SSC Annual Meeting, June 1999
Proceedings of the Survey Methods Section

INITIATIVES TO IMPROVE THE INTERNATIONAL TRAVEL SURVEY

François Laflamme, Simon Cheung and André Cyr[1]

ABSTRACT

The low return rates of International Travel Survey questionnaires are one of the main reasons that has led to the redesign of this Statistics Canada survey. Between 1982 and 1989, the questionnaire return rate held steady between 13-15%, but then began to decline in 1990 with the expansion of the questionnaire content. As part of the redesign, a series of field tests were conducted to assess the impact of different initiatives on the ITS response rates. This paper will present and describe various field tests conducted by Statistics Canada over the last few years as well as the impact of different initiatives on the ITS response rates.

KEY WORDS: Redesign; Response rate; Field test.

RÉSUMÉ

Les faibles taux de retour de l'Enquête sur les Voyageurs Internationaux (EVI) sont une des principales raisons qui ont mené au remaniement de cette enquête de Statistique Canada. Entre 1982 et 1989, le taux de retour annuel des questionnaires s'établissait entre 13,0% et 15,0%, mais depuis l'augmentation du contenu du questionnaire en 1990, ce taux n'a pas cessé de décroître. Une des composantes du remaniement consistait à mener une série d'enquêtes-pilotes dans le but d'évaluer l'impact de différentes initiatives sur les taux de réponse de L'EVI. Cet article présentera plusieurs enquêtes-pilotes menées par Statistique Canada au cours des dernières années ainsi que l'impact de différentes initiatives sur les taux de réponse de l'EVI.

MOTS CLÉS : Remaniemant; taux de réponse; enquête-pilote.

1. INTRODUCTION

The International Travel Survey (ITS) is an ongoing survey conducted by Statistics Canada since the 1920s, to meet the requirements of the Canadian System of National Accounts (Balance of Payments (BOP)). Through the years, the need for detailed characteristics of travellers for market research and industry planning was gradually incorporated into the survey. Today, the ITS provides a full range of statistics on the volume of international travellers and detailed characteristics of their trips such as expenditures, activities, places visited and length of stay. It covers both Canadian residents returning from trips outside Canada and international visitors to Canada. In addition to fulfilling BOP requirements, the ITS is also being used by the Tourism Satellite Account (TSA), Customs Canada, the Canadian Tourism Commission (CTC), provincial tourism agencies, the US Department of Commerce and a number of private sector industries.

2. CURRENT SURVEY

The ITS has two distinct components: Frontier Counts and Questionnaire Surveys. The Frontier Counts component enumerates all persons who enter Canada via land, sea and air while survey questionnaires are handed out to a sample of international travellers in order to determine their characteristics and spending patterns. Customs Canada helps the ITS in collecting the frontier counts, as well as in the distribution of questionnaires to international travellers.

For the Questionnaire Surveys component, the travellers are selected using a "stint" sampling methodology. This method selects, for each port of entry, a start day from

[1] François Laflamme, Simon Cheung and André Cyr, Household Survey Methods Division, Statistics Canada, 16th Floor, R.H. Coats Building, Tunney's Pasture, Ottawa, Ontario, K1A 0T6, laflfra @ statcan.ca

which a pre-specified number of questionnaires are distributed on a continuous basis. The respondents provide information only for themselves and those members of their travelling party for whom they feel comfortable reporting on spending and activities.
In 1998, about 300,000 Canadian, 340,000 US and 320,000 overseas questionnaires were given to international overnight travellers while about 130,000 and 170,000 questionnaires were distributed respectively to Canadian and US same-day travellers. Overall, about 1.3 million questionnaires were distributed at entry ports across Canada in 1998.

