THE UNIFIED ENTERPRISE SURVEY
ITS APPROACH TO QUALITY

Jocelyn Tourigny, Stuart Pursey and Patricia Whitridge[1]

ABSTRACT

This paper discusses the approach that Statistics Canada has taken to improve the quality of annual business surveys through their integration in the Unified Enterprise Survey (UES). The primary objective of the UES is to measure the final annual sales of goods and services accurately by province, in sufficient detail and in a timely manner.

This paper describes the methodological approaches that the UES has used to improve financial and commodity data quality in four broad areas. They are: improved coherence of the data collected from different levels of the enterprise; better coverage of industries; better depth of information, in the sense of more content detail and estimates for more detailed domains; and better consistency of the concepts and methods across industries. The approach, in achieving quality, has been (a) to establish a base measure of the quality of the business survey program before the UES; (b) to measure the annual data quality of the UES; and (c) to do specific studies to better understand the quality of UES data and methods.

KEY WORDS: Data quality; Annual business survey; Evaluation

1. THE PROJECT TO IMPROVE PROVINCIAL ECONOMIC STATISTICS (PIPES)

1.1 Background to PIPES

In October 1996, the Governments of Canada, Nova Scotia, New Brunswick, and Newfoundland and Labrador agreed to combine their sales taxes into a single tax. The Harmonized Sales Tax (HST), which took effect on April 1, 1997, has a common base and a rate of 15% of which 8% is attributable to the provinces and 7% to the federal government. The Revenues from the HST are collected by the Canada Customs and Revenue Agency and divided among the four governments according to a specified revenue allocation formula. The formula calculations approximate the net HST revenues collected in each province. The tax base is decomposed into four elements, of which the largest by far are consumer spending and residential housing expenditures (the other two are business intermediate outlays and purchases of public sector bodies, together accounting for about 15% of the total). Information from Statistics Canada's system of provincial income and expenditure accounts is used to estimate the size of these bases. Taxable proportions by commodity group, tax rates and aggregate calibration factor are applied to these bases yielding estimated revenues for each province. Actual revenues collected are distributed among the three provincial governments based on the estimated revenue shares.

In 1996, Statistics Canada's system of provincial accounts was far from ideal as a base for these calculations, but an alternative approach would have been to set up an unacceptably burdensome and costly administrative process. Every business in the affected region would have had to record, for every purchase and sale, the type of commodity, the province of origin or destination, and the type of customer (e.g., government, business, individual). Instead, as part of the agreement, Statistics Canada received funds to

---

[1] Jocelyn Tourigny, Stuart Pursey, Patricia Whitridge, Statistics Canada, RH Coats Building 11th floor, Ottawa, Ontario, Canada, K1A 0T6

make permanent improvements to the accounts that are needed to support the allocation. This provided the basis for the Project to Improve Provincial Economic Statistics (PIPES).

The primary objective of PIPES is to measure final sales of goods and services accurately on an annual basis, by province, in sufficient detail and in a timely manner while working within established budget constraints and imposing minimal burden on survey respondents. The required information is produced by a combination of much improved annual business surveys, an annual survey of household spending (SHS) with a sample size almost twice that of previous surveys, an annual survey of residential repairs and renovations (HRRS), an annual Canadian travel survey that will measure inter-provincial travel expenditures and, finally, information that can be derived from the judicious use of administrative data. To produce stable and accurate estimates of the value of final sales of goods and services, there is simultaneous assessment of each separate piece of information against all available data in the framework of a very detailed set of accounting entries - the Provincial Input-Output Tables. The detailed industry and commodity statistics from these accounts serve as benchmark data for the Provincial Income and Expenditure Accounts used by the HST allocation.

The remainder of this paper will concentrate on the annual business statistics program.

1.2 Unified Enterprise Survey (UES)

In general, the business statistics program offers a supply-side (as opposed to demand-side) view of the economy in building the Provincial Input-Output Tables although in practice the business program also measures intermediate demands which require both supply and demand data acquisition. In 1996, the existing model for the business statistics program involved the application of over 700 distinct questionnaires within a framework of some 200 distinct business surveys (of which about 100 are annual surveys). Each survey had its own sample design and selection process, its own processing and database systems, its own survey management and analysis staff and in some cases, its own separately managed survey frame. The program was not particularly integrated and suffered from inconsistencies between surveys and duplication in questionnaires: this integration is particularly important for the System of National Accounts.

