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USING PARADATA TO EVALUATE COLLECTION ACTIVITIES IN THE YOUTH IN TRANSITION SURVEY

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ABSTRACT

The Youth in Transition Survey (YITS) is a longitudinal survey that gathers information regarding school-work transitions and factors that affect them. Collection occurs every two years via a Computer Assisted Telephone Interview (CATI). Audit Trail files, which record all actions performed during a given CATI session, were examined to assess common errors, edit failures and application functionality. Areas for potential improvement were identified in hopes of improving data quality for future collections. Results are presented using Cycle 4 data collected in 2006.

KEY WORDS: Audit Trail; Collection Evaluation, Paradata.

RÉSUMÉ

L'Enquête auprès des jeunes en transition est une enquête longitudinale qui rassemble de l'information sur les transitions école-marché du travail et les facteurs qui les affectent. La collecte est effectuée tous les deux ans par l'entremise de l'interview téléphonique assistée par ordinateur (ITAO). Les pistes de vérification, qui enregistrent toutes les actions effectuées au cours d'une séance ITAO, ont été examinés pour évaluer les erreurs communes, les rejets à la vérification et les fonctionnalités d'application. Les secteurs où les améliorations seraient possibles ont été identifiés dans l'espoir d'améliorer la qualité des données pour les activités de collecte futures. Les résultats sont présentés à partir des données du Cycle 4 recueillies en 2006.

MOTS CLÉS : Évaluation de la collecte; paradonnées; piste de vérification.

1. INTRODUCTION

1.1 YITS Overview

The Youth in Transition Survey is a longitudinal survey that gathers information regarding major transitions in young people's lives, in particular, those between school and the labour force. It is jointly sponsored by Statistics Canada and Human Resources and Social Development Canada. Many researchers and educational planners use this data to determine factors that can affect attendance or achievement in post secondary education. There are two cohorts for which data are collected simultaneously. The respondents in Cohort A were 21 years old during the reference period for Cycle 4. The respondents in Cohort B were 24 to 26 years old during this period. Data are collected every two years by means of a Computer Assisted Telephone Interview (CATI). There are 16 questionnaire content modules that collect detailed information regarding educational and employment status as well as demographic variables including income, marital status and household composition.

Little research has been conducted on the functionality of the YITS collection vehicle. Previously, data to evaluate specifics of collection did not exist. With the availability of Audit Trail files, it is now possible to determine areas for improvement, in either the application or questionnaire design that would ameliorate collection efforts for future cycles and cohorts.

1.2 Audit Trail Files

Audit Trail files are a source of paradata for the YITS. Paradata are essentially data related to the survey process.

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Examples of paradata variables available on the Audit Trail files include date, start time and end time of interviews, language of interviews, and records of captured responses for each variable field.

Audit Trail files are becoming more widely available and contain a wealth of information related to collection efforts. They are large, comma-delimited files output from the CATI application. A single data line corresponds to each action performed, such as opening a case, or entering a value in a field. The text files require much manipulation before analysis can be carried out. Using the method described by Lapierre and Meyer (2006), the collection files were processed to create the analytical files used for this study.

In this paper, Section 2 summarizes the results of analysis of the Audit Trail files by interview times. This includes results by questionnaire content module and results related more specifically to the volunteer activities module. Section 3 discusses the use of confirmation screens in the application. Finally, Section 4 provides details of the edit range analysis performed.

2. ANALYSIS OF INTERVIEW TIMES

The Audit Trail files can provide a more detailed picture of collection efforts. It is possible to calculate interviewing statistics not only by module but also simultaneously by domain. Looking at the median time spent by questionnaire content module (Table 1), the interview time required for Cohort A is significantly greater than for Cohort B. When looking more closely at specific questionnaire content modules, the largest differences between cohorts deal with the post secondary education and funding, employment and demographic modules. This makes intuitive sense. Cohort A respondents were at an age when many of them would still be attending post secondary institutions, while many Cohort B respondents would have completed post secondary education. Also, people attending post secondary institutions often have multiple part time or seasonal jobs. This leads to longer interviewing times, since detailed information is asked about each job reported. Conversely, post secondary graduates would tend to have one permanent job. Finally, the demographic module asks questions about spouses and dependent children. Since Cohort B is older, it is more likely that they would have spouses and/or dependent children.