3. REASONS BEHIND THE REDESIGN

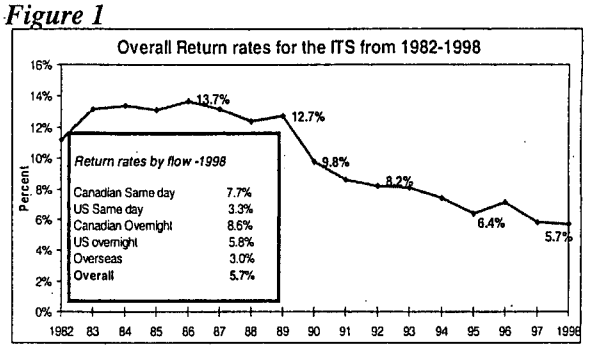
Changes at Customs Canada, low return rates of ITS questionnaires and the constantly growing requirements from ITS data users are the main reasons that have led to the redesign of the International Travel Survey.

Customs Canada
While the ITS benefits considerably from its continued collaboration with Customs Canada, Statistics Canada has very little control over the distribution of questionnaires and has to constantly adjust to operational changes taking place at the border entry points. For several years, Customs Canada has been re-engineering its operations at many of the major ports of entry. The introduction and expansion of the CANPASS program which involves the pre-clearance of travellers, as well as the Primary Automated Lookout System (PALS) that scans car license plates have modified the Frontiers Counts component and the scope of ITS questionnaire distribution. The recent change to the Customs declaration cards (E311) for air travellers, from individual to joint declaration by family, also affects the ITS survey considerably. For example, frontier counts of Canadian and US travellers at major airports are no longer obtained on a census basis, but estimated based on samples of the E311 cards so as to control the cost of producing these statistics.

Low return rates
Between 1982 and 1989, the overall questionnaire return rate held steady between 13-15%, but then began to decline in 1990 with the expansion of the questionnaire content. The overall return rate dropped to 9.8% in 1990 and has steadily declined to 5.8% by 1997 as shown in figure 1. While some of this deterioration may have arisen from reluctance on the part of the travelling public to provide information to governments, the persistent decline in ITS return rates may also reflect the effect of Customs officers' increasing focus on their core mandate of border enforcement and less on the task of distributing survey questionnaires.

Figure 1 also shows ITS return rates for each of the five flows of travellers surveyed in 1998. Return rates for visitors to Canada are very low. In particular, the return rate for overseas travellers is about 3%. These travellers, although not the largest group, represent a relatively high proportion of spending in Canada.

Figure 1



The potential risks of bias associated with these low return rates have been an ongoing concern to Statistics Canada. Previous evaluation studies by Miller, Lui and Satin (1986) and Feder (1990) did not find a substantive bias for US and Canadian travellers. Over the last two years, Statistics Canada (1998a, 1999a, 1999b) began to observe signs of possible bias in the total spending estimates by the ITS questionnaire survey.

New Requirements
Other pressures on the ITS come from the data user community. While the BOP requirements are adequately covered by the current survey content, the Tourism Satellite Account is seeking more detailed information to improve its measurement of the tourism industry, one of the fastest growing sectors in the economy. In addition, the CTC and the provinces would like to expand the ITS survey content and methodology in order to meet their policy and marketing needs. It has become clear that the current design of the ITS is no longer able to meet the new data demands of the large and complex tourism industry.

4. RECENT FIELD TEST STUDIES

In order to assess effectively questionnaire distribution methods for the ITS, Statistics Canada in partnership with the CTC conducted three field tests in 1997 and 1998: Pilots I, II and III. All tests focused on overnight travellers only. The first test essentially compared the survey return rates from questionnaire distribution by Statistics Canada personnel and Customs officers. The second test went further to evaluate the impact of these and additional questionnaire distribution methods on data quality. Finally, the last test was designed mainly to assess the impact of different survey questionnaires on the ITS return rates.

Pilot I field test

In Pilot I, Statistics Canada personnel carried out the ITS questionnaire distribution in January 1997 for two days at each of the seven selected airports and land ports. This personnel substitution yielded a much higher return rate of 15.2% compared to 6.4% by Customs. Due to budget and time constraints, data of Pilot I were not captured for further analysis.

Pilot II field test

Based on the findings from Pilot I, Pilot II expanded on the previous study and tested different methods of questionnaire distribution at selected ports in July 1997. The methods included in the test were the distribution of questionnaires by Statistics Canada personnel with and without entry interviews. The entry interviews collected data on certain key characteristics about the travelling party and the trip. At the end of the interview, the traveller was given an ITS questionnaire to be completed and mailed back to Statistics Canada at the end of the trip. The use of Japanese questionnaires, Japanese speaking interviewers and survey incentives were also studied in the Pilot II field test.

