2012 Survey of Financial Security: Public Use Microdata User Guide

2012

by Pensions and Wealth Surveys Section

Income Statistics Division
Jean Talon Building, Ottawa, K1A 0T6

Telephone: (613) 951-7355

Statistics Canada Statistique Canada

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1.1 Overview

The 2012 Survey of Financial Security (SFS) provides a comprehensive picture of the net worth of Canadians. Information was collected on the value of all major financial and non-financial assets and on the money owing on mortgages, vehicles, credit cards, student loans and other debts. The value of these assets less the debts is referred to as net worth.

The cross-sectional public use microdata file (PUMF) is a collection of income, expenses, assets, debts and wealth data on Canadian families. This file contains information collected from more than 12,000 family units residing in private households in Canada. All records have been thoroughly screened to ensure the anonymity of respondents.

This manual was produced as a reference guide to help users manipulate the microdata file of the survey results.

For more information, or to enquire about concepts, methods or data quality, please contact:

Income Statistics Division
Toll-free 1-888-297-7355 or 613-951-7355
income@statcan.gc.ca

1.2 History

Since the 1950s, Statistics Canada has conducted occasional surveys on the assets and debts of Canadians. Up to, and including, 1984, these surveys were supplements to the more regular income surveys, known as the Surveys of Consumer Finances (SCF). In 1999, the assets and debts component of the SCF was replaced by the Survey of Financial Security. There was another iteration of this survey in 2005, and again in 2012.

Over the seven-year period between 2005 and 2012, a number of important factors influenced the evolution of the wealth distribution in Canada. The real estate market experienced strong growth over the period, with historically low interest rates and favorable economic conditions spurring new construction and inflating the value of existing homes.

With the cost of borrowing at all-time lows, consumer debt rose to unprecedented levels, while debt service ratios nonetheless have not increased in relation to income. The banking sector targeted an increasing portion of its lending activity at consumers, making consumer credit more available in a broader variety of forms.

1.3 How to cite SFS in publications

"This analysis is based on Statistics Canada's Survey of Financial Security Public Use Microdata, 2012, which contains anonymous data collected in the Survey of Financial Security. All computations on these microdata were prepared by (Name of user). The responsibility for the use and interpretation of these data is entirely that of the author(s)".

2.0 Key findings

The 2012 survey results showed that:

The median net worth of Canadian family units was $243,800 in 2012, up 44.5% from 2005 and almost 80% more than the 1999 median of $137,000, adjusted for inflation.

Median net worth was highest for family units where the person with the highest income was 55 to 64 years old ($533,600) in 2012. This was almost three times higher than for family units where the highest income recipient was 35 to 44 ($182,500). For senior family units, those where the highest income recipient was 65 or older, median net worth was lower as they begin to draw on their assets as they transition from the workforce ($460,700).
Among families of two or more persons, lone parent families had the lowest median net worth in 2012 ($37,000) and senior families had the highest median net worth ($650,400). Among unattached persons, seniors ($246,000) had a substantially higher median net worth compared with non-seniors ($22,700).

The total value of assets held by Canadian family units in 2012 was $9.4 trillion, composed of financial assets (pension and non-pension), non-financial assets and equity in business. As in 1999 and 2005, the principal residence was the largest asset in 2012, representing one-third of the total value of assets. For those who owned their principal residence, the median reported value of their residence was $300,000 in 2012, up 83.2% from 1999 and 46.6% more than in 2005.

Following closely behind the principal residence were private pension assets, representing 30.1% of the total value of assets held by Canadian family units in 2012. These assets include employer pension plans, Registered Retirement Savings Plans and Registered Retirement Income Plans. About 7 in 10 Canadian family units had private pension assets in 2012, the same as in 1999 and 2005. However, the median amount held increased to $116,700 in 2012, up from $65,500 in 1999 and $77,400 in 2005. This was due, in part, to the aging population.

Other real estate such as cottages, timeshares, rental properties and other commercial properties represented 9.9% of total assets held in 2012. About one in five Canadian family units owned these properties, with a median value of $180,000. The median value has more than doubled since 1999.

The 2012 Survey of Financial Security gives the first glimpse at investments in Tax-free Savings Accounts (TFSAs). Introduced in 2009, they allow individuals to invest up to $5,000 each year, and earnings within them are not taxable, even when the money is withdrawn. In 2012, 4.9 million family units held almost $66 billion of assets in these accounts. Although this represents a small portion of total assets (0.7%), one-third of family units had TFSAs. For those with TFSAs, the median value was $10,000.

Of the $1.3 trillion of debts owed by Canadians in 2012, $1.0 trillion (77.0%) was in mortgages, a share virtually unchanged from 1999. However, the total amount of mortgage debt has increased substantially, up from $453.6 billion in 1999 and $650.8 billion in 2005.

The median value of mortgages on principal residences was $145,000 in 2012, up 66.5% from 1999 and 41.6% from 2005. When looking at other real estate, the median value of the debt was $140,000 in 2012, up 78.1% from 1999 and 36.7% from 2005.

While 33.8% of family units reported having a mortgage on a principal residence, a figure that has changed little over the 13 years of the survey (32.0% in 1999 and 34.1% in 2005), the proportion holding mortgages on other real estate increased over this period (6.4% in 2012 compared with 4.6% in 1999).

In 2012, total debts in lines of credit amounted to $144.9 billion, up from $33.2 billion in 1999 and $77.5 billion in 2005. One-quarter of family units had lines of credit in 2012, the same as in 2005, but up from 15.4% in 1999. The median line of credit debt was $15,000 in 2012, up from $6,600 in 1999 and $10,200 in 2005.

Loans on owned vehicles amounted to $75.8 billion in 2012, more than double the amount in 1999 and up 44.6% from 2005. There were increases in both the share of family units with a vehicle loan (from 20.8% in 1999 to 28.5% in 2012) and the median amount owed (from $11,800 in 1999 to $15,000 in 2012).

About 40% of Canadian family units carried an outstanding balance on their credit cards in 2012, virtually unchanged from 1999 and 2005. The median amount was $3,000 in 2012, up 25.0% from 1999 and 11.1% from 2005.

In 2012, $28.3 billion was owed in student loans, up 44.1% from 1999 and 24.4% from 2005. In 2012, one in eight family units had student loans with a median value of $10,000.

One way of looking at the distribution of net worth is to divide family units into five groups, from lowest net worth to highest, with each quintile representing 20% of all family units. There were differences in both the median net worth among the quintiles and the magnitude of the change over time. Those in the lowest quintile had a median net worth of $1,100 in 2012, while those in the highest quintile had a median net worth of almost $1.4 million.

In terms of change, those in the lowest quintile saw a slight decrease in their median net worth, down from $1,300 in 1999. The family units in the top three quintiles saw increases of about 80% between 1999 and 2012. Differences in home ownership and private pension assets between quintiles help explain these changes.

Debt load can be measured as the amount of debt owed for every $100 held in assets. Canadian family units had a debt load of $14.21 in 2012, up from $13.06 in 1999. Family units with the major income recipient under 35 years old had the highest debt load in 2012 at $36.44, compared with $3.50 for all senior family units. With a debt load of $29.08 in 2012, family units with the major income recipient between 35 and 44 years old experienced the largest increase, up from $21.28 in 1999.

This ratio varied by family type from $3.56 for senior families to $25.72 for lone-parent families in 2012. When comparing 1999 to 2012, couples with children saw their debt load increase from $20.88 to $23.74, while unattached persons saw their debt load increase from $10.55 to $13.25.

3.0 Concepts and definitions

This chapter outlines the definitions of the main assets, debts and wealth concepts and their components.