Table 1 – Median questionnaire content module times by cohort

Questionnaire Module	Overall	Cohort A	Cohort B
All Modules	52.6	53.7	50.8
Move to the US	0.2	0.2	0.2
High School	0.4	0.4	0.4
Post Secondary	3.1	3.8	0.6
PS Engagement	3.5	3.5	3.6
Funding	1.7	1.7	1.5
Loans/Aspirations	2.6	2.7	2.4
Social Support	0.7	0.7	0.7
Work related	3.9	4.3	3.3
Employment	3.7	4.0	3.2
Reservation Wage	0.5	0.5	0.6
Training	1.5	1.5	1.7
Gaps	1.0	0.9	1.0
Volunteering	1.2	1.2	1.2
Skills	1.4	1.4	1.4
Demographic	1.5	1.4	1.8
Income	2.1	2.0	2.2
Other	24.5	24.9	24.2

It is also possible to look at the time spent by interviewers in obtaining completed interviews for respondents vs. time spent attempting to obtain responses from non-respondents. To do this, the definitions for respondents and non-respondents derived after collection were added to the analytical files. The median interviewer time spent on respondents, 51.9 minutes, was significantly lower than the median time spent on non-respondents, 58.2 minutes. These median times include the time required to contact the respondent in addition to the time required for the interview. Factors influencing the greater amount of time required for non-respondents include the added number of attempts in trying to contact them, the accumulation of time spent on a case, even if there is no contact (e.g., a busy signal or answering machine), and the repetition of a set introduction each time a household is contacted.

Additionally, it is possible to identify areas where collection times can be reduced. As an example, the module that deals with volunteer activities consists of (1) an introduction that lists multiple examples of volunteer activities, (2) eight yes or no questions asking about participation in specific volunteer activities, and (3) more-detailed questions for anyone having replied yes to any of the previous questions. The median times spent on the introduction and the eight yes or no questions were 12 seconds and 52 seconds respectively.

However, 62% of all respondents said no to all the yes or no questions. It could be beneficial to consider adding a filter question after the introduction, but before the yes or no questions. Given that examples of volunteer activities are listed in the introduction, a filter question could ask, “Between January and December of the reference year, did you participate in any volunteer activities?” Estimating that it would take on average ten seconds to ask and record the answer to the filter question, this would add 32 interviewing hours for respondents having reported volunteering. However, it could also save 280 interviewing hours for those who did not. This represents potential savings of 248 interviewing hours.

It should be noted that one drawback to adding a filter question is that there could be an underreporting of volunteer activities. Further investigation and consultation would be required before implementing such a question.

3. CONFIRMATION SCREENS

The YITS questionnaire is a long questionnaire with complex flows and many interrelated modules, particularly those dealing with post secondary education and employment. For this reason confirmation screens allow interviewers a chance to verify data provided by respondents to ensure proper navigation through the CATI application. During training, the interviewers are instructed to confirm all information on the following screens.

Figure 1 – Institution confirmation screen

Inst_Conf JANE DOE

INTERVIEWER: Confirm all data with respondent except eligibility code.

	Institution & Campus Name	Prov.	Elig.	#Pgms.
Inst 1	ABC university	Ontario	1	1
Inst 2				
Inst 3				
Inst 4				

Figure 2 – Program confirmation screen

Prog_Conf JANE DOE

INTERVIEWER: Confirm all data with respondent except eligibility code.

Program name	Start Date	Still In	Completed	Eligible
1. Institution & Campus ABC university				1
1– Bachelor of Science	January 2004	Yes		1
2–				
3–				

Figure 3 – Job confirmation screen

P1_QCNT1 JANE DOE

INTERVIEWER: Confirm all eligible jobs with respondent. Note, dates refer to period worked in last two years only. What do you want to change ?

Job#	Eligibility	Start Date	End Date	Employer
1	1	January 2006	December 2007	CANADIAN JOB INC.

At the institution confirmation screen, the interviewer should verify the institution name, the province it is located in, and the number of programs in which the respondent is registered for up to four institutions. At the program confirmation screen, the interviewer could be required to verify up to nine programs from at most four institutions. Here, the institution and program names, the start date and the status of each program (i.e., still enrolled or completed) should be confirmed. Finally, the job confirmation screen requires the interviewer to verify the start and end dates and employer names for up to seven different jobs. By confirming information on these screens, it ensures that the more detailed questions later in the module are only asked for valid institutions, programs and jobs. Incorrect start and end dates can create problems for calling other modules later in the questionnaire.

