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## **THE TELEPHONE FIRST CONTACT APPROACH IN THE LABOUR FORCE SURVEY**

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### **ABSTRACT**

The Labour Force Survey (LFS) is a monthly survey of households. One sixth of its sample is replaced each month. In the past, households new to the sample (births) were usually interviewed in person. Following a test to evaluate the strategy of using computer-assisted telephone interviewing (CATI) for interviews with births, the telephone first contact (TFC) approach was introduced in November 2004. This paper describes the TFC approach and presents results that were used to assess different aspects of this collection process.

KEY WORDS: Births, computer-assisted telephone interviewing (CATI), telephone first contact (TFC), matching.

### **1. INTRODUCTION**

#### **1.1 Brief description of the LFS**

Canada's Labour Force Survey (LFS) produces the unemployment rate and a number of employment statistics at the national, provincial and subprovincial levels each month. It collects information from 54,000 households on their labour market activity during a reference week that includes the 15<sup>th</sup> day of the month. Collection takes place over a 10-day period, from the first Sunday after reference week to the Tuesday of the following week.

The LFS's monthly sample is composed of six rotation groups. Each group contains about 9,000 households and is in the LFS sample for six months. The sampling process is coordinated so that only one rotation group is replaced each month. Thus, one sixth of the LFS's monthly sample is made up of households that are in their first month in the survey; they are referred to as "births". The remaining five sixths of the sample consists of households in their second to sixth month in the survey; they are referred to as "non-births".

Before the telephone first contact (TFC) approach was introduced, most births were contacted by field interviewers using the computer-assisted personal interviewing (CAPI) method. It should be noted that an introductory letter is sent to all births prior to first contact, whether that contact is by telephone or in person. Non-births are usually contacted by regional office interviewers using the computer-assisted telephone interviewing (CATI) method.

This paper describes the TFC collection process for LFS births and presents the results for various quality measures developed during a pre-implementation test and since TFC's introduction in November 2004.

### **2. OVERVIEW OF THE TFC TEST**

#### **2.1 Description of the test**

The goal of TFC was to have an interviewer working at a regional office make the initial contact and conduct the LFS interview by telephone with births for which a telephone number was available.<sup>2</sup> The TFC test had two

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<sup>2</sup> The telephone numbers were obtained from telephone company billing files.

objectives: (1) assess the new approach’s operational feasibility using the LFS’s current tools, procedures, operations and constraints, and (2) identify any significant effects on the response rate and key estimates such as the unemployment rate.

The TFC approach was tested on a subset of the current monthly sample of births between April and October 2004. Of the 5,700 births selected in urban areas,<sup>3</sup> a systematic subsample of 1,400 births was chosen for the test. The process for matching telephone numbers to addresses was successful in about 60% of the cases. As a result, roughly 840 births were contacted by telephone from a regional office, and the rest were contacted by field interviewers. Two regional offices were responsible for telephone collection for the test: the Halifax office covered eastern Canada and Quebec, and the Winnipeg office covered the rest of the country.

For births contacted by telephone, two strategies were employed during the test period. Under the first strategy, applied from April to July, collection was carried out by the regional offices for four to five days. After that, households where no contact was made<sup>4</sup> were transferred to field interviewers. Under the second strategy, applied from August to October, collection was carried out by the regional offices for the entire collection period. The latter strategy was the one adopted, because it is more cost-effective and simpler from an operational standpoint. In what follows, some of the test results are provided only for the second strategy.

## 2.2 Test results

Table 2.2.1 shows that the average response rate for births contacted by telephone under the second strategy was 88.6% at the national level, and that the refusal rate and the “no contact” rate were 3.3% and 6.9% respectively. Quebec had the lowest response rate.

