# THE DISTRIBUTION OF WEALTH IN CANADA

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For estimates of the wealth distribution Canada depends on household surveys taken at 6–7 year intervals. The latest data from this source refer to household balance sheets in the spring of 1977. A comparison with 1970 shows that there is little change in the composition of wealth held by households but that inequality of the wealth distribution has been somewhat reduced. Wealth data by age of family head is presented in order to describe more fully the wealth distribution and composition in Canada.

Weaknesses in the data are discussed as well as the difficulties of making appropriate adjustments to the data at the micro record level. For policy evaluation and formulation purposes the lack of comprehensive estimates inclusive of pension wealth as well as the small sample size (12,700 usable records) have been perceived as greater obstacles to utilizing the data than the underestimate in aggregate assets and debts which affects more the higher than the middle and lower ranges of the wealth distribution.

## INTRODUCTION

This paper is a progress report on developments in measuring the wealth distribution in Canada. It is, in a way, an update to the 1973 paper presented by Podoluk and Emmerson at the meetings of the IARIW.[1] That paper presented a review of Canada's program to collect wealth data and summarized information available at the time—up to 1970. The purpose of this paper is thus three-fold:

(i) to describe the developments in collecting wealth data since 1970, particularly the 1977 survey of assets and debts of the household sector,

(ii) to present the most recent data on the wealth distribution in Canada and discuss the changes that have occurred between 1970 and 1977,

(iii) to comment on data problems in juxtaposition to the usefulness of the data as demonstrated by the Canadian experience.

## THE 1977 ASSET/DEBT SURVEY

As previously reported, estate duties are practically non-existent in Canada. At present only the province of Quebec levies such duties but due to generous exemptions to family members even there wealth data from estates are very incomplete. Neither is there any other requirement to report wealth for tax or other purposes. As a result Canada depends on sample surveys of households in order to obtain any estimates of the wealth distribution. In the spring of 1977 the fifth national survey of assets and debts was undertaken in the context of

*The opinions expressed in this paper are those of the author and are not to be attributed to Statistics Canada.

[1]Published as Podoluk, Measurement of the Distribution of Wealth in Canada, *Review of Income and Wealth*, Vol. 20, No. 2.

the annual Survey of Consumer Finances. This implies a seven year gap between surveys, the survey before that having been taken in 1970.

Compared to previous surveys some improvements were introduced in the 1977 survey. For one thing, it was possible this time to use a second frame for sampling that would guarantee the inclusion of a larger number of wealthy households. The questionnaire was redesigned and care was taken in providing enumerators and respondents with as much instructions and clarification as possible. As in past surveys, the Canadian questionnaire collects data from each individual aged 15 and over in the household (either personally or by proxy). The survey collected data on approximately two dozen separate types of assets and on a dozen debt items.[2] In many cases more than one question was needed in order to obtain the value of a wealth component; in case of owner-occupied homes a whole page was devoted to questions in respect to the estimated market value of the home and the corresponding mortgage(s).

Over the years balance sheets used in the surveys have been expanding with greater detail being specified thus expanding the context of the surveys as well as serving the objective of reminding respondents by the detailed questions to report their different assets and debts. In spite of the expansion of balance sheets the coverage of wealth in the Canadian surveys is still incomplete. The 1977 estimates of wealth exclude the value of insurance equities,[3] pension rights, the value of collectables such as art, stamps, jewellery, etc. as well as the value of household durables other than automobiles. Although all insurance and most of pension wealth[4] have been excluded from the wealth estimates the data set contains some variables on the subject that are analytically useful—e.g. whether the person was covered by an employment related pension plan or whether a life insurance policy existed.

The results of the survey have now been published in two statistical reports[5] and a non-catalogued paper is available on the detailed evaluation of the methods used to process the survey. This non-catalogued report also contains a reconciliation of selected aggregates against other existing outside estimates.[6] In addition to the published material a public use micro data tape has been available and some research based on these data has been published.[7]

The Appendix to this paper discusses briefly some of the more technical aspects of the survey such as the response rate and sampling errors. A more complete record of these and other technical aspects is available in the above mentioned non-catalogued report.

[2]See questionnaire reproduced in Statistics Canada catalogue No. 13-570.