However, early in the planning process for PIPES, it was identified that improvements in business data quality were needed in four broad areas: coherence, coverage, depth and consistency.

> *Coherence* refers to the need that data collected from establishments and data collected from their parent enterprise be internally consistent, comprehensive and not duplicated.

> *Coverage* here refers to the comprehensiveness of statistical information in terms of the absence of important gaps for particular industrial sectors and the completeness of coverage of business activity.

> *Depth* relates to the size of survey samples and the number of data elements (in terms of commodities and industry detail) measured for particular industrial sectors.

> Finally, *consistency* refers to uniformity in the use of concepts, standards, statistical units, methodology and terminology.

These improvements are easier to achieve with an integrated approach. This led to the planning and development of the **Unified Enterprise Survey (UES), a survey program that would embody a unified and integrated set of annual business surveys**. UES applied a new common approach to annual business survey taking. Starting with the reference year 1997, seven new annual surveys (called UES pilot surveys) used the common approach and each year new or important existing surveys were added. By the reference year 2000, 26 establishment-based surveys and one enterprise-based survey were integrated. They cover between 65% and 70% of the Canadian economic activity. Many of the other annual surveys have already

adopted an approach similar to UES. In addition, as they are redesigned, the monthly and quarterly business surveys will adopt some of the UES approaches to make them more consistent with their annual counterparts.

2. IMPROVING THE QUALITY

In this section we will outline how the development of the UES improved coherence, coverage, depth and consistency and now meets the main UES objective of producing better annual provincial economic estimates. Note that each approach mentioned can be applicable to more than one objective and in some cases to all four objectives.

2.1 Coherence

The business world is comprised of businesses and their component organizational units (head office, branches, divisions, plants/locations). Businesses must provide information such as total assets, liabilities, revenues, expenditures and net profit for their shareholders/owners, the Canada Customs and Revenue Agency (CCRA) and often for Statistics Canada business surveys.

A standardized statistical view of the operating structure of a business has been developed by Statistics Canada. The view is a hierarchy of four levels (enterprise, company, establishment and location) of which the first and the third level are of interest to the UES. When a business has only one unit, then the unit represents all four levels of the statistical hierarchy. When a business has more than one unit and is not part of a larger organization, the business becomes the enterprise and the company, and the units or clusters of units become establishments. If the business is part of a larger organization, the larger organization becomes the enterprise (also called later on "multi-legal enterprise"), the business is the company, and the units or clusters of units are the establishments.

C*oherence* refers to the need that the sum of data collected from establishments and data collected from their parent enterprise be comprehensive, internally consistent and not duplicative or with gaps.

Coherence requires an exhaustive profiling of the legal entity's statistical units including the identification of "ancillary" units such as head office, warehouses and transportation units that are not usually included in establishment-based surveys. Under the UES, data are also collected for these "ancillary" units and then allocated in a consistent manner to the province and industry where the unit is located, with a corresponding expense imputation made against the establishments served by these units.

Coherence requires that the establishment, when responding to the survey, does not include data for another establishment. For achieving internal consistency, data collected from different units within the enterprise must have a common fiscal year definition, and accounting concepts must be applied consistently. In addition, some co-ordination during survey processing is required in particular for the treatment of partial or total non-response for a unit.

In addition to managing respondent relations and respondent burden, the Key Provider Manager program was created to help coherence. Key Provider Managers look after a small number of large and complex enterprises. They are their official point of contact for communications to and from Statistics Canada. They ensure that the data collected from the enterprises in their portfolios can be treated as a set of coherent and interrelated data. With the help of analysts they also carry out coherence analysis to identify problems and potential solutions.

Large enterprises unable or unwilling to provide detailed establishment-level data are asked to provide more aggregate information (for province-industry groupings, or in some cases just one set of numbers for the enterprise as a whole) along with a few establishment allocators. Statistics Canada staff define appropriate

collection units and allocate the collection units totals among establishments on behalf of the enterprise, so that full industry-by-province estimates can be compiled.

2.2 Coverage

As mentioned above, *coverage* refers to the comprehensiveness of statistical information in terms of the absence of important gaps for particular industrial sectors and the completeness of coverage of business activity. All industries as defined in the **new** (1997) North American Industrial Classification System (NAICS) must be included. All business enterprises whether large or small must be part of the business universe because the scope of the system of provincial accounts and input-output tables is the entire economy. The coverage of complex enterprises must be comprehensive and not duplicative.