Table 2.2.1: Refusal rates, “no contact” rates and response rates observed in the TFC test (second strategy), Canada and regions

Region	Refusal rate	“No contact” rate	Response rate
Eastern Canada	2.8	4.5	91.5
Quebec	6.6	9.8	83.5
Ontario	2.3	6.0	89.7
Manitoba and Saskatchewan	2.2	6.6	90.2
Alberta and British Columbia	3.6	7.6	88.3
Canada	3.3	6.9	88.6

Table 2.2.2 presents the rates for the subsample of 1,400 births included in the TFC test, of which 60% were contacted by telephone and 40% by field interviewers, and for the 4,300 births that were not included in the test and were contacted only by field interviewers, referred to here as the CAPI approach. As shown in the table, the response rate is about three percentage points lower for the TFC approach than for the CAPI approach. The difference is due primarily to the fact that for the TFC approach, the “no contact” rate is about three percentage points higher, and to a lesser extent to the fact that the refusal rate is 0.8 percentage points higher.

Table 2.2.2: Refusal rates, “no contact” rates and response rates observed in the test for the TFC approach and the CAPI approach, Canada

Approach	Refusal rate	“No contact” rate	Response rate
TFC (1400)	2.8	6.3	89.5
CAPI (4300)	2.0	2.9	92.9

<sup>3</sup> The decision to consider only the selection of births in urban areas is explained in section 3.1.

<sup>4</sup> Contact was considered to have been made when the interviewer was able to speak with a member of the household to confirm the address selected.

Table 2.2.3 presents the unemployment rate estimates produced by the two approaches for May through October 2004. In general, the rate ranges between 6% and 8%, and the difference between the two rates is positive in some months and negative in others. The rates produced by the TFC approach seem more variable, probably because the sample is smaller. On the basis of a confidence interval built around the difference between the rates, there is no evidence that this difference was significantly different from zero.

Table 2.2.3: Unemployment rate estimates produced by the TFC approach and the CAPI approach, Canada

Approach	May	June	July	August	September	October
TFC (1400)	7.1	6.0	6.3	8.2	7.7	8.4
CAPI (4300)	6.4	7.6	7.6	7.5	6.6	6.8

The test clearly demonstrated that the new approach could be used in the LFS's current collection environment. The results are generally satisfactory, and with certain changes, the situation can probably be improved. Since the new approach offered significant savings, the decision was made to implement it.

### 3. IMPLEMENTATION OF THE TFC APPROACH

#### 3.1 Coverage and sample size

The TFC approach was implemented in urban areas only. This decision was based on a number of factors. The determining factor was of an operational and financial nature. Interviewing births by telephone reduced the field interviewers' workload. Implementing TFC in urban areas maximized the expected savings on collection costs because larger territories could be assigned to a smaller number of interviewers without substantially increasing travel. Since the decision to implement the TFC approach was based on the results of a test that included urban births only, it made sense to keep the same coverage when the approach was introduced.

TFC was implemented in all regional offices in November 2004. Every month, nearly 6,000 new households are selected in Canada's urban areas to take part in the LFS. Since about 60% of them are matched to a telephone number, 3,600 births are contacted by telephone by regional office interviewers, and the remainder are contacted by field interviewers.

#### 3.2 CATI collection procedures and organization

A major change took place in March 2005, as the Call Scheduler was introduced into the Blaise environment in the regional offices. The Scheduler automated a number of collection operations and standardized them across the regional offices. In particular, it automatically distributes CATI cases among active machines. The version used by the LFS is a so-called basic version, in that it first distributes the cases randomly for an initial call attempt and then generates subsequent attempts on the basis of the results of the first attempt and other preset parameters.

TFC implementation also necessitated a few changes in the content of the LFS's CATI application. In particular, a series of questions designed to verify the address and the corresponding telephone number were added to the contact component. Those questions were not needed when the initial contact was made by a field interviewer.

The CATI collection procedures put in place when TFC was introduced are very similar to the ones used in the test. They are included in a reference manual used in training TFC interviewers and supervisors. An abbreviated list of the TFC procedures is provided below.

