



Statistics
Canada

Statistique
Canada

The Use of Receipts in the Survey of Household Spending Diary

www.statcan.gc.ca



CANADA 150

Telling Canada's
story in numbers

Tom Haymes
Denis Malo

July 2018

Canada 



The Survey of Household Spending

- Annual, voluntary survey of approximately 17,500 households
- Redesigned in 2010
- Collects information on household expenditure using both a personal interview and an expenditure diary



The Survey of Household Spending

- Personal Interview
 - CAPI
 - Collects common or major expenses (rent, utilities, furniture, etc.) → about 70% of household consumption
 - Varying recall periods dependent on frequency of expense (12 month, 3 month, 1 month or last payment)
 - Approximately an hour in length
 - 65% interview response rate (2016)



The Survey of Household Spending

- Expenditure Diary
 - 50% subsample of original interview sample
 - Collects frequent expenditure and expenditure that would be difficult to recall during retrospective interview (food, gas, tobacco, alcohol, etc.)
 - Approximately 30% of household consumption
 - Receipts account for 12% of total household consumption
 - Two weeks in length
 - One diary per household
 - 43% overall diary response rate, 65% when including only interview respondents (2016)



Collection, Scanning and Capture of the Receipts

- Respondents can provide a combination of transcriptions and receipts
- Diary booklet and receipts are scanned into two separate files
- Booklet captured using OCR but receipts are currently captured manually from scanned image
 - Varying receipt formats initially prohibited auto capture, probably possible with recent technological advances
- Illegible (faded) receipts are rare → flagged for imputation



Capture of the Receipts

- Prior to capture all receipts are manually reviewed to ensure:
 - 1) Within diary reference period
 - 2) Transaction was approved
 - 3) No duplication
 - Within receipts (store receipt and debit slip)
 - Between receipts and transcriptions
 - Respondents are specifically reminded to submit a transcription or a receipt for each item, not both → still, 30% of receipts correspond to a transcription



Coding of Diary Items

- Coding assigns one of over 650 SHS codes to each item to classify the expenditure
- Automated process in place to match description to data dictionary containing common item descriptions with corresponding SHS code
 - Currently requires an exact match but method could be improved
 - Items not autocoded are coded manually

Coding of Diary Items

- Transcriptions have consistently autocoded better than receipts
 - Steady 9%-10% difference since 2014
- Likely due to exact match requirement
 - Receipts often contain more acronyms and abbreviations in the description
 - Receipts often include a brand name or volume/weight
- Room for improvement for both transcriptions and receipts, but especially receipts
 - Possible to close the gap?

Respondent Reporting Profiles

Diary Respondent Type

Respondent Type	Diary Count	Diary Percent	Average Expenditure	Average Diary Items
Receipts and Transcriptions	7185	56.1%	\$646.81	88.5
Transcriptions Only	4324	33.7%	\$575.44	61.7
Receipts Only	1227	9.6%	\$469.60	74.6
Empty Diaries	80	0.6%	\$0.00	0.0
Total	12816	100.0%	\$601.73	77.6

Source: SHS 2013 – 2015 post imputation

- Respondents that provide both receipts and transcriptions exhibit the most expenditure

