

USING BLAISE FOR COMPLEX SURVEYS OF HOUSEHOLD FINANCES*)

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1. Introduction

Following the successful conversion of the Labour Force Survey to computer assisted methods, attention has turned to extending these techniques to other OPCS surveys. This paper briefly describes developments to date on two particular surveys - the long-standing Family Expenditure Survey (FES) and the new Family Resources Survey (FRS). There is considerable overlap between the two surveys, each requiring detailed information about household and personal finances. The complexity of these surveys has presented new challenges for computer assisted survey methods (CASM) and these are described.

A companion paper by Tony Manners and Nikki Bennett discusses OPCS's strategy for implementing CASM more generally.

2. Family Expenditure Survey

The FES has been running continuously since 1957 and is an extremely important source of information for the British government. It is carried out by OPCS on behalf of the Central Statistical Office with the main aim of providing expenditure weights for the Index of Retail Prices. It is also widely used for other purposes such as modelling the effects of tax and benefit changes, assessing take-up of state benefits, and estimating consumer expenditure. It comprises an interview lasting

*) Based on a paper published in Survey Methodology Bulletin, OPCS, July 1992 : Further developments in Computer Assisted Personal Interviewing for household income surveys. Jean Martin & Jil Matheson

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between 1 and 3 hours which covers income and major items of expenditure, and an expenditure diary kept by all adults for 2 weeks. All adults in the household must co-operate fully for the household to be counted as responding. The response achieved is generally around 70%, some 7000 households a year cooperating.

The interview starts with a household questionnaire which is completed with the householder and his/her spouse. This questionnaire establishes basic details about the members of the household and covers regular household expenditure on housing, gas and electricity, household insurance and other regular expenditure, and also large occasional items of expenditure for which 2 week diaries cannot provide reliable estimates.

Individual interviews are then completed for each adult. These cover all items of income - earnings, benefits, pensions, investments etc.

Great emphasis is placed on obtaining as complete and as accurate information as possible. Respondents are encouraged to consult documents such as pay slips, rent books, bank statements, bills etc.

The main pressure on the FES which led to consideration of changing to computer assisted personal interviewing (CAPI) was the requirement for results to be available faster and to obtain better quality data without unacceptable extra costs. Currently clean data from the FES are not available until about 20-25 weeks after the end of each quarter.

Collecting detailed and accurate information about people's financial affairs is demanding for both interviewers and respondents. Data collected currently on the FES suffer from missing information, errors and inconsistencies which necessitate a very extensive and time consuming post-interview editing system. It is hoped that CAPI will remove many of these errors. For example, over half of all failures of edit checks result from routing errors leading to questions being missed; with CAPI these should be eliminated.

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A further major source of error occurs when the sum of individual items and totals are inconsistent. Not only is it unreasonable to expect interviewers to carry out a lot of arithmetic in the interview but often the amounts for different items are for different time periods and need to be converted to a common base before they can be added. Interviewers cannot do this but such checks can easily be programmed in Blaise.

Despite the expected improvements CAPI can make in some areas there remain intractable problems. Surveys such as the FES are limited by the amount of information respondents are willing and able to provide. In many cases respondents do not have full details of their financial affairs, either because they have not kept the relevant documents or because they are kept by their accountant.

Work started last year to assess the feasibility of changing to CAPI for the FES interview and to consider how the expenditure diaries might be integrated. The questionnaires were programmed in Blaise and the first small CAPI field trial took place in March 1992. This trial aimed to highlight any major difficulties at an early stage, and point to the main features of the CAPI interview which would require further investigation and development. It was also felt to be important to get an early indication of public and interviewer acceptability, although the trial was not designed to test response rates.

Interviewer and respondent reaction to the trial was generally very positive and it was concluded that CAPI would be technically feasible for the FES although further work is needed before a final decision on whether to switch can be made. Various areas for improvement were identified and these are discussed below.

3. Family Resources Survey

This new continuous survey, covering some 25000 households a year, was specified by the customer department (Department of Social Security) as a CAPI survey from the outset. Early development work had established

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the feasibility of this mode and recommended that Blaise be used. The main survey, to be carried out jointly by OPCS and Social and Community Planning Research (SCPR), begins in October 1992.

The survey covers many of the same topics as the interview part of the FES but its larger sample size will allow specific groups such as low income families to be studied in more detail, and the interview will cover more details of income but little on expenditure. A major requirement of the survey is that results are available quickly, hence the decision that the survey use CAPI. Edited data will be delivered to the customer within 13 weeks of the end of fieldwork, although some further work to impute missing values and calculate derived variables will then be necessary before analysis can start.

Because of the similarities between the FRS and FES in terms of both content and the problems they pose for CAPI, the development work is being co-ordinated as far as possible, bearing in mind that OPCS is solely responsible for the FES, while SCPR is responsible for the development of the FRS questionnaire instrument.

Using Blaise for the FES and FRS

The methods and procedures developed over the years for FES interviews, which will broadly be the same on the FRS, pose particular problems for CAPI. Our experience in pilot work is discussed below.

Concurrent interviewing

On the FES, interviewers attempt to talk to all adults together in order to persuade them all to complete the expenditure diaries; households are only counted as responding if all adults co-operate fully. Interviewers generally interview two, and sometimes three, people at the same time. Concurrent interviewing works by the interviewer reading out a question and recording the answers from both individuals. If their answers lead to different routing the interviewer may complete

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a short block with one person before returning to the other. This has the dual advantage of keeping to a minimum the time spent in the household and helping to get complete and consistent information. This is particularly important in the case of couples whose affairs are closely inter-related. The procedure minimises the risk of missing items of expenditure or income or of double counting, and allows the person with most knowledge of the financial affairs to provide the information. For these reasons it is also planned to use concurrent interviewing on the FRS.