- Three call attempts must be made at different times of day (morning, afternoon, evening).
- One attempt must be made to reach each birth by the end of the second day of collection (Monday).
- The very first thing that must be done when a household is contacted is to confirm the selected address and the corresponding telephone number.

- When a telephone number is incorrect, a search must be started immediately. Cases for which the search is unsuccessful must be transferred to field interviewers as soon as possible.
- “Personal interview requested” and “Language barrier” cases must be given special attention.
- Aside from those special cases, regional offices should handle the collection process for the entire LFS collection period.
- After several unsuccessful call attempts, interviewers may decide to search for alternative telephone numbers or leave messages on answering machines.
- Births whose final status after the first survey month is “no contact” are subjected to the TFC collection procedures again the following month. Those whose final status is “no contact” after the second survey month are transferred to field interviewers for the third month.

To improve the TFC response rate or increase the number of TFC cases, a number of collection initiatives have been introduced or tested since TFC’s implementation:

- increasing the number of TFC-trained interviewers;
- using various strategies associated with the introductory letter, such as mentioning the regional offices’ business hours in the letter and testing a version of the letter that stresses the mandatory nature of the survey;
- implementing the Call Scheduler;
- using a new source of telephone numbers and continuously evaluating the matching strategy.

### 3.3 Results achieved by introducing the TFC approach

This section presents the results of a number of quality measures used to assess the TFC approach’s effectiveness between December 2004 and September 2005.

The first part of the assessment concerns the change in the size of the sample of births on which TFC is used and in the percentage of incorrect telephone numbers. These two features can vary depending on whether the existing sources of telephone numbers are up to date, whether new sources are available and whether changes have been made in the matching process. Up to April, the sample size hovered between 3,300 and 3,400 births. It increased by about 200 in May with the introduction of a new source of telephone numbers and by another 200 in June as a result of changes in the matching program that ultimately proved unsatisfactory. Thus, the sample size has been roughly 3,500 to 3,600 cases since July. An increase of some 400 cases is expected in November due to an improved matching strategy. The proportion of incorrect telephone numbers is generally under 5%, but in September it jumped to 7%. This increase is probably due to a widening gap between the survey month and the reference month of the telephone number files.

The response rate, refusal rate and “no contact” rate are important quality measures for evaluating TFC. The rates are broken down by month in Table 3.3.1 and by region in Table 3.3.2. Table 3.3.1 shows that the average response rate for births contacted by telephone between December and August was 84% at the national level, and that the rate rose to nearly 88% in September. There was a downward trend in the refusal rate, which was almost cut in half during the period under study, dropping from 5.1% to 2.7%. The “no contact” rate was generally steady at between 8% and 9%, though it fell to its lowest level in September (7.1%).

Table 3.3.1: Refusal rates, “no contact” rates and response rates by month

Rate / Month	December 2004 - March 2005	April	May	June	July	August	September
Refusal rate	5.1	4.8	3.9	4.2	3.8	3.2	2.7
“No contact” rate	8.1	8.1	9.5	8.4	8.6	8.6	7.1
Response rate	84.2	84.1	82.9	84.2	84.4	84.3	87.7

Table 3.3.2 shows that Quebec and the regions consisting of Alberta and British Columbia had the lowest response rates (81%). Quebec had the highest refusal rate, and the region of Alberta and British Columbia had the highest “no contact” rate. The difference in refusal rate between Quebec and the other regions suggests that some cases that were

coded “no contact” in other regions may actually have been indirect refusals, i.e., households using various methods, such as call display and call screening, to avoid answering certain calls.

Table 3.3.2: Refusal rates, “no contact” rates and response rates by region

Region / Rate	Refusal rate	“No contact” rate	Response rate
Eastern Canada	2.0	8.7	87.5
Quebec	7.6	7.7	81.2
Ontario	3.7	6.6	86.1
Manitoba and Saskatchewan	2.1	8.7	88.5
Alberta and British Columbia	3.0	11.7	81.0
Canada	3.8	8.4	84.6

Since the refusal rate and the “no contact” rate are significantly higher for TFC, it is relevant to assess the effectiveness of the collection processes designed to convert non-response cases into response cases. In the refusal conversion process, a letter is sent to the households concerned during the current collection period. A few days later, an experienced interviewer tries to contact the households and persuade them to take part in the survey. Statistics show that 50% to 55% of households that refused in the first survey month agreed to respond the following month.