Respondent Burden

Diary Reporting Mode

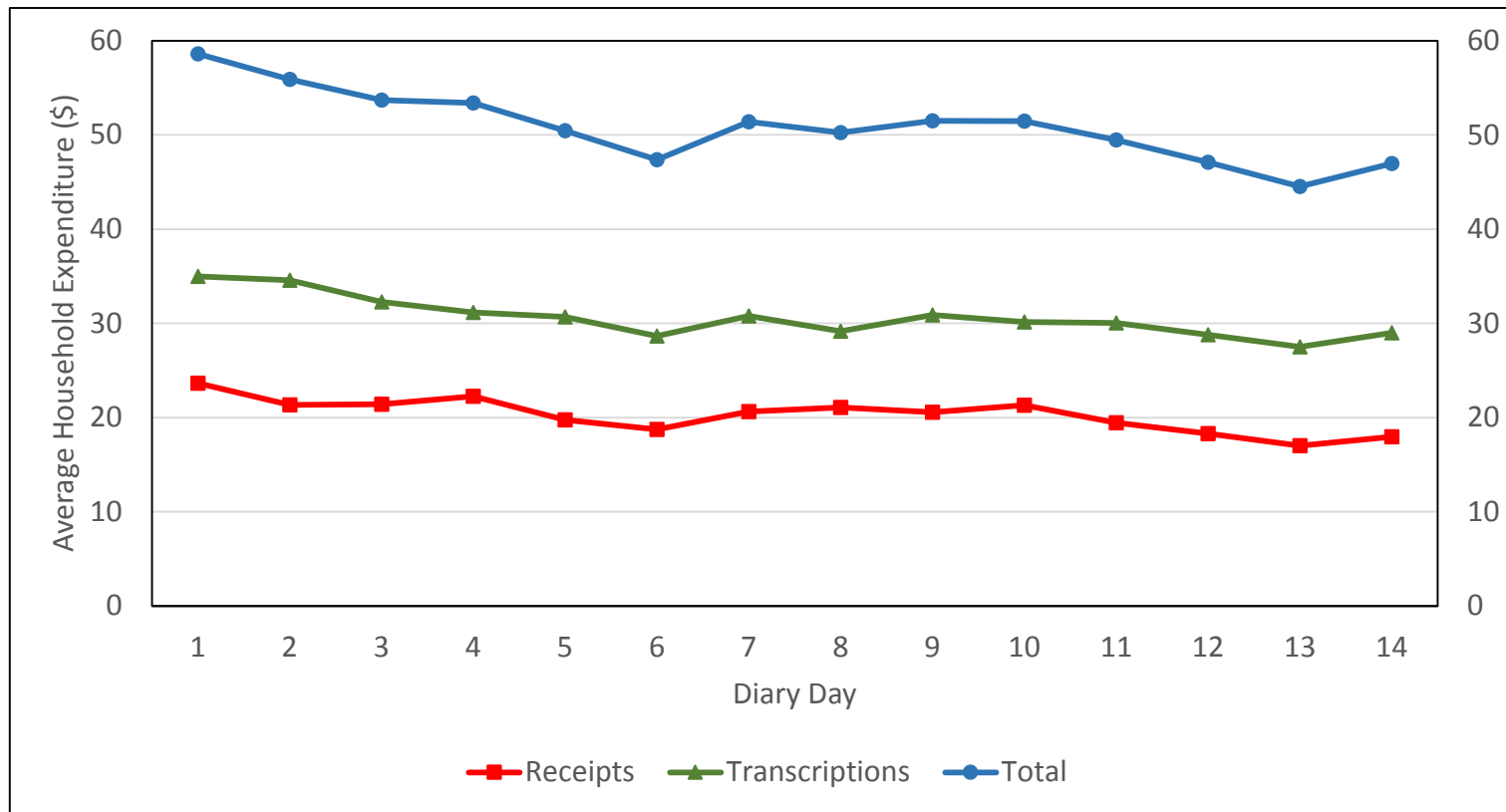
Reporting Mode	Items		Expenditure	
Transcription	391,889	42.8%	\$4,622,402	60.0%
Receipt	522,896	57.2%	\$3,087,588	40.0%
Total	914,785	100.0%	\$7,709,990	100.0%

Source: SHS 2013 – 2015 post imputation

- Opposite splits for items and expenditure suggest respondents prefer to use receipts when there are a large number of smaller priced items
 - i.e. groceries (59% receipt expenditure) vs gasoline (24% receipt expenditure)