Actions that are possible from the confirmation screens are: including additional jobs, institutions, or programs, changing details for a given entry, or making an item ineligible. Marking items ineligible ensures that detailed questions will not be asked later on. Table 2 shows the types of changes and the number of changes made at each confirmation screen. Approximately 3.5 percent of the respondents who came to institution or program confirmation screens made at least one change and over 6 percent of respondents who reached the job confirmation screen made at least one change.

Table 2 – Actions taken at confirmation screens

	Institution	Program	Job
No. Respondents Total	18 225	18 144	29 737
Add information	186	n/a	637
Change information	136	453	741
Make ineligible	395	196	837
One change	616	600	1817
Two changes	36	33	167
Three changes	5	8	16
Four changes	5	0	4

Table 3, below, compares the confirmation screen visits between respondents who only visited the screen once and respondents who had multiple visits. There was a higher percentage of cases that spent 0 to 2 seconds on the confirmation screens for those who had multiple visits on their first visit than for those who had only one. Considering the amount of data to be verified, screen confirmation is unlikely to be completed in fewer than three seconds. It is probable that many of the cases where multiple visits occurred could have been avoided had all information on the confirmation screens been confirmed on the first visit. This underscores the importance of verifying all information on the confirmation screens and the need to emphasize this aspect during interviewer training.

Table 3 – Percentage of cases where fewer than three seconds were spent at confirmation screens

	Institution	Program	Job
Single visit	24.1%	18.3%	17.4%
Multiple - 1st visit	28.8%	26.4%	21.1%

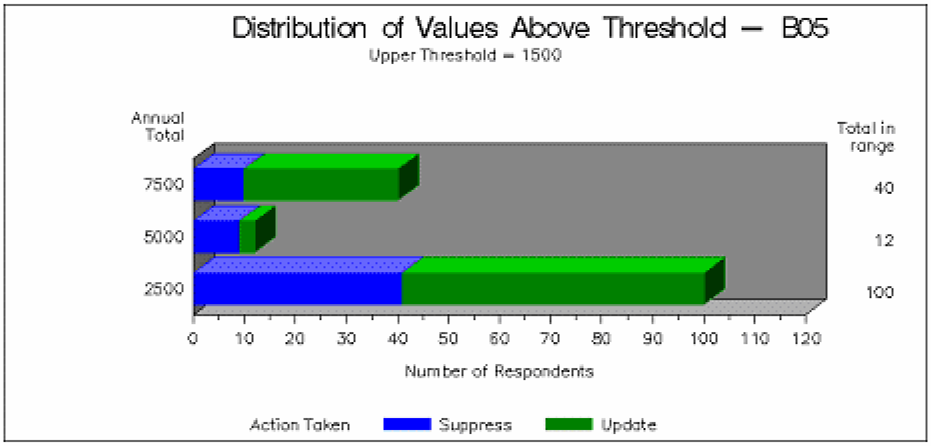
4. EDIT RANGE ANALYSIS

Audit Trail files allow for analysis of values that trigger edits, as well as tracking of interviewer actions when edits pop up. For soft range edits, interviewers are given the choice to suppress the edit (i.e., accept the value as reported by the respondent) or to go back to a previous field and update a value entered so that the value no longer triggers the edit. Edit range analysis was not previously possible: when looking at output data, only the final responses for a given field were available. With the availability of Audit Trail files, it is possible to see the original values that prompted the edit pop-up and the action taken by the interviewer to either suppress the edit and accept the value or to change the value entered. A consistent suppression of range edits could imply that the range definitions that were put in place for previous cycles are no longer valid.