[3]The question on the current cash surrender value of life insurance policies was asked but so poorly answered that it had to be excluded from the wealth estimate.

[4]Retirement savings plans (a voluntary form of setting aside some earnings into taxfree trusteed funds) were well reported and are included in the wealth estimates. It is however admitted that this form of pension wealth accounts for a fraction of total pension wealth, especially if social security wealth were included in this definition.

[5]Statistics Canada Cat. No. 13-570, and No. 13-572.

[6]Statistics Canada, Evaluation of Data on Family Assets and Debts, 1977.

[7]See King and Dicks-Mireaux, Asset Holdings and the Life Cycle, *Economic Journal*, June, 1982; also by same authors, Portfolio Composition and Pension Wealth: An Econometric Study, in forthcoming National Bureau of Economic Research conference volume *Financial Aspects of U.S. Pension System.*

## 1977 Wealth Distribution

This section of the paper presents two illustrations of the use of the 1977 wealth data. First a historical comparison with similar data for 1970 is made and conclusions drawn about the changes in the distribution and composition of wealth that have occurred over the seven year period. This is particularly interesting in light of the inflationary experience of the 1970's in Canada. Then an examination of wealth inequality and composition is presented for family units at different stages in their life cycle—a topic which often occupies center-stage in the literature on wealth.

## Change in Wealth Distribution 1970–77

In spite of the fairly long tradition of taking asset and debt surveys at Statistics Canada—observations go back to the mid 1950's—comprehensive comparisons over the whole period are not possible; the earlier surveys covered fewer items on the balance sheet, as well as excluding the farm population from the sample. The 1970 and 1977 surveys are, however, comparable in content and coverage.

The 7 year period between the 1970 and 1977 surveys can be characterized as a period of regular (albeit slow) growth in real incomes. At the same time, the Consumer Price Index rose by more than 60 percent. In two of the years (1974 and 1975), Canada experienced double-digit inflation. During the period a major tax reform was brought in in 1972 and subsequently, other significant changes in tax treatment were introduced. For the first time in Canada, realized capital gains became taxable, changed provisions for Registered Retirement Savings Plans (RRSP's) opened this savings device to numerous wage earners, and favourable treatment of investment income was introduced. At the same time, private pension plan coverage was expanding, and the government sponsored earnings related pension schemes continued to mature and started to make payments to an ever-increasing segment of the older population. One would expect that all these circumstances (plus likely some others) have made a difference to the savings behaviour of Canadians. In fact during the period the personal savings rate increased from levels of roughly 5 percent to over 10 percent. Consequently, one would intuitively expect to find some changes in the wealth portfolio of households when comparing 1977 with 1970.

Data in Table 1 indicate that average wealth of Canadian families and unattached individuals has more than doubled over the seven-year period in current dollars. Due to conceptual difficulties with deflating wealth, it is more useful to look at other measures such as incidences of owning assets or reporting debts and ratios of debt to assets, debt to income, etc. A fairly uniform pattern emerges from such an examination—incidences of reporting are up for all types of assets (with the exception of publicly traded stocks)[8] and average holdings have increased by a factor of 2.0 to 2.5. No drastic change in the overall relationship of total debts to total assets has occurred. The ratio of wealth to income is up from 2.37 in 1970 to 2.92 in 1977; for families with 2 or more

[8]Not shown here, see Statistics Canada Cat. No. 13-572 p. 32, Text Table VI.