Respondent Burden

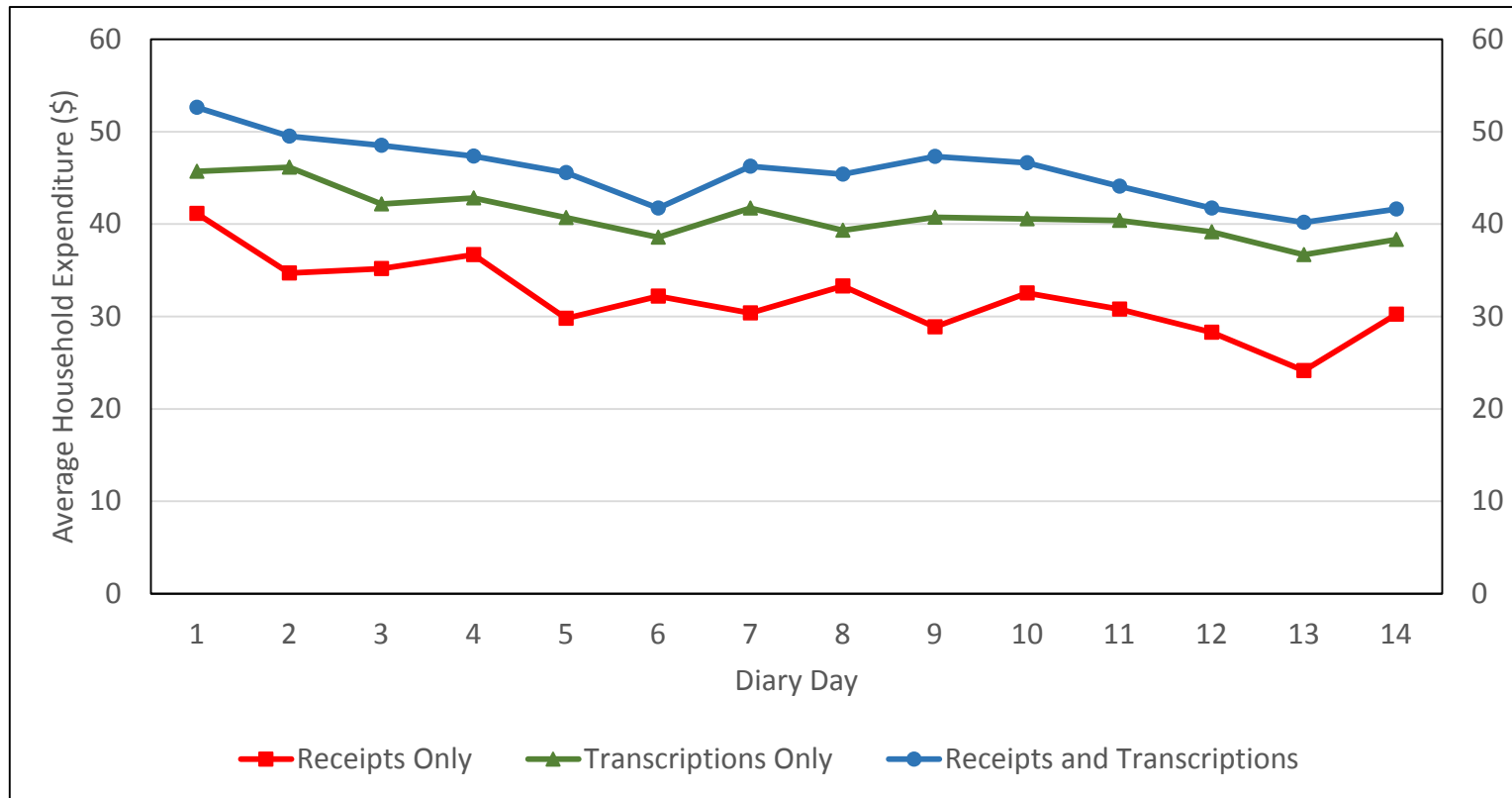
Response Fatigue by Reporting Mode



Source: SHS 2013 – 2015 post imputation

Respondent Burden

Response Fatigue by Respondent Type



Source: SHS 2013 – 2015 post imputation



Respondent Burden

- Response fatigue exists for both response modes and all three respondent types
- Contrary to expected results
 - Why isn't response fatigue less evident in receipts?
 - Embedded experiment would give more reliable conclusions on the effects of receipts on expenditure reporting, response fatigue and response rates

Data Quality

Overall Imputation Rates by Reporting Mode

Reporting Mode	Number of Items		Expenditure	
	Imputation Required		Imputation Required	
Transcription	193,978	49.5%	\$1,620,951	35.1%
Receipt	46,765	8.9%	\$399,062	12.9%
Total	240,743	26.3%	\$2,020,013	26.2%

Source: SHS 2013 – 2015 post imputation

- Transcriptions much more likely to give insufficient detail
- More uncertainty involved in transcription imputation too
 - Tend to be imputed from a higher level (i.e. totals)



Conclusion – Advantages of Receipts

- Respondent:
 - Reduces burden and increases flexibility
- Agency:
 - Significant gains in the level of information obtained from respondents
 - 35% of transcription expenditure required imputation compared to 13% of receipt expenditure (50% vs 9% for item imputation)
 - Possibility of increased participation? → Experiment required
 - Better response rates? Less response fatigue? Better expenditure reporting?



Conclusion – Disadvantages of Receipts

- Respondent:
 - None!
- Agency:
 - Transfer of burden from respondent to agency
 - Manual capture of receipts → Auto capture possible?
 - Decreased auto coding rates → Better linkage methodology?
 - Increase in duplication



Conclusion

- SHS diary functions best with a combination of receipts and transcriptions
 - Transcription only diary would decrease data quality
 - Receipt only diary would underrepresent expenditure where receipts are uncommon
 - i.e. occasional babysitting, prepared coffee
 - Lost receipts



Thank You

- For more information, please contact:
- Pour plus d'information, veuillez contacter :

Tom Haymes: tom.haymes@canada.ca

Denis Malo: denis.malo@canada.ca

- Corresponding document available upon request