Table 3-1 below illustrates the components of the net worth calculation accounted for by the Survey of Financial Security. The value of all assets less all debts is net worth. A family's net worth can be thought of as the amount of money they would have if they liquidated their assets and paid off all of their debts. The PUMF variable names appear in brackets.

Assets **(PWATOTPT PWATOTPG)**	**less:**	**Total debts** **(PWDTOTAL)**	**equals**	**Net worth** **(PWNETWPT PWNETWPG)**
RRSPs/LIRAs **(PWARRSPL)** RRIF **(PWARRIF)** Employer Pension Plans (EPP) **(PWARPPT, PWARPPG)** Retirement funds, other **(PWAOTPEN)** Deposits in financial institutions **(PWASTDEP)** Mutual funds and other investment funds **(PWASTMUI)** Stocks **(PWASTSTK)** Bonds **(PWASTBND)** TFSAs **(PWATFS)** Other financial assets, non-pension **(PWASTOIN)** Principal residence **(PWAPRVAL)** Other real estate **(PWASTRST)** Vehicles **(PWASTVHE)** Other non-financial assets **(PWASTONF)** Equity in business **(PWBUSEQ)**		Mortgage on principal residence **(PWDPRMOR)** Mortgage on other real estate **(PWDSTOMR)** Line of credit **(PWDSTLOC)** Credit card and installment debt **(PWDSTCRD)** Student loans **(PWDSLOAN)** Vehicle loans **(PWDSTVHN)** Other debt **(PWDSTODB)**		

3.1 Net worth

The net worth (sometimes referred to as wealth) of a family unit is defined as the difference between the value of its total asset holdings and the amount of total indebtedness.

There are two types of net worth variables:

1. **PWNETWPT** – Net worth of the family unit. (Assets including current pensions valued on termination basis[1] (PWATOTPT) - debts (PWDTOTAL).
2. **PWNETWPG** – Net worth of the family unit. (Assets including current pensions valued on going concern basis[1] (PWATOTPG) - debts (PWDTOTAL).

Respondents were asked to provide the value of the asset or the amount of the debt at a time as close as possible to the date of the interview. Assets and debts were reported for the family unit as a whole and not for each person in the family. The assets and debts included in the survey are identified below.

3.2 Assets

Respondents were asked to report the market value of the asset that is the amount they would receive if they had sold the asset at the time of the survey. If available, respondents were encouraged to consult financial records. When the value could not be determined through an independent source, the respondent was asked to estimate the value. This is in itself prone to error. In the case of vehicles, respondents were asked to provide the make, model and year in addition to the estimated value. Values provided by respondents were not adjusted unless they were judged to be an error, resulting, for example, from data entry. If the respondent either over or underestimated the value of an asset by a relatively small proportion, this would not be readily apparent. However, extreme values were reviewed and adjusted if necessary.

The value of all invested assets was to include accrued earnings or interest. Respondents were asked to estimate the actual value, at the time of the survey. In one case, for the value of the contents of the principal residence, the respondent was able to select one of 16 ranges.

The definitions of the assets items identified in table 3-1 are:

Assets, total (PWATOTPT, P WATOTPG): Total value of all financial assets, non-financial assets and equity in business.

There are two types of total asset variables:

1. **PWATOTPT** - Total assets, including employer pension plans (current plans valued on termination[1] basis).
2. **PWATOTPG** - Total assets, including employer pension plans (current plans valued on a going concern[1] basis)

Bonds (PWASTBND): Bonds are the total value, including earnings, of federal and provincial savings bonds and other bonds issued by governments and corporations. Includes investment in foreign bonds but excludes the amount held within registered plans.

Deposits (PWASTDEP): Deposits are the total amount, including interest, of all chequing and savings accounts with a non-zero balance and of other deposits such as term deposits and Guaranteed Investment Certificates. These amounts would generally be held in financial institutions such as chartered banks, trust companies, co-ops and caisses populaires. This item includes only the amount held outside of registered plans.

Employer pension plans (**PWARPPT, PWARPPG**): An employer pension plan (EPP) is an employer-sponsored plan registered with Canada Customs and Revenue Agency and most commonly also with one of the pension regulatory authorities. The purpose of such plans is to provide employees with a regular income at retirement.

[1] Employer pension plan valuation is explained further in this chapter.

There are two commonly used approaches to valuing EPP assets: the **going concern** and the **termination** approach. The two EPP variables included on the PUMF are:

1. **PWARPPT** – Current pension plans valued on a termination basis.
2. **PWARPPG** – Current pension plans valued on a going concern basis

The main differences between the two valuation methods are:

(a) Although future service is not considered in either type of valuation, in a going concern valuation assumptions are made about future salary increases. As many EPPs base the amount of the pension on average earnings close to the time of retirement, assuming salary increases up to that time will obviously increase the value of the benefit. In a termination valuation, salary increases are not considered.

(b) Interest rates for a termination valuation are assumed based on current market rates. For a going concern valuation longer term interest rates are assumed.

(c) The going concern valuation method is applicable only for current members of certain types of EPPs. Those with deferred pensions (people who had previously belonged to an EPP) and those receiving benefits are no longer members of the plan so future salary increases need not be considered.

When analyzing SFS data the termination valuation approach is generally used. That approach is more consistent with the basis on which other assets are valued, in that future expectations are not taken into consideration and current market conditions are used to estimate the value. The termination approach, however, can underestimate the value of the benefit earned (accrued) as of the time of the survey because many employees will continue to participate in the plan, and therefore receive a pension based on their salary closer to the time of retirement. In order to allow users the option of selecting the value of the EPP that is most appropriate for their type of analysis both values have been produced and are available.

In valuing benefits for those respondents who belonged to a pension plan at the time of the survey, only plan membership up to the time of the survey has been considered. Therefore, in the case of a person who was 45 at the time of the survey and who had participated in an EPP for 10 years, the pension would be valued for the 10 years of known service.

For more information on employer pension valuation see M. Cohen, H. Frenken and K. Maser, *Survey of Financial Security: Methodology for estimating the value of employer pension plan benefits*, Statistics Canada, Catalogue 13F0026MIE-01003.

Equity in business (PWBUSEQ): The estimated amount the respondent would receive if the business were sold, after deducting any outstanding debts to be paid.

Locked-in Retirement Accounts (included in **PWARRSPL**): A Locked-In Retirement Account (LIRA) is an RRSP in which the money is locked-in until the person reaches a specified age. LIRAs are included in the RRSP category. This money would have been transferred from an employer pension plan after the individual terminated employment. For the most part, LIRAs came into use in the late 1980s, when revisions to pension regulatory legislation provided for enhanced portability of pension accruals on termination of employment.

Mutual funds and other investment funds (PWASTMUI): The total value, including investment earnings, of all holdings in mutual and investment funds. Excludes the amount held within registered plans.

Tax free savings accounts (PWATFS): A TFSA is an account that lets deposits grow through tax-free compounding. No income tax is paid on investment returns earned in the account, and there are no taxes on the amounts withdrawn. Any Canadian resident 18 and over with a social insurance number can open a TFSA. Up to $5,000 can be contributed every year from 2009 to 2012.

Principal residence (**PWAPRVAL**): Market value, as estimated by the respondent, of the residence where the respondent lives. If the respondent has two residences, this would be the one where they most often live. If the respondent shares ownership of the home with someone outside the family, only the family's share is included. If the property is a farm, the estimated value of the farmhouse is included; the value of the farmland would be included either with business equity or with other real estate, if no business were reported.

Real estate, other (PWASTRST): Estimated market value of real estate other than the respondent's principal residence. Included would be second homes, vacation homes, timeshares, rental property (residential or non-residential) or vacant lots. Real estate includes property in Canada or outside.