TABLE 1

PERCENTAGE COMPOSITION OF WEALTH (TOTAL ASSETS = 100%) OF FAMILIES AND UNATTACHED INDIVIDUALS, CANADA 1970 AND 1977

| | 1970 | 1977 |
|---|---|---|
| *Assets* | % | % |
| 1. Equity in business | 20.4 | 19.3 |
| 2. Estimated market value of home(s)[a] | 46.9 | 49.8 |
| 3. Equity in other real estate | 6.4 | 6.5 |
| 4. Cars | 4.0 | 4.3 |
| 5. Financial assets | | |
| Liquid assets | 14.7 | 12.9 |
| Other financial assets | 7.6 | 7.2 |
| *Total assets* | *100.0* | *100.0* |
| *Debts* | | |
| 1. Mortage debt on home(s)[a] | 10.1 | 10.9 |
| 2. Consumer debt | 3.6 | 3.4 |
| 3. Other personal debt | 1.3 | 0.8 |
| *Total debt* | *15.0* | *15.2* |
| *Wealth* | *85.0* | *84.8* |
| Average Income[b] | $7,686 | $15,849 |
| Average Assets | | |
| All family units | $21,382 | $54,556 |
| Holders only | $22,250 | $55,502 |
| Average Debts | | |
| All family units | $3,193 | $8,283 |
| Holders only | $5,020 | $12,706 |
| Average wealth | $18,189 | $46,273 |
| Median wealth | $7,575 | $21,422 |
| Gini coefficient of wealth | 0.716 | 0.689 |

[a]Includes vacation homes.
[b]For previous calender year, i.e. 1969 and 1976.
*Source*: Statistics Canada Cat. No. 13-572, Text Table VII.

persons this ratio shows more growth (from 2.38 to 2.95) than for unattached individuals (from 2.28 to 2.71).

Table 1 also confirms that remarkably little change has occurred in the composition of wealth between 1970–77; owner-occupied homes remain the most important asset in the wealth portfolio. If equity in business, homes and other real estate plus the value of automobile(s) owned is considered to be investment in real goods, there appears some increase in the proportion of the value of real goods out of total wealth (from just below 80 percent in 1970 to over 81 percent in 1977) and a corresponding drop in the importance of financial assets—but on the whole this is not a major change.

Table 2 shows that different wealth components when distributed among quintiles of family units (formed by ranking them by size of their total wealth) display different degrees of concentration.[9] Whereas the value of cars appears to be most evenly distributed among quintiles, equity in business/farm or professional practice shows the highest degree of concentration with over 90 percent of the aggregate value being held by the top quintile. Distribution of net financial

[9]Starting with Table 2 all data on wealth composition has been presented on a "net" basis rather than showing assets and debt separately.

TABLE 2

DISTRIBUTION OF WEALTH COMPONENTS BY WEALTH QUINTILES, CANADA, 1970 AND 1977

| Component | 1Q | 2Q | 3Q | 4Q | 5Q | Total aggregate |
|---|---|---|---|---|---|---|
| 1970 | % | % | % | % | % | % |
| 1. Equity in business | −0.1 | 0.2 | 1.8 | 5.0 | 93.1 | 100.0 |
| 2. Equity in home(s)[a] | 0.2 | 1.2 | 12.6 | 31.8 | 54.2 | 100.0 |
| 3. Equity in other real estate | 0.4 | 0.5 | 3.8 | 11.2 | 84.0 | 100.0 |
| 4. Cars | 8.1 | 16.0 | 19.6 | 22.8 | 33.5 | 100.0 |
| 5. Net financial assets[b] | −7.1 | 1.2 | 6.6 | 15.4 | 83.9 | 100.0 |
| 6. Total wealth | −1.0 | 1.6 | 8.4 | 20.1 | 70.8 | 100.0 |
| 1977 | | | | | | |
| 1. Equity in business | 0.1 | 0.3 | 2.1 | 4.6 | 92.9 | 100.0 |
| 2. Equity in home | −0.1 | 1.8 | 13.3 | 32.2 | 52.8 | 100.0 |
| 3. Equity in other real estate[a] | 0.3 | 1.0 | 6.3 | 15.0 | 77.5 | 100.0 |
| 4. Cars | 6.4 | 17.3 | 20.1 | 23.2 | 33.0 | 100.0 |
| 5. Net financial assets[b] | −4.6 | 1.8 | 7.8 | 15.8 | 79.3 | 100.0 |
| 6. Total wealth | −0.6 | 2.2 | 9.4 | 20.7 | 68.3 | 100.0 |

[a]Includes vacation home(s). Note that this item is included in component 2 for 1970 and component 3 for 1977.

[b]All financial assets less all debts except mortgages and business debt. In terms of the presentation in Table 1, asset item 5 minus debt items 2 and 3.

*Source*: Statistics Canada, Survey of Consumer Finances, 1970 and 1977.

assets (financial assets less all debt except mortgages and business debt) shows the most marked decrease in concentration between 1970 and 1977 and is likely one of the contributing factors to the decrease in the inequality of wealth during the period.

