NON IMPOSABLES				SUPERFICIE DES TERRAINS 05
			NOMBRE *	TERRAINS	BÂTIMENTS	IMMEUBLES	NOMBRE *	TERRAINS	BÂTIMENTS	IMMEUBLES	
1--- RÉSIDENTIELLE	301	2 148 421	53 278 944	162 377 470	215 656 413	6 435	746 071	2 228 499	2 974 570	30 970 078 961	
10-- Logements	302	1 871 462	49 576 133	153 649 878	203 226 012	2 371	79 508	228 741	308 249	15 549 424 376	
Nombre: 1 (condominium)	303	142 116	1 838 074	10 927 076	12 765 150	7	94	610	704	20 058 845	
1 (sauf condominium)	304	1 388 230	33 984 775	99 272 443	133 257 218	2 098	47 993	137 306	185 299	14 446 252 684	
2	305	176 451	5 255 890	14 297 109	19 552 999	168	5 272	16 395	21 666	764 799 531	
3	306	73 061	2 590 982	7 802 072	10 393 054	30	2 071	4 876	6 947	132 342 129	
4	307	32 252	1 157 054	3 867 066	5 024 120	17	820	2 905	3 725	49 569 104	
5	308	11 207	510 829	1 535 276	2 046 104	9	2 885	1 899	4 784	54 306 206	
6 à 9	309	30 168	1 338 032	4 865 929	6 203 961	18	1 529	5 024	6 554	38 202 327	
10 à 19	310	10 320	828 689	2 933 448	3 762 137	13	1 195	5 587	6 782	16 755 925	
20 à 29	311	3 108	412 552	1 479 342	1 891 894	1	516	1 506	2 023	6 506 798	
30 à 49	312	2 337	488 357	1 800 793	2 289 150	5	4 402	7 815	12 217	7 963 908	
50 à 99	313	1 028	442 778	1 712 888	2 155 666	2	5 495	5 803	11 298	4 970 843	
100 à 199	314	461	427 354	1 770 584	2 197 938					3 931 244	
200 et plus	315	148	295 500	1 349 382	1 644 883	3	7 233	38 937	46 170	2 930 140	
11-- Chalets, maisons de villégiature	316	177 036	2 495 889	4 947 954	7 443 843	816	59 281	23 724	83 005	8 667 377 251	
12-- Maisons mobiles, roulottes	317	48 085	337 599	1 325 903	1 663 502	93	44 733	4 303	49 036	2 385 165 066	
15-- Habitations en commun	318	3 569	242 147	1 759 196	2 001 342	1 867	472 588	1 931 769	2 404 357	74 743 079	
16-- Hôtels résidentiels	319	41	17 200	91 656	108 856					501 532	
17-- Parcs de roulottes et de maisons mobiles	320	5 767	50 666	186 363	237 029	18	1 405	531	1 936	6 854 410	
18-19-- Autres immeubles résidentiels	321	42 461	559 310	416 520	975 830	1 270	88 556	39 432	127 988	4 286 008 645	
2-3--- INDUSTRIES MANUFACTURIÈRES	322	13 571	2 357 622	14 244 799	16 602 421	225	213 359	275 304	488 663	1 169 437 791	
2-3--- Industries manufacturières (sauf condominium)	323	12 849	2 338 999	14 154 703	16 493 702	224	213 352	274 768	488 119	1 168 646 604	
2-3--- Industries manufacturières (condominium)	324	722	18 623	90 096	108 719	1	7	536	543	791 186	
4--- TRANSPORTS, COMM., SERVICES PUBLICS	325	28 412	2 239 200	3 642 505	5 881 706	28 488	1 486 337	3 480 950	4 967 287	4 281 288 306	
4111 Chemins de fer	326	1 209	644 124	1 768	645 892	136	30 932	880	31 813	192 237 653	
