User Guide for the Survey of Household Spending, 2015

Income Statistics Division

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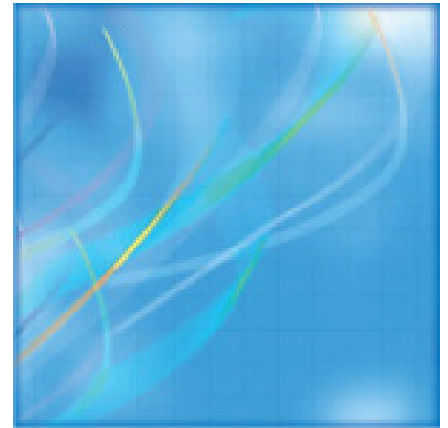
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Standard table symbols

The following symbols are used in Statistics Canada publications:

.	not available for any reference period
..	not available for a specific reference period
...	not applicable
0	true zero or a value rounded to zero
0^s	value rounded to 0 (zero) where there is a meaningful distinction between true zero and the value that was rounded
^{p}	preliminary
^{r}	revised
x	suppressed to meet the confidentiality requirements of the *Statistics Act*
^{E}	use with caution
F	too unreliable to be published
*	significantly different from reference category (p < 0.05)

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User Guide for the Survey of Household Spending, 2015

1. Introduction

This guide presents information of interest to users of data from the 2015 Survey of Household Spending (SHS). It includes descriptions of the survey terms and variables definitions as well as of the survey methodology and data quality. The guide also includes a section describing various examples of estimates that can be drawn from the survey data.

The SHS is conducted annually in the ten provinces. Starting with SHS 2015, the survey is conducted every two years in the three territorial capitals. The SHS collects household spending information using a questionnaire (administered through a personal interview) and a more detailed expenditure diary that selected households complete for two weeks following the interview. The questionnaire is used to collect information on larger or less frequent expenditures using varying recall periods based on the type of expenditure (last month, last three months, last 12 months, or last payment), while the diary is used to collect information on smaller or more frequent expenditures.

Data collection is continuous throughout the year to account for seasonal variations in spending. The 2015 SHS was conducted from January to December 2015 using a sample of 17,603 households in the ten provinces and 767 households in the three territorial capitals. The data collected include detailed household expenditures, as well as information on dwelling characteristics, household demographics, and household equipment.

The last year for which the SHS collected data in the territories was 2012. At this time, the previous design of the survey was used in the territories. The 2015 SHS is limited to the three territorial capitals (Whitehorse, Yellowknife and Iqaluit) in the North and uses the new design of the survey, which was implemented for the provinces starting in 2010. As such, data for the territories from SHS 2015 should not be compared to those from SHS 2012 and earlier.

It is important to note that data at the national level include the ten provinces only.

Household expenditure estimates for the ten provinces are available at the national and provincial levels and by household tenure, age of reference person, size of area of residence, type of household and household income quintile. Detailed estimates of food expenditures are also produced.

Household expenditure estimates are available for the three territorial capitals (Whitehorse, Yellowknife and Iqaluit). These estimates are not produced by household tenure, age of the reference person, size of area of residence, household type and by household income quintile due to the small sample sizes in the territorial capitals.

For custom tabulations or more information on the SHS, please contact Client Services, Income Statistics Division (613-951-7355, 1-888-297-7355 or STATCAN.income-revenu.STATCAN@canada.ca).

2. Definitions

2.1 General concepts

Expenditures: The net cost of all goods and services received for private use within a given period (for example, 1, 3 or 12 months), whether or not the goods or services were paid for during that period, and regardless of whether these expenditures were made in Canada or abroad. Business expenditures are excluded.

Gifts: Any expenditure may include gifts given to persons outside the household. Only the value of gifts of clothing is reported separately.

Household: A person or group of persons occupying one dwelling unit is defined as a "household". The number of households, therefore, equals the number of occupied dwellings.

Household member: A person usually residing in the dwelling unit at the time of the interview.

Insurance settlements: Where an insurance settlement was used to repair or replace property, the survey includes only the deductible amount paid for an item.

Reference person: The household member being interviewed chooses which household member should be listed as the reference person after hearing the following definition: "The household reference person is the member of the household mainly responsible for its financial maintenance (e.g., pays the rent, mortgage, property taxes, and electricity). When members of the household share the responsibility equally, choose one of these members to be shown as the reference person". This person must be a member of the household at the time of the interview.

Reference year of the survey: Corresponds to the data collection year, from January 1st to December 31st, 2015.

Taxes included: All expenditures include, when applicable: the Harmonized Sales Tax, the Goods and Services Tax, provincial retail sales taxes, tips, customs, duties, and any other additional charges or taxes.

Trade-ins: Where a trade-in is used to lower the price of an item, most commonly a vehicle, the expenditure amount is the total cost after the trade-in. Real estate transactions are an exception.

2.2 Household characteristics

Age of reference person: Corresponds to the age of the reference person at the time of the interview.

Estimated number of households: Estimation of the number of households during the reference year.

Homeowner: Household living in a dwelling owned (with or without a mortgage) by a member of the household at the time of the interview.

Household income before tax: Corresponds to the total income before tax received by the household the year prior to the reference year of the survey. It refers to income from all sources including government transfers: scholarships, bursaries and fellowships, wages and salaries before deductions, farm self-employment net income, non-farm self-employment net income, Universal Child Care Benefit, Old Age Security pension, CPP and QPP benefits, Employment Insurance benefits, social assistance, workers' compensation benefits, Federal GST/HST Credit, provincial tax credits, other government transfers, private retirement pensions, support payments received, other taxable income and income from a RDSP and investment income.

Household size: Number of persons in the household at the time of the interview.

Interview respondents: Corresponds to the number of eligible sample households minus households that interviewers were unable to contact, households that refused to participate and households whose interview questionnaire were rejected for lacking sufficient information.

2.3 Selected household expenditures

Accommodation away from home: Includes all expenses for accommodation while travelling. Excludes expenditures for accommodation that were part of a package trip.

Alcoholic beverages: Includes alcoholic beverages purchased from stores and restaurants. Expenditures on supplies and fees for self- made beer, wine or liquor are also included.

Discounts and refunds: Presented in the data tables as "negative expenditures" since they represent a flow of money into the household instead of out of it.

Food purchased from restaurants: "Restaurants" includes full service restaurants, fast-food outlets and cafeterias, as well as refreshments stands, snack bars, vending machines, mobile canteens, caterers and chip wagons. These expenditures include tips and do not include expenditures for alcoholic beverages.

Food purchased from stores: "Stores" includes all establishments where food can be bought, such as grocery stores, specialty food stores, department stores, warehouse-type stores and convenience stores, as well as frozen food suppliers, outdoor farmers' markets and stands, and all other non-service establishments. The expenditures are net of cash premium vouchers or rebates at the cash register and include deposits paid for at the time of purchase. These deposits are excluded from the expenditures when reimbursed and are shown as negative expenditures (flow of money in) in the "Miscellaneous expenditures" section.

Games of chance: Expenditures on all types of games of chance. The expenditures are not net of the winnings from these games.

Health care: Includes direct (out-of-pocket) costs to the household net of the expenditures reimbursed, as well as private health insurance premiums.

Household appliances: Refers to the net purchase price after deducting trade-in allowance and any discount. Excludes appliances included in the purchase of a home.

Income taxes: The sum of federal and provincial income taxes payable for the taxation year prior to the reference year of the survey. Income taxes include taxes on income, capital gains and RRSP withdrawals, after taking into account exemptions, deductions, non-refundable tax credits, and the refundable Quebec abatement. Income taxes also include provincial health insurance premiums.

Package trips: Includes at least two components such as transportation and accommodation, or accommodation with food and beverages.

Property and school taxes, water and sewage charges for owned vacation homes and other secondary residences: Refers to the amount billed, excluding any rebates. Special service charges (e.g., garbage, sewage), local improvements, school taxes, and water charges are included if these are part of the property tax bill.

Purchase of automobiles, vans and trucks: Refers to the net purchase price, including extra equipment, accessories, and warranties bought when the vehicle was purchased, after deducting any trade-in allowance or separate sales. Separate sales occur when a vehicle is sold independently by the owner (e.g., not traded in when purchasing or leasing another vehicle).

Rent: Net rent, excluding rent paid for business or rooms rented out. Includes additional amounts paid to landlord.

Repairs and maintenance (owned living quarters): Covers expenditures for labour and materials for all types of repairs and maintenance, including expenditures to repair and maintain built-in equipment, appliances and fixtures. Expenditures related to alterations and improvements are excluded as they are considered as an increase in assets (investment) rather than an expense.

Shelter: Principal accommodation (either owned or rented) and other accommodation (such as vacation homes or accommodation while travelling).

Tenants'/Homeowners' insurance premiums: Premiums paid for fire and comprehensive policies.

Tobacco products and smokers' supplies: Includes cigarettes, tobacco, cigars, electronic cigarettes, matches, pipes, lighters, ashtrays, cigarette papers and tubes, and other smokers' supplies.

Total current consumption: Sum of the expenditures for food, shelter, household operations, household furnishings and equipment, clothing and accessories, transportation, health care, personal care, recreation, education, reading materials and other printed matter, tobacco products and alcoholic beverages, games of chance, and miscellaneous expenditures.

Total expenditure: The sum of total current consumption, income taxes, personal insurance payments and pension contributions, and gifts of money, alimony and contributions to charity.

Water, fuel and electricity (for principal accommodation): Expenditures for services related to water and sewage, electricity, and natural gas and other fuel for the principal accommodation, whether rented or owned.

2.4 Dwelling characteristics

Number of bathrooms (for dwelling occupied at the time of the interview): Number of rooms in the dwelling with an installed bathtub and/or shower.

Repairs needed: Indicates the respondent's perception of the repairs the dwelling needed at the time of the interview to restore it to its original condition. Remodeling, additions, conversions, or energy improvements that would upgrade the dwelling over and above its original condition are not included.

- **Major repairs** include serious deficiencies in the structural condition of the dwelling, as well as the plumbing, electrical and heating systems. Examples include corroded pipes, damaged electrical wiring, sagging floors, bulging walls, damp walls and ceilings, and crumbling foundation.
- **Minor repairs** include deficiencies in the surface or covering materials of the dwelling and less serious deficiencies in the plumbing, electrical and heating systems. Examples include small cracks in interior walls and ceilings, broken light fixtures and switches, cracked or broken panes, leaking sinks, missing shingles or siding, and peeling paint.

Tenure: Housing status of the household at the time of the interview.

- **Owned with mortgage** indicates that the dwelling was owned by a household member and that there was a mortgage at the time of the interview.
- **Owned without mortgage** indicates that the dwelling was owned by a household member and that there was no mortgage at the time of the interview.
- **Rented** indicates that the dwelling was rented by the household or occupied rent-free at the time of the interview.

Type of dwelling: Type of dwelling in which the household resided at the time of interview. A dwelling is a structurally separate set of living premises with a private entrance from outside the building or from a common hall or stairway.