When inequality of the wealth distribution is examined in greater detail, it appears that there has been a consistent movement towards equalization: the bottom 9 deciles have increased their shares and the share of the top decile fell from 53.3 in 1970 to 50.7 in 1977 (detail not shown here). These changes are also reflected in other measures; the Gini coefficient decreased from 0.716 to 0.689 and the gap between median and mean wealth narrowed with their ratio rising from 0.416 to 0.463 (Table 1). Although this decrease in the degree of inequality cannot be considered as major, it is consistent and shows up also for important subpopulations e.g. for unattached individuals and families separately.

As before wealth inequality in 1977 is much higher than income inequality, e.g. the Gini coefficient for the 1976 money income distribution (calculated from the same data set) was 0.39 compared to 0.69 for wealth. The top decile of families and unattached individuals received about 27 percent of total income whereas in case of wealth the share of the top decile was nearly 51 percent.

Although it was not possible to include the value of pension rights and equity in life insurance policies in wealth as defined here, the auxiliary information collected on these items shows some of the most interesting changes of all. There appears to have been a major drop in the proportion of family units paying life insurance premiums (from 56.7 percent to 39.5 percent).[10] As the survey collects

[10]See Statistics Canada Cat. No. 13-572, p. 32.

data on premium payments only on policies that have a cash surrender value, it is likely that a major shift has occurred during the period from this type of insurance to group and term insurance. During this period also a major increase in the holding of RRSP's occurred and savings in this form may have started to replace the traditional Canadian preference for buying life insurance with a savings feature.

Coverage of employment related pension plans (in addition to that of the Canada/Quebec pension plans run by government(s)) has shown remarkably little change: only 2 percentage points more families and unattached individuals reported paying premiums into such pension plans (29.3 percent of all units in 1977 compared to 27.3 percent in 1970).[11]

The 29.3 percent figure of family units paying premiums translates into roughly 37–38 percent of family units claiming coverage by private pension plans (at least one member of the unit). Considering that pension adequacy is a topic of considerable interest and policy concern these are significant observations particularly because the data base provides simultaneously data on wealth, income and personal/family characteristics.

## Wealth Distribution by Age of Family Unit Head

Some of the data that are most in demand are wealth distributions and wealth composition by life cycle or age. Tables 3 and 4 present some aspects of

TABLE 3

Percentage Distribution of Families and Unattached Individuals by Size of Wealth and Age of Head, Canada, 1977

| Wealth Size Group | Age of Head | | | All Units | Families | Unattached Individuals |
|---|---|---|---|---|---|---|
| | Under 45 | 45–64 | 65+ | | | |
| | % | % | % | % | % | % |
| Negative | 15.0 | 3.7 | 1.4 | 9.3 | 7.5 | 13.8 |
| Zero | 1.4 | 1.3 | 2.0 | 1.5 | 0.6 | 4.0 |
| Under $1,000 | 11.1 | 5.9 | 9.3 | 9.2 | 5.2 | 19.7 |
| $1,000–$4,999 | 13.6 | 6.5 | 10.3 | 10.9 | 8.1 | 18.3 |
| $5,000–$14,999 | 15.7 | 9.6 | 11.8 | 13.3 | 13.0 | 13.8 |
| $15,000–$29,999 | 13.4 | 11.9 | 13.8 | 13.0 | 14.6 | 9.0 |
| $30,000–$49,999 | 12.2 | 17.3 | 18.1 | 14.8 | 17.0 | 8.8 |
| $50,000–$99,999 | 11.4 | 25.6 | 21.3 | 17.4 | 20.6 | 8.9 |
| $100,000 and over | 6.0 | 18.2 | 11.9 | 10.7 | 13.3 | 3.8 |
| Totals | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.00 |
| Mean wealth ($) | 31,032 | 72,460 | 47,074 | 46,273 | 56,122 | 20,635 |
| Median wealth ($) | 9,784 | 42,839 | 31,518 | 21,754 | 31,202 | 3,758 |
| Mean income in 1976 ($) | 16,417 | 19,048 | 8,604 | 15,849 | 19,010 | 7,621 |
| Sample size | 6,626 | 3,960 | 2,148 | 12,734 | 9,901 | 2,833 |
| Standard error of mean wealth ($) | 2,932 | 3,338 | 2,086 | 1,186 | 1,447 | 1,275 |
| Estimated number (000's) of family units | 4,208 | 2,407 | 1,393 | 8,008 | 5,785 | 2,222 |
| Gini coefficient | 0.75 | 0.61 | 0.59 | 0.69 | 0.64 | 0.79 |

*Source*: Statistics Canada, Survey of Consumer Finances, 1977.