46-- Terrains et garages de stationnement	327	1 700	268 704	40 370	309 074	423	71 422	71 419	142 841	5 230 417	
5--- COMMERCIALE	328	44 367	6 010 523	16 721 935	22 732 458	296	36 320	99 537	135 857	6 894 726 285	
50-- Centres et immeubles commerciaux	329	12 539	3 131 013	8 472 531	11 603 545	55	12 489	40 745	53 234	52 958 503	
51-- Vente en gros	330	1 740	179 262	738 268	917 530	15	1 056	3 134	4 189	17 906 531	
5200 à 5999 Vente au détail (sauf 5830)	331	28 032	2 366 170	5 714 628	8 080 797	219	22 280	50 738	73 018	6 765 715 299	
5830 Hôtels, motels et maisons de touristes	332	2 056	334 078	1 796 508	2 130 586	7	495	4 920	5 416	58 145 907	
5--- Commerciale (sauf condominium)	333	42 749	5 882 756	16 104 599	21 987 355	295	36 138	98 992	135 130	6 893 842 103	
5--- Commerciale (condominium)	334	1 618	127 767	617 336	745 103	1	182	546	727	884 184	
6--- SERVICES	335	28 038	2 777 358	11 722 523	14 499 881	13 868	5 026 678	24 547 535	29 574 213	798 745 002	
60-- Immeubles à bureaux	336	3 821	1 474 222	7 400 452	8 887 674	693	250 386	1 108 884	1 359 270	58 906 178	
6--- Services (sauf condominium)	337	26 452	2 554 667	10 491 106	13 045 773	13 806	4 999 951	24 477 196	29 477 147	797 791 452	
6--- Services (condominium)	338	1 586	222 691	1 231 418	1 454 108	62	26 727	70 338	97 066	953 548	
7--- CULTURELLE, RÉCRÉATIVE ET DE LOISIRS	339	4 965	580 824	1 748 893	2 329 717	9 199	3 400 944	3 469 460	6 870 404	5 274 160 891	
7411-7412 Terrains de golf	340	429	134 736	238 055	372 792	30	141 057	186 617	327 674	223 298 733	
76-- Parcs	341	498	43 659	21 336	64 995	3 933	1 797 015	377 275	2 174 290	3 427 406 979	
8--- PRODUCTION, EXT. DE RICHESSES NAT.	342	128 094	7 059 666	6 463 239	13 522 906	1 255	143 478	101 732	245 209	54 297 876 432	
81-- Agriculture	343	107 930	6 313 896	5 443 797	11 757 786	698	39 260	40 075	79 376	38 779 931 816	
83-- Exploitation forestière	344	17 793	604 151	153 356	757 507	435	85 742	15 680	101 422	14 522 865 695	
85-- Exploitation minière	345	985	103 272	786 018	889 290	57	14 530	8 626	23 156	651 234 211	
9--- IMMEUBLES NON EXPLOITÉS, ÉTEND. D'EAU	346	457 928	8 064 955	129 236	8 194 191	79 879	6 318 862	11 823	6 330 685	203 971 107 781	
91-- Terrains vagues	347	410 179	7 342 214	13 206	7 355 419	73 273	5 124 226	7 686	5 131 890	122 438 449 258	
9200 Forêts inexploitées qui ne sont pas des réserves	348	34 310	557 196	18 210	575 405	2 672	899 826	493	900 319	57 296 963 853	
TOTAL DU RÔLE D'ÉVALUATION FONCIÈRE	349	2 853 796	82 369 091	217 050 601	299 419 693	139 645	17 372 049	34 214 839	51 586 888	307 660 120 788	