The questionnaire return rates for distribution by Statistics Canada personnel were 16.5% (without entry interview) and 22.8% (with entry interview) as compared to 5.8% for distribution by Customs officers. It is interesting to note that the return rate without entry interviews (16.5%) was very comparable to the return rate of Pilot I (15.8%).

The Pilot II test also demonstrated that an increase in the return rates could be achieved when the questionnaire is translated into the native language of the traveller. The use of a Japanese questionnaire increased substantially the return rate for this specific group to 11.2% compared to less than 3% with distribution by Customs officers.

The use of small survey incentives for Canadian and US overnight travellers was also tested. Return rates increased slightly from 8.7% to 11.3% when a promise of incentives was given to the respondents. The detailed results of the Pilot II test have been documented in three Statistics Canada internal reports (1998a, 1998b, 1998c).

The Pilot II test, detected the potential presence of bias in the ITS spending estimates for some segments of the survey population (Statistics Canada (1998a) and Laflamme et al (1998)). Additional investigations into a method of population adjustment based on new administrative data provided by Customs Canada also resulted in similar conclusions (Statistics Canada (1999a, 1999b)).

Pilot III field test

The Pilot III field test conducted in July 1998 was mainly designed to measure the impact of different survey questionnaires with varying content on the ITS return rates. Four (modular) questionnaires were constructed to collect overlapping subsets of the ITS questions. The main goal of this test was to determine if shorter questionnaires would result in higher return rates. These questionnaires were named Big, DMA, SNA and Mini questionnaires.

The "SNA" questionnaire focused on expenditure questions with minimum activity and marketing questions. The "DMA" focused on marketing and activity questions while minimizing expenditure questions. The "Big" questionnaire included all questions and the "Mini" carried the minimum (core) questions only.

Pilot III also implemented tighter controls on the distribution of questionnaires in order to assess survey response rates more closely. Questionnaires were distributed by Customs officers within a 24-hour stint period at each test site, as opposed to the current procedure of distributing all the questionnaires over several days. Undistributed questionnaires at the end of the test were picked up and accounted for in the calculation of the rate of returned questionnaires.

The Pilot III test showed that a slight increase in the response rates could be achieved with modular questionnaires for all traveller flows as shown in table 1.

Contrary to our expectations, the length of the questionnaire was not very influential on the response rates. The four questionnaires showed very similar response. In particular, shorter questionnaires (Mini) with an attractive, user-friendly format did not necessarily outperform longer questionnaires. However, questionnaire content affected the response rate. Including "easy" questions improved the response rates as opposed to "hard" questions that had a reverse effect. It appears that, international travellers are more interested in reporting about their trips in a qualitative way (e.g., answering marketing and activity questions) than in a quantitative way (e.g., reporting spending by specific category).

Table 1

Pilot III - Response Rates			
Questionnaire	Canadian	US	Overseas
Mini	12.4%	7.4%	5.1%
Big	11.1%	7.0%	4.9%
SNA	9.6%	6.1%	4.3%
DMA	13.3%	7.0%	5.6%
Overall	11.6%	6.9%	5.0%
Customs	4.8%	3.2%	1.8%

The finding that a shorter questionnaire did not result in much higher response rates also raises the scenario that the expansion of the ITS questionnaire in 1990 was probably not the only cause of the considerable decline of response rates in that year. Moreover, the comparison between the results of the Pilot II and Pilot III tests showed a substantial decline in the response rates. This drop in response rates could be attributed to the effect of "distributing agent" who handed out the questionnaires to travellers, i.e., that Customs officers concentrate on their primary mandate of border enforcement and less on the task of distributing questionnaire and encouraging a response to the survey.

Finally, findings from Pilot III resulted in some operational recommendations, in the event that ITS continues to distribute questionnaires through Customs officers. First and foremost was the adoption of a shorter distribution stint period and a procedure to pick up undistributed questionnaires in order to monitor and control the distribution of questionnaires and to measure response rates more accurately. A number of content options were also recommended as well as a communication strategy between Revenue Canada and Statistics Canada to ensure that Customs officers receive consistent and relevant information about the survey.