[11] See ibid.

the wealth distribution for 3 broad groups of family units—those whose heads are 45 years and under, those whose heads are 45–64 years old and those who are mainly retired—over 65. As supplementary information a disaggregation for families with 2 or more members and unattached individuals is also shown. The data presented suggests the following comments:

1. Family units with negative wealth—debts exceeding assets—are most frequently found among the youngest age group and particularly among the young unattached (Table 3).

2. Average wealth rises with age and declines after retirement. However, the income/wealth ratio is highest for the elderly indicating that retirement income falls more drastically than wealth (calculated from Table 3).

3. Average wealth of families is over twice that of unattached individuals. However, as the average number of persons per family is 3.49 on a crude per capita basis (without distinguishing between children and adults) the "average per person" wealth of family members is lower than that of unattached individuals (Table 3).

4. Inequality of the wealth distribution drops with age; it is also much higher for unattached individuals than for families with two or more members (Table 3).

TABLE 4

WEALTH COMPONENTS BY AGE OF HEAD, CANADA, 1977

| | Age of Head | | | | | |
|---|---|---|---|---|---|---|
| | Under 45 | 45–64 | 65+ | All Units | Families | Unattached Individuals |
| *Distribution of wealth components* | % | % | % | % | % | % |
| Equity in business | 38.5 | 54.3 | 7.2 | 100.0 | 92.2 | 7.8 |
| Equity in home | 37.0 | 44.3 | 18.6 | 100.0 | 88.8 | 11.2 |
| Equity in other real estate | 34.3 | 49.6 | 16.1 | 100.0 | 86.3 | 13.7 |
| Cars | 54.9 | 35.9 | 9.1 | 100.0 | 88.0 | 12.0 |
| Net financial assets | 22.2 | 46.3 | 31.5 | 100.0 | 79.9 | 20.0 |
| Total wealth | 35.2 | 47.1 | 17.7 | 100.0 | 87.6 | 12.4 |
| *Distribution* | | | | | | |
| of family units | 52.6 | 30.1 | 17.4 | 100.0 | 72.2 | 27.8 |
| of population covered | 56.6 | 32.9 | 10.5 | 100.0 | 90.1 | 9.9 |
| of aggregate income | 54.4 | 36.1 | 9.4 | 100.0 | 86.7 | 13.3 |
| *Composition of wealth* | | | | | | |
| Equity in business/farm/ profession | 24.8 | 26.1 | 9.2 | 22.7 | 23.9 | 14.2 |
| Equity in home | 46.0 | 41.2 | 46.0 | 43.7 | 44.3 | 39.6 |
| Equity in all real estate other than home | 9.6 | 10.3 | 8.9 | 9.8 | 9.6 | 11.0 |
| Market value of cars | 7.9 | 3.8 | 2.6 | 5.0 | 5.1 | 4.9 |
| Net financial assets | 11.8 | 18.4 | 33.2 | 18.7 | 17.0 | 30.3 |
| Total wealth | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| *Proportion* | | | | | | |
| of home owners (%) | 51.1 | 72.5 | 62.5 | 59.6 | 72.1 | 26.8 |
| of home owners without mortgage (%) | 10.0 | 41.0 | 56.6 | 27.4 | 29.9 | 21.0 |

5. Equity in owner occupied homes is the dominant wealth component for all age groups; nearly 60 percent of all family units own their own homes. Although homeownership is highest among units with heads aged 45–64, ownership of homes free of mortgages is by far more prevalent among the elderly—over 56 percent of them own their homes outright, compared with 27 percent for all units. (Table 4).

6. For the elderly group net financial assets are a more important wealth component, in fact, its importance increases with age (Table 4).