6. INVENTAIRE PAR DISPOSITION FISCALE			
IDENTIFICATION	NOMBRE *	VALEURS	SUPERFICIE DES TERRAINS 05
IMMEUBLES IMPOSABLES601 (L.R.Q., c. F-2.1, art. 203)	2 853 796	299 419 693	115 516 743 487
IMMEUBLES NON IMPOSABLES Immeubles exemptés en vertu de l'article 204 (L.R.Q., c. F-2.1)			
- Gouvernement du Canada et ses entreprises (par. 1.1) ... 602	3 652	4 788 780	1 828 274 151
- Gouvernement du Québec (par. 1,2.1)			
• Immeubles visés à l'art. 255, al. 1 (L.R.Q., c. F-2.1) . 603	3 903	1 936 172	512 816 379
• Autres immeubles604	19 291	3 580 836	184 116 797 322
- Réseau de la santé et des services sociaux			
• paragraphe 1.2605	197	902 020	2 135 399
• " 14606	1 335	5 081 592	30 301 423
• " 17607	24	185 853	571 244
- Cégeps et universités			
• paragraphe 13608	488	4 739 788	52 708 025
• " 15609	15	32 678	54 410
• " 16610	11	51 889	105 613
• " 17611	14	115 958	581 878
- Écoles primaires et secondaires			
• paragraphe 13612	4 390	9 565 197	89 647 721
• " 15613	52	115 025	894 656
• " 16614	154	464 081	7 259 997
• " 17615	81	506 999	4 406 418
- Autres immeubles			
• paragraphe 2616	17	317 528	3 326 156
• " 3617	73 953	10 906 434	4 478 208 537
• " 4618	946	94 290	107 764 594
• " 5619	1 539	1 035 913	299 919 521
• " 6-a620	10 931	8 594	31 781 772
• " 6-b621			
• " 7622	2 416	307 818	61 928 197
• " 8623	4 652	2 878 054	89 242 064
• " 9624	1 376	470 687	26 445 513
• " 10625	2 560	982 836	134 401 150
• " 11626	46	28 377	1 793 350
• " 12: terrains627	2 186	468 123	122 768 327
bâtiments628	88	1 296 012	
AUTRES IMMEUBLES NON IMPOSABLES (partie non imposable seulement)			
- Terrains de golf (L.R.Q., c. F-2.1, art. 211)			
• excédent du plafond à l'hectare (al. 1)629		107 684	
• améliorations (ouvrages d'aménagement) (al. 4)630		158 836	
- Presbytères de cert. Églises (L.R.Q., c. F-2.1, art. 231.1) 631	386	51 309	912 460
- Immeubles visés à l'article 210 (L.R.Q., c. F-2.1)632	47	36 763	137 801
- Immeubles visés à l'article 208, al. 1 (L.R.Q., c. F-2.1) ..633	758	236 624	25 118 603
- Biens culturels imm. classés (L.R.Q., c. B-4, art.33)634		6 528	
- Autres immeubles non imposables635	4 137	127 611	112 843 566
TOTAL DU RÔLE D'ÉVALUATION FONCIÈRE 636	2 993 441	351 006 581	307 660 173 565