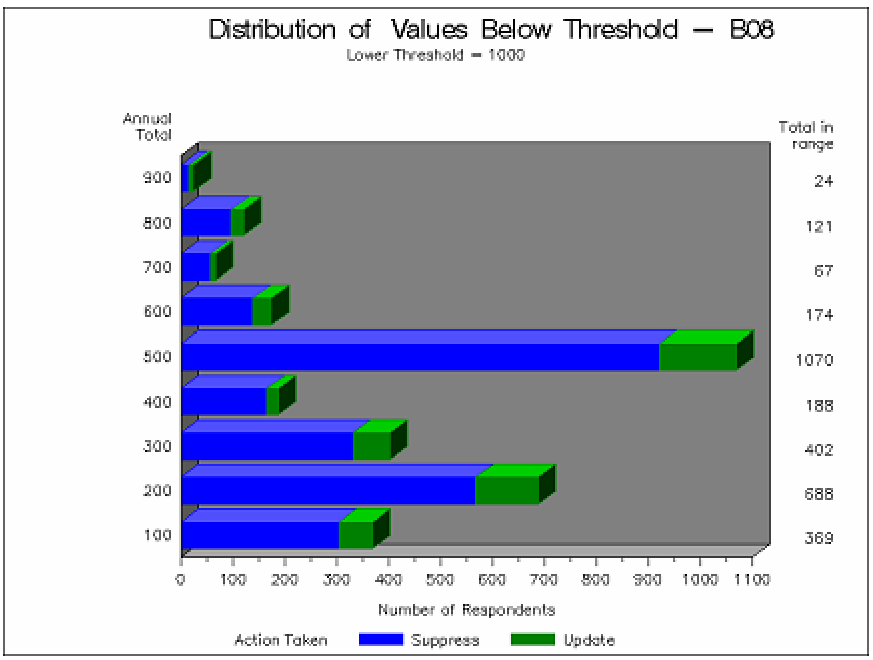
The edits that were examined for this study were ones where the interviewer could choose to suppress the edit. Two variables that had high rates of triggered edits were considered: income received from the GST/HST credit and money borrowed from parents or others that did not have to be paid back.

For the question regarding the GST and HST credit, the soft edit ranges were a minimum value of $100 and a maximum value of $1 500. Reported values lying outside the range triggered a pop-up screen asking the interviewer to verify the entered value. This edit was triggered 4.1% of the time. Graph 1 shows the distribution of values entered above the maximum of $1 500. The blue portions of the graph correspond to the number of cases that triggered an edit that was suppressed by the interviewer, thus accepting the value. The green portions of the graph correspond to cases where an edit was triggered, but the value was subsequently updated to one that no longer caused an edit failure. Looking at the range with a median value of $2 500, of the 100 times the edit was triggered, the value was updated 60% of the time. Overall, 61% of the recorded responses that triggered an edit were updated by the interviewer. This indicates that the edit's upper limit is working well, having caught many erroneously high values for the GST/HST credit. Incidentally, this was often attributable to the respondent answering with dollars and cents, and the interviewer entering the entire amount without a decimal place. This is an issue that could be addressed during interviewer training.

Graph 1 – Distribution of values that triggered edits and interviewer actions GST/HST credit



Graph 2 – Distribution of values that triggered edits and interviewer actions Monies borrowed from parents



The second question examined asked how much money the respondent had received from parents or others that they were not required to pay back. The soft range minimum and maximum values were $1 000 and $15 000, respectively. Over 27 percent of the respondents reported values that triggered an edit, which corresponds to more than 3 400 responses. Almost all of these were for respondents who reported borrowing amounts of money less than $1 000. Looking at Graph 2, the interviewers often chose to suppress the triggered edits, particularly for cases where the value entered was just below the minimum. In this case it might be useful in future cycles to lower the threshold for this edit range, possibly removing it all together. Further investigation is required to determine an optimal lower threshold.

5. CONCLUSIONS

There were three areas identified where efficiencies might be gained during collection for future cycles of the YITS. Firstly, emphasis should be made during interviewer training on the importance of verifying all information on the confirmation screens to ensure appropriate application navigation and accurate data collection. Secondly, provided one is warranted by further investigations, the introduction of a filter question for the volunteer activities module could reduce collection costs. Finally, lowering the lower threshold for monies borrowed from parents could also lead to a reduction of costs, by reducing the time required to deal with edits that popup.

This exercise was undertaken with the hope that areas for significant improvements would be determined. The fact that only minor issues could be identified attests to the effective practices already implemented for collection. Ultimately, it became a learning experience by recognizing the substantial amount and types of analyses that can be performed using the paradata available in the Audit Trail files. The results presented here only scratch the surface of possible analyses. They are a valuable source of information that can be used to assess the questionnaire design and the functionality of the application. Additionally they can become a powerful tool to evaluate the actions taken by interviewers, the pace of the interviews, and the flow of the questionnaire.

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