



# Overview of the Survey of Household Spending

**CRDCN National Conference 2016**

**Julie Charest**

**Income Statistics Division**

November 2, 2016



# Contents

1. SHS program
2. Survey content
3. Design
4. Methodology
5. RDC files
6. Possible challenges for researchers

# SHS program

- The Survey of Household Spending (SHS) is an annual voluntary survey that collects detailed information from Canadian households on their spending habits. It also collects some information on dwelling characteristics and household equipment.
- SHS produces estimates mainly at the national and provincial levels.
- The main users of the SHS are the Consumer Price Index (CPI) and the System of National Accounts.

# SHS program

- SHS conducted since 1997
  - Integrated most of content of the Family Expenditure Survey (FAMEX) and the Household Facilities and Equipment Survey (HFE)
- Redesigned in 2010 (break in series)
  - Introduction of a 14-day diary for frequent expenditures
  - Varying recall periods for expenditures collected through the interview
  - Continuous collection from January to December of the survey year
  - Goals: minimize recall error and align with international practices

# Survey content

- All types of expenditures made by the household
- Over 500 different expenditure categories at most detailed level
- Major expenditure categories:
  - Food (stores and restaurants)
  - Shelter
  - Household operations, furnishings and equipment
  - Clothing and accessories
  - Transportation
  - Health and personal care
  - Recreation
  - Education and reading
  - Tobacco products and alcoholic beverages
  - Miscellaneous expenditures
  - Income taxes
  - Personal insurance payments and pension contributions
  - Gifts of money, support payments and charitable contributions

# Survey content

- Demographic information
  - Income and income sources (from personal income tax files)
  - Age
  - Sex
  - Marital status
  - Number of weeks worked full-time/part-time
  - Educational attainment
  - Household type
  - Etc...

# Survey content

- Some dwelling characteristics
  - Type of dwelling (e.g. single detached)
  - Number of bedrooms, bathrooms
  - Year built
  - Need of repairs
  - Rented or owned (with or without mortgage)
  - Part of condominium development
  - Length of residence
  - Reduced rent
  - Etc...

# Survey content

- Some information on household equipment
  - Number of cellphones in household
  - Landline ownership
  - Home computer ownership
  - Access to Internet at home
  - Use of television services
  - Etc...



# Survey design – Population coverage

- Target population of the survey is the population of Canada's 10 provinces, excluding residents of institutions, members of the Canadian Forces living in military camps and people living on Indian reserves.
- For operational reasons, people living in some remote areas where the rate of vacant dwellings is very high and where the collection cost would be exorbitant are excluded from collection.
- Persons living in collective dwellings (e.g., student residences) are also excluded.
- Territorial capitals are included every two years.

# Survey design – Sample

- Provinces
  - 17,500 households per year
  - 50% also selected for the diary
- Territorial capitals (every two years)
  - 760 households per year
  - All selected households receive a diary
- Collection from January to December of survey year  
→ 12 monthly sub-samples
- Sample is allocated among the provinces such that data quality is similar between provinces
- Over-sample in high income strata