Achieving full coverage required improvement to the Business Register (BR) and eliminating the gaps in the annual business survey program.

2.2.1   A much improved and effective Business Register (BR)

Before PIPES, the Business Register (BR) covered approximately 1 million businesses with employees and was updated using only payroll remittance records maintained by Canada Customs and Revenue Agency (CCRA). Today, for completeness, the Register holds information on an additional 1 million non-employer enterprises and is updated from a broad array of CCRA administrative data, such as the Corporate Income Tax filings and the Goods and Services Tax remittances. Some very small companies are omitted, but the BR is now a much more effective tool, particularly for surveys in the construction and the services sector, which are dominated by firms of moderate size.

The BR was also reconciled and merged with specialized business survey frames maintained by some survey taking divisions: this greatly improved the profiling of large and complex enterprises and allowed the addition of new codes on the BR (e.g. Country of control code, profit/non-profit indicator, complexity flag, etc). The BR's industrial classification codes have been converted from the old Standard Industrial Classification to NAICS and work is well underway to upgrade the procedures and systems, both automated and manual, that maintain up-to-date classification codes.

With more than 70 annual, quarterly and monthly surveys now working directly off the register, a large and continuous volume of survey feedback helps keep the database current. In particular, the UES collects information on provincial breakdown of production or sales for establishments of large enterprises: this helps validate the Business Register profiles of enterprises. Increased resources are being devoted to maintaining the structural profiles of the large enterprises, to improving the linkage information used to relate data from different administrative and survey sources, and to providing a measure of the relative sizes of businesses for sample stratification purposes.

2.2.2   Eliminating the gaps in the annual business survey program

Under the UES umbrella, new annual establishment-based surveys were initiated to cover gaps in the business statistics program. These included a survey of the construction industry, a survey of the aquaculture industry, surveys of selected transportation industries (couriers and local messengers; taxis and limousines), surveys of selected services industries (food services and drinking places; real estate agents and brokers; lessors of real estate; accounting, tax preparation and bookkeeping services; newspaper, database and speciality publishers services; employment placement services; testing laboratories; geomatics services; specialized design services; telecommunications services; and testing laboratories services) and a survey of a selected financial industry (banking and insurance).

In order to reduce response burden, the survey of the construction industry and the surveys of selected transportation industries are carried out every three years. In the intervening years, tax data are used.

UES brought in, as establishment-based surveys, existing and major annual surveys such as those covering wholesale trade, retail trade and manufacturing/forestry. The program covers over two-thirds of the establishments and four-fifths of the production measured in terms of sales or revenues of the entire economy.

A new annual financial survey of incorporated enterprises was developed. Its main purpose is to provide a measure of profit by industrial sector (to derive the margins of profit used by the Provincial Input-Output tables) and the movement of financial assets. It also collects revenue and expense data. The survey has evolved since 1997. At origin, it was an annual survey of incorporated enterprises. Now it uses the collected data of a redesigned Quarterly Financial Survey (QFS) and complements these data with tax data from income statements and balance sheets. The redesigned QFS uses the Business Register as its sampling frame and systematically includes in its sample large multi-legal enterprises where tax data available at the company level only are difficult to consolidate at the enterprise level. The QFS data are annualized and aggregated by NAICS group and province; with a sample of 5500 enterprises, the QFS portion of the survey covers 89% of the profits and assets, and 70% of the revenues and expenses generated by Canadian corporations.

2.3 Depth

Depth relates to the number of data elements (in terms of industry detail and commodities) measured for particular industrial sectors and the size of survey samples. Each industry and province requires sufficient sample size. Of particular importance was to achieve estimates that had similar reliability across provinces and territories. This was to be accomplished while recognizing and being sensitive to the response burden that survey-taking imposes on businesses.

2.3.1 Greater detail of information

Each survey under the UES has attempted to get more data elements in the sub-categories of revenue, expenses and inventories. But this attempt has been restricted to large enterprises and their establishments that have the capacity to report. For the smaller enterprises, detailed breakdowns will be obtained from tax data. Also, only large enterprises were asked to provide information about the class of customer.

