

LARGE AND COMPLEX SURVEYS : DISCUSSION

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ABSTRACT

This particular session consists of three papers, each addressing data quality issues associated with a specific large and complex survey. Two of the cases involve household surveys of labour force activity and the third, a business survey. The papers each address the data quality topic from their own particular perspective, but there are some interesting common threads.

KEY WORDS: Data quality; Labour force survey; Coherence.

1. INTRODUCTION

This session, called “Large and Complex Surveys”, is very appropriately titled. It includes three papers, focussing on three very big and exceedingly complex surveys.

Larry Cahoon and Patrick Flanagan, in their paper, provide a succinct overview of the Current Population Survey (CPS), done each month by the U.S. Bureau of the Census to measure employment, unemployment and other characteristics of the labour force population. The survey is enormously important for a wide range of purposes in America. It is undoubtedly one of the highest quality, most technically complex ongoing surveys in the world today.

Exploring the data quality issue from a “total survey perspective”, the paper describes how the survey managers give close, ongoing attention to monitoring, maintaining and improving the accuracy of the survey results. The CPS is a very impressive, high quality survey covering 50,000 households and 130,000 individuals every month and the paper is a brief, well written summary of the survey methodology and the steps taken to ensure accurate results.

Hubert Charlier’s paper focuses on the labour force surveys of the fifteen member states of the European Union, several of which are broadly similar to the CPS, and describes efforts to bring the surveys into a more harmonious relationship so a complete and consistent picture can be developed for the EU as a whole. If Cahoon and Flanagan can be said to take a “total *survey* approach” then Charlier might be said to take a “total *surveys* approach”.

As the paper explains, a unified EU-LFS is compiled on a quarterly basis by putting together the 15 national LFSs conducted by the member countries. The paper assesses the quality of the combined EU-LFS in terms of seven components that together describe the survey’s ability to satisfy user needs: relevance, accuracy, timeliness, accessibility, comparability, coherence and completeness. An EU-LFS of one form or another has existed for over 40 years and this fascinating paper describes its present state of evolution from a statistical quality perspective.

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Unlike the first two papers the Canadian paper, by Jocelyn Tourigny, Stuart Pursey and Patricia Whitridge, looks not at a labour force survey, but at a business survey known as the Unified Enterprise Survey (UES). The UES represents an effort to improve the statistical quality of a large collection of enterprise surveys in Canada by integrating and standardizing their methodologies and questionnaires. Issues addressed in the paper bear a striking resemblance to those discussed in the Charlier paper, despite the very different populations involved.

2. COMMENTS

2.1 Overall

The surveys addressed in the three papers are starkly different. The Cahoon-Flanagan paper is in some ways more limited than the other two, in that it only considers the data accuracy aspect of survey quality, and that for just one survey albeit one that is quite large and sophisticated. Yet all of the authors express or imply a preference for a “total survey” approach to data quality assessment, exploring data quality issues at each stage in the survey-taking process, those stages being: definition of the frame and the population strata; sample selection; preparation of the questionnaire; collection of the data; and transmission, coding, edit, imputation, weighting and processing the data in various ways.

None of the papers pays much attention to the issue of benchmarking and consequent statistical revisions (although it should be acknowledged that the Cahoon-Flanagan paper makes reference to analyses comparing the CPS with decennial census results). Also notable is the lack of any reference in the three papers to the problem of informing users of varying sophistication about data quality, clearly a challenging and important issue.

2.2 Cahoon and Flanagan

The Cahoon-Flanagan paper, presented on their behalf at the Symposium by Karen Deaver, is excellent. One can only be greatly impressed with the CPS methodology as it is outlined in the paper. The survey benefits greatly from over 60 years of practical experience and continuous improvement. The steps taken to train interviewers are particularly impressive. According to the authors, basic interviewer training is followed by specialized home study, classroom training and two days of on-the-job observation. One month later the interviewer does further home study and submits to another day of observation. The month after that the interviewer does further home study and takes a final review test. Home study courses are done every month thereafter and classroom refresher training is provided at six month intervals. How difficult is it for the survey to sustain this ongoing training effort?

Another aspect of special interest is the significant emphasis placed on quality control for industry and occupation coding. With 130,000 individuals covered every month, one supposes the phrases recorded from respondents describing the industries and occupations they work in recur with high frequency. The paper refers briefly to computer assisted coding and one wonders whether computer checks are used to ensure the same phrase reported more than once by the same interviewer, or by different interviewers, is coded consistently across the sample and across time. To what extent, if at all, does coding consistency depend on the memories and coordination of human coding experts rather than computers?