7. Except for the value of cars where the share held is close to being proportionate to the size of the group, the youngest age group consistently holds less than its "fair share" of wealth components. Consequently, its share of total wealth is way below its population share. (Table 4).

8. The elderly, on the other hand, hold more than their "share" of equity in homes and financial assets, less of business equity and value of cars with equity in real estate other than homes falling into the indeterminate zone (depending on whether a per capita or per unit view is taken). (Table 4).

9. Family units with heads aged 45–64 hold consistently more than their proportionate share of each wealth component as well as of total wealth. (Table 4).

10. Although families seem to hold more wealth than unattached individuals relative to their number, this situation is reversed if a per capita view is taken—unattached individuals account for less than 10 percent of the population but hold more than 12 percent of total wealth (Table 4).

Most of these observations are not "surprises," they conform to previously known facts and expectations based on theory e.g. the life cycle savings hypothesis. Jointly these data, however, provide a broad description of the wealth distribution by age in Canada and reflect beside the general–universal truths the institutional and behavioral peculiarities of the Canadian situation. In presenting the above data by broad wealth components and for broad groups, care was taken to draw only such conclusions that would likely stand even if a correction for the underestimate had been made.[12]

## Data Problems

After the 1970 survey the Podoluk–Emmerson paper reviewed the quality of the data and acknowledged the well-known weaknesses from which estimates of aggregates suffer particularly when the data are obtained from household surveys. The literature contains several other papers that examine wealth inequality and discuss the shortfall of the Canadian estimates and in one case make tentative corrections to the data.[13] The Davies paper used a variety of other data sources for quantifying the underestimates of the different components and attempted to distribute the shortfall to the different units in the distribution using assumptions that were based on his evaluation of the sources of the underestimates. In spite of the very considerable shortfalls as estimated by

[12]See discussion in Appendix on reconciliation with outside data sources.

[13]Davies 1979 and 1980.

Davies, inequality showed little sensitivity to the correction. The surprising results that the corrected distribution shows very similar inequality seem to depend on the fact that although non-response among rich families is higher (and a correction for this would increase inequality) there is also relatively less non-response at the poor end of the distribution. In other words Davies' assumption that the underestimate is due to differential non-response implies corrections that are offsetting.

There are still serious shortfalls in case of some wealth components in 1977. The discussion in the Appendix, however, also details the reasons why in our judgement no adequate and reliable correction can be made at the micro record level.

It is interesting to note that although the above problem—the underestimate of some assets and debts—has received the most publicity, data users are more concerned about some of the other shortcomings of the data. The inability of the survey to provide estimates for pension and insurance wealth is often considered a serious handicap in analysis.[14] The exclusion of consumer durables other than cars is also often mentioned but it does not seem to affect the analytical usefulness of the data as seriously as the exclusion of pension and insurance wealth.

Actually the aspect that users find most often unsatisfactory is the size of the sample. In many Canadian applications geographic or other disaggregations are required and the effective sample of 12,700 usable records often puts limitations on such applications. Wealth data in Canada has been extensively used to examine issues central to public policy problems. Issues such as adequacy of pensions, adequacy of housing, and ability to carry mortgages as interest rates rise are examples of recent vintage where the wealth data can or has provided useful insights. In all these cases the availability of joint income/wealth data plus a good selection of personal/family characteristics has been essential. For all these applications the low and middle ranges of the distribution are of more interest and the data problems that likely affect the top 1 or 5 percent of families are of less concern.

## Conclusions

The above presented broad review confirms that the Canadian wealth distribution is characterized by a surprising degree of stability in terms of composition. Although the historical comparison above was limited to a recent short period (1970–77) earlier observations (although partial) support this finding.

The degree of inequality found in the Canadian wealth distributions has been described as being intermediate—higher than in the U.S. and lower than in the U.K.[15] Considering the differences in data sources, data quality, methods

[14]A field test conducted in the early 1970's indicated that not enough "hard" data can be obtained from respondents in a household survey to make such estimates. Likely a two stage survey design with household respondents providing data at the first stage and employers or financial insitutions at the second stage is needed. Cost and confidentiality problems of such a survey do not appear soluble in the Canadian context at present.

[15]See Harrison 1980.

of calculating inequality measures etc. this seems a very tentative conclusion at best. The 1977 distribution when compared against earlier survey observations shows a minor decline in inequality.