A method for permitting concurrent interviewing was field tested on both surveys. This consisted of blocks of related questions in table format so that the interviewer records answers for both respondents before moving on to the next block. While generally successful, in practice interviewers recommended that blocks of questions should be made shorter. This will be tested in the next field trials.

The Blaise program for the individual questionnaires permits interviews with two adults, while the paper and pencil FES questionnaire currently allows up to three adults to be interviewed concurrently. Interviews in larger households have to be carried out consecutively.

For various reasons it is felt to be desirable to limit concurrent interviewing to CAPI to two individuals. This makes programming easier, and the response time of the program faster. But perhaps more importantly, discussions with interviewers revealed that, in practice, they often prefer to interview no more than two people at a time. This limits the amount of time each individual has to be present (although not the length of time the interviewer is in the household), makes the interview easier to control, and aids intra-household confidentiality. This procedure is being adopted by the FRS and is felt to be appropriate too for the FES.

4. Flexibility to move around

Another feature of the interviews for both these surveys is the need for interviewers to have flexibility to move around the questionnaire, particularly to go back and enter data which was not available earlier in the interview. The requirement that the data be as complete and as accurate as possible means that interviewers encourage respondents to consult documents wherever possible - bank statements, pay slips, rent books etc. But often it is easiest if the respondent goes to find all these documents in one go so the interviewer leaves questions blank until the information is assembled. This may even be on another visit.

The majority of interviewers felt that after some practice in the quiet of their own homes they could easily navigate their way round the questionnaires. An easier way of jumping straight to missing values is required however.

Another possibility is that one respondent leaves the room to find some documents while the interview continues with the other respondent. This is handled by inserting a question for interviewers between blocks asking them to indicate if both respondents are still present. If not only the questions applying to the respondent who is present appear. Again this was fairly successful in the field tests but the number of such interviewer questions has now been reduced to improve the speed of interview.

5. Complex checks

CAPI provides the opportunity to check answers in the interview when respondent and interviewer can sort out problems together. However, with such complex surveys there is a limit to how many checks it is feasible to introduce without overburdening the interview. Moreover, there are some inconsistencies which cannot be resolved; respondents are not always consistent in their answers. We aim, therefore, to include only those checks which can be resolved during the interview and to run other checks after the interview. One possibility is for interviewers to run

some additional checks at home when they have time to think about the problem and to recontact respondents if necessary. Indeed, FES interviewers always call back at responding households at least twice after the initial interview to check diary keeping. A separate 'checking' program for interviewers to run at home between visits, including additional checks and identifying missing values, is being developed for the next FES trial. Part of the development process is to make decisions about the most appropriate place to carry out different checks on the data: in the interview, by interviewers at home, or in the office.

6. Length of interview

Both the FES and the FRS involve very long interviews so it would not be desirable for CAPI to increase the length. This means that the programs must run fast enough that interviewers are not waiting for the next screen to appear. Recent field trials have used a Toshiba T2000, which has a 286 processor and a 20Mb hard disk and runs under DOS 5.0. Interviewers have commented that the introduction of some complex arithmetic checks in recent trials seems to make the interview slow in parts.

7. Keying accuracy

Another concern about the introduction of CAPI was whether the interviewers would be accurate at keying in answers, particularly as so many involve entering amounts of money where it might be easy to enter an incorrect digit without noticing. As well as range checks, signals have been added for implausible answers.

8. Changes to the questionnaire

An important requirement for both surveys is that it should be easy to change the questionnaire instrument and introduce new questions. Both surveys expect major revisions every year and some revisions each quarter, mainly to cope with the effects of changes in benefit rates etc which affect checks if not actual questions.

One advantage we have found of using Blaise is that it is easy for research staff to learn and to write moderately complex questionnaire instruments, although we have found that for complex surveys, like the FES and FRS, small teams of researchers and programmers work best as their skills are complementary.

9. Interviewer notes and comments

Because of the complexity of the information being collected, on the paper survey FES interviewers normally make notes on the questionnaire, both for their own use and to help the coders and editors in the office. It is impossible for the questions to cope with all circumstances and so interviewers make notes when the questions do not allow for a particular situation and expect the office to decide how to handle it. This posed a problem because the facilities for making and retrieving notes were not ideal in the version of Blaise used in field trials so far. Interviewers could open a comment screen at any question and enter free text. This is stored in association with the question. The problem is that interviewers could not then reaccess the comments either to amend them or even to read them. So this facility was no use for notes the interviewer needed to refer to during the interview and she or he had to keep a notebook handy and make notes on paper. The comment facility was only used therefore for notes to the office coders. Even at the office we have found it easier to strip out the comments and print them on paper rather than expecting coders to read the comments on screen.

The new version of Blaise seems to have a much improved commenting facility but this has not yet been tried in the field by OPCS.

10. Conclusion

The two surveys described here are, in some ways, significantly more complex than most others carried out by OPCS. They place considerable demands on respondents and interviewers, yet analysts require high quality and timely results. This made them good candidates for early investigation of the feasibility of converting to CASM, although we did not at first know whether their special features would place too heavy a demand on Blaise. Further development work is planned for the FES, including looking at computer assisted coding for expenditure diaries, and a formal comparison of estimates produced by the two modes. We are hopeful that the FES will switch to CASM by 1995 at the latest. The FRS has already undergone a successful period of development and is about to begin mainstage fieldwork, using Blaise.