Test conclusions

The main conclusion from these three field tests is that the current method of distributing questionnaires by Statistics Canada or Customs personnel to travellers at the ports of entry, cannot be expected to achieve response rates capable of meeting the needs of the survey. In particular, the response rates for overseas visitors remain very low even with the use of personnel and questionnaires in the native language of the travellers. The use of shorter questionnaires would likely not improve ITS response rates substantively. In addition, Pilot II results indicated a potentially important bias in ITS data.

Pooling all these and other related experiences, Statistics Canada in consultation with CTC and the provincial tourism offices has decided to reconsider the various effective but more costly data collection methods in order to meet the ITS requirements. Examples of these methods are intercept and mail surveys which have been examined or proposed by Dick, Miller and Binder (1984). The main high cost factor of these methods is the personnel costs in staffing the ports of entry, a cost which so far has not been borne directly by Statistics Canada.

In view of the difficulties which prevent the ITS from achieving the very high response rates that other Statistics Canada surveys enjoy, it becomes increasingly important that new methods be developed to monitor and control potential non-response bias in the ITS. Hence, we embark on the development of an "integrated design" for the future ITS.

5. FUTURE DIRECTION: AN INTEGRATED DESIGN

The "integrated design" proposes to adopt the most cost-effective data collection method specific to each segment of the travelling population, taking into account the point of origin of foreign travel, the mode of transportation and the port of entry or exit. Furthermore, various alternatives are examined with respect to the type of survey used in contacting travellers (e.g., entry, exit, follow-up), the method of collecting data (e.g., intercept, mail, or telephone survey), the type of data to collect (e.g., key characteristics, spending and/or other data), the potential use of Customs data (e.g., E311, PALS and CANPASS) or facilities for sampling travellers (e.g., Primary Inspection Line booths at land port and airports), the reporting methods by respondents (e.g., personal interview or self-administered questionnaire), and the methods of receiving survey responses (e.g., drop off/mail back, pick up by interviewer, return via Internet or fax transmission).

The adoption of a segment-specific survey methods aims to maximize precision while minimizing costs of data collection. To ensure data compatibility, standard and consistent survey concepts, questionnaire content must be enforced across all traveller segments. This "harmonisation" should also be done between ITS and other tourism data sources such as the Canadian Travel Survey. In addition, standard survey processing and estimation methods (including population adjustments based on key characteristics and frontier counts) will also be prominent integrating features underpinning this new design for the ITS.

The implementation of the many elements of the integrated design for the ITS will be phased in over a

long time period in response to the priorities of the program. The first implementation phase of the integrated design will focus on overseas air travellers as well as on the implementation of a method of population adjustment for all air travellers using data from the new E311 declaration cards.

Air-exit survey for overseas travellers
The primary objective of the air-exit survey is to improve the quality and the reliability of the trip/traveller estimates for overseas travellers. Currently, the return rate for overseas travellers is approximately 3%. This response rate is quite low considering this group of travellers account for a relatively high proportion of the visitor spending in Canada. The overseas flow is also of primary importance to Statistics Canada in determining the BOP travel account and to CTC and provincial/territorial jurisdictions in their planning activities.

The air-exit survey will be conducted at major airports in Canada. Personal interviews and/or self-completed questionnaires will be administrated to about 1,200 overseas visitors to Canada during the first quarter of 2000. This survey attempts to target the four biggest overseas visitor markets, namely, United Kingdom, Japan, France and Germany. To increase cost effectiveness, this survey will also focus on travellers on direct flights from Canada to the four targeted countries, who represent about 75% of the total overseas travellers by air. A field test of the air-exit survey implementation was conducted in August 1999 to fine-tune survey procedures, e.g., to gain respondent co-operation in a cross-cultural environment.

The air-exit survey is expected to achieve very high response rates. The data it collects will also be of high quality because the interviewers can assist travellers in answering the survey.