Data presented in the Appendix indicate that survey estimates are still suffering from substantial underestimates; at the same time there are also great variations in the quality of different wealth components. It is significant that there is reason to believe that real assets are better reported and if estimates for such major assets as real estate and cars are acceptable, it implies that large portions of the asset portfolio, particularly those of major significance for low and middle income households, are more reliably reported. Financial assets and debts, however, are of very mixed quality and some apparently quite poor.

The 1977 observation of the wealth distribution must by now be considered outdated. Economic conditions in Canada since then have changed drastically again—real growth in incomes of unattached individuals and families has ground to a halt, inflation has accelerated and unprecedented high interest rates must influence savings behaviour and/or portfolio composition. This expectation of finding major changes in the wealth distribution is purely intuitive; past observations taken at 5–7 year intervals against a background of widely varied socioeconomic conditions have on the whole shown very little variation in established patterns of wealth holdings—as the discussion above about the 1970–77 comparison proves.

Demand for wealth distribution data and the lack of any other basis for making such estimates keeps a repeat of an asset-debt household survey a live issue. The financing of such a survey plus the difficulty of gaining public acceptance for these very detailed and demanding questionnaires are the major obstacles to overcome. At present (March 1983) Statistics Canada is giving serious consideration to a repeat asset and debt survey in the spring of 1984.

## Appendix—Quality of the 1977 Data

### 1. *Response Rate*

A multiple sample frame was used for the 1977 Survey of Consumer Finances. The basic sample was selected from a multistage stratified clustered area probability sample and to it a small sample of known high income households was added. The overall response rate (calculated on the basis of families and unattached individuals) was 79.7 percent. Not all usable records had complete responses for all questions and a complex imputation system was used to complete records where core information had adequately been reported.[16] From this relatively high response rate one can conclude that non-response error is not a major concern in respect to this data set.

From the supplementary high income sample some 184 records were obtained. This represents a much lower response rate (only 45 percent) than that for the main sample and this admittedly gives rise to concerns of non-response bias affecting the total data set.

[16]See Statistics Canada, Evaluation of Data on Family Assets and Debts, 1977.

2. *Sampling Error*

Due to the complex sample design the estimation of sampling errors is more involved and they are in general higher than those for a sample of equal size pulled on a simple random basis.

Estimates calculated by making allowances for the sample design indicate that for the overall wealth distribution the standard error of the mean was $1,186 or 2.6 percent of the mean. For subgroups of families and unattached individuals standard errors usually range in magnitude from 5–10 percent of the mean. The error estimates themselves, however, are not very reliable due to the extreme skewness of the wealth distribution. The above indicates that sampling errors are not negligible in spite of an effective sample of over 12,700 records.

3. *Reconciliation with Outside Sources*

In addition to the two dimensions discussed above (non-response and sampling) other errors also have affected the wealth data. As a pragmatic measure of overall data quality a reconciliation of detailed wealth components to outside estimates (when available) has been attempted. In such an exercise only the combined effect of all errors is reflected.

A detailed reconciliation was built and it showed that appropriate outside estimates are available for only a few components; some of the most important assets (e.g. owner-occupied homes) can only be assessed in a very indirect way.[17] Even where an aggregate from other sources was available there are often grave doubts that it covered the same universe or was conceptually compatible. The coverage problem is particularly troublesome as in many cases Canadian statistics do not distinguish between households, unincorporated business, non-profit making institutions, and trusts and estates. Bank of Canada data, being of institutional origin (mainly obtained from financial institutions), may include significant amounts in deposits belonging to trusts, undistributed estates, and non-profit insititutions. For financial assets the Financial Flow Accounts provide an alternative source of data but here the estimates are derived residually for most categories and consequently any deficiency of coverage, differences in method of valuation etc. will result in errors in the estimates for the sector of "persons and unincorporated business".[18] As an interesting exception in the Financial Flow Accounts mortgage investments held by this sector are estimated directly and not by the residual method and estimates are available separately for (a) individuals and (b) estates, trusts and agencies. Although mortgage investments are not a particularly important wealth component, it is interesting

[17]On this point there is some judgement involved—perfectly matched estimates from other sources are hardly ever available; it is basically a matter of judgement whether an outside estimate is close enough or adjustable to a figure that can be considered as comparable. A statistical agency whose output has official status would naturally take a stricter view on these issues than a researcher doing a private study. The author of this paper found only 6 out of the total 25 asset/debt components to have acceptable estimates from outside sources.