# Survey design – Collection

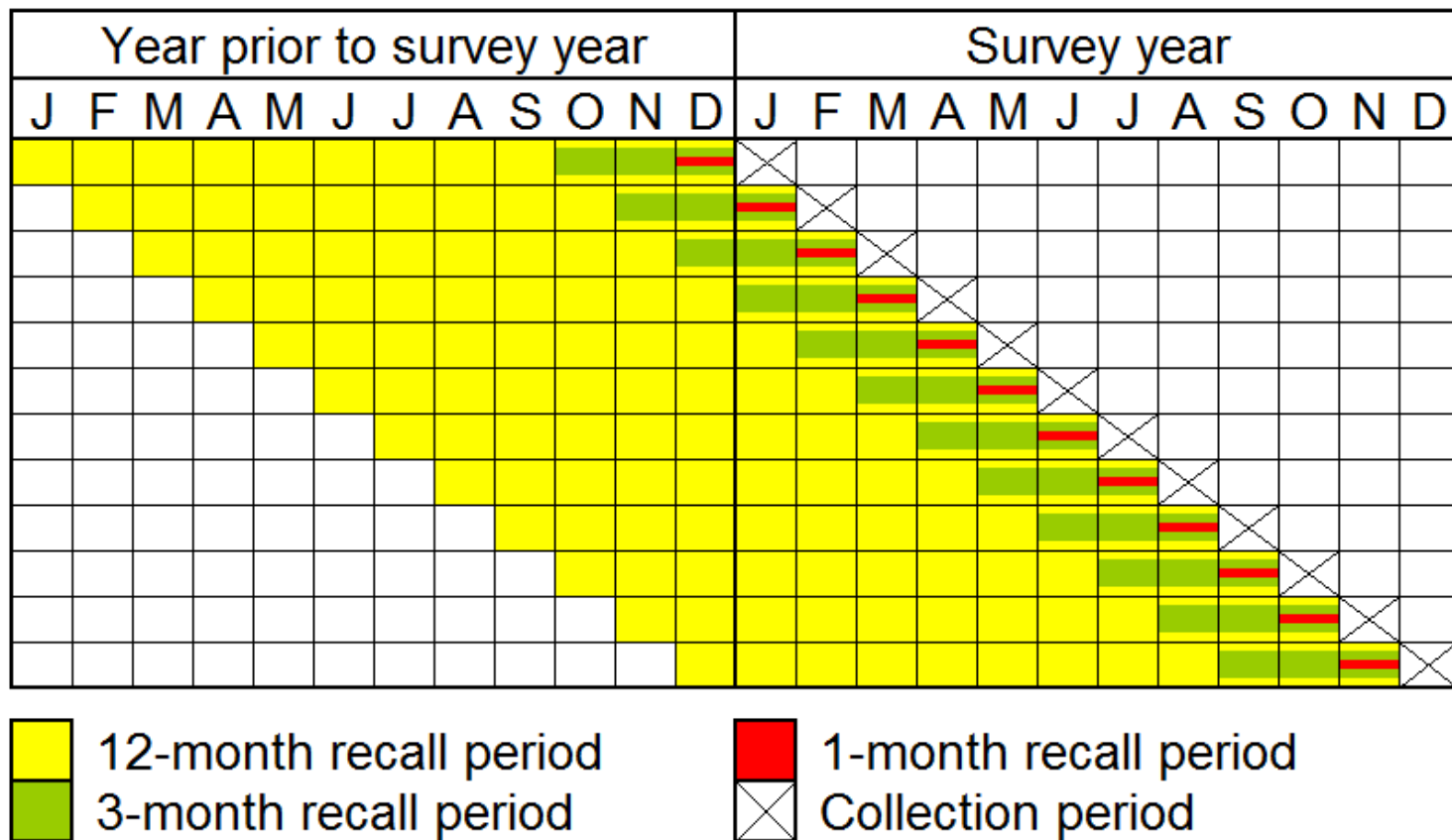
- Collection from January to December of the reference year
- Two collection modes for expenditures: a personal interview and diary
  - Diary is used to collect smaller or more frequent expenditures
- About 70% of household expenses are collected through the interview while 30% are collected using a diary
- Respondent data are linked to CRA personal income tax records for income variables (approx. 89% link rate)
  - Reference year of income variables is the year prior to the survey year (e.g. 2013 income used for SHS 2014)

# Survey design – Interview

- Conducted in person
- Used for larger or less frequent expenditures and regular payments
- Retrospective interview with different recall periods based on the type of expenditure
  - **Last month** (childcare, parking)
  - **Last 3 months** (e.g., clothing, hair grooming services, prescribed medicines)
  - **Last 12 months** (e.g., gifts of money, appliances, tuition)
  - **Last payment** (for regular expenses – e.g., electricity, mortgage, rent)

# Survey design – Interview

The reference period of the reported expenditure depends on both the recall period and the month of collection.



## Survey design – Diary

- Two-week diary starting the day after the interview
- Used for smaller and more frequent expenditures
- Households record expenditures for:
  - **Food from stores** (high level of detail – e.g. 2% milk)
  - **Food from restaurants**
  - **Other goods and services** (e.g. gasoline, movie theatre, dry cleaning)
    - All spending, with a few exceptions such as rent, regular utilities, and real estate and vehicle purchase
- Option to provide receipts instead of transcribing
- Note: not all amounts reported in the diary are used in estimation



# Survey design – Diary

Diary Start Date	Diary End Date	<b>Goods and services including food from stores</b>
DD    MM	DD    MM	

Item #	Date of expense	Description of item	Cost
	dd/mm Example: 21/06	Write one item per line. Please print. See page 6 in the Diary Guide for help with this section. <b>Reminder:</b> Please enter snacks, beverages and meals purchased from restaurants or fast-food outlets in the section that begins on page 7.	Do <u>not</u> include taxes.  \$    ¢
	2 1 / 0 6	NO SPENDING	. . . . .
	2 2 / 0 6	GAS	. 3 6 . 0 0