Data adjustment
Previous studies by Statistics Canada (1999a), demonstrated that the new E311 joint declaration card would provide useful benchmark data to adjust ITS estimates for air travellers. In particular, the duration of trip and the travelling party size were found to be the most important variables that could be used. Specifically, within each stratum, the population sizes by duration of trip and travelling party size will be estimated based on the data from a large sample of E311cards. The ITS sample data (for air travellers) will be weighted to match these sub-population sizes, thereby reducing the potential risk of non-reponse bias.

Future phases
In order to fully cover the population of international travellers, many data collection methods specific to other segments of the travelling population will have to be implemented according to the ITS priorities and available resources.

In particular, the methods to survey travellers who enter Canada at land ports will have to be examined closely. These travellers account for more than 80% of all travellers and contribute to an important proportion of the spending (≈32 %). The effectiveness of conducting a mail survey using E311 data from Canadian and US air travellers will be investigated as well. Methods of surveying other population segments such as travellers in the CANPASS program and travellers by train and boat, etc., will also be developed in order to achieve a complete coverage of the ITS population.

6. CONCLUSION

The main goal of the investigations of the three pilot studies has been to evaluate the impact of various questionnaire types and distribution methods in order to improve the return rates and the quality of ITS data.

The results of the first two tests have demonstrated that a considerable increase in the return rates could be achieved when Statistics Canada staff distributed the questionnaires at the ports of entry. In addition, the Pilot II test demonstrated that some gains in the return rates could be achieved through the use of questionnaires in the native language of travellers. Analysis of Pilot II data also showed the possible presence of bias in the total spending estimates associated with these low return rates. Finally, Pilot III showed that a slight increase in the response rates could be achieved with a new survey instrument using modular questionnaires.

Unfortunately, the test results also revealed that the current method of questionnaire distribution at the ports of entry would not achieve response rates capable of meeting the needs of ITS. The survey needs to reconsider the adoption of effective but more costly methods of data collection. Hence, the ITS redesign project embarks on developing an "integrated design" which adopts the most cost-effective data collection method specific to each segment of the traveller population.

Because of the substantial resources required, the integrated design for the ITS will be implemented over

a long period of time. The first phase of implementation focuses on an air-exit survey for overseas travellers and on data adjustments for all air travellers. Future phases will implement data collection methods for other segments of the international traveller population.

ACKNOWLEDGEMENTS

The authors wish to thank the staff in the Travel, Tourism and Recreation Section at Statistics Canada for their contribution to this study. We would also like to thank the Canadian Tourism Commission and the International Travel Survey Working Group for their support in the pilot tests.

REFERENCES

Dick, P., Miller, K. and Binder, D. (1984),"Some recommendations on the methodology used for the International Travel Survey", *Internal Report*, Institutions and Agriculture Surveys Methods Division, Statistics Canada

Feder, M. (1990),"ITS – Non Response Bias study", *Internal Report*, Social Survey Methods Division, Statistics Canada

Laflamme, F., Cheung, S., Cyr A. and Tremblay S., (1998), "Experiences in the Bias Analysis in the Canadian International Travel Survey" *1998 American Statistical Association, Proceedings of the Section on Survey Research Methods*, Dallas, Texas. pp 570-575

Miller, K. A., Lui, L. and Satin, S. (1986), "Evaluating the Effect of Non response on International Travel Statistics", *1987 American Statistical Association, Proceedings of the Section on Survey Research Methods*, San Francisco, California, pp 381-389.

Statistics Canada (1998a), "ITS – Results of the Bias Analysis Study", *Internal Report*, Household Survey Methods Division, Statistics Canada

Statistics Canada (1998b), "ITS – Results of the Incentive Test Analysis", *Internal Report*, Household Survey Methods Division, Statistics Canada

Statistics Canada (1998c), "ITS – Language Preference of Japanese Travellers", *Internal Report*, Household Survey Methods Division, Statistics Canada

Statistics Canada (1999a), "Report to the ITS Working Group: Bias adjustment study using the data of the new E311 declaration cards", *Internal Report*, Household Survey Methods Division, Statistics Canada

Statistics Canada (1999b), "Report to the ITS Working group: Bias Adjustment study using PALS Data", *Internal Report*, Household Survey Methods Division, Statistics Canada