4. RÉGIMES FISCAUX PARTICULIERS			
IDENTIFICATION	NOMBRE *	VALEURS IMPOSABLES	VALEURS NON IMPOSABLES
Terrains de golf (L.R.Q., c. F-2.1, art. 211) 401	228	172 331	266 520
Unités d'évaluation comprenant des exploitations agricoles enregistrées 402	90 041	10 654 539	34 015 405 712
- Parties comprises dans l'«EAE»			
• Entièrement incluses en zone agricole 403	82 839	8 090 213	4 213 793
• Partiellement incluses en zone agricole 404	3 186	275 117	131 070
• Exclues de la zone agricole 405	4 019	243 092	
- Parties à vocation non agricole 406	34 416	2 046 160	
Presbytères de certaines Églises (L.R.Q., c. F-2.1, art. 231.1)407	616	12 969	51 309
Biens culturels immobiliers classés (L.R.Q., c. B-4, art. 33) 408	146	47 972	6 528
Autres régimes fiscaux particuliers 409	259	10 417	3 484

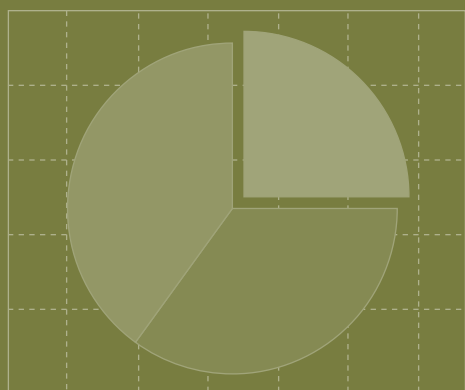
5. CONDOMINIUMS RÉSIDENTIELS PAR BÂTIMENT			
IDENTIFICATION	NOMBRE DE BÂTIMENTS	VALEURS IMPOSABLES	VALEURS NON IMPOSABLES
Bâtiments de: 1 logement 501	13 322	1 325 816	241
2 logements 502	1 902	412 947	306
3 logements 503	2 801	811 474	57
4 logements 504	1 819	639 102	
5 logements 505	572	252 522	
6 à 9 logements 506	3 665	1 934 196	141
10 à 19 logements 507	1 478	1 354 919	61
20 à 29 logements 508	392	726 369	
30 à 49 logements 509	325	977 303	
50 à 99 logements 510	233	1 546 279	
100 à 199 logements 511	135	2 021 535	103
200 logements et plus 512	39	1 030 238	

7. TERRAINS VAGUES POUVANT ÊTRE ASSUJETTIS À UNE SURTAXE			
IDENTIFICATION	NOMBRE *	VALEURS	SUPERFICIE DES TERRAINS 05
Unités d'évaluation qui peuvent être assujetties (L.R.Q., c. C-19, art.486 et c. C-27.1, art. 990)			
- UNITÉS IMPOSABLES 701	40 206	2 663 821	147 030 347
- UNITÉS NON IMPOSABLES			
• Gouvernement du Canada et ses entreprises 702	118	137 015	4 071 846
• Gouvernement du Québec 703	1 605	173 672	10 072 155
TOTAL 704	41 929	2 974 507	161 174 341

8. DONNÉES UTILES AU CALCUL DE LA RICHESSE FONCIÈRE		
IDENTIFICATION	VALEURS	
ÉVALUATION DES IMMEUBLES IMPOSABLES 801	299 419 693	
ÉVALUATION DES IMMEUBLES NON IMPOSABLES		
• Immeubles visés à l'article 208, alinéa 1 (L.R.Q., c. F-2.1)802	236 624	
• Immeubles visés à l'article 210, alinéa 2 (L.R.Q., c. F-2.1)803	36 763	
• Gouvernement du Québec (L.R.Q., c. F-2.1, article 255, alinéa 1) 804	1 936 172	
• Gouvernement du Canada et ses entreprises (L.R.Q., c. F-2.1, art. 204, p. 1.1) 805	4 788 780	
• Biens culturels immobiliers classés (L.R.Q., c. B-4, article 33) 806	6 528	
• Réseau de la santé et des services sociaux (L.R.Q., c. F-2.1, art. 255, al. 2) 807	6 169 465	
• Cégeps et universités (L.R.Q., c. F-2.1, article 255, alinéa 3) 808	4 940 313	
• Écoles primaires et secondaires (L.R.Q., c. F-2.1, article 255, alinéa 4) 809	10 651 302	

"The mission of the Institut is to provide reliable and objective statistical information on the situation of Québec as regards all aspects of Québec society for which such information is pertinent. The Institut shall be the central authority for the production and dissemination of statistical information for the government departments and bodies, except information produced for administrative purposes. The Institut shall be responsible for the carrying out of statistical surveys of general interest."

Act respecting the Institut de la statistique du Québec (S.Q. 1998, c. 44), passed by the National Assembly of Québec on 19 June 1998.



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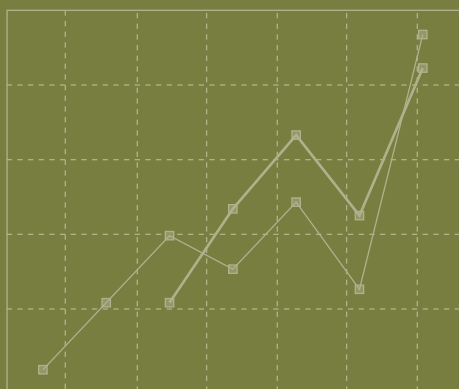
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