Similarly, 35% to 40% of the cases that were coded “no contact” in the first survey month were converted to response cases in the second month. Sending a letter to the “no contact” cases before the next collection period increased the conversion rate to 55%. Statistics also show that at least 80% of the converted cases responded in the third survey month. In addition, less than 3% of the original sample of TFC births are transferred to the field after being coded “no contact” for two consecutive months. Of the cases transferred, 50% to 70% responded to the survey.

Next, the current approach was compared with the previous approach for births in urban areas only. Table 3.3.3 shows the response rates for births under the current approach – both CAPI and TFC components – and past response rates for births for which only the CAPI approach was used. The response rate of 86% for the current approach is seven percentage points lower than the rate for the previous approach. The response rate for the CAPI component of the current approach is roughly 90%, three percentage points lower than the rate for the previous CAPI approach. This lower rate for households that could not be matched to a telephone number may point to an additional difficulty for field interviewers. The response rate for the CAPI component of the current approach is quite similar across the regions, whereas the same was not true for the TFC component, as we have already seen.

Table 3.3.3: Response rates for births in urban areas

Approach	Previous	Current		
		CAPI or TFC	CAPI	TFC
Region				
Eastern Canada	93.1	88.1	89.1	87.5
Quebec	91.8	83.9	87.6	81.2
Ontario	92.7	87.1	89.0	86.1
Manitoba and Saskatchewan	94.9	89.2	90.6	88.5
Alberta and British Columbia	94.0	84.8	91.5	81.0
Canada	93.2	86.4	89.5	84.6

Improving the TFC approach’s response rate has been a constant concern for LFS managers since it was first introduced. Before entertaining any serious doubts about the approach itself, the LFS team decided to examine the percentage of calls, the percentage of respondent households and the ratio of the number of respondent households to the number of calls by time of day or period of the week. Table 3.3.4 presents the results for September 2005, during which some 22,600 calls were made to TFC births.

Table 3.3.4: Percentage of calls (%C), percentage of respondent households (%R) and the ratio of the number of respondent households to the number of calls (R/C) by period of the day and period of the week

Period	Morning Before noon			Afternoon 12:00 – 5:00 p.m.			Evening After 5:00 p.m.		
	%C	%R	R/C	%C	%R	R/C	%C	%R	R/C
Weekend	8	5	0.10	50	49	0.17	42	47	0.20
Weekday	30	28	0.10	35	28	0.08	35	44	0.13
Total	24	19	0.10	39	35	0.11	37	45	0.15

This table shows the following:

- The R/C ratio is higher on weekends and weekday evenings; this makes sense if one assumes that people are more available during those periods. The ratio is smallest on weekday afternoons.
- The percentage of calls on weekdays is just as high in the afternoon as in the evening, which appears to contradict what was suggested in the previous point.

We believe that increasing the proportion of evening calls might improve the TFC response rate. Of course, this change would entail other, much more fundamental changes in how regional office collection is organized.

In addition, certain characteristics of respondents under the CAPI and TFC components of the current approach were compared with the same characteristics under the previous CAPI approach. The findings were as follows:

- a larger proportion of one-person households for the CAPI component and a larger proportion of four-person households for the TFC component;
- a larger proportion of persons with less than a college education for the CAPI component and a larger proportion of persons with more than a college education for the TFC component;
- a larger proportion of persons aged 44 and under for the CAPI component and a larger proportion of persons aged 45 and over, especially 65 and over, for the TFC component.

These results corroborate some logical conclusions and some observations made in actual interviews. For example, people with a university education would be easier to persuade over the telephone because they understand the importance of statistics. Similarly, seniors would prefer to respond on the telephone because they are concerned about answering the door. In any case, the findings also raise questions about such things as the current methods of adjusting for non-response by TFC births.