Seemingly every aspect of data accuracy is addressed by Cahoon and Flanagan, in a highly professional and thorough manner. Indeed, one is inclined to ask about the risks of adopting such a complex methodology. Do the survey managers find it difficult to cope with the complexities and their potential interactions? Is the survey perhaps too complex? One is reminded of the Jurassic Park tale. How concerned are the survey managers with “keeping things simple”?

The “fitness for use” philosophy of statistical quality entails several elements: accuracy, relevance, timeliness, accessibility, interpretability, comparability, coherence, completeness. I have no doubt the CPS

scores well on all of these counts. However, the Cahoon-Flanagan paper really focuses almost exclusively on just one of them – accuracy. Would the authors care to comment briefly on the others? What processes and methods do the survey managers adopt to ensure the survey keeps its relevance as needs and circumstances change over time, and how do they assess whether its results are sufficiently accessible, timely and coherent in this modern era of rapid technological and socio-economic change? How do the survey managers trade off the desire to collect special information for very specific purposes against the sometimes conflicting desire to conform with standard industrial, occupational and geographical classification systems, to maintain continuity through time, to align with other survey vehicles in other ways and to adhere to international concepts and standards?

2.3 Charlier

Hubert Charlier from Eurostat has also done a first class job in drafting his paper on the European Union Labour Force Survey. It was presented at the Symposium jointly by Charlier and Anna Frankel. The challenge described, involving the integration of diverse LFS data from 15 member countries into coherent aggregates for the EU region as a whole, is a huge one and the paper shows the task is being done with much care and professionalism. The paper makes it quite evident the EU-LFS has become an essential tool for policy design and implementation.

One rather surprising thing in the paper, to this reviewer at least, is the fact that although member states are allowed 12 weeks after the reference quarter before they must submit their LFS results to Eurostat, most of them are unable to meet this deadline (as shown in the table in section 2.3). Is it not the case that many of the EU states release their results within their own countries a lot more quickly than this? If this is the case, why the need for additional time before transmitting to Eurostat?

To what extent do the individual component surveys benefit from the integration effort? One imagines the process encourages “best practices” to be emulated by other countries. How true is that? Is there, in effect, a natural tendency toward harmonization that proceeds of its own accord?

On the other hand, to what extent are the member states expressing concern at the need to sacrifice customizations that suit local circumstances, and to harm historical continuity, by favouring the adoption of EU-wide standards that support the objective of a well-integrated EU survey?

One wonders what further steps in the direction of greater harmonization might lie in the future. Does the author foresee that at some point in the years to come, for example, the EU sample might be selected in one step by Eurostat, rather than in fifteen independent steps by the member states? The paper mentions that a common questionnaire would be a considerable improvement. How much scope is there, realistically, for greater harmonization of the survey questionnaires? Is there any chance that, say, within the next 5-10 years Eurostat interviewers will collect the data?

2.4 Tourigny, Pursey and Whitridge

The Tourigny, Pursey and Whitridge paper describes Statistics Canada’s efforts over the past five years to integrate its annual enterprise surveys within a framework known as the Unified Enterprise Survey or UES. The paper outlines the origins of the UES and its evolution through time, and goes on to discuss the approach taken to quality assessment and management. It describes a great number of areas where quality improvements have been implemented and outlines the means by which data quality is assessed.

The UES harmonization goals represent quite an ambitious agenda really. Approximately 100 annual surveys are involved, each with its own history, traditions, clientele, questionnaires and methodologies.

The quality assessment process for UES, like that described in the other two papers, is a very thorough “total survey approach”. It puts significantly more emphasis on nonsampling errors than on sampling errors,

yet it is quite difficult if not impossible to quantify the bias and variance introduced by these errors. Would the authors care to comment on how the UES survey managers have coped with this problem? How have they developed a “total survey” assessment of data quality for users when the different aspects examined are so different and so difficult to quantify?

3. CONCLUSIONS

The subject of data quality assessment is a wide-ranging one and it is difficult if not impossible to do justice to all of its various facets in a single conference paper. The authors of the three papers presented at this session simply could not address all related issues and had to make some difficult choices. That said, it is unfortunate none of the papers gave more priority to the matters of survey benchmarking and data revision, two closely related topics that bear directly on data quality measurement. This reviewer also regretted that the three papers did not focus more directly on some of the key tradeoffs involved in managing data quality, such as the one between survey standardization and harmonization on the one hand and survey customization and specialization on the other.

Overall, the three papers are very well done. Together they make a fascinating set, with interesting commonalities and contrasts. I congratulate the authors and presenters for their fine work.

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