Registered Retirement Savings Plans (included in **PWARRSPL**): A Registered Retirement Savings Plan (RRSP) is a capital accumulation program designed to encourage saving for retirement. Contributions are tax-deductible within prescribed limits. Investment income earned in the RRSP is tax exempt, but benefits are taxable.

The RRSP could be held in deposits, mutual funds, stocks or bonds. As well, this includes the amount held in Locked-in retirement accounts (LIRAs); see definition above.

Registered retirement income funds (PWARRIF): A Registered Retirement Income Fund (RRIF) is intended to provide a regular income in retirement. Monies in RRSPs must be transferred to a RRIF or an annuity before the end of the year in which the owner of the RRSP turns 71. Payments from an RRIF may be varied, but a minimum amount must be withdrawn annually. Also includes monies in locked-in retirement income funds (LRIFs) and life income funds (LIFs); these plans are intended to receive amounts transferred from an employer pension plan.

Stocks **(PWASTSTK)**: Total value, including earnings, of all publicly-traded common and preferred shares. Includes foreign stock but excludes the amount held within registered plans.

Vehicles (PWASTVHE): Estimated value of cars, trucks, vans, sport utility vehicles as well as motorcycles, mobile homes, boats and snowmobiles. Excludes vehicles owned by the respondent's business and vehicles that are leased.

3.3 Debts

The amount reported for debts is not intended to include interest owing, as this would most often not be known.

The debt items listed in table 3-1 comprise the following:

Debts, total (PWDTOTAL): Total of all debts for the family unit.

Credit card and installment debt (PWDSTCRD): For credit cards, the amount owing on the last bill, excluding any new purchases. Includes major credit cards (VISA, MasterCard, American Express, Diners Club/en Route) and retail store cards, gasoline station cards, etc. Installment debt is the total amount owing on deferred payment or installment plans where the purchased item is to be paid for over a period of time.

Line of credit (PWDSTLOC): Total amount owing on both a home equity line of credit and a regular line of credit. This does not refer to the credit limit on the LOC.

Mortgages, on principal residence (PWDPRMOR): Outstanding amount owing on the respondent's principal residence. If the respondent shares ownership of the home with someone outside the family, only the family's share of the mortgage is included. If the property is a farm, the mortgage owing on the farmhouse is included; the mortgage on the remainder of the farm would implicitly be included with business equity or would be included with mortgage owing on other real estate, if no business were reported.

Mortgages, on other real estate (PWDSTOMR): Respondent's share of the mortgage owing on second homes, vacation homes, timeshares, rental property (residential or non-residential) or vacant lots.

Student loans (PWDSLOAN): Amount owing on loans taken out to attend a post secondary education program. These loans are most often taken through the Canada Student Loan Program or one of the provincial student loan programs. This item also includes amounts owing on loans taken directly from a financial institution to attend school.

Vehicle loans (PWDSTVHN): Amount owing on loans for those vehicles listed under assets.

3.4 Family type

Within the family type classification, the following definitions apply:

Couples: Couples include legally married, common-law and same-sex relationships.

Couples with children: Couples living with a child or children (by birth, adopted, step, or foster) under age 18. Children aged 18 or over are considered to be "other relatives". Other relatives may also be in the family.

Economic family: An economic family is defined as a group of two or more persons who live in the same dwelling and are related to each other by blood, marriage, common law or adoption.

Senior/senior families: Person aged 65 and over. In the case of senior families, the major income recipient is aged 65 and over.

Family units: Includes economic families and unattached individuals.

Lone-parent families: One parent living with at least one child under age 18. Families where the parent is 65 years and older are excluded.

Other non-senior families: Couples living with a child or children (biological, adopted, step, or foster) aged 18 or over and/or with other relatives, but not living with a child or children under the age of 18. Also includes lone parent families (with children of all ages) and related persons (e.g., siblings, cousins) living together. The major income recipient was aged 64 or under at the time of the interview.

Unattached individual - Person not in an economic family: An unattached individual is a person living either alone or with others to whom he or she is unrelated, such as roommates or a lodger. The correct standard term for unattached individual is now *'person not in an economic family'*.

Major income recipient or earner: For each family, the major income recipient is the person with the highest income before tax. For persons with negative total income before tax, the absolute value of their income is used, to reflect the fact that negative incomes generally arise from losses "earned" in the market- place and are not meant to be sustained. In the rare situations where two persons have exactly the same income, the older person is the major income recipient.

4.0 Survey methodology

4.1 The survey universe

The 2012 Survey of Financial Security was carried out in all ten provinces (the territories were not included). Those living on Indian reserves and crown lands and official representatives of foreign countries living in Canada and their families were also excluded from the survey. Members of religious and other communal colonies, members of the Canadian Forces living in military camps and people living in residences for senior citizens were excluded, as were people living full time in institutions, for example, inmates of penal institutions and chronic care patients living in hospitals and nursing homes. The survey covers about 98% of the population in the ten provinces.

Information was not gathered from persons temporarily living away from their families (for example, students at university) because it would be gathered from their families if selected. In this way, double counting of such individuals was avoided.

4.2 Survey content and reference period

With a few exceptions, the reference period for the information was the time of data collection (September to November 2012). For the asset and debt information respondents were asked to provide an estimate of the value or amount as close to the survey date as possible, recognizing that their most recent statement may have been as of the end of the previous calendar year, or for the last financial quarter.

Some of the information was collected for each person in the family 15 years of age and over. The assets and debts, however, were collected for the family as a whole, because they often cannot easily be assigned to one person in the family. Specifically, the following information was collected:

From each family member 15 years of age and over:

- demographics (age, sex, marital status);
- ethno-cultural characteristics;
- education;
- current employment;
- income, for the calendar year 2011.

From each family member 25 years of age and over:

- previous employer pension plans
- pension plan benefits

From each family member 45 years of age and over:

- retirement information

For the family unit as a whole:

- financial and non-financial assets;
- equity in business;
- debt in the form of mortgages, vehicle loans, credit card and line of credit debt, student loans and other debt.
- distribution of registered plans investments
- distribution of mutual funds investments

4.3 The sample

The 2012 SFS used a stratified multi-stage dual frame design. The overall sample size was 20,000 dwellings and the sample was selected as two independent samples from two overlapping frames. This type of approach allows the survey to benefit from the advantages of each of the two different frames while minimizing the disadvantages of each frame.

The first sample was a stratified, multi-stage sample of 11,591 dwellings selected from the Labour Force Survey (LFS) sampling frame. This frame provides good coverage of the entire target population. Dwellings selected for SFS had not previously participated in labour force or financial surveys conducted by Statistics Canada which also select their samples from this frame. Sample selection comprised two steps: the selection of clusters (small geographic areas) from the LFS frame, then the selection of dwellings within these selected clusters. At the time that the SFS sample was selected the LFS frame used 2006 Census geography. The drawback of this frame's clustered design is that it decreases the sampling efficiency.

To improve the efficiency of the overall SFS sample a second sample of 8,409 dwellings was selected from a frame built from the 2009 T1 Family File (T1FF). The frame was stratified by predicted net worth, thereby improving the sampling efficiency and ensuring that all levels of family net worth are well represented in the sample. A disadvantage of the T1FF frame was that the quality of the addresses, especially in rural areas, was not ideal. For this reason, the T1FF was used as a frame for SFS only in urban areas.

4.4 Data collection

The 2012 Survey of Financial Security was conducted from September 2012 to November 2012. Data were collected during a personal interview using a CAPI application (computer-assisted personal interviewing).

For families, the interview was held with the family member with most knowledge of the family's financial situation. If necessary, follow-up was done with other family members. Proxy response was accepted. This allowed one family member to answer questions on behalf of any or all other members of the family, provided he or she was willing and able to do so.

4.5 Data processing and quality control

The 2012 Survey of Financial Security was processed using the Social Survey Processing Environment (SSPE) processing system. The SSPE consists of a set of generalized processes to be used in the processing activities of the Survey Life Cycle. The purpose of these processes is to allow subject matter and survey support staff to specify and run the processing of a survey in a timely fashion with high quality outputs.

The various SSPE processing steps and utilities were developed using SAS, and utilize other software including PFM (Process Flow Manager), Excel and SQL Server 2005. The processing steps and utilities were programmed as SAS macros. All parameters and specifications are provided through Excel workbooks, and the metadata for all surveys are stored on the metadata repository. This involved the following standard processing steps, Receipt of Raw Data, Clean Up, Recode, Flow Edits, Coding Apply, Consistency Edits, Derived Variables, Final Processing File and Dissemination Files, as well as steps created for external files created by Subject Matter and Methodology with regards to Pension Processing variables as well as Income Processing variables.

4.6 Imputation of missing data

Missing responses were imputed for all key fields in the questionnaire. All missing dollar amounts relating to assets and debts (and therefore, net worth) have been imputed. For example, when respondents were unable or unwilling to provide a market value for their principal residence, the value was imputed. Where possible, imputation was deterministic, using other information provided by the respondent. Hotdeck imputation methods were used in most cases where deterministic imputation was not possible and nearest neighbour techniques were employed for all missing components of income and net worth.

Not all variables on the SFS database were imputed for non-response. Variables that were not imputed may,

therefore, contain fields with nonresponse reserve codes for "Don't know", "Refusal" or "Not Stated". For example, none of the variables in the Language, Immigration, Aboriginal, and Activity Limitations & Health sections of the SFS questionnaire have been imputed.

Table 4-1 provides the percentage of total assets or total debts that each asset or debt item comprises and the percentage of the total value of each asset or debt item that was determined through imputation. For example, it shows that principal residences constituted 30% of total assets and that that 5% of the total amount for principal residences was imputed. Note that Employer Pension Plan values were not imputed – all EPP values were estimated as described in section 3.2. EPP values are treated however as 100% imputed for the purposes of this table. Also note that the table was produced using the internal SFS database variables prior to perturbation for the PUMF.

Table 4-1 Percentage of Asset and Debt Item Totals due to Imputation

	Assets or Debts (after imputation) %	**Imputed %**
Assets (PWATOTPT)	**100**	**27**
Pension assets	**30**	**69**
RRSPs/LIRAs (PWARRSPL)	8	12
RRIFs & Other retirement funds (PWARRIF & PWAOTPEN)	2	24
EPPs (PWARPPT)	19	100[(1)]
Financial assets, non-pension	**13**	**19**
Deposits in financial institutions (PWASTDEP)	4	17
TFSAs (PWATFS)	1	7
Mutual funds and investment funds (PWASTMUI)	3	22
Stocks & Bonds (PWASTSTK & PWASTBND)	4	22
Other investments or financial assets (PWASTOIN)	1	11
Non-financial assets	**47**	**5**
Principal residence (PWAPRVAL)	30	5
Other real estate (PWASTRST)	11	4
Vehicles (PWASTVHE)	2	8
Other non-financial assets (PWASTONF)	3	5
Equity in business (PWBUSEQ)	**10**	**16**
Debts (PWDTOTAL)	**100**	**8**
Mortgage on principal residence (PWDPRMOR)	57	9
Mortgage on other real estate (PWDSTOMR)	19	9
Lines of credit (PWDSTLOC)	12	5
Credit card and instalment debt (PWDSTCRD)	2	4
Student loans (PWDSLOAN)	2	14
Vehicle loans (PWDSTVHN)	6	9
Other debt (PWDSTODB)	2	7

[1] All Employer Pension Plan values were estimated.

4.7 Weighting

The estimation of population characteristics from a survey is based on the premise that each sampled unit represents, in addition to itself, a certain number of unsampled units in the population. A survey design weight is determined for each sample unit based on its probability of selection to indicate the number of units in the population that the unit represents. Design weights for SFS are determined separately for the samples selected from the two frames. Three types of adjustments are then applied to the survey design weights.

The survey design weights are first adjusted to compensate for non-response. Adjustments are made to the weights separately within similar groups of respondents so that the respondents within the group also represent the nonrespondents. The adjustment groups are formed using design information and variables which explain the nonresponse pattern.

The non-response adjusted weights are then further adjusted in order to combine the two samples. The weights must be adjusted to take into account the fact that the dwellings in the overlap of the two frames had a chance of being selected in both samples.

Next, the weights are adjusted to ensure that estimates of relevant population characteristics would respect known population totals from sources external to the survey. The population totals used for the SFS were based on Statistics Canada's Demography Division population counts by province. The demographic totals for each province include age/sex counts as well as household size and family unit size counts.

In addition, weight adjustments based on administrative data from the Canada Revenue Agency T4 file are performed. These weight adjustments are made to ensure that the survey distribution of earnings reflected approximately the same distribution as the T4 population. One other adjustment that was performed for SFS 2005 due to its small sample size, which made use of Survey of Labour and Income Dynamics (SLID) data, was not necessary for SFS 2012 because of this survey's significantly larger sample size.

5.0 Data accuracy and quality

5.1 Sampling errors

Sampling errors arise from estimating a population characteristic by looking at only one portion of the population rather than the entire population. It refers to the difference between the estimate derived from a sample survey and the 'true' value that would result if a census of the whole population were taken under the same conditions. There are no sampling errors in a census because the calculations are based on the entire population. The sample design, the variability of the population characteristics measured by the survey, and the sample size determine the magnitude of the sampling error.

5.2 Standard error, confidence intervals and coefficient of variation

A common measure of sampling error is the standard error (SE). The standard error of an estimate Y is defined as the square root of the estimated variance of the estimate Y. The standard error measures the degree of variation introduced in estimates by selecting one particular sample rather than another sample of the same size and design. The key issue is the magnitude of an estimate's standard error relative to the size of the estimate itself: if the standard error is relatively large, then the estimate has poor precision and is unreliable. However, the standard error might be difficult to interpret because what is considered large depends on the magnitude of the estimate. For example, a standard error of 100 would be considered large for measuring the average weight of people but would not be considered large for estimating their average annual income.

It is more useful in many situations to assess the size of the standard error relative to the estimate of the characteristic being measured. One such relative measure of sampling error is the coefficient of variation (CV), which is computed as the estimated standard error of an estimate Y as a percentage of the estimate Y (i.e. 100 x SE / Y). The CV is usually expressed as a percentage (10% instead of 0.1). It is very useful in comparing the precision of sample estimates, where their sizes or scales differ from one another. The CV is however a less meaningful measure of sampling error in the case of variables with values that can be zero or negative, including estimates of change (e.g. a change in average income between two years), and estimates of proportions that are close to zero or one. In this case, a more appropriate measure of sampling error would be the standard error.

The standard error may also be used to calculate confidence intervals associated with an estimate Y. Confidence intervals are also used to express the precision of the estimate. It has been demonstrated mathematically that, if the sampling were repeated many times, the true population value would lie within the Y +/- 2SE confidence interval 95 times out of 100 and within the narrower confidence interval defined by Y +/- SE, 68 times out of 100.

To illustrate the relationship between the standard error, the confidence intervals and the coefficient of variation, let us take the following example. Suppose that the estimated median net worth for a given domain is $10,000, and that its corresponding standard error is $200. The coefficient of variation is therefore equal to 2.0%. The 95% confidence interval estimated from this sample ranges from $9,600 to $10,400, i.e. $10,000 +/- $400. This means that with a 95% degree of confidence, it can be asserted that the median net worth of the target population in the domain is between $9,600 and $10,400.

Table 5-1 provides quality level guidelines used at Statistics Canada.

Table 5-1 Quality Guidelines

Quality level of estimate	Guidelines
1) Acceptable	Estimates have a sample size of 30 or more and low coefficients of variation in the range of **0.0% to 16.5%.** No warning is required.
2) Marginal	Estimates have a sample size of 30 or more, and high coefficients of variation in the range of **16.6% to 33.3%.** Estimates should be flagged with the letter **E**. They should be accompanied by a warning to caution subsequent users about the high levels of error, associated with the estimates.
3) Unacceptable	Estimates have a sample size of less than 30, or very high coefficients of variation in excess of **33.3%.** Statistics Canada recommends not to release estimates of unacceptable quality. However, if the user chooses to do so then estimates should be flagged with the letter **F** and the following warning should accompany the estimates: "Please be warned that these estimates do not meet Statistics Canada's quality standards. Conclusions based on these data will be unreliable, and most likely invalid."

Table 5-2 shows the precision of the SFS estimates of asset and debt totals. The table presents coefficients of variation for totals at the national level (i.e. the ten provinces combined) and at the provincial level for a number of asset and debt items as well as for total assets, total debts, and total net worth (termination basis). At the national level, the estimates are generally reliable. However, users should exercise caution when producing detailed estimates at the provincial level.

It should be noted that users of the SFS PUMF cannot readily obtain design-based variance estimates through the use of statistical software specifically designed for survey data. This is because the design information required by these software packages is not currently available on the SFS public use microdata file due to confidentiality considerations. Rough approximations of the variance of estimates can be obtained by using the method described in section 8.3 of this guide. However, better variance estimates can be produced by Statistics Canada on a cost recovery basis.

The **bootstrap approach**, a pseudo-replication technique, is used for the calculation of the coefficients of variation of the estimates presented in table 5-2. Many Statistics Canada surveys use complex sampling designs when selecting their samples. As variance estimation for these sampling schemes cannot be accomplished using simple formulae, we must use approximate methods to estimate variances. Resampling methods, and in particular the bootstrap method, figure among these. The bootstrap approach possesses many interesting properties and is the method employed by many Statistics Canada surveys. For more information on the bootstrap approach, refer to the Statistics Canada publication (Catalogue 12-002-XIE), *The Research Data Centres Information and Technical Bulletin*, Fall 2004, vol. 1 no. 2.

Note that the coefficients of variation presented in Table 5-2 are computed using the internal SFS database variables prior to perturbation for the PUMF.

Table 5-2 Coefficients of variation for totals, at the national level and at the provincial level[1]

	All Family Units										
	Canada	Newfoundland and Labrador	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia
	%										
Assets (WATOTPT)	**1.5**	**4.6**	**10.9**	**5.5**	**4.2**	**3.9**	**2.9**	**4.8**	**4.7**	**3.7**	**3.1**
RRSPs/LIRAs (WARRSPL)	2.7	9.7	15.9	8.5	10.6	5.1	4.7	9.1	8.9	5.5	8.9
RRIFs (WARRIF)	12.1	38.3	50.0	26.5	35.9	13.9	23.4	16.1	18.2	16.4	11.0
EPPs (WARPPT)	2.3	9.8	17.4	8.2	8.0	3.9	4.7	7.1	8.1	6.2	5.0
Other retirement funds (WAOTPEN)	11.0	50.0	100.7	35.7	35.9	31.5	19.7	40.8	34.4	23.2	20.6
Deposits in financial institutions (WASTDEPT)	3.4	10.8	21.0	12.2	19.8	7.7	6.2	8.9	10.6	8.3	7.9
TFSAs (WATFS)	2.7	15.3	26.9	12.9	15.1	6.0	4.6	8.6	11.6	6.3	6.9
Mutual funds & investment funds (WASTMUIC)	7.0	29.0	38.1	33.4	22.5	25.0	11.9	20.2	21.4	13.6	10.6
Stocks (WASTSTCK)	11.6	35.4	53.9	37.2	31.5	32.6	14.2	26.0	26.3	22.3	12.1
Bonds (WASTBOND)	17.0	29.0	57.8	33.1	52.7	44.5	16.8	26.9	30.8	22.9	25.0
Other investments or financial assets (WASTOINP)	7.3	17.2	44.8	36.6	41.9	15.6	12.3	29.6	52.7	17.3	13.5
Principal residence (WAPRVAL)	1.4	4.7	10.3	5.0	3.7	3.1	2.7	4.4	4.4	3.0	3.2
(WASTREST)	6.3	16.6	23.1	15.1	17.8	16.1	11.7	18.1	17.3	13.9	13.4
Vehicles (WASTVHLE)	1.6	6.0	9.4	5.7	4.9	3.7	3.1	5.2	5.6	3.6	3.9
Other non-financal assets (WASTONOF)	2.7	14.2	16.8	8.1	10.5	5.9	5.3	9.4	13.7	5.2	6.0
Equity in business (WBUSEQ)	8.2	41.9	38.7	30.0	27.9	19.0	15.3	23.6	16.2	19.7	17.3
Debts (WDTOTAL)	**2.4**	**9.8**	**10.0**	**6.6**	**5.4**	**6.0**	**4.6**	**6.1**	**7.4**	**5.0**	**4.5**
Mortgage on principal residence (WDPRMOR)	2.6	12.8	14.7	8.4	7.7	4.5	4.9	7.2	8.8	7.7	4.9
Mortgage on other real estate (WDSTOMOR)	9.4	30.1	41.4	28.3	29.3	27.6	16.6	27.1	25.0	13.7	14.3
Lines of credit (WDSTLOC)	5.6	18.1	20.2	14.9	12.3	13.3	10.3	15.4	15.0	13.2	9.5
Credit card and instalment debt (WDSTCRED)	3.8	11.7	18.7	10.4	11.3	7.7	6.8	10.2	14.8	8.3	12.3
Student loans (WDSLOAN)	6.6	17.5	43.6	24.3	17.4	11.3	10.5	24.7	25.5	24.4	17.2
Vehicle loans (WDSTVHLN)	2.7	9.2	17.0	9.1	7.6	5.4	5.2	9.9	9.1	7.0	8.0
Other debt (WDSTODBT)	10.1	21.9	44.9	26.3	18.9	14.6	13.1	23.5	30.4	18.1	39.7
Net Worth (WNETWPT)	**1.7**	**5.7**	**12.4**	**6.2**	**4.9**	**4.1**	**3.1**	**5.3**	**5.3**	**4.3**	**3.4**

[1] Estimates with CVs exceeding 33.3% and estimates with a sample size of less than 30 units are considered unreliable by quality level guidelines used at Statistics Canada.

5.3 Non-sampling errors

Non-sampling errors can be defined as errors arising during the course of all survey activities other than sampling. Unlike sampling errors, they can be present in both sample surveys and censuses.

Non-sampling errors can be classified into two groups: random errors and systematic errors.

- **Random errors** are the unpredictable errors resulting from estimation. They are generally cancelled out if a large enough sample is used. However, when these errors do take effect, they often lead to an increased variability in the characteristic of interest (i.e., the greater the difference between the population units, the larger the sample size required to achieve a specific level of reliability).
- **Systematic errors** are those errors that tend to accumulate over the entire sample. For example, if there is an error in the questionnaire design, this could cause problems with the respondent's answers, which in turn, can create processing errors, etc. These types of errors often lead to a bias in the final results.

Non-sampling errors are extremely difficult, if not impossible, to measure. Since random errors have the tendency to cancel out, systematic errors are the principal cause for concern. Unlike sampling variance, bias caused by systematic errors cannot be reduced by increasing the sample size.

Non-sampling errors can occur because of problems in **coverage**, **response**, **non-response**, **data processing**, **estimation and analysis**.

5.3.1 Coverage errors

Coverage errors are omissions, erroneous additions, duplicates and errors of classification of units in the survey frame. They can result from incomplete listing and inadequate coverage of the population. They have an impact on each survey estimate and are therefore one of the most important types of error. They can create biased estimates and the impact can vary for different sub-groups of the population. These errors are often systematic and result more often in undercoverage than in overcoverage of the target population. Calibration of survey weights is often used to correct for coverage errors.

5.3.2 Response errors

Response errors may be due to many factors, such as faulty questionnaire design, interviewers' or respondents' misinterpretation of questions, or respondents' faulty reporting. Great effort is invested in the SFS to reduce the occurrence of response error. Measures undertaken to minimize response errors include the use of highly-skilled and well-trained interviewers, and supervision of interviewers to detect misinterpretation of instructions or problems with the questionnaire design. Response error can also be brought about by respondents who, willingly or not, provide inaccurate responses.

Questions about the value of assets and the amount of debt can be particularly prone to misreporting, as respondents may misinterpret the questions or may not be able to provide an accurate answer. As well, because proxy response was accepted, one family member may have provided information for another family member, believing that information to be accurate; that may not always have been the case. When providing information for the survey, respondents were encouraged to consult financial records, or other family members, as often as required.

5.3.3 Non-response errors

Non-response errors result from a failure to collect complete information on all units in the selected sample. There are two kinds of nonresponse: total nonresponse and item nonresponse.

Non-response produces errors in the survey estimates in two ways. First, non-respondents often have different characteristics from respondents, which can result in biased survey estimates. Secondly, non-response reduces the effective size of the sample, since fewer units than expected responded to the survey. As a result, the sampling variance increases and the precision of the estimates decreases.

Total non-response occurs when the interviewer was either unable to contact the respondent, no member of the family was able to provide information, or the respondent refused to participate in the survey. Non-response adjustment of the survey weights for responding family units is performed in the SFS in order to reduce the nonresponse bias. For the 2012 SFS, the overall response rate was 68.6%.

In most cases, item non-response occurs when the respondent does not understand the question, cannot recall the requested information, or refuses to answer the question. Imputation of missing items compensates for this partial non-response.

The importance of the non-response error is unknown but in general this error is significant when non-respondents differ significantly from respondents with respect to particular characteristics that are important determinants of survey results.

5.3.4 Processing errors

Processing error is the error associated with activities conducted once survey responses have been received. It includes all data handling activities after collection and prior to estimation. Processing errors may occur in any of the data processing stages, for example, during data entry, coding, editing, imputation, weighting, and tabulation. Like all other errors, they can be random in nature, and inflate the variance of the survey's estimates, or systematic, and introduce bias. It is difficult to obtain direct measures of processing errors and their impact on data quality especially since they are mixed in with other types of errors (non-response, measurement and coverage). The use of a generalized processing system reduces the processing errors that could occur. To minimize errors, diagnostic tests are carried out periodically to ensure that expected results have been obtained.

5.3.5 Estimation errors

Statistics Canada and other data-collecting agencies devote much effort to designing and monitoring surveys in order to make them as error-free as possible. If an inappropriate estimation method is used, then bias can still be introduced, regardless of how errorless the survey had been before estimation.

5.3.6 Analysis error

Analysis errors include any errors that occur when using the wrong analytical tools or when the preliminary results are used instead of the final ones. Errors that occur during the publication of these data results are also considered analysis errors.

5.4 Treatment of large values

For any sample, estimates can be affected disproportionately by the presence of extreme values from the population. In an asset and debt survey, a few extreme values are expected in the sample, as valid extreme values do exist in the population. Values outside defined bounds were identified and reviewed in relation to other information reported for that respondent. If the value was judged to be the result of a reporting or processing error, it was adjusted. Otherwise, it was retained and the weight of the family unit was reduced to ensure it has no undue influence on the survey estimates.

5.5 Impact of sampling and non-sampling errors on SFS estimates

Due to the combined effect of these errors, the quality of net worth data is judged to be lower than the quality of income data. This is largely because records of the current value of assets and the outstanding amount of debt are not as readily available as records of income. For example, respondents with numerous bank accounts and investments may receive several different statements, with different reference periods. Compiling this information can be difficult. Most income information, on the other hand, would be available in one document, if the respondent had completed an income tax return for the year in question.

5.6 Comparability of data and related sources

Of the variables that do have sources, comparison is often difficult because of differences in defining concepts, grouping of items, and how these items are valued.

Direct comparisons with outside sources, such as the National Balance Sheet Accounts (NBSA) of the System of National Accounts (SNA), do yield certain differences. Comparing both of these sources is difficult due to definitional, coverage and treatment differences.

Based on rough comparisons between the NBSA and the SFS, the following general conclusions can be drawn:

(a) The SFS appears to underestimate some net worth components, particularly financial assets and consumer debt.
(b) The quality of estimates of real assets (e.g., owner-occupied homes, vehicles) is much better than that of financial assets.

In theory – given similar valuation procedures and groupings – SNA data should be the same as that collected by an asset and debt survey. The SNA collects individual wealth data from institutional sources such as banks and insurance companies, net of corporations and governments. One major problem has been the SNA categorization of individuals and unincorporated business. Because the individual data and the unincorporated business cannot be separated out, these estimates will always be higher than the survey estimates alone.

The Census and other surveys are important sources for ensuring that the SFS sample is representative of the Canadian population. Despite conceptual differences with the SNA estimates, ensuring a representative sample is extremely important to the validity of the data. SFS estimates for pension variables such as membership and contributions were found to be very close to data produced by Statistics Canada's Pension Plans in Canada Survey.

5.7 Response rates

The overall response rate for the 2012 Survey of Financial Security was 68.6%. Table 5-3 gives a breakdown of response rates by province for the area frame sample and the T1FF frame sample.

Table 5-3 Response rates for family units by frame type and province

Province	T1FF frame sample		LFS area frame sample		Total sample	
	Number of responding family units	Response rate	Number of responding family units	Response rate	Number of responding family units	Response rate
Newfoundland & Labrador	187	59.8%	295	77.5%	482	69.6%
Prince Edward Island	42	56.8%	230	75.4%	272	71.8%
Nova Scotia	203	63.8%	390	70.1%	593	67.8%
New Brunswick	168	65.2%	459	76.0%	627	72.8%
Quebec	1,051	66.4%	1,102	73.0%	2,153	69.7%
Ontario	1,167	66.1%	1,762	69.6%	2,929	68.2%
Manitoba	279	67.0%	461	69.1%	740	68.3%
Saskatchewan	157	62.8%	473	68.5%	630	67.0%
Alberta	735	66.6%	801	70.2%	1,536	68.4%
British Columbia	1,380	66.0%	661	69.4%	2,041	67.1%
Total – All Provinces	5,369	65.7%	6,634	71.0%	12,003	68.6%

6.0 Record layout, data dictionary and univariate distributions

Three additional information files are provided to assist users of the SFS public use microdata file. A record layout, a data dictionary and univariate distributions are provided. These information files are organized by content themes and in some cases sub-themes.

6.1 Columns of the record layout

Variable name: Public use microdata file (PUMF) variable name: This is the variable name assigned for the microdata file. In almost every case, this name is identical to the name on the SFS internal database.

Type: Indicates whether the variable is numeric (in the sense that it can logically be used in mathematical operations) or character.

Number of categories: Shows the number of categories in the value set for the variable in question. The number applies only to "character" variables. Numeric variables have ranges, which are specified in the data dictionary.

Length: Indicates the number of spaces. For numeric variables, this includes the decimal point if there are decimal places and the number of decimal places, if any. For example, a variable which can have values of zero (00.0) to 99.9 would have a format expressed as 4.1. A variable which can have values of zero (00) to 99 would have a format express as 2.0.

Sequence number: Indicates the order that variables appear on the microdata file.

Start position: This shows the location of the variable on the public use microdata file.

Long variable name: A standardized name, with a maximum of 26 characters, which can be used to quickly identify variables, to label tables, and so on. Although still rather cryptic, it is considerably more revealing than the variable name. However, this longer name obviously excludes a lot of important information contained in the variable description shown in the data dictionary. In short, analysts are warned against making assumptions about the variable definition based on the long variable name.

6.2 Data dictionary

The data dictionary presents the complete information about each survey variable on the file. For each variable are shown: the variable name, the description or definition, code lists with descriptions or alternatively the range of values that the variable can take on, the variable type, its length (or format), and the population to which the variable pertains, i.e. for whom it is applicable.

6.3 Univariate distribution

These distributions are provided to allow users of the public use microdata file to verify totals that they produce. These distributions relate to the public use files and not to the internal database; the distributions will be similar but not identical. To compare the public use file to the internal database, please see Appendices A and B at the end of this user guide.

For character variables, the weighted and unweighted frequencies for each code, including reserved codes, are produced. For numeric variables, the values are broken into several ranges and weighted and unweighted frequencies are provided for each range. The minimum value, the maximum value and the weighted mean (excluding reserved codes) are also provided.

6.4 Reserved codes

It is important to account for reserved codes in any analysis, particularly with numeric variables. If your calculation of means or aggregates seems too high, check to ensure that you have excluded reserved codes from the calculation. With a only a few exceptions, the reserved codes are the highest values permitted according to the length of the variable. A brief explanation of reserved codes is provided below.

6, 96, 9.6, etc.:	Not applicable
7, 97, 9.7, etc.:	Don't know (the respondent did not have an answer, or the value was rejected during processing without being replaced)
8, 98, 9.8, etc.:	Refuse (the respondent refused to answer the particular question in the questionnaire)
9, 99, 9.9, etc.:	Not stated

7.0 Guidelines for analysis and presentation

7.1 Applying weights

The microdata on the public use file are unweighted. It is the responsibility of data users to apply the appropriate weights in any results they wish to produce. If proper weights are not used, the estimates derived from the microdata cannot be considered to be representative of the survey population, and will not correspond to those that would be produced by Statistics Canada. On the SFS PUMF, the weight variable is named PWEIGHT.

7.2 Rounding guidelines

Once it has been determined whether the results obtained are reliable, the level of rounding indicates the level of precision that the data can actually support. The following guidelines for rounding should be used:

- Estimates of population sub-groups should be rounded to the nearest hundred units.
- Rates and percentages should be rounded to one decimal point.

Note that all calculations are to be derived from their unrounded components, and then rounded using the normal rounding technique.

In normal rounding, if the first or only digit to be dropped is 0 to 4, the last digit to be retained is not changed. If the first or only digit to be dropped is 5 to 9, the last digit to be retained is raised by one. For example, in normal rounding to the nearest 100, the estimate 49,448 would be rounded down to 49,400 and an estimate of 49,252 would be rounded up to 49,300. The figure 1.78% would be rounded to 1.8%.

7.3 Missing values and reserved codes

There are a few types of missing values on the public use file.

If the coverage of a variable does not extend to a certain population sub-group, then there are no valid values for that sub-group and the values that do appear are in the form of 6, 96, 9.6 and so on, depending on the format of the variable, which indicates that the variable is not applicable (marked at *'Valid Skip'* in the dictionary). The coverage of each variable on the file is referred to in the data dictionary as the "population".

For some variables for specific records, no valid value is available, although the variable is applicable. Possibly the respondent did not provide the information or it was suppressed my methodology to keep the data confidential. Such missing values appear with a reserved code such as 9, 99, 9.9, and so on, depending on the format of the variable. Missing values for the income variables have been entirely imputed, but other variables may have missing values.

The approach for dealing with missing values of this last kind depends on the type of analysis being carried out and the extent of missing data. Although the end solution may be to exclude the records with missing values from the analysis, a review should first be carried out to assess the impact of missing values on the overall representativeness of the data. Is it possible that a bias results from excluding records with missing values? For example, are the (other) characteristics of the people with missing values different from those of the observed part of the sample? It may be necessary to take into account the possible impact in some way. In all cases, analysts should note exclusions of records with missing values in their published results.

8.0 Guidelines for release

Microdata users should apply the rules for assessing data quality, below, to all estimates they produce, and retain only those that satisfy the release criteria. Estimates that do not satisfy the release criteria are not reliable.

8.1 Introduction

The guidelines for release and publication make use of the concept of sampling variability to determine whether estimates obtained from the microdata are reliable. Sampling variability is the error in the estimates caused by the fact that we survey a sample rather than the entire population. The concept of standard error and the related concepts of coefficient of variation and confidence interval provide an indication of the magnitude of the sampling variability.

The standard error and coefficient of variation do not measure any systematic biases in the survey data that might affect the estimate. Rather, they are based on the assumption that the sampling errors follow a normal probability distribution.

Subject to this assumption, it is possible to estimate the extent to which different samples that have the same design and the same number of observations would give different results. This indicates the margin of error that is likely to be included in the estimates derived from our single sample.

For a detailed description of the measures of sampling variability, see A. Satin and W. Shastry, Survey Sampling: A Non-Mathematical Guide, Statistics Canada, Catalogue no. 12-602-XPE.

8.2 Minimum sizes of estimates for release

In general, the smaller the sample, the greater the sampling variability. Likewise, estimates of small population subgroups are less reliable than estimates of large population subgroups. The minimum allowable sizes of estimates, also called the release cut-offs, are a quick rule for determining whether an estimate can be released, before applying the more rigorous test that uses the coefficient of variation. The release cut-offs are calculated specifically for the Survey of Financial Security, based on the sample size and the sample design.

The cut-off for the unweighted count must be satisfied:

- Unweighted count: The number of observations must be at least 30. If the unweighted count is less than 30, then the weighted estimate should not be released regardless of the value of its coefficient of variation.

8.3 Hypothesis tests provided by statistical software packages

Microdata users should be aware that the results of hypothesis tests (such as the p values accompanying t statistics or Pearson statistics) that are provided automatically by standard statistical software packages are incorrect for data provided by surveys with a complex survey design, such as Survey of Financial Security. Such packages calculate these test results under the assumption of simple random sampling. That is, they do not take into account the special sample design features of SFS such as stratification, clustering, and unequal selection probabilities. While many of the standard packages can account for the unequal selection probabilities in the production of estimates by allowing the use of weights, these packages do not properly take the sample design into account when producing variance estimates that form part of most test statistics.

To perform hypothesis tests, a two-step method can be employed with the standard statistical software to form the test statistics. First, estimate the characteristics of interest using the weights provided on the microdata file. Second, obtain approximate variance estimates of these characteristics by rerunning the same software procedure as that used for producing the characteristic estimates but using a scaled weight that consists of the original

weight divided by the average of the original weights of all the observations being used in your computations. It must be noted that this method provides only rough approximations of the variance of the estimates. The quantities calculated in the two steps can then be combined to form test statistics.

It should be noted that users of the SFS PUMF cannot readily obtain better design-based variance estimates through the use of statistical software specifically designed for survey data. This is because the design information required by these software packages is not currently available on the SFS data file due to confidentiality considerations. However, better variance estimates can be produced by Statistics Canada on a cost recovery basis.

9.0 Appendix A – SFS production totals VS. PUMF totals

The table below provides a comparison between Statistics Canada's internal SFS database and the public use microdata file.

Table 9-1 Comparison of SFS production totals to SFS PUMF, Canada, 2012

	Production Totals				PUMF totals				% Difference (PUMF/Production) - 1			
	Total family units	Sum	Mean	Median	Total family units	Sum	Mean	Median	Total family units	Sum	Mean	Median
	number	$ millions	$	$	number	$ millions	$	$	%	%	%	%
Assets (PWATOTPT)	14,570,000	9,410,656	645,900	371,300	14,570,000	9,403,115	645,400	370,800	0.00	-0.08	-0.08	-0.13
RRSPs/LIRAs (PWARRSPL)	7,720,000	768,100	99,500	40,000	7,720,000	767,419	99,400	41,000	0.00	-0.09	-0.10	2.50
RRIF (PWARRIF)	1,243,000	153,409	123,400	60,000	1,243,000	153,552	123,500	60,000	0.00	0.09	0.08	0.00
Employer Pension Plans (PWARPPT)	7,071,000	1,871,134	264,600	123,300	7,071,000	1,872,341	264,800	125,000	0.00	0.06	0.08	1.38
Retirement funds, other (PWAOTPEN)	862,000	37,061	43,000	15,000	862,000	36,984	42,900	16,500	0.00	-0.21	-0.23	10.00
Deposits in financial institutions (PWASTDEP)	13,520,000	343,984	25,400	4,000	13,520,000	344,267	25,500	4,000	0.00	0.08	0.39	0.00
Mutual funds and other (PWASTMUI)	1,692,000	239,468	141,600	50,000	1,692,000	238,402	140,900	50,000	0.00	-0.45	-0.49	0.00
Stocks (PWASTSTK)	1,452,000	272,628	187,700	35,000	1,452,000	271,706	187,100	35,000	0.00	-0.34	-0.32	0.00
Bonds (PWASTBND)	1,071,000	24,378	22,800	3,000	1,071,000	24,253	22,600	3,100	0.00	-0.51	-0.88	3.33
Tax free Savings Accounts (PWATFS)	4,910,000	65,939	13,400	10,000	4,910,000	65,877	13,400	10,000	0.00	-0.09	0.00	0.00
Other financial assets, non-pension (PWASTOIN)	2,933,000	100,816	34,400	9,400	2,933,000	100,876	34,400	9,500	0.00	0.06	0.00	1.06
Principal residence (PWAPRVAL)	9,110,000	3,254,275	357,200	290,000	9,110,000	3,252,644	357,000	290,000	0.00	-0.05	-0.06	0.00
Other real estate (PWASTRST)	2,675,000	931,762	348,300	180,000	2,675,000	928,605	347,200	180,000	0.00	-0.34	-0.32	0.00
Vehicles (PWASTVHE)	11,385,000	245,520	21,600	15,000	11,385,000	245,550	21,600	14,500	0.00	0.01	0.00	-3.33
Other non-financial assets (PWASTONF)	14,570,000	313,023	21,500	10,000	14,570,000	312,598	21,500	10,000	0.00	-0.14	0.00	0.00
Equity in business (PWBUSEQ)	2,484,000	789,158	317,700	10,000	2,484,000	788,039	317,200	10,500	0.00	-0.14	-0.16	5.00
Debts (PWDTOTAL)	10,365,000	1,337,071	129,000	60,100	10,365,000	1,335,540	128,900	60,800	0.00	-0.11	-0.08	1.16
Mortgage on principal residence (PWDPRMOR)	4,926,000	821,010	166,700	145,000	4,926,000	819,926	166,400	145,000	0.00	-0.13	-0.18	0.00
Mortgage on other real estate (PWDSTOMR)	936,000	208,801	223,100	140,000	936,000	208,653	222,900	140,000	0.00	-0.07	-0.09	0.00
Line of credit (PWDSTLOC)	3,615,000	144,946	40,100	15,000	3,616,000	144,787	40,000	14,500	0.03	-0.11	-0.25	-3.33
Credit card and instalment debt (PWDSTCRD)	5,817,000	35,321	6,100	3,000	5,817,000	35,358	6,100	2,900	0.00	0.10	0.00	-3.33
Student loans (PWDSLOAN)	1,827,000	28,272	15,500	10,000	1,827,000	28,282	15,500	9,500	0.00	0.04	0.00	-5.00
Vehicle loans (PWDSTVHN)	4,152,000	75,814	18,300	15,000	4,152,000	75,762	18,200	14,500	0.00	-0.07	-0.55	-3.33
Other debt (PWDSTODB)	1,638,000	22,908	14,000	4,800	1,638,000	22,771	13,900	4,800	0.00	-0.60	-0.71	0.00
Net worth (PWNETWPT)	14,570,000	8,073,585	554,100	243,800	14,570,000	8,067,575	553,700	246,000	0.00	-0.07	-0.07	0.90

Notes:

Total family units estimates have been rounded to the nearest 1000.

Mean and median estimates have been rounded to the nearest 100.

10.0 Appendix B – SFS totals

The following tables were generated from the SFS production database. Users may use these figures to compare their estimates from the microdata file with Statistics Canada's totals.

Table 10-1 Assets, debts, net worth showing millions of dollars and number of family units, Canada and regions, 2012

	Canada	NFL	PEI	NS	NB	Quebec	Ontario	MB	SK	AL	BC
	Sum ($ millions)										
Assets (WATOTPT)	9,410,656	95,850	21,924	190,759	141,334	1,949,432	3,656,458	269,563	303,989	1,170,002	1,611,345
Debts (WDTOTAL)	1,337,071	15,612	3,675	28,025	18,085	247,514	521,360	33,165	34,664	195,457	239,514
Net worth (WNETWPT)	8,073,585	80,238	18,249	162,734	123,249	1,701,918	3,135,098	236,398	269,325	974,546	1,371,831

	Canada	NFL	PEI	NS	NB	Quebec	Ontario	MB	SK	AL	BC
	Number of family units										
Assets (WATOTPT)	14,570,000	224,000	61,000	419,000	330,000	3,578,000	5,445,000	500,000	444,000	1,584,000	1,985,000
Debts (WDTOTAL)	10,365,000	178,000	46,000	309,000	257,000	2,552,000	3,848,000	340,000	310,000	1,159,000	1,366,000
Net worth (WNETWPT)	14,570,000	224,000	61,000	419,000	330,000	3,578,000	5,445,000	500,000	444,000	1,584,000	1,985,000

Total family units estimates have been rounded to the nearest 1000.

Table 10-2 Assets, debts, net worth showing median and average amounts for family units, Canada and regions, 2012

	Canada	NFL	PEI	NS	NB	Quebec	Ontario	MB	SK	AL	BC
	Median amount for family units holding asset and debt										
Assets (WATOTPT)	371,300	265,000	211,500	263,700	246,700	304,000	397,000	320,300	399,900	452,000	489,000
Debts (WDTOTAL)	60,100	37,500	41,000	43,000	40,800	34,300	72,000	55,000	64,000	117,000	72,300
Net worth (WNETWPT)	243,800	167,900	150,300	192,300	175,100	198,000	265,700	224,800	271,400	267,500	344,000

	Canada	NFL	PEI	NS	NB	Quebec	Ontario	MB	SK	AL	BC
	Average amount for family units holding asset and debt										
Assets (WATOTPT)	645,900	427,300	359,000	455,300	428,000	544,800	671,500	539,700	685,200	738,400	812,000
Debts (WDTOTAL)	129,000	87,700	79,200	90,800	70,400	97,000	135,500	97,500	111,800	168,700	175,300
Net worth (WNETWPT)	554,100	357,700	298,900	388,400	373,200	475,700	575,700	473,300	607,100	615,100	691,300

Median and average estimates have been rounded to the nearest 100.