When the data for the two components were combined, the distributions of the characteristics of current-approach respondents were similar to those of previous-approach respondents.

#### 4. TFC CHALLENGES

The TFC approach presents a number of challenges, including the following:

- **Optimization of the process for matching telephone numbers to addresses.** Efforts have been made to optimize the matching program so that TFC can be used for as many births as possible. At the same time, additional changes were made in the process so that new telephone number sources could be added. Time and effort have been put into this challenge continually since TFC was implemented.
- **Technology in the home.** Since TFC was introduced, the number of refusals and “no contact” cases has been increasing. It is assumed that this is due to various call-display and call-screening technologies available in the home. This universal reality of telephone-interviewing holds its share of challenges for TFC.

- **High turnover rate among regional office staff.** An experienced interviewer can make all the difference in a telephone contact; unfortunately, the high turnover rate in the regional offices is not conducive to the forming of a large pool of experienced interviewers. Implementing hiring or training strategies that will foster the development of skilled interviewers is certainly a major challenge to face in such an environment.
- **Understanding and refinement of the Call Scheduler.** A so-called basic version of the Call Scheduler has been implemented in the regional offices. In the TFC context, one challenge would be to learn to use it more effectively so that, for example, all cases are called at different times of day, especially in the evening, as early as the first few days of the collection period.

## 5. CONSIDERATIONS

Having looked back at the steps that led to the TFC approach's introduction, the authors have concluded that a few important points need to be considered in similar contexts:

- **All of the regional offices should be involved in the planning and communication strategy from the very beginning of the project.** While not all of the regional offices need to be part of the testing process (though ideally they should be), they should all be involved in the project from the very beginning. In particular, they should be kept informed and given the opportunity to provide input on a regular basis. This would facilitate the transition to the implementation phase for all regional offices.
- **More evaluation results concerning the new process should be shared with the regional offices.** For example, regional office collection supervisors were pleasantly surprised when informed that the conversion rate for TFC refusals was 50%. Considering the time and effort that goes into converting refusals, they seemed to underestimate the operation's overall success. Consequently, they very much appreciated receiving the information and found it very encouraging.
- **Training in the techniques for preventing refusals in the TFC context should be reviewed on a regular, on-going basis.** Interviewers play a key role in collecting high-quality data, and they need an even higher level of skill to obtain responses under the TFC approach. It is important, therefore, to review the training that interviewers receive in this area on a regular, on-going basis.
- **Changes should be given time to work before their effectiveness is evaluated.** In the transition from testing to implementation, the size of the sample on which TFC was used increased fourfold, and three more regional offices were introduced to the new approach. TFC's introduction was a major change for regional office interviewers and their supervisors. It was ten months before any improvement was seen in the response rate. That improvement was due to a collective effort, initiatives and experience.

## REFERENCES

The following documents provide general information concerning the LFS's methodology and how the quality of the various aspects of the survey is evaluated:

- Gambino, J., M.P. Singh, J. Dufour, B. Kennedy and J. Lindeyer (1998), "Methodology of the Canadian Labour Force Survey", Statistics Canada.
- Lebrasseur, D., S.-M. Dion, N. Gouzi and C. Pelletier (2005), "Labour Force Survey, Annual Report on Quality, January - December 2004", Statistics Canada.



More specifically, in addition to the interviewer manual, which describes the entire LFS collection process in the CATI environment (LFS-100), Statistics Canada's Survey Operations Division prepared and reviewed in 2004-2005 a series of manuals to assist in training supervisors and interviewers on TFC. The following is a list of the TFC collection manuals:

- Telephone First Contact CATI Birth Interview – Training Manual
- Telephone First Contact CATI Birth Interview – Supervisory Procedures
- Telephone First Contact CATI Birth Interview – Interviewer Information
- LFS-400 CATI – Training Manual