It should be noted that the System of National Accounts in Canada does not have a fully developed set of capital accounts; estimates of real assets are in the process of being developed.

The detailed reconciliation table is available on request from author.

[18]See Statistics Canada Cat. No. 13-563 Financial Flow Accounts.

to note that survey estimates are only 44 percent of the aggregate if the published figures for the total sector of "persons, unincorporated businesses" are used as the base but 77 percent if the adjusted aggregate ("holdings of individuals") is used—i.e. removing mortgage investments of estates, trusts and agencies from the base of the comparison.

It is likely not valid to generalize from this one example but it is a useful illustration that indicates how suspect most comparisons are against figures that originate from other sources.

One classification problem that confounds the interpretation of all the comparisons in the reconciliation is important to note. In some institutional data and certainly in all data from the System of National Accounts (e.g. the Financial Flow Accounts) individuals and unincorporated businesses form a joint sector. On the household balance sheet as collected by the survey personal assets and debts are reported by type whereas all assets and debts of unincorporated businesses, farms, etc. are lumped and reported on a net basis as "equity in business, farms or professional practices." As a result an unknown portion of the apparent shortfall in many components is in fact picked up by the survey under "equity in business."[19]

In summarizing the results of the reconciliation a great deal hinges on the judgement that is made of the quality of the data on real assets—mainly the value of homes, but also the equity in other real estate and the value of cars. These items account for about 60 percent of the value of all assets and their quality is rather decisive in determining the quality of the overall wealth distribution. Although no direct checks on these items are available, the indirect evidence seems to support the survey estimates. It should also be remembered that Davies attempted to build independent estimates for owner-occupied homes and automobiles using the perpetual inventory method but he rejected these and accepted the survey estimates as correct.

The quality of financial assets and debts is very varied ranging from a low of 20–30 percent for some items to 90–100 percent on others. On an intuitive basis (after making allowances for the items for which no adequately comparable outside estimates were available) survey estimates of financial assets and debts may come to 60–70 percent of the true balances of the household sector. This leads one to conclude that the 1977 wealth estimates are no worse and likely somewhat better than the 1970 estimates.[20]

Undertaking an adjustment to data remains, however, a problem. Considering the very speculative nature of the outside estimates combined with our relative ignorance about the precise causes of the response error (whether non-reporting of items by individuals or understatement of reported amounts) makes an adjustment to the data a risky undertaking. In order that the adjusted data be fully usable a correction would have to be made to individual records

[19]This particular aspect of the problem has been generally acknowledged but it is not clear that, for example, Davies' tentative adjustment makes adequate allowances for it.

[20]According to Davies the 1970 estimates for *total* wealth were in the 60–70 percent range; here 1977 wealth estimates *excluding* real assets are evaluated to correspond to 60–70 percent of outside estimates, i.e. correspondence of *total* wealth (including real assets) should be higher than that.

on a component by component basis.[21] Such an adjustment requires an extensive background of validation studies in order to distribute the shortfalls in a credible way.[22] Validation studies require the co-operation of institutions and respondents beyond what is available to us in Canada. Preparing different data sets based on different sets of assumptions is a possibility and could be undertaken as an experiment in testing the sensitivity of the data to different assumptions in respect to magnitudes of the shortfall in different items along with different distributive assumptions. It would, however, be a very resource consuming exercise that is unlikely to lead us much closer to an authoritative official series based on the revised data and for that reason Statistics Canada has not undertaken such a revision.

In summary, the obstacles to an authoritative adjustment are two-fold: (i) for most components there is a lack of suitable outside estimates, i.e. the shortfall in the survey aggregates cannot be quantified adequately and (ii) knowledge about how to distribute the shortfall is speculative and not backed up by actual validation studies.

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[21] As Davies worked with grouped data he did not have to face the problem of distributing the adjustment to individual records.

[22] See e.g. Ferber, *The Reliability of Consumer Reports of Financial Assets and Debts.*