Details of commodities sold, inter-provincial trade, and purchases of business service inputs are regularly collected by the Annual Survey of Manufacturers. Similar commodity information is collected every 3 years for the Annual Survey of Wholesalers and on an irregular basis for the other UES surveys.

2.3.2 Sufficient sample size for equally reliable estimates across provinces and territories as well as accurate industry estimates

One major characteristic of the UES is that the samples for its many component surveys are chosen in an integrated manner. The advantage is a more flexible, efficient and robust design that can enforce consistency of concepts and reduce response burden.

The sample design strategy uses the Business Register as its frame and the statistical establishment as the building block for the sampling unit. The design concentrates on obtaining the fullest possible survey coverage for the large and complex enterprises while moderating sample sizes for the other businesses. In particular, the smallest businesses are not surveyed. That is, for each province and sub-industrial sector, a revenue value is calculated such that less than 5% of the combined revenues of very small businesses is excluded from the main survey design: in most industrial sectors more than 50% of the businesses are not surveyed. For these smallest businesses, estimates will be produced using tax data to avoid imposing the response burden.

The main survey design ensures roughly equivalent statistical quality overall for each province and territory. In other words, the survey estimates for a given province may have higher coefficients of variation for one

industry and lower coefficients of variation for another (depending on the importance of the given industry in the provincial and Canadian economy), but the aggregate, all-industries-provincial estimates have roughly equal coefficients of variation. The sample design also controls the precision of intermediate level estimates such as industry (all Canada) level. There is a review by individual survey managers of the precision of each sub-industry, provincial estimate and in a limited number of cases, the sample size is increased to get more precision for a specific sub-industry by provincial estimate.

2.3.3   Estimates for the small business universe using administrative data

As mentioned above, administrative data are used for the smallest businesses on the Business Register. If the business is a corporation, we can easily obtain its information from the CCRA corporation electronic data reporting program, which collects income statements and balance sheets for all corporations in accordance with the "General Index of Financial Information (GIFI)". If the business is not incorporated, the data acquisition requires more expensive clerical processes such as the interception of a particular individual's tax record and the capture of specific data items. Given the resources required to obtain the information for all small businesses, a representative sample of these businesses is selected and estimates at the level required by UES are produced.

While over 2 million unincorporated businesses are too small to be on the Business Register, they may be important for a specific industrial class and province. Given that no industrial and geographical classification is available for these businesses, a general sample is selected for the acquisition of tax data. The collected data are assigned to industrial and provincial codes and tax estimates are produced.

2.4 Consistency

Consistency refers to uniformity in the use of concepts, standards, statistical units, methodology and terminology. In order for statistical information to be reliably compared across industries, commodities or provinces, consistency of this kind is indispensable. It advocates the use of a unified set of statistical units, concepts and definitions, questionnaires, survey methodology strategies, and data capture and processing procedures for all industries and provinces. Consistency helps reduce non-sampling errors and is achieved through the organisation of the work, staff training and the integration of survey methods and approaches.

2.4.1   Organization of the work

The UES uses a matrix management approach for developing and managing the survey. This involved the addition of new elements to the existing line management structure. One element was the creation of the Project Management Team (PMT) composed of directors of all the divisions involved: the PMT is in charge of the budgeting, planning and co-ordination. One other element was the creation of the Enterprise Statistics Division (ESD) which became the central point for UES production: the division co-ordinates the questionnaire development, the data collection and the development of analytical tools while being responsible for the data processing, data storage and some analysis. ESD members are active in all multi-disciplinary teams that coordinate the diverse aspects of the UES.

The UES, due to its large scope, has had to hire a large number of staff. The challenge of training such a large number of new staff was met by the development of a 10 weeklong training course covering all aspects of a business survey. This helps reinforce the consistency objective.

2.4.2   Integration of survey methods and approaches

2.4.2.1 Common concepts and definitions in UES Questionnaires

Historically each business survey had the capability to define its own concepts and definitions. UES has developed a harmonization process that has led to questionnaires still developed by survey managers but

with communality of concepts, classifications and definitions. UES has aimed at adopting the concepts of the System of National Accounts while still meeting the needs of business associations and other clients.

The questionnaire harmonization process requires that a questionnaire be formally approved by subject-matter divisions participating in UES and ESD. This is a useful check and balance for the questionnaire content: it can point to inconsistencies, overlap and duplications between surveys. As a result the questionnaire is more thorough, less prone to error and avoids imposing unnecessary response burden.