- A **single detached** dwelling contains only one dwelling unit and is completely separated by open space on all sides from any other structure, except its own garage or shed.
- A **single attached** dwelling is a double or semi-detached unit (side-by-side) or a row or terrace unit.
- **Apartment** includes duplexes (two dwellings, situated one above the other), triplexes, quadruplexes and apartment buildings.
- **Other** dwellings include mobile homes, motor homes, tents, railroad cars or houseboats, which are used as permanent residences and are capable of being moved on short notice.

2.5 Household equipment

Cellular telephone: Includes cellular telephones and handheld text messaging devices with cell phone capability.

Home computer: Excludes computers used exclusively for business purposes.

Internet use from home: Indicates whether the household has access to the Internet at home.

Landline telephone service: Includes landline telephone services used for business if the business is conducted in the dwelling.

Owned vehicles: Number of vehicles (automobiles, vans and trucks) owned by members of the household at the end of the month prior to the time of the interview.

2.6 Classification categories

Age of reference person: Households are grouped according to the age of the reference person as follows:

- Less than 30 years
- 30 to 39 years
- 40 to 54 years
- 55 to 64 years
- 65 years and over

Before-tax household income quintile (national): Income groupings are obtained by ranking the households who responded to the interview in ascending order by total household income before tax, then partitioning the households into five groups of similar size. The estimated number of households in each group should be the same in principle, but differences may occur due to the weight of the household at the boundary of two quintiles, since this household must lie in either one or the other of these quintiles. Moreover, the specific methodology of the survey (with a set of weights for the interview and another for the diary) implies that the estimated number of households will be the same for the interview as for the diary only if the quintiles are defined at the provincial level. For the national quintiles, the estimated number of households may differ between the interview weights and the diary weights (see Section 5).

Canada: Canada-level data include the ten provinces only.

Household type: Households are divided according to the following types:

- **One person households** are the households where the dwelling is occupied by only one person at the time of the interview.
- **Couple households** are households where the married or common law spouse of the reference person is a member of the household at the time of the interview. This household type may be further broken down into couple households without children (without additional persons), with children (without additional persons), and with additional persons. "Children" are never-married sons, daughters, or foster children of the reference person and may be any age. "Additional persons" include sons, daughters and foster children whose marital status is other than "single, never-married", other relatives by birth or marriage, and unrelated persons.
- **Lone-parent households** are households where the reference person has no spouse at the time of the interview and there is at least one child (never-married son, daughter, or foster child of the reference person). The lone-parent households for which data are presented do not include any additional persons.
- **Other households** are households composed of relatives only or households having at least one household member who is unrelated to the reference person (e.g., lodger, roommate, and employee). Relatives may include:
  - ▶ son, daughter, or foster child of the reference person whose marital status is other than "single, never- married"; or
  - ▶ relatives of the reference person by birth or marriage (not spouse, son, daughter or foster child).

Housing tenure: Indicates whether a household member owned or rented the dwelling in which the household lived at the time of the interview.

- **Owners** refers to all households living in a dwelling owned (with or without mortgage) by a household member at the time of the interview.
  - ▶ Owners with mortgage owned the dwelling with a mortgage at the time of the interview.
  - ▶ Owners without mortgage owned the dwelling without a mortgage at the time of the interview.
- **Renters** rented a dwelling at the time of the interview (as a regular tenant, rent free, or with reduced rent).

Population centre: Area with a population of at least 1,000 or more and a density of 400 or more people per square kilometer. Population centres are classified as either small, medium, or large as defined below:

- Small population centre: 1,000 to 29,999
- Medium population centre: 30,000 to 99,999
- Large urban population centre: 100,000 and over

Rural area: All areas outside population centres are considered rural. Together, population centres and rural areas cover all of Canada.

Size of area of residence: Sampled dwellings are assigned to the following groups depending on the area in which they are located according to the 2011 Census boundaries and population size.

- Population centres:
    - ▶ 1,000,000 and over
    - ▶ 500,000 to 999,999
    - ▶ 250,000 to 499,999
    - ▶ 100,000 to 249,999
    - ▶ 30,000 to 99,999
    - ▶ 1,000 to 29,999
- Rural area

Territorial capitals: These are the three capitals of the northern territories: Whitehorse, Yellowknife and Iqaluit (based on the 2011 Census subdivision concept).

3. Survey methodology

3.1 Target population

The target population of the 2015 SHS is the population of Canada's ten provinces plus the three territorial capitals (Whitehorse, Yellowknife and Iqaluit). Residents of institutions and members of the Canadian Forces living in military camps are excluded as well as people living on Indian reserves. These exclusions account for about 2% of the population.

For operational reasons, people living in certain remote areas where the rate of vacant dwellings is very high and where the collection cost would be exorbitant are excluded from collection. Also excluded are people living in other types of collective dwellings such as:

- people living in residences for dependent seniors;
- people living permanently in school residences, work camps, etc.; and
- members of religious and other communal colonies.

Collection exclusions represent less than 0.5% of the target population. However, these people are included in the population estimates to which the SHS estimates are adjusted (see Section 3.6).

3.2 The survey content and reference periods

The SHS primarily collects detailed information on household expenditures. It also collects information on household demographic characteristics and certain dwelling characteristics (e.g., type, age and tenure), as well as some information on household equipment (e.g., electronics and communications equipment). In addition, income information from personal income tax data is combined with the survey data.

For expenditure information collected through the questionnaire, the length of the reference period depends on the recall period specified in the question (e.g., the past month, the past three months, or the past 12 months). The reference period also varies with the collection month (e.g., for households in the January 2015 sample, "the past 12 months" signifies the period from January 2014 to December 2014, while for households in the December 2015 sample, it refers to the months between December 2014 and November 2015). Expenditures collected in the expenditure diary are reported for a period of two weeks.

In general, longer recall periods are used to collect expenditures for goods and services that are more expensive or purchased infrequently or irregularly. In contrast, shorter recall periods are used for goods and services that are of lesser value or that are purchased frequently or at regular intervals.

For demographic characteristics, dwelling characteristics and household equipment, the reference period is the interview date. The reference period for income is the calendar year preceding the survey year (i.e., 2014 for the 2015 SHS).

3.3 The sample design

The sample of the 2015 SHS consists of 17,603 households throughout the ten provinces and 767 households in the three territorial capitals (Whitehorse, Yellowknife and Iqaluit).

3.3.1 Sample design in the ten provinces

A stratified multi-stage sampling design was used to select the sample in the ten provinces. It is essentially a two-stage design, of which the first stage is a sample of geographic areas (referred to as clusters). Next, a list of all the dwellings in the selected clusters is prepared and a sample of dwellings is selected within each cluster. The selected dwellings that are inhabited by members of the target population constitute the survey's sample of households. The SHS uses a number of components of the Labour Force Survey's (LFS) sample design to minimize operating costs, though the dwellings selected for the SHS are different than those selected for the LFS.

Since the 2012 SHS, the selection of households to complete the diary was done such that fifty percent of households selected for the interview were asked to fill out a diary. Thus, in each selected cluster, a subsample of previously

chosen households fill out the diary. The 2015 SHS design was modified so that one hundred percent of households that were sampled for the interview between August and December were also selected to complete the diary, while the rate remained at fifty percent in the first part of the year.

The national sample is first divided among the provinces on the basis of the variability of total household expenditures and, to a lesser extent, the number of households in each province. The goal is to obtain estimates of similar quality across all provinces. Provincial sample sizes are shown in Table 1a of Section 4. The sample is then divided into strata defined by grouping clusters with similar characteristics based on a number of socio-demographic variables. Some strata were defined to target specific subpopulations such as high-income households. To improve the quality of the estimates, the high-income household strata are allocated a larger share of the sample than the allocation proportional to stratum size that is used in other strata.

Since data are collected monthly, the sample is divided into twelve subsamples of similar sizes.

The geographic concepts used for the 2015 SHS sample are those of the 2011 Census.

3.3.2 Sample design in the territories

A one-stage sampling design was used to select the sample in the three territorial capitals. The first step of the sample allocation was to determine the number of dwellings to be sampled in each city. The overall sample was allocated to each city by taking into account the size of the city and the quality of the estimates obtained from previous cycles of the SHS in the North. The sample sizes for the territorial capitals are shown in Table 1b of Section 4.

In the territorial capitals, all households sampled for the interview are also selected to complete an expenditure diary.

Like for the ten provinces, the sample is divided into twelve monthly subsamples of similar sizes, and the geographic concepts used for the 2015 SHS samples in the territorial capitals are those of the 2011 Census.

3.4 Data collection

The SHS is a voluntary survey. The data are mostly obtained directly from the respondent through two collection modes: a personal interview conducted by an interviewer using a questionnaire on a laptop, and a diary in which the household is required to report its daily expenditures over a two-week period. The data for the 2015 SHS were collected on a continuous basis from January to December 2015 from a sample of households spread over twelve monthly collection cycles.

Firstly, households in the sample are asked to respond to a questionnaire (administered using a computer-assisted personal interview) that mainly collects regular expenditures (such as rent and electricity) and less frequent expenditures (such as furniture and dwelling repairs) for a recall period that varies in length depending on the type of expenditure. For regular expenditures, the amount of the last payment and the period it covered are typically collected. For other types of expenditures collected in the interview, recall periods of one month, three months or twelve months are used. The recall periods are defined in terms of months preceding the month of the interview. For example, for a household in the June 2015 sample, "the last three months" corresponds to the period from March 1 to May 31, 2015. Demographic characteristics, dwelling characteristics and household equipment information, which are also collected in the interview, refer to the household's situation at the time of the interview. Starting in 2013, respondents are informed that the survey data will be combined with tax data to obtain selected variables related to personal income for household members aged 16 and over on December 31 of the calendar year preceding the survey year. The reference period for personal income tax data is the calendar year prior to the survey year.

Following the interview, respondents selected to complete the expenditure diary are asked to record the expenditures of all household members for a period of two weeks starting the day after the interview. Households are required to include all of their spending, except for a few types of expenditures, such as rent, regular utilities payments, and real estate and vehicle purchases. Households have the option of providing receipts of their purchases made during the two-week period in order to reduce the amount of information manually recorded in the diary. However, they are asked to write out additional information on the receipt if the description of the item appearing on the receipt is incomplete.

A telephone follow-up is carried out a few days after the interview to address any questions the respondent may have about the diary and to reiterate important information about how to complete it. At the end of the two-week

period, the interviewer returns to the respondent's residence to pick up the diary and ask a few additional questions to help the respondent report expenditures that he or she may have forgotten.

The diaries and all receipts supplied by respondents are scanned and captured at Statistics Canada's head office. An expenditure classification code is assigned to each item from a list of over 650 different codes.

3.5 Data processing and quality control

The computer assisted questionnaire contains many features designed to maximize the quality of the collected data. Many controls are built into the questionnaire to identify unusual values and detect logical inconsistencies in the reported data. When a response is rejected by the control, the interviewer is prompted to correct the information (with the respondent's help, if necessary). Once the data are transmitted to the head office, a detailed verification of each questionnaire is undertaken through a comprehensive series of processing steps. Invalid responses are corrected or flagged for imputation.

A number of verification steps are also carried out on the diary data when the diaries are received at the head office as well as throughout the capture and coding steps. For example, checks are carried out to ensure that the start and end dates of the reference period of the diary are indicated, that the reported expenditures were made during the specified reference period, and that there are no items that appear in both the data written in the diary and on the receipts provided by the respondent. After validation, capture and coding, quality control procedures are applied. A sample of diaries is selected to be completely verified once more to ensure that the diaries were captured and coded as specified in the procedures.

Next, a series of detailed verifications is performed on all diaries, and invalid responses are corrected or flagged for imputation. The final step is to assess whether the information reported in the diaries is of sufficient quality using parameters which are based on household characteristics. The reported expenditures and number of items are compared with minimum thresholds estimated for each geographic area (Atlantic Provinces, Quebec, Ontario, Prairie Provinces, British Columbia, and the three territorial capitals combined), each household income class and household size. Diaries that satisfy the conditions are deemed usable. The remaining diaries are examined, and deemed usable if they include notes providing justification for their low expenditures or their small number of reported items (e.g., a person living alone who had few expenses to report because he or she was on a business trip during the diary reporting period). Diaries that do not meet the usability criteria are treated as non-response diaries; they are excluded from the estimates. It should be noted that some of the usable diaries are incomplete and may have non-responded days.

To solve problems of missing or invalid information in interview questions, donor imputation using the nearest neighbour method is generally applied. That is, data from another respondent with similar characteristics (the donor) are used to impute. The imputation is done on one group of variables at a time, with the groups formed on the basis of the relationships among the variables. The characteristics used to identify the donor are selected such that they are correlated with the variables to be imputed. Household income, dwelling type, and the number of adults and children are commonly-used characteristics.

Donor imputation is also used when information is missing from the expenditure diary. For instance, a respondent may have reported a particular expenditure item without its cost or given the total amount spent (e.g., on groceries) without listing the individual items. Imputation is also used to enhance the level of detail in the coding of the items reported. For example, the information provided by the respondent may simply indicate that a bakery product was purchased, but a more detailed code is required to meet the survey's needs. In this case, donor imputation is used to impute the type of bakery product (e.g., bread, crackers, cookies, cakes and other pastries, etc.). Diary imputation is carried out at the reported item level, and the characteristics most often used to identify the donor are cost, available partial code, household income and household size. Imputation is done by province and quarter to control for provincial differences and seasonality of expenditures.

Starting in 2012, the imputation method was refined to use supplementary information on the type of store where the purchases were made in order to produce detailed expenditures when a respondent has only provided a total amount in their diary. This method takes into account the increasing amount of grocery products sold in large chain stores that do not specialize in groceries.

For personal income tax data, missing or invalid data are generally donor-imputed. Income and expenditure imputation is performed primarily with Statistics Canada's Canadian Census Edit and Imputation System (CANCEIS).

After imputation, taxes are added to the diary items that are reported with taxes excluded. In order to reduce the burden on respondents, instructions are provided to respondents indicating when to include or exclude taxes from reported expenses in the diary. Thus, the Goods and Services Tax (GST), the Provincial Sales Tax (PST), and the Harmonized Sales Tax (HST) are added to the diary items according to the appropriate federal and provincial taxation rates.

3.6 Weighting and estimation

The estimation of population characteristics from a sample survey is based on the premise that each sampled household represents a certain number of other households in the target population in addition to itself. This number is referred to as the survey weight.

Two different sets of survey weights are necessary for the SHS: one set for the questionnaire and another set for the diary. The reasons for this are twofold. First, in the provinces, only a subset of the households in the sample are selected to complete the diary. Second, even when households are selected to complete the diary, it is possible that they only complete the questionnaire without completing the diary. Therefore, only a portion of the respondents to the questionnaire also completed the diary.

3.6.1 Initial weights and non-response adjustments

There are a number of steps involved in the process of computing the weight assigned to each household. First, each household in the sample is given an initial weight equal to the inverse of its probability of being selected from the target population. A few adjustments are later applied to the interview weights and the diary weights.

The interview weights are first adjusted to take into account the households that did not respond to the questionnaire. They are then adjusted so that selected survey estimates are coherent with aggregates or estimates from auxiliary sources; this process is called weight calibration. Three data sources are used for weight calibration, as will be described in the next section.

The diary weights are also adjusted to take into account the households that did not respond to the diary. A factor adjusts for the non-response to the questionnaire, while another factor compensates for households that respond to the questionnaire but refuse to complete the diary. The diary weights then go through the calibration process, as explained in the next section.

3.6.2 Weight calibration

3.6.2.1 Weight calibration in the provinces

Firstly, the interview weights in the provinces are adjusted according to the number of persons by age group and the number of households by household size from population estimates produced by Statistics Canada's Demography Division. These estimates are derived from 2011 Census data as well as administrative data. Annual estimates of the number of persons in nine age groups (0 to 6, 7 to 17, 18 to 24, 25 to 34, 35 to 44, 45 to 54, 55 to 64, 65 to 74, and 75 and older) are used at the provincial level, and estimates for two age groups (0 to 17 years and 18 years and over) are used at the census metropolitan area level. For the number of households, the weights are adjusted to total the annual provincial estimates for three household size categories (one, two, and three or more persons). An adjustment is also made to ensure that each quarter is adequately represented in terms of the total number of households.

The second source used for interview weight calibration is the Statement of Remuneration Paid (T4) from the Canada Revenue Agency (CRA). The T4 data are used to ensure that the survey's weighted distribution of income (on the basis of wages and salaries) is consistent with the income distribution of the Canadian population. Interview weights are calibrated to total the T4 accounts of the number of persons per province in six categories of wages and salaries on the basis of provincial percentiles (0th to 25th, 25th to 50th, 50th to 65th, 65th to 75th, 75th to 95th and 95th to 100th).

Starting with SHS 2012, a third source for adjusting the interview weights is provided by the personal income tax data (T1) from the CRA. The interview weights are adjusted to reflect the number of persons in each of the three highest personal income classes (based on the 95.5th, 97th, and 98.5th percentiles) for each province, except Prince Edward Island where only one income class is used. This adjustment aims to compensate for the under-representation of these groups among the survey respondents.

The diary weights are adjusted to total demographic estimates in a manner similar to that used for the interview weights. The demographic estimates of the number of persons at the provincial level are the same for the diary as for the interview, with the exception of Prince Edward Island for which only seven age groups are used due to its smaller sample size (0 to 17, 18 to 24, 25 to 34, 35 to 44, 45 to 54, 55 to 64, and 65 and older). At the census metropolitan area level, the distinction between the two age groups (0 to 17 years and 18 years and over) is retained only for Montreal, Toronto and Vancouver. For the remaining metropolitan areas, the total number of persons is considered. Like the interview weights, the diary weights are adjusted to total the annual provincial estimates for the three household size categories (one, two, and three or more persons) except for Prince Edward Island where only two household size categories are considered (one and three or more persons combined, and two persons). No quarterly adjustments are made.

The diary weights are also adjusted according to income. Instead of adjusting on wages and salaries (T4), the weights are adjusted to the estimated number of households by provincial income quintiles calculated from the interview data (0-20th, 20th-40th, 40th-60th, 60th-80th and 80th-100th percentile). The adjustment to the interview estimates ensures that the weighted income distribution of diary-respondent households is consistent with the weighted income distribution of interview-respondent households. The diary weights are also adjusted for the number of high-income individuals according to personal income tax data, using a single income class based on the 95.5th percentile (this last adjustment is not applied to Prince Edward Island).

3.6.2.2 Weight calibration in the three capitals of the northern territories

In the three territorial capitals, only five control totals are used in the interview weight calibration process due to the small sample size in these cities. These weights are adjusted to control for only two age groups (the number of persons under 18 years of age and the number of persons aged 18 years and older) and to control for the number of households consisting of one, two, and three or more persons.

In Yellowknife and Whitehorse, the same demographic control totals are used for the diary as for the interview. Due to the smaller sample size in Iqaluit, the diary weights are adjusted to control for only two totals: the number of individuals (all age groups combined) and the number of households (all household sizes combined).

3.6.3 Annualization and other adjustments

All expenditure amounts collected from the interview and diary are converted to annual amounts (annualized) by multiplying them by a factor based on the recall period. Some expenditure data are also corrected by an adjustment factor when influential (extreme) values are identified. For the diary, another adjustment factor is produced to compensate for non-responded days.

The estimates for a given expenditure category collected from the interview therefore correspond to the weighted sums (using interview weights) of the annualized and adjusted amounts. The estimates of an expenditure category derived from diary data are calculated in a similar manner using diary weights and the appropriate annualization and adjustment factors. Lastly, summary expenditure category estimates that include components from both collection methods are produced by taking the sum of the estimates from both the diary and the interview components.

3.7 Historical revisions

The 2015 SHS estimates were computed with weights adjusted to 2015 demographic population estimates. These population estimates are based on 2011 Census data as well as more recent information from administrative sources such as birth, death and migration registers.

In order to make SHS estimates comparable over time, the 2010, 2011, 2012 and 2013 SHS estimates have been revised using population projections based on the 2011 Census. SHS 2014 estimates were produced using 2011 census projections. The entire weighting process is thus standardized for the years 2010 to 2015.

The historical revisions based on 2011 Census data also take into account improvements to the calibration methods used for the interview and diary weights which were introduced with the 2014 SHS.

SHS estimates prior to 2010 (2001-2009) are based on weights calibrated to population estimates produced using data from the 2001 Census. There is no plan to revise theses estimates (using 2006 or 2011 Census data) due to the break in the data series starting with the 2010 SHS (see Section 3.9).

No historical revisions were made for estimates for the territorial capitals from years prior to 2015, since 2015 marks the first year for which data were collected in these cities using the new SHS design.

3.8 Reference period of the estimates

With continuous monthly collection, the reference period of the collected data differs from one month to the other, as illustrated in Figure 1. For example, for an expenditure item with a three-month reference period, the data from the July sample include expenditures made between April 1st and June 30th, whereas the data from the December sample include expenditures made between September 1st and November 30th.

Figure 1
Monthly sample reference periods of three different lengths
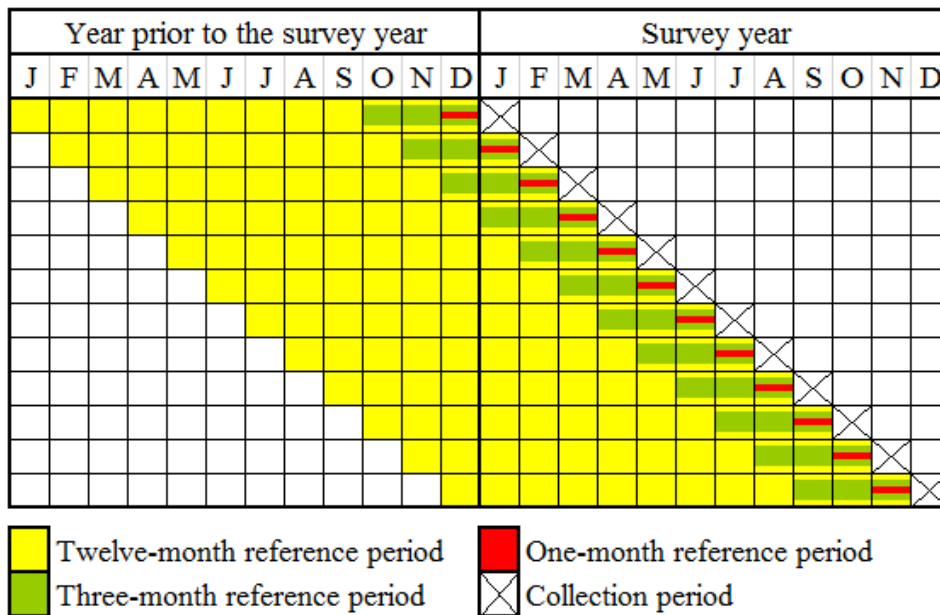
Collected expenditures with a reference period of less than twelve months are annualized so that all expenditure amounts cover a period of twelve months. SHS estimates are produced by combining the data from the twelve monthly samples.

When combining the annualized data from the twelve monthly samples to generate annual expenditure estimates, for expenditures with a recall period of three months or less, most of the expenditures were made during the survey year. This is also true for all expenditure data collected with the diary.

For expenditure items with a 12-month recall period, the collected expenses occurred between January of the year before the survey year and November of the survey year, depending on the collection month. For example, expenses collected in January cover the period from January to December of the year before the survey year, while expenses collected in December occurred between December of the year before the survey year and November of the survey year. For the estimates produced to represent a single 12-month period when the data from twelve monthly samples are combined, it must be assumed that expenditures made during the survey year are similar to those made during the previous year. This must be considered when making comparisons between estimates based on a 12-month recall period and those based on shorter periods.

The limits of the collection model in producing expenditure estimates covering the same period (or the same year) are known, since the majority of countries use this methodology. Despite these limitations, continuous collection with reference periods adapted to the respondent's ability to provide information is considered preferable in order to obtain data that reflects households' true expenditures.

3.9 Comparability over time

The SHS has been conducted annually since 1997. This survey includes most of the content of its predecessors, the periodic Family Expenditure Survey and the Household Facilities and Equipment Survey. Prior to 2010, the SHS was primarily based on an interview during the first quarter of the year in which households reported expenditures incurred in the preceding calendar year, although some changes to the methodology and definitions were made between 1997 and 2009.

A new methodology, which combines a questionnaire and a diary to collect household expenditures, was introduced in the ten provinces starting with the 2010 SHS. The recall periods have been shortened for many expenditure items and collection is now continuous throughout the year. Although the expenditure categories in the redesigned SHS are similar to those of previous years, the changes to data collection, processing and estimation methods have created a break in the data series. As a result, users are advised not to compare SHS data from 2010 onward with data prior to 2010, unless otherwise noted.

The redesigned SHS incorporates a significant amount of content that was previously collected through the Food Expenditure Survey (FES), last conducted in 2001. Although there are some differences between the SHS and FES methodologies, food expenditure data in both surveys have been collected using an expenditure diary that households are asked to fill in for a period of two weeks. The content of the SHS diary is slightly less detailed than that of the FES diary (e.g., the weight and quantity of food items are not collected) in order to limit the SHS respondent's burden.

The content of the SHS was also reviewed in 2010 to reduce the time required for the interview. A number of components regarding household equipment and dwelling characteristics as well as most of the questions regarding changes in household assets and liabilities have been dropped. Some definitions have also changed. As well, starting with the 2010 survey, the data related to household income and income tax come mainly from personal income tax data.

The new SHS design (applied in the ten provinces since 2010) was introduced in the territories for the first time in the 2015 reference year. The sampling methodology in the territories changed in 2015. In prior years, coverage in the territories was near-complete and only remote communities were excluded. In 2015, coverage in the three territories is limited to the capital cities due to operational and budget constraints as a result of adopting the new SHS design. As such, users are advised not to compare data for the territories from 2015 with those from previous years, unless otherwise noted.

Finally, for the 2010 to 2015 reference years, SHS estimates are based on weights calibrated to population estimates produced using data from the 2011 Census.

4. Data quality

Like all surveys, the SHS is subject to error, despite all the precautions taken in each step of the survey to prevent error or reduce its impact. There are two types of error: sampling and non-sampling.

4.1 Sampling errors

Sampling errors occur because inferences about the entire population are based on information obtained from only a sample of the population. The sample design, estimation method, sample size and data variability determine the size of the sampling error. The data variability for an expenditure item refers to the differences between members of the population in spending on that item. In general, the greater the differences between households, the larger the sampling error will be.

A common measure of sampling error is the standard error (SE). The SE is the degree of variation in the estimates which results from selecting one particular sample over another. The SE expressed as a percentage of the estimate is called the coefficient of variation (CV). The CV is used to indicate the degree of uncertainty associated with an estimate. For example, if the estimated number of households with a given dwelling characteristic is 10,000 with a CV of 5%, then the actual number is between 9,500 and 10,500 households 68% of the time, and between 9,000 and 11,000 households 95% of the time.

The standard errors for the SHS are estimated using the bootstrap method (see reference [1] in Section 7). CVs are available for the national and provincial estimates as well as for the estimates by household type, age of reference person, household income quintile, household tenure and size of area of residence. For the northern territories, CVs are available for the three territorial capitals estimates.

4.2 Data suppression

To ensure accuracy, estimates with a CV greater than or equal to 35% have been suppressed from published tables.

Suppressed estimates still contribute to summary-level estimates. For example, if the expenditure estimate for a particular item of clothing were suppressed, this amount would still be included in the total estimate for clothing expenditure.

4.3 Non-sampling errors

Non-sampling errors occur because certain factors make it difficult to obtain accurate responses and to ensure that these responses retain their accuracy throughout processing. Unlike sampling errors, non-sampling errors are not easily quantified. Four sources of non-sampling error can be identified: coverage error, response error, non-response error and processing error.

4.3.1 Coverage error

Coverage error arises when sampling frame units do not adequately represent the target population. This error may occur during sample design or selection, or during data collection or processing.

4.3.2 Response error

Response error occurs when respondents provide inaccurate information. This error may be due to many factors, including flawed design of the questionnaire, misinterpretation of questions by interviewers or respondents, or faulty reporting by respondents.

Response error is the most difficult aspect of data quality to measure. In general, the accuracy of SHS data depends largely on the respondent's ability to remember (recall) household expenditures and their willingness to consult records.

4.3.3 Non-response error

Errors due to non-response occur when potential respondents do not provide the required information or when the information they provide is unusable. The main impact of non-response on data quality is that it can cause a bias in

the estimates if the characteristics of non-respondents differ from those of respondents in a way that impacts the expenditures studied. While non-response rates can be calculated, they provide only an indication of data quality, since they do not measure the degree of bias present in the estimates. The magnitude of non-response can be considered a simple indicator of the risks of bias in the estimates.

At the national level (ten provinces only), the response rate for the 2015 SHS interview is 60.9%. The provincial response rates are shown in Table 1a. The table also shows the number of non-responding households by reason for non-response. Reasons include the inability to contact the household, the household's refusal to participate in the survey and the inability to conduct an interview because of special circumstances (e.g., the respondent speaks neither official language or has a physical condition that precludes an interview). Respondents in the latter category are referred to as residual non-respondents.

Table 1a
Interview response rates, Canada[1] and provinces, 2015

	Eligible sampled households	No contacts	Refusals	Residual non-respondents	Respondents	Response rate[2]
	number					percentage
Canada	17,603	1,608	4,588	684	10,723	60.9
Atlantic provinces	5,474	419	1,298	229	3,528	64.5
Newfoundland and Labrador	1,571	127	324	46	1,074	68.4
Prince Edward Island	729	43	186	33	467	64.1
Nova Scotia	1,641	84	453	72	1,032	62.9
New Brunswick	1,533	165	335	78	955	62.3
Quebec	2,231	152	608	69	1,402	62.8
Ontario	2,801	262	795	177	1,567	55.9
Prairie provinces	5,103	571	1,353	134	3,045	59.7
Manitoba	1,685	189	471	46	979	58.1
Saskatchewan	1,550	116	426	42	966	62.3
Alberta	1,868	266	456	46	1,100	58.9
British Columbia	1,994	204	534	75	1,181	59.2

1. Only the 10 provinces are included.
2. (Respondent households/Eligible sampled households) x 100.

Some of the households selected to fill out a diary do not complete it or provide a diary that is considered unusable under the criteria outlined in section 3.5. For the 2015 SHS, the diary response rate among the interview-respondent households who were selected to fill out a diary is 65.7% (at the national level, including the provinces only). Provincial rates are provided in Table A1 of Appendix A. The final diary response rate (defined as the percentage of usable diaries relative to the number of households selected to fill out the diary) is 39.9% at the national level, and provincial rates are shown in Table 2a.

Table 2a
Diary response rates, Canada[1] and provinces, 2015

	Eligible sampled households[2]	Interview non-respondents[3]	Diaries[4]			Response rate[6]
			Refusal[5]	Unusable	Usable	
	number					percentage
Canada	12,571	4,950	2,441	170	5,010	39.9
Atlantic provinces	3,900	1,432	705	67	1,696	43.5
Newfoundland and Labrador	1,104	343	174	20	567	51.4
Prince Edward Island	519	196	130	9	184	35.5
Nova Scotia	1,191	466	243	20	462	38.8
New Brunswick	1,086	427	158	18	483	44.5
Quebec	1,595	591	346	22	636	39.9
Ontario	1,991	860	413	19	699	35.1
Prairie provinces	3,673	1,491	696	49	1,437	39.1
Manitoba	1,217	506	227	14	470	38.6
Saskatchewan	1,116	427	174	17	498	44.6
Alberta	1,340	558	295	18	469	35.0
British Columbia	1,412	576	281	13	542	38.4

1. Only the 10 provinces are included.
2. The eligible sampled households are those selected to fill out the diary.
3. Includes interview "No contacts", "Refusals" and "Residual non-respondents" from households selected to fill out the diary.
4. The definition of usable and unusable diaries is given in the "Data processing and quality control" Section.
5. Includes diary "No contacts", "Refusals" and "Residual non-respondents" from interview respondents selected to fill out the diary.
6. (Usable diaries/Eligible sampled households)x100.

The response rates vary from month to month. Monthly response rates, in the ten provinces, for the interview and diary can be found in Tables B1 and B2 of Appendix B. Interview and diary response rates by size of area of residence and dwelling type are shown in Tables C1, C2, C3 and C4 of Appendix C, respectively.

The diary response rate of interview respondents can be found in Tables D1, D2, D3 and D4 of Appendix D, broken down by various household characteristics, including household type, household tenure, age of the reference person and before-tax income quintile for the ten provinces.

The interview response rates in the three territorial capitals are given in Table 1b below. Altogether, the three territorial capitals have an interview response rate equal to 65.8% for SHS 2015.

Table 1b
Interview response rates, three territorial capitals, 2015

	Eligible sampled households	No contacts	Refusals	Residual non-respondents	Respondents	Response rate[1]
			number			percentage
Territorial capitals	767	64	183	15	505	65.8
Whitehorse	333	11	112	6	204	61.3
Yellowknife	297	40	51	6	200	67.3
Iqaluit	137	13	20	3	101	73.7

1. (Respondent households/Eligible sampled households) x 100.

In the three territorial capitals, all households selected for the interview are also selected to fill out a diary. Like in the provinces, some households do not complete it or provide a diary that is considered unusable under the criteria outlined in section 3.5. For the 2015 SHS, the diary response rate in the northern capitals is 38.6%, as shown in Table 2b.

Table 2b
Diary response rates, three territorial capitals, 2015

	Eligible sampled households	Interview non-respondents[1]	Diaries[2]			Response rate[4]
			Refusal[3]	Unusable	Usable	
			number			percentage
Territorial capitals	767	262	195	14	296	38.6
Whitehorse	333	129	83	4	117	35.1
Yellowknife	297	97	63	6	131	44.1
Iqaluit	137	36	49	4	48	35.0

1. Includes interview "No contacts", "Refusals" and "Residual non-respondents".
2. The definition of usable and unusable diaries is given in the "Data processing and quality control" Section.
3. Includes diary "No contacts", "Refusals" and "Residual non-respondents".
4. (Usable diaries/Eligible sampled households)x100.

For the northern capitals, the diary response rates among interview respondents are given in Table H1 of Appendix H. The interview and diary response rates by quarter are provided in Tables H2 and H3 of Appendix H.

For all selected households (provinces and territorial capitals), cases for which the respondent fails to answer some of the questions are referred to as partial non-response. Imputing missing values compensates for this partial non-response. Imputation rates are shown in Section 4.3.5.

There are also cases in which a household fails to enter data in the diary for each of the 14 days as required. Adjustment factors are thus calculated to take into consideration these non-responded days.

4.3.4 Processing error

Processing errors may occur in any of the data processing stages, including data entry, coding, editing, imputation of partial non-response, weighting and tabulation. Steps taken to reduce processing error are described in Section 3.5.

4.3.5 Imputation of partial non-response

The residual bias remaining after the imputation of partial non-response is difficult to measure. Its magnitude depends on the imputation method's ability to produce unbiased estimates. The imputation rates provide an indication of the magnitude of partial non-response.

Partial interview non-response may result from a lack of information or from an invalid response to a question. The national and provincial percentages of households for which certain expenditure categories required imputation due to partial interview non-response are shown in Table 3a. The percentages for the three territorial capitals are found in Table 3b. These percentages are presented by number of imputed expenditure variables per household (out of all consumer expenditure data collected during the interview). The table contains two series of results, one including and the other excluding expenditures on communication services (telephone, cell phone and Internet), television services (via cable, a satellite dish or a phone line), satellite radio services, and home security services. This distinction has been made because these services are increasingly being purchased as a package. Households are often billed for bundled services, making it difficult or impossible for them to provide separate expenditure amounts for each service. Therefore, the total amount paid for the package is allocated to individual services through imputation, which significantly increases the number of households for which expenditures must be imputed.

Table 3a
Percentage of households requiring imputation for consumer expenses collected during the interview, Canada[1] and provinces, 2015

	Number of variables imputed[2] (out of 188)				Number of variables imputed[3] (out of 193)			
	1	2 to 9	10 or more	Total	1	2 to 9	10 or more	Total
	percentage							
Canada	19.6	34.3	2.3	56.3	8.5	67.8	4.2	80.5
Newfoundland and Labrador	18.6	33.9	0.7	53.2	5.8	76.0	3.2	84.9
Prince Edward Island	20.8	31.5	1.1	53.3	7.7	74.7	2.8	85.2
Nova Scotia	21.8	36.6	1.6	60.1	7.2	74.1	3.6	84.9
New Brunswick	19.2	26.7	1.3	47.1	6.5	71.1	2.8	80.4
Quebec	19.9	29.5	1.9	51.3	6.1	70.8	3.6	80.5
Ontario	17.7	33.5	2.0	53.2	10.1	59.8	3.3	73.3
Manitoba	17.9	46.4	5.8	70.1	10.4	62.9	8.9	82.2
Saskatchewan	18.8	37.5	1.7	58.0	10.4	66.0	3.3	79.7
Alberta	17.6	39.7	3.4	60.7	9.0	63.5	5.1	77.6
British Columbia	25.0	29.0	3.6	57.6	11.0	65.7	5.7	82.4

1. Only the 10 provinces are included.
2. Excluding expenditures related to communication, television, satellite radio and home security services.
3. Including expenditures related to communication, television, satellite radio and home security services.

Table 3b
Percentage of households requiring imputation for consumer expenses collected during the interview, three territorial capitals, 2015

	Number of variables imputed[1] (out of 188)				Number of variables imputed[2] (out of 193)			
	1	2 to 9	10 or more	Total	1	2 to 9	10 or more	Total
	percentage							
Territorial capitals	24.2	37.0	2.6	63.8	18.0	51.3	3.6	72.9
Whitehorse	20.1	37.3	2.9	60.3	15.2	54.9	3.4	73.5
Yellowknife	27.5	39.0	3.5	70.0	17.5	56.0	5.5	79.0
Iqaluit	25.7	32.7	0.0	58.4	24.8	34.7	0.0	59.4

1. Excluding expenditures related to communication, television, satellite radio and home security services.
2. Including expenditures related to communication, television, satellite radio and home security services.

Users of expenditure estimates related to communication, television, satellite radio or home security services should therefore take into account the high level of imputation of the expenditure data when examining these individual services. A measure of the impact of imputation on each individual service has been produced in Table E1 of Appendix E for the provinces and in Table H4 of Appendix H for the territorial capitals. This measure represents the proportion of the total value of the estimate obtained from imputed data.

For expenditure data from the diaries, imputation is used primarily to assign a value when the amount of a reported expenditure is missing, to assign a list of expenditure items (with individual costs) when only the total cost is provided (e.g., to assign grocery items and their individual costs when the respondent has provided only the total amount of

the grocery bill), or to assign an expenditure code that is more detailed than the one that could be assigned using the information from the respondent (e.g., the type of bakery product). The imputation rates for each of these three types of imputation are shown in Table F1 of Appendix F for Canada and in Table H5 of Appendix H for the three territorial capitals. Each rate represents the proportion of imputed items relative to all expenditure items from the diaries.

The risks of bias associated with the imputed data depend largely on the level of detail at which the SHS data are used. For example, food expenditure data in the SHS are produced at a high level of detail to meet the needs of the Food Expenditure Survey users (last conducted in 2001). Food expenditures are categorized using a hierarchical system of more than 200 expenditure codes. For some reported expenditure items, the food product may have been known (e.g., dairy products or even milk), but the level of detail required (e.g., skim milk, 1% milk or 2% milk) had to be imputed. This type of imputation creates a risk of bias only in expenditure estimates at a very detailed level. In other cases, however, almost no information on the type of expenditure was available before imputation (e.g., it was known only that the expenditure was for a good). When so little information is available, the risks of bias in the estimates of the expenditure categories are more significant.

Restaurant expenditures are reported using a slightly different format in the second section of the diary. Imputation is used primarily to assign a value when the total amount of the restaurant expenditure or the cost of alcoholic beverages is missing, or when the type of meal (breakfast, lunch, dinner or snack and beverage) has not been specified. The imputation rate for each of these three types of imputation is shown in Table F2 of Appendix F for Canada and in Tables H6 of Appendix H for the territorial capitals.

Lastly, households have the option of either providing receipts or recording their expenditure information in the diary. Tables 4a and 4b show the percentage of expenditures reported using each method for food expenditures, restaurant expenditures, and expenditures for other goods and services for Canada and the three territorial capitals respectively.

Table 4a
Methods for recording expenses in the diary, Canada[1], 2015

Expenditure category	Transcriptions	Receipts
	percentage	
Food	23.1	76.9
Restaurant	84.2	15.8
Other goods and services	46.6	53.4

1. Only the 10 provinces are included.

Table 4b
Methods for recording expenses in the diary, three territorial capitals, 2015

Expenditure category	Transcriptions	Receipts
	percentage	
Food	21.3	78.7
Restaurant	76.4	23.6
Other goods and services	44.8	55.2

4.4 The effect of large values

For any sample, estimates of totals, averages and standard errors can be affected by the presence or absence of large values in the sample. Large values are more likely to arise from positively skewed populations. Such values are found in the SHS and are taken into account when the final estimates are generated.

5. Derivation of data tables

This section shows how the SHS data tables have been derived. It then explains the calculations used most frequently to manipulate the data. Users are advised to refer to this section before undertaking data analysis.

As mentioned in section 3.6, two different sets of weights are necessary for the SHS: one set for the questionnaire and another set for the diary. These two weights are used to derive different estimates using the survey data.

5.1 Estimates of number of households

Estimates are generated using two sets of weights: one for the interview and the other for the diary. Adjustments made during weighting ensure that the estimated number of households at the provincial level is the same for both sets of weights for the following domains:

- Household sizes of one, two, or three or more persons. In 2015, two exceptions were made. First, for Prince Edward Island where two household sizes are used (one or three or more persons, and two persons). Second, for Iqaluit, where the estimated number of households is the same for both sets of weights only for all household sizes combined;
- Household income groups defined according to provincial quintiles (for the ten provinces only).

By default, the estimate of the number of households for any aggregation of these domains is the same for both sets of weights.

For any other domain, an estimate of the number of households may differ somewhat between the two sets of weights, depending on the reliability of these estimates. The estimated number of households in the SHS tables has been produced using interview weights, as opposed to diary weights. The average household size is also estimated using the interview weights.

The estimated number of households and the average household size of the various domains for which expenditure estimates are produced in CANSIM tables are available in Tables G1 and G2 of Appendix G for Canada and the provinces and in Tables H7 of Appendix H for the territorial capitals.

5.2 Estimates of average expenditure per household

Estimates based on both interview and diary expenditure data are produced in two steps: estimates are produced separately for the interview data and the diary data, and are then added together.

For average expenditure per household, the interview average expenditure per household is calculated using the weighted sum of expenditure data obtained from the interview divided by the sum of the interview weights. Similarly, the diary average expenditure per household is estimated using the weighted sum of expenditure data obtained from the diary divided by the sum of the diary weights. The two components are then added to obtain the average expenditure per household. With this approach, for domains in which the interview and diary estimates do not match, the combined interview and diary average expenditure per household does not exactly match the combined interview and diary weighted sum of expenditure divided by the estimated number of households (produced using the interview weights). Nevertheless, the approach ensures that the sum of the average expenditure per household for all categories equals the total average expenditure per household.

5.3 Examples of expenditure estimates

The tables in this section contain examples of expenditure estimates derived using data from either the interview or the diary, as well as an example of expenditure estimates produced using a combination of interview and diary data.

5.3.1 Examples of the number of households and expenditure estimates

The CANSIM tables include estimates of average expenditure per household. The estimated number of households and the average household size are also available at the national, regional and provincial levels as well as for the territorial capitals. The estimated number of households and the average household size for other domains are not

included in these tables, but are provided in Tables G1 and G2 of Appendix G for Canada and the provinces and in Tables H7 of Appendix H for the three territorial capitals.

In this section, some examples of the estimated number of households based on the interview weights and on the diary weights (Table 5), as well as estimates of average expenditure per household obtained from the interview data and diary data (Table 6) are provided in order to show how different expenditure estimates (presented in Section 5.4) are calculated using SHS data.[1]

Table 5

Estimated number of households by household tenure

	All households	Owners with mortgage	Owners without mortgage	Renters
	number			
Estimated number of households based on interview weights	13,514,009	4,812,813	4,219,949	4,481,247
Estimated number of households based on diary weights	13,514,009	4,785,857	4,214,778	4,513,374

Table 6

Average household expenditure by household tenure

	All households	Owners with mortgage	Owners without mortgage	Renters
	dollars			
Average household expenditures obtained from interview data				
Shelter	15,210	23,712	9,643	11,320
Household furnishings and equipment	2,027	2,699	2,235	1,115
Clothing and accessories	3,360	4,289	3,268	2,448
Transportation	11,229	14,505	12,389	6,638
Average household expenditures obtained from diary data				
Food expenditures	7,795	9,234	8,465	5,642
Food purchased from stores	5,588	6,583	6,053	4,098
Food purchased from restaurants	2,207	2,652	2,412	1,544

5.3.2 Examples of estimates obtained from both interview and diary expenditure data

Table 7 shows the estimated number of households and the average household size by household tenure as provided in Tables of Appendix G (not available in CANSIM tables), while Table 8 represents a typical example of an average household expenditures table available to users through the SHS CANSIM tables.

Table 7

Estimated number of households and average household size based on interview weights, by household tenure

	All households	Owner with mortgage	Owner without mortgage	Renter
	number			
Estimated number of households	13,514,009	4,812,813	4,219,949	4,481,247
Average household size	2.48	3.03	2.3	2.05

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1. Estimates in these tables are from SHS 2011 and were calculated using weights based on population projections from the 2006 Census.

Table 8
Average household expenditures obtained from interview and diary data, by household tenure

	All households	Owners with mortgage	Owners without mortgage	Renters
			dollars	
Total expenditure[1]	39,621	54,439	36,000	27,163
Food expenditures	7,795	9,234	8,465	5,642
Food purchased from stores	5,588	6,583	6,053	4,098
Food purchased from restaurants	2,207	2,652	2,412	1,544
Shelter	15,210	23,712	9,643	11,320
Household furnishings and equipment	2,027	2,699	2,235	1,115
Clothing and accessories	3,360	4,289	3,268	2,448
Transportation	11,229	14,505	12,389	6,638

1. Total of expenditure for the categories used in this example.

Tables 5 and 6 above are not available to users; however, the following section provides examples demonstrating how to produce other estimates using tables such as Tables 7 and 8 above.

5.4 Calculating various estimates

The following section explains some of the calculation methods most commonly used to manipulate SHS expenditure estimates.

5.4.1 Average expenditure per person

To calculate the average expenditure per person for a given category, divide the average expenditure per household for that category (Table 8) by the average household size (found on the second line of Table 7). For example, the average food expenditure per person for renter households is calculated as follows:

$$Average\ food\ expenditure\ per\ person\ for\ renter\ households$$

$$= \frac{Average\ food\ expenditure\ per\ renter\ household}{Average\ size\ of\ renter\ household}$$

Example:

$$\frac{\$5,642}{2.05} = \$2,752$$

When analyzing estimates of average expenditure per person, note that household composition (number of children and adults) is a significant factor in many expenditure patterns.

5.4.2 Percentage of total average household expenditure (budget share)

To calculate the budget share of an individual expenditure category as a percentage of total average household expenditure, divide the average expenditure per household for that category by the total average expenditure per household, and then multiply by 100. For example, using Table 8, the percentage of total average expenditure per household represented by the average expenditure on food per household, for renter households, is calculated by the following ratio:

$$\frac{Average\ expenditure\ on\ food\ per\ renter\ household}{Total\ average\ expenditure\ per\ renter\ household} \times 100$$

Example:

$$\frac{\$5,642}{\$27,163} \times 100 = 20.77\%$$

5.4.3 Combining expenditure categories

The average expenditure per household for different expenditure categories can be added together to create new subtotals. For example, the average expenditure on shelter and transportation per renter household is calculated as follows:

$$\text{Average expenditure on shelter per renter household } +$$
$$\text{Average expenditure on transportation per renter household}$$

Example:

$$\$11,320 + \$6,638 = \$17,958$$

5.4.4 Aggregate expenditures

To calculate aggregate expenditures, multiply the average expenditure per household from one column for an expenditure category (Table 8) by the estimated number of households from the same column in Table 7. For example, the aggregate expenditure on food for renter households is calculated as follows:

$$\text{Average expenditure on food per renter household} \times \text{Estimated number of renter households}$$

Example:

$$\$5,642 \times 4,481,247 = \$25,283,195,574$$

Note: Since the average expenditure variable comes from diary data and the estimated number of households in the domains used differs slightly depending on whether it is calculated using interview weights or diary weights, the estimate of aggregate expenditure only approximates the value that would have been obtained using the weighted sum of expenditures. Indeed, if the estimated number of households based on the diary weights from Table 5 was used (not available in the CANSIM tables), the result would be:

$$\$5,642 \times 4,513,374 = \$25,464,456,108$$

The estimates of aggregate expenditure are exact for all domains for which the sum of the interview weights and the sum of the diary weights are the same (see Section 5.1), as well as for all variables derived from the interview questionnaire.

5.4.5 Aggregate expenditures by combining data columns

To calculate aggregate expenditures for a given expenditure category for multiple columns, calculate the aggregate expenditure for this category for each of the columns and then add them together. For example, the aggregate expenditure on food by owner households (with or without a mortgage) is calculated as follows:

$$\text{Aggregate expenditure on food for owner households with or without a mortgage}$$
$$=$$
$$\left(\begin{array}{c} \text{Average expenditure on food per owner household with a mortgage} \\ \times \text{ Estimated number of owner households with mortgage} \end{array} \right)$$
$$+$$
$$\left(\begin{array}{c} \text{Average expenditure on food per owner household without a mortgage} \\ \times \text{ Estimated number of owner households without mortgage} \end{array} \right)$$

Example:

$$(\$9,234 \times 4,812,813) + (\$8,465 \times 4,219,949) = \$80,163,383,527$$

5.4.6 Average expenditures per household by combining data columns

To calculate the average expenditure for a given expenditure category for multiple columns, calculate the aggregate expenditure for this category for each of the columns, add them together, and then divide the total by the sum of the estimated number of households in those columns (Table 7). For example, the average expenditure on food per owner household (with or without a mortgage) is calculated as follows:

$$\frac{\left(\begin{array}{c}\textit{Average expenditure on food per owner household with a mortgage} \times \\ \textit{Estimated number of owner households with mortgage}\end{array}\right) + \left(\begin{array}{c}\textit{Average expenditure on food per owner household without a mortgage} \times \\ \textit{Estimated number of owner households without mortgage}\end{array}\right)}{\textit{Estimated number of owner households (with and without a mortgage)}}$$

Example:

$$\frac{(\$9{,}234 \times 4{,}812{,}813) + (\$8{,}465 \times 4{,}219{,}949)}{4{,}812{,}813 + 4{,}219{,}949} = \$8{,}875$$

5.4.7 Expenditure share of a subgroup among all households

Here, the expenditure share is the percentage of the aggregate expenditures for a given expenditure category that belongs to a particular subgroup of households (e.g., the percentage of all food expenditures made by renter households). It is calculated by deriving the household subgroup's aggregate expenditures for the expenditure category and dividing it by the aggregate expenditure for that expenditure category for all households. The result is then multiplied by 100. For example, the percentage of food expenditures made by renter households is calculated as follows:

$$\textit{Percentage of food expenditures made by renter households} =$$

$$\frac{\textit{Average expenditure on food per renter houshold} \times \textit{Estimated number of renter households}}{\textit{Average expenditure on food per household for all households} \times \textit{Estimated total number of households}} \times 100$$

Example:

$$\frac{\$5{,}642 \times 4{,}481{,}247}{\$7{,}795 \times 13{,}514{,}009} \times 100 = 24.00\%$$

6. Related products and services

6.1 CANSIM

CANSIM (the Canadian Socio-Economic Information Management System) is a database consisting of multi-dimensional cross-sectional tables.

Eight tables presenting annual information from the Survey of Household Spending are available for Canada and the provinces. Table 203-0021 presents detailed household expenditure estimates, while Tables 203-0022 to 203-0026 present data according to household income quintile, household type, household tenure, size of area of residence and age of the reference person, respectively. Table 203-0027 presents information on dwelling characteristics and household equipment. Finally, Table 203-0028 provides detailed food expenditure estimates.

Two additional tables are available with 2015 SHS estimates for the three territorial capitals. Table 203-0032 presents household expenditure estimates, while Table 203-0033 presents information on dwelling characteristics and household equipment.

6.2 Custom tabulations

For clients with more specialized data needs, custom tabulations can be produced to their specifications on a cost-recovery basis under the terms of a contract (subject to confidentiality restrictions). Aggregate data at the detailed expenditure level are also available on a custom basis.

7. References

[1] Charlebois, J. and Dubreuil, G. 2011. Variance Estimation for the Redesigned Survey of Household Spending. Proceedings of the Survey Methods Section, Statistical Society of Canada Annual Meeting, June 2011.

Appendix A

Diary response rates among interview respondents, Canada[1] and provinces

Table A1
Diary response rates among the respondents to the interview, Canada[1] and provinces, 2015

	Interview respondents[2]	Diaries[3]			Response rate[5]
		Refusal[4]	Unusable	Usable	
		number			percentage
Canada	7,621	2,441	170	5,010	65.7
Atlantic provinces	2,468	705	67	1,696	68.7
Newfoundland and Labrador	761	174	20	567	74.5
Prince Edward Island	323	130	9	184	57.0
Nova Scotia	725	243	20	462	63.7
New Brunswick	659	158	18	483	73.3
Quebec	1,004	346	22	636	63.3
Ontario	1,131	413	19	699	61.8
Prairie provinces	2,182	696	49	1,437	65.9
Manitoba	711	227	14	470	66.1
Saskatchewan	689	174	17	498	72.3
Alberta	782	295	18	469	60.0
British Columbia	836	281	13	542	64.8

1. Only the 10 provinces are included.
2. Interview respondents from households selected to fill out the diary.
3. The definition of usable and unusable diaries is given in the "Data processing and quality control" Section.
4. Includes diary "No contacts", "Refusals" and "Residual non-respondents" from interview respondents selected to fill out the diary.
5. (Usable diaries/Interview respondents selected for the diary) x 100.

Appendix B

Response rates by collection month, Canada[1]

Table B1
Interview response rates by collection month, Canada[1], 2015

	Eligible sampled households	No contacts	Refusals	Residual non-respondents	Respondents	Response rate[2]
			number			percentage
All months	17,603	1,608	4,588	684	10,723	60.9
January	1,423	142	338	44	899	63.2
February	1,455	151	384	50	870	59.8
March	1,459	137	361	36	925	63.4
April	1,464	142	367	58	897	61.3
May	1,470	112	363	54	941	64.0
June	1,460	125	399	66	870	59.6
July	1,488	149	377	54	908	61.0
August	1,462	122	383	64	893	61.1
September	1,474	139	389	56	890	60.4
October	1,477	104	413	85	875	59.2
November	1,471	136	423	57	855	58.1
December	1,500	149	391	60	900	60.0

1. Only the 10 provinces are included.
2. (Respondent households/Eligible sampled households) x 100.

Table B2
Diary response rates by collection month, Canada[1], 2015

	Eligible sampled households[2]	Interview non-respondents[3]	Diaries[4]			Response rate[6]
			Refusal[5]	Unusable	Usable	
			number			percentage
All months	12,571	4,950	2,441	170	5,010	39.9
January	715	265	137	9	304	42.5
February	756	291	135	18	312	41.3
March	750	254	149	14	333	44.4
April	729	288	143	11	287	39.4
May	760	284	169	9	298	39.2
June	733	316	135	13	269	36.7
July	744	281	150	4	309	41.5
August	1,462	569	298	16	579	39.6
September	1,474	584	276	21	593	40.2
October	1,477	602	277	17	581	39.3
November	1,471	616	269	23	563	38.3
December	1,500	600	303	15	582	38.8

1. Only the 10 provinces are included.
2. The eligible sampled households are those selected to fill out the diary.
3. Includes interview "No contacts", "Refusals" and "Residual non-respondents" from households selected to fill out the diary.
4. The definition of usable and unusable diaries is given in the "Data processing and quality control" Section.
5. Includes diary "No contacts", "Refusals" and "Residual non-respondents" from interview respondents selected to fill out the diary.
6. (Usable diaries/Eligible sampled households) x 100.

Appendix C

Response rates by size of area of residence and by dwelling type, Canada[1]

Table C1
Interview response rates by size of area of residence, Canada[1], 2015

	Eligible sampled households	No contacts	Refusals	Residual non-respondents	Respondents	Response rate[2]
			number			percentage
All population centres and rural area	17,603	1,608	4,588	684	10,723	60.9
Population centre 1,000,000 and over	4,652	519	1,198	183	2,752	59.2
Population centre 500,000 to 999,999	1,503	178	422	54	849	56.5
Population centre 250,000 to 499,999	1,805	113	535	80	1,077	59.7
Population centre 100,000 to 249,999	2,858	274	774	129	1,681	58.8
Population centre 30,000 to 99,999	1,855	135	528	74	1,118	60.3
Population centre 1,000 to 29,999	2,240	183	529	69	1,459	65.1
Rural area	2,690	206	602	95	1,787	66.4

1. Only the 10 provinces are included.
2. (Respondent households/Eligible sampled households) x 100.

Table C2
Diary response rates by size of area of residence, Canada[1], 2015

	Eligible sampled households[2]	Interview non-respondents[3]	Diaries[4]			Response rate[6]
			Refusal[5]	Unusable	Usable	
			number			percentage
All population centres and rural area	12,571	4,950	2,441	170	5,010	39.9
Population centre 1,000,000 and over	3,333	1,347	738	37	1,211	36.3
Population centre 500,000 to 999,999	1,074	466	206	13	389	36.2
Population centre 250,000 to 499,999	1,291	545	270	12	464	35.9
Population centre 100,000 to 249,999	2,033	831	340	32	830	40.8
Population centre 30,000 to 99,999	1,335	529	273	15	518	38.8
Population centre 1,000 to 29,999	1,574	562	277	24	711	45.2
Rural area	1,931	670	337	37	887	45.9

1. Only the 10 provinces are included.
2. The eligible sampled households are those selected to fill out the diary.
3. Includes interview "No contacts", "Refusals" and "Residual non-respondents" from households selected to fill out the diary.
4. The definition of usable and unusable diaries is given in the "Data processing and quality control" Section.
5. Includes diary "No contacts", "Refusals" and "Residual non-respondents" from interview respondents selected to fill out the diary.
6. (Usable diaries/Eligible sampled households) x 100.

Table C3
Interview response rates by dwelling type, Canada[1], 2015

	Eligible sampled households	No contacts	Refusals	Residual non-respondents	Respondents	Response rate[2]
	number					percentage
All dwelling types	17,603	1,608	4,588	684	10,723	60.9
Single detached	11,214	923	3,094	398	6,799	60.6
Double or row/terrace	1,769	158	427	57	1,127	63.7
Duplex, low-rise or high-rise apartment	4,182	471	933	200	2,578	61.6
Other	354	26	86	23	219	61.9
Not available	84	30	48	6	0	0.0

1. Only the 10 provinces are included.
2. (Respondent households/Eligible sampled households) x 100.

Table C4
Diary response rates by dwelling type, Canada[1], 2015

	Eligible sampled households[2]	Interview non-respondents[3]	Diaries[4] Refusal[5]	Unusable	Usable	Response rate[6]
	number					percentage
All dwelling types	12,571	4,950	2,441	170	5,010	39.9
Single detached	8,002	3,185	1,476	99	3,242	40.5
Double or row/terrace	1,259	469	241	17	532	42.3
Duplex, low-rise or high-rise apartment	2,990	1,136	685	49	1,120	37.5
Other	269	109	39	5	116	43.1
Not available	51	51	0	0	0	0.0

1. Only the 10 provinces are included.
2. The eligible sampled households are those selected to fill out the diary.
3. Includes interview "No contacts", "Refusals" and "Residual non-respondents" from households selected to fill out the diary.
4. The definition of usable and unusable diaries is given in the "Data processing and quality control" Section.
5. Includes diary "No contacts", "Refusals" and "Residual non-respondents" from interview respondents selected to fill out the diary.
6. (Usable diaries/Eligible sampled households) x 100.

Appendix D

Diary response rates among the interview respondents, by various household characteristics, Canada[1]

Table D1

Diary response rates among the respondents to the interview, by household type, Canada[1], 2015

	Interview respondents[2]	Diaries[3]			
		Refusal[4]	Unusable	Usable	Response rate[5]
		number			percentage
All household types	7,621	2,441	170	5,010	65.7
One person household	2,102	770	48	1,284	61.1
Couple without children	2,385	659	38	1,688	70.8
Couple with children	1,997	625	40	1,332	66.7
Couple with other related or unrelated persons	256	82	8	166	64.8
Lone-parent household with no additional persons	465	168	18	279	60.0
Other household with related or unrelated persons	416	137	18	261	62.7

1. Only the 10 provinces are included.
2. Interview respondents from households selected to fill out the diary.
3. The definition of usable and unusable diaries is given in the "Data processing and quality control" Section.
4. Includes diary "No contacts", "Refusals" and "Residual non-respondents" from interview respondents selected to fill out the diary.
5. (Usable diaries/Interview respondents selected for the diary) x 100.

Table D2

Diary response rates among the respondents to the interview, by household tenure, Canada[1], 2015

	Interview respondents[2]	Diaries[3]			
		Refusal[4]	Unusable	Usable	Response rate[5]
		number			percentage
All household tenures	7,621	2,441	170	5,010	65.7
Owner without mortgage	2,729	780	44	1,905	69.8
Owner with mortgage	2,689	850	53	1,786	66.4
Renter (with or without rent paid)	2,203	811	73	1,319	59.9

1. Only the 10 provinces are included.
2. Interview respondents from households selected to fill out the diary.
3. The definition of usable and unusable diaries is given in the "Data processing and quality control" Section.
4. Includes diary "No contacts", "Refusals" and "Residual non-respondents" from interview respondents selected to fill out the diary.
5. (Usable diaries/Interview respondents selected for the diary) x 100.

Table D3
Diary response rates among the respondents to the interview, by age of the reference person, Canada[1], 2015

	Interview respondents[2]	Diaries[3]			
		Refusal[4]	Unusable	Usable	Response rate[5]
	number				percentage
Reference person of all ages	7,621	2,441	170	5,010	65.7
Less than 30 years	681	242	26	413	60.6
30 to 39 years	1,141	382	31	728	63.8
40 to 54 years	2,094	705	45	1,344	64.2
55 to 64 years	1,606	491	28	1,087	67.7
65 years and over	2,099	621	40	1,438	68.5

1. Only the 10 provinces are included.
2. Interview respondents from households selected to fill out the diary.
3. The definition of usable and unusable diaries is given in the "Data processing and quality control" Section.
4. Includes diary "No contacts", "Refusals" and "Residual non-respondents" from interview respondents selected to fill out the diary.
5. (Usable diaries/Interview respondents selected for the diary) x 100.

Table D4
Diary response rates among the respondents to the interview, by before-tax income quintile, Canada[1], 2015

	Interview respondents[2]	Diaries[3]			
		Refusal[4]	Unusable	Usable	Response rate[5]
	number				percentage
Total of all income quintiles	7,621	2,441	170	5,010	65.7
Lowest quintile	1,569	567	51	951	60.6
Second quintile	1,518	480	38	1,000	65.9
Third quintile	1,483	467	31	985	66.4
Fourth quintile	1,508	424	30	1,054	69.9
Highest quintile	1,543	503	20	1,020	66.1

1. Only the 10 provinces are included.
2. Interview respondents from households selected to fill out the diary.
3. The definition of usable and unusable diaries is given in the "Data processing and quality control" Section.
4. Includes diary "No contacts", "Refusals" and "Residual non-respondents" from interview respondents selected to fill out the diary.
5. (Usable diaries/Interview respondents selected for the diary) x 100.

Appendix E

Impact of expenditure imputation on communication, television, satellite radio and home security services, Canada[1]

Table E1

Impact of expenditure imputation on communications services, cablevision, satellite distribution and security services, Canada[1], 2015

	Impact of imputation[2]
	percentage
Landline telephone services	54.5
Cell phone and pager	12.4
Television and satellite radio services	56.4
Internet access services	54.3
Home security services	8.9

1. Only the 10 provinces are included.
2. The impact of imputation is the proportion of the total value of the estimate that is obtained from imputed data.

Appendix F

Imputation rates by type of imputation and recording method for the diary expenses, Canada[1]

Table F1

Imputation rates for goods and services including food from stores, by type of imputation and recording method, Canada[1], 2015

	Transcribed items	Items from a receipt	All items
Type of imputation	percentage		
Imputation of a missing cost for a reported expense			
Food from stores	2.6	0.2	1.0
Other goods and services	3.8	0.3	2.1
All expenditures	3.1	0.2	1.4
Imputation of expenditure items (and their individual cost) from a total expense			
Food from stores	54.9	1.8	21.1
Other goods and services	23.0	2.3	13.1
All expenditures	41.6	1.9	18.5
Imputation of detailed expenditure code			
Food from stores	4.4	5.2	4.9
Other goods and services	6.2	5.7	6.0
All expenditures	5.1	5.3	5.2

1. Only the 10 provinces are included.

Table F2

Imputation rates for snacks, beverages and meals purchased from restaurants or fast-food outlets, by type of imputation and recording method, Canada[1], 2015

	Transcribed items	Items from a receipt	All items
Type of imputation	percentage		
Imputation of total cost	0.80	0.38	0.73
Imputation of costs for alcoholic beverages	3.88	6.91	4.36
Imputation of meal type (breakfast, lunch, dinner, or snack and beverages)	7.56	11.16	8.12

1. Only the 10 provinces are included.

Appendix G

Estimated number of households and average household size by domain, Canada[1]

Table G1
Estimated number of households and average household size by domain defined at the national level, Canada[1], 2015

Domain	Estimated number of households	Average household size
Canada		
All classes	14,097,438	2.47
Region		
Atlantic Region	994,663	2.32
Quebec	3,546,741	2.29
Ontario	5,249,811	2.58
Prairie Region	2,438,096	2.61
British Columbia	1,868,127	2.43
Province		
Newfoundland and Labrador	217,903	2.37
Prince Edward Island	58,996	2.44
Nova Scotia	400,460	2.28
New Brunswick	317,304	2.30
Quebec	3,546,741	2.29
Ontario	5,249,811	2.58
Manitoba	477,520	2.52
Saskatchewan	427,075	2.47
Alberta	1,533,501	2.68
British Columbia	1,868,127	2.43
Before-tax household income quintile (national)		
Lowest quintile	2,818,330	1.43
Second quintile	2,820,566	2.11
Third quintile	2,818,210	2.57
Fourth quintile	2,819,602	2.91
Highest quintile	2,820,730	3.35
Household type		
One person households	3,998,961	1.00
Couples without children	3,993,865	2.00
Couples with children	3,865,823	3.98
Couples with other related or unrelated persons	654,321	4.88
Lone-parent households with no additional persons	700,791	2.62
Other households with related or unrelated persons	883,677	2.80
Household tenure		
Owner	9,440,902	2.69
Owner with mortgage	5,150,435	3.05
Owner without mortgage	4,290,467	2.26
Renter	4,656,536	2.04
Size of area of residence		
Population centre 1,000,000 and over	6,486,134	2.58
Population centre 500,000 to 999,999	972,650	2.33
Population centre 250,000 to 499,999	1,379,771	2.52
Population centre 100,000 to 249,999	1,263,679	2.42
Population centre 30,000 to 99,999	1,304,903	2.30
Population centre 1,000 to 29,999	1,299,688	2.32
Rural	1,390,613	2.38
Age of reference person		
Less than 30 years	1,492,432	2.12
30 to 39 years	2,415,663	3.02
40 to 54 years	4,148,064	3.04
55 to 64 years	2,707,287	2.27
65 years and over	3,333,993	1.70

Note: Subtotals may not add up to the total due to rounding.
1. Only the 10 provinces are included.

Table G2

Estimated number of households and average household size by domain, provincial level, 2015

Domain	Estimated number of households	Average household size
Newfoundland and Labrador		
All classes	217,903	2.37
Lowest quintile	43,392	1.50
Second quintile	43,608	1.98
Third quintile	43,622	2.41
Fourth quintile	43,672	2.79
Highest quintile	43,609	3.18
Prince Edward Island		
All classes	58,996	2.44
Lowest quintile	11,790	1.40
Second quintile	11,685	1.85
Third quintile	11,898	2.72
Fourth quintile	11,781	2.86
Highest quintile	11,842	3.38
Nova Scotia		
All classes	400,460	2.28
Lowest quintile	80,017	1.31
Second quintile	80,134	1.87
Third quintile	79,571	2.44
Fourth quintile	80,441	2.71
Highest quintile	80,297	3.07
New Brunswick		
All classes	317,304	2.30
Lowest quintile	63,188	1.36
Second quintile	63,551	2.03
Third quintile	63,484	2.36
Fourth quintile	63,391	2.80
Highest quintile	63,691	2.93
Quebec		
All classes	3,546,741	2.29
Lowest quintile	708,423	1.29
Second quintile	709,580	1.82
Third quintile	709,007	2.31
Fourth quintile	709,410	2.87
Highest quintile	710,322	3.13
Ontario		
All classes	5,249,811	2.58
Lowest quintile	1,046,491	1.58
Second quintile	1,050,658	2.38
Third quintile	1,052,183	2.70
Fourth quintile	1,045,101	2.85
Highest quintile	1,055,378	3.39
Manitoba		
All classes	477,520	2.52
Lowest quintile	95,363	1.41
Second quintile	95,630	2.17
Third quintile	95,365	2.66
Fourth quintile	95,229	2.91
Highest quintile	95,933	3.46
Saskatchewan		
All classes	427,075	2.47
Lowest quintile	85,204	1.57
Second quintile	85,336	1.97
Third quintile	85,571	2.47
Fourth quintile	85,444	2.89
Highest quintile	85,520	3.43
Alberta		
All classes	1,533,501	2.68
Lowest quintile	305,634	1.49
Second quintile	305,175	2.35
Third quintile	307,651	2.93
Fourth quintile	307,230	3.20
Highest quintile	307,811	3.41

Table G2 (end)

Estimated number of households and average household size by domain, provincial level, 2015

Domain	Estimated number of households	Average household size
British Columbia		
All classes	1,868,127	2.43
Lowest quintile	372,985	1.46
Second quintile	373,092	1.85
Third quintile	374,414	2.41
Fourth quintile	372,399	2.95
Highest quintile	375,237	3.47

Note: Subtotals may not add up to the total due to rounding.

Appendix H

Response rates and imputation, Whitehorse, Yellowknife and Iqaluit, 2015

Table H1
Diary response rates among the respondents to the interview, three territorial capitals, 2015

	Interview respondents	Diaries[1]			
		Refusal[2]	Unusable	Usable	Response rate[3]
		number			percentage
Territorial capitals	505	195	14	296	58.6
Whitehorse	204	83	4	117	57.4
Yellowknife	200	63	6	131	65.5
Iqaluit	101	49	4	48	47.5

1. The definition of usable and unusable diaries is given in the "Data processing and quality control" section.
2. Includes diary "No contacts", "Refusals" and "Residual non-respondents".
3. (Usable diaries/Interview respondents) x 100.

Table H2
Interview response rates by quarter, three territorial capitals, 2015

	Eligible sampled households	No contacts	Refusals	Residual non-respondents	Respondents	Response rate[1]
			number			percentage
Territorial capitals						
All quarters	767	64	183	15	505	65.8
Quarter 1	192	18	47	6	121	63.0
Quarter 2	190	15	46	3	126	66.3
Quarter 3	187	20	42	5	120	64.2
Quarter 4	198	11	48	1	138	69.7
Whitehorse						
All quarters	333	11	112	6	204	61.3
Quarter 1	78	4	28	2	44	56.4
Quarter 2	83	2	31	0	50	60.2
Quarter 3	82	4	26	3	49	59.8
Quarter 4	90	1	27	1	61	67.8
Yellowknife						
All quarters	297	40	51	6	200	67.3
Quarter 1	79	9	16	3	51	64.6
Quarter 2	74	11	10	2	51	68.9
Quarter 3	71	11	10	1	49	69.0
Quarter 4	73	9	15	0	49	67.1
Iqaluit						
All quarters	137	13	20	3	101	73.7
Quarter 1	35	5	3	1	26	74.3
Quarter 2	33	2	5	1	25	75.8
Quarter 3	34	5	6	1	22	64.7
Quarter 4	35	1	6	0	28	80.0

1. (Respondent households/Eligible sampled households) x 100.

Table H3
Diary response rates by quarter, three territorial capitals, 2015

	Eligible sampled households	Interview non-respondents[1]	Diaries[2]			Response rate[4]
			Refusal[3]	Unusable	Usable	
	number					percentage
Territorial capitals						
All quarters	767	262	195	14	296	38.6
Quarter 1	192	71	35	4	82	42.7
Quarter 2	190	64	55	4	67	35.3
Quarter 3	187	67	48	4	68	36.4
Quarter 4	198	60	57	2	79	39.9
Whitehorse						
All quarters	333	129	83	4	117	35.1
Quarter 1	78	34	15	1	28	35.9
Quarter 2	83	33	25	1	24	28.9
Quarter 3	82	33	20	1	28	34.1
Quarter 4	90	29	23	1	37	41.1
Yellowknife						
All quarters	297	97	63	6	131	44.1
Quarter 1	79	28	15	1	35	44.3
Quarter 2	74	23	11	2	38	51.4
Quarter 3	71	22	16	2	31	43.7
Quarter 4	73	24	21	1	27	37.0
Iqaluit						
All quarters	137	36	49	4	48	35.0
Quarter 1	35	9	5	2	19	54.3
Quarter 2	33	8	19	1	5	15.2
Quarter 3	34	12	12	1	9	26.5
Quarter 4	35	7	13	0	15	42.9

1. Includes interview "No contacts", "Refusals" and "Residual non-respondents".
2. The definition of usable and unusable diaries is given in the "Data processing and quality control" section.
3. Includes diary "No contacts", "Refusals" and "Residual non-respondents".
4. (Usable diaries/Eligible sampled households) x100.

Table H4
Impact of expenditure imputation on communications services, cablevision, satellite distribution and security services, three territorial capitals, 2015

	Impact of imputation[1]
	percentage
Landline telephone services	20.3
Cell phone and pager	2.6
Television and satellite radio services	34.4
Internet access services	33.1
Home security services	2.1

1. The impact of imputation is the proportion of the total value of the estimate that is obtained from imputed data.

Table H5

Imputation rates for goods and services including food from stores, by type of imputation and recording method, three territorial capitals, 2015

Type of imputation	Transcribed items	Items from a receipt	All items
	percentage		
Imputation of a missing cost for a reported expense			
Food from stores	2.1	0.4	1.0
Other goods and services	4.7	0.8	2.8
All expenditures	3.3	0.5	1.6
Imputation of expenditure items (and their individual cost) from a total expense			
Food from stores	56.5	2.1	20.6
Other goods and services	26.0	3.5	15.0
All expenditures	43.4	2.5	18.7
Imputation of detailed expenditure code			
Food from stores	3.2	5.2	4.5
Other goods and services	6.0	6.4	6.2
All expenditures	4.4	5.5	5.1

Table H6

Imputation rates for snacks, beverages and meals purchased from restaurants or fast-food outlets, by type of imputation and recording method, three territorial capitals, 2015

Type of imputation	Transcribed items	Items from a receipt	All items
	percentage		
Imputation of total cost	1.66	0.77	1.45
Imputation of costs for alcoholic beverages	4.65	8.95	5.67
Imputation of meal type (breakfast, lunch, dinner, or snack and beverages)	9.62	12.53	10.31

Table H7

Estimated number of households and average household size, three territorial capitals, 2015

Domain	Estimated number of households	Average household size
Territorial capitals	20,800	2.53
Whitehorse	10,747	2.34
Yellowknife	7,337	2.70
Iqaluit	2,716	2.85

Note: Subtotals may not add up to the total due to rounding.