## Snacks, beverages and meals purchased from restaurants or fast-food outlets

Item #	Date of expense	Restaurant code	Check (✓) the meal type				Number of meals paid	Total cost		Alcoholic beverages	
			Breakfast	Lunch	Dinner	Snack or Beverage		\$	¢	\$	¢
	dd/mm Example: 22/06	Codes: A = Table Service B = Fast Food C = Cafeteria D = Other  See page 9 in the Diary Guide for full descriptions.					Include meals paid for people who do not live with you.	Include all taxes, tips and alcoholic beverages.	\$	¢	If alcoholic beverages are included in the total cost, please provide an estimated cost.  \$    ¢
	2 2 / 0 6	A	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	0 2	. 2 5 . 7 4	. . . . .	. . . . .	
	2 2 / 0 6	D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	0 0	. 2 3 . 6	. . . . .	. . . . .	

# Survey methodology – Annualization

- Interview data are collected using different recall periods, while diary data cover a two-week period
- Expenditure amounts reported for a period of less than 12 months are annualized:
  - 1-month recall → multiplied by 12
  - 3-month recall → multiplied by 4
  - two-week diary → multiplied by 26
  - “last payment” amounts also annualized
- For diary expenditures, another adjustment factor accounts for non-responded days
- Adjustments for influential (extreme) values are also done at this step



# Survey methodology – Annualization

- Annualized expenditures are not intended to be representative at the micro level.
  - E.g. Household spends \$500 on alcohol for a big party over their two-week diary period – annualized amount is \$13,000.
- At the aggregate level, annualization technique produces valid estimates of totals/means.
- For expenditure categories with sub-annual recall periods, cannot accurately estimate the number of households that spent in that category in the year (could be underestimated).
- Average per reporting household and percentiles can't be estimated for expenditures collected for a period of less than 12 months.

# Survey methodology – Weighting

- Since some interview respondents do not complete a diary, two sets of household weights are produced – interview weights and diary weights.
  - Each set of weights sums up to total number of households in target population
- Households weights adjusted for non-response
  - Response rates, SHS 2014:
    - Interview: 67%
    - Diary: 44% (66% among interview respondents)
- Weights calibrated to known totals using demographic and tax data
- Variance calculation using Bootstrap

# RDC files

- SHS 2010-2013
  - SHS 2014 available in Spring 2017
  - SHS 1997-2009 files also available (old design)
  
- Eight microdata files (three dimensions)
  - Interview vs. Diary
  - Household vs. Person
  - Adjusted vs. Unadjusted
  
- Two sets of bootstrap weights (interview set and diary set)

# RDC files

## Interview

- Records for all respondents
- Only the variables collected from the interview
- Interview weights

## Diary

- Respondents to both the interview and the diary
- All variables (interview, diary, “mixed”)
- Diary weights

## Household

- Household-level information

## Person

- Records for all members of the household
- Mostly demographic and income

## Adjusted

- Amounts annualized and adjusted for extreme values

## Unadjusted

- Amounts as reported

## RDC files

- Certain summary-level expenditure categories are based on data from both the interview and diary (“mixed” variables)
  - e.g. total expenditure, total transportation
- Two ways to produce aggregate estimates (means, totals) for mixed variables:
  1. Use diary file only (contains information from both sources)
  2. Combine interview and diary data at aggregate level (as is done for the published estimates)
    - Weighted aggregates for each portion (interview and diary) are computed separately, then combined
- Micro-level analysis involving diary-collected data (including mixed variables) must be restricted to the diary sub-sample with diary weights

# Possible challenges for researchers

- Comparability between previous SHS (1997–2009) vs. redesigned SHS (2010–current)
- Working with data from two collection modes
  - For micro-level analysis using diary variables, need to restrict sample to diary respondents
- Sample size
  - Pooling multiple years may be an option
- Varying recall periods and annualized expenditures
  - Annualized amounts (recall period < 12 months) not representative at micro level
- Income is from year prior to survey year

# Reference documents

- [Survey of Household Spending User Guide](#)
- [RDC proposal writing guide for SHS](#)
- [Questionnaires](#)
- [CANSIM tables](#)
- [Note on 2010 SHS Redesign](#)
- Micro data file user guide and data dictionaries – available upon request



## Contact information

Julie Charest

(613) 716-7568

[julie.charest@canada.ca](mailto:julie.charest@canada.ca)

Client Services, Income Statistics Division

[STATCAN.income-revenu.STATCAN@canada.ca](mailto:STATCAN.income-revenu.STATCAN@canada.ca)