2.4.2.2 Use of the Business Register as the sampling frame

All UES surveys use the Business Register in order to ensure consistent statistical unit definitions for statistical enterprise, statistical establishment and statistical location. The Business Register provides common information to define the complexity of the enterprise, and the size of the enterprise and each of its establishments. The use of the BR ensures comprehensive and non-duplicative coverage and greatly facilitates the monitoring and control of respondent burden.

2.4.2.3 Integrated sampling plan for all UES annual surveys

As mentioned before, all UES annual establishment-based surveys fall under the same sampling plan. Sampling concepts such as large enterprises, enterprises excluded from the main sampling design, sampling unit (cluster of establishments) and network sampling are applied uniformly to the surveys under UES and many non-UES annual establishment-based surveys that use the same sampling frame.

2.4.2.4 UES Data Processing

Similar collection, edit, imputation, allocation, calendarization and estimation methodologies and procedures are applied to all surveys within the UES framework. Survey data are stored at different stages of the survey in a common database; specific software tools are available for queries to the database, corrections, tabulations and analysis. This more uniform approach to business survey-taking yields much more complete, non-duplicative and consistent data.

3. MEASURING THE QUALITY

Due to its scope and importance, UES has funded from the start a Data Quality Unit. The unit's mandate is to measure the global progress towards the objectives of coherence, coverage, depth and consistency. The unit has been involved in broadly measuring the quality of the business surveys at Statistics Canada (the Data Quality Survey) and specifically measuring the quality of each UES survey. It worked on standardizing the data quality summaries for the release of survey estimates and participated in special studies on specific methods used: looking at what happened in the past to better plan for the future.

3.1 The Data Quality Survey

The **Data Quality Survey** was developed for monitoring and measuring the continuing improvement in the quality of all annual business surveys at Statistics Canada. The results of the Data Quality Survey are used for the planning and the evaluation of the overall annual business survey program and to identify areas where surveys should be improved. The survey provides consistent information that helps improve the Provincial Income and Expenditure Accounts. The first annual survey (the baseline survey) was held for the reference year 1996 and the most current was held for the reference year 2000: it covers over 90 annual surveys.

The Data Quality Survey collects information from survey managers about major factors that constitute a business survey at Statistics Canada. These factors include:
  i)   the production of estimates for each province/territory with roughly equal quality;
  ii)   the use of the NAICS industrial classification and the Standard Geographical Classification;

iii)   the testing of questionnaires;
iv)   the use of the Business Register as the sampling frame and of the enterprise or establishment as sampling unit;
v)   the detail of industrial and geographic stratification in the sample design;
vi)   the use of the thresholds to exempt the smallest businesses from being surveyed and the use of probabilistic sampling;
vii)   the use of administrative (tax) data for covering the populations or sub-populations not surveyed;
viii)   the use of generalized tools for collection, data capture and collection edits;
ix)   the use of Statistics Canada generalized systems for sample selection, edit and imputation and estimation; as well as the use of techniques that detect and treat outliers, that calibrate and calendarize the estimates; and
x)   the measurement of basic quality indicators for inclusion in a Data Quality Statement to be released with the estimates.

In 1996 (Bunko, 1999), elements of these factors were present in many of the annual business surveys, in particular those surveys most important to the National System of Accounts, but improvements were needed. By 2000 (Pursey, 2002), the annual business surveys had migrated into two major groups of surveys. One group, quite unchanged in approaches since 1996, contains the surveys of very small populations. For these surveys it is quite typical for a survey manager to be involved in managing all survey processes. Perhaps the Business Register, standard classifications, administrative data, and a sample design are used, but often they are not. Sometimes the survey manager uses a list of businesses to survey from a source that is not the Business Register. Each business on the list is surveyed by mail or telephone with the help of the manager's staff and the survey manager processes the data (doing edit and imputation as required) and releases the estimates to users. Although the characteristics of these surveys usually do not follow the desired factors described above, the surveys are nonetheless effective. That is, the methods used by the survey managers meet the challenges faced in estimating for a particular population. These surveys account for only a small portion of the Canadian economy, even though they number about half of the annual business surveys at Statistics Canada.

The second group of surveys covers more than 80% of the Canadian economy, and their population sizes are often large. The challenges in estimating these populations are more complex. The 2000 Data Quality Survey reveals that since 1996 the methods of these surveys have improved immensely. One reason is that many of these surveys have been integrated under the Unified Enterprise Survey Program (of notice, the recent integration of the Annual Survey of Manufacturers, the Annual Financial Survey (also known as Part 1 Survey (IOFD)) and Service Industry Surveys. Another reason is that managers, when designing or redesigning their surveys, were encouraged to adopt the new factors mentioned above. For this group, most of the factors are met.

The Data Quality Survey also highlighted that few surveys use calendarization techniques to modify an estimate so that it more closely matches the reference year of the survey. Quality measurements like under/over coverage rate are often missing from the Data Quality Statements.

For the coming reference year, much of the information collected by the Data Quality Survey will be collected for the new Statistics Canada Integrated Meta Data Base (IMDB). It will then be the responsibility of the Data Quality Unit to extract and analyse the IMDB data and collect the additional information required.

3.2 Data Quality Evaluation of the 1997 UES Pilot surveys

The **Data Quality of the 1997 Unified Enterprise Survey (UES) Pilot** (Pursey, 2000) closely follows the Statistics Canada Policy on Informing Users of Data Quality and Methodology (Statistics Canada, 2000). The report is an in-depth analysis of the quality of methods and data of the evolving UES approach. This evaluation of the initial seven UES surveys is one of the first to use the concept of "fitness for use" and its

six operational elements (relevance, accuracy, timeliness, accessibility, interpretability and consistency) developed by Statistics Canada to evaluate survey estimates (Statistics Canada, 1998).

3.3 Data Quality Summaries

The summaries provide a summary of data quality measures for UES surveys to help prepare the mandatory Data Quality Statements for data users and for use in drawing basic conclusions about the data quality of the UES surveys. The main components of these summaries are:
- Rates of response (complete response, partial response, non-response, refusal, and out-of-scope),
- Impact of data processing (reported data, edited data, imputed data) by percentage of records and percentage impact on the estimate of major variables,
- Impact of allocation of data of an enterprise to its establishments, and
- The coefficients of variation of the estimates classified into broad categories.

The production of the data quality summaries is an on-going task. As well, there is an experimental intranet site where analysts can easily access the data quality summary information as it is compiled.

3.4 Follow-up studies related to the Data Quality Survey

These are specific across-survey quality issues that cannot be assessed by the individual survey managers. Examples of studies addressed by the Data Quality Unit include the measurement of the improved overall coverage of business surveys, the measurement of industry misclassifications within the UES surveys and the analysis of the impact of the UES collection follow-up on response.

4. THE FUTURE – CONTINUING QUALITY CHALLENGES

The Unified Enterprise Survey implemented and put in place mechanisms to monitor the objectives of coherence, coverage, depth and consistency. In the immediate future we want to address the following 3 issues.

4.1 Timeliness

Releasing estimates in a timely fashion has become an issue both for the regular release of industry estimates and for the release of the input-output tables and the provincial accounts. A challenging release target has been set for the reference year 2001: for most of the surveys under UES, the release date should be less than 15 months after the end of the reference year. This new target has implications at all steps of the survey process and associated processes like tax data acquisition. Each process will have to become more efficient and compromises that should minimise impact on quality must be put in place to meet the deadline. It will be the job of the Data Quality Unit to monitor these impacts.

4.2 Continuing to address coherence of enterprise and establishment data

The activities required to ensure data coherence for enterprise and establishment data must be performed on a regular basis. The coherence process includes assembling the data, reconciling frame and conceptual inconsistencies, analysis, data correction (if required), frame updates, fine tuning the collection and/or processing system and then starting all over again. Unfortunately, once the data are coherent there is nothing to ensure that they will remain coherent.

4.3 Continuous quality improvement

Due to the size of the survey, the annual periodicity and the time required to conduct UES, it is presently difficult to react to new quality situations and incorporate the solution into the following survey cycle. The challenge is to develop a coordinated monitoring of all quality aspects of UES, to put in place working

groups that will develop timely solutions and to ensure that quality is a high priority of each survey process manager.

Continuous quality improvement requires an understanding of the goals of the UES and deriving excellent information about our efforts (strengths and weaknesses) in meeting the goals. This means taking advantage of good and timely measurement tools such as the Data Quality Summaries and the Data Quality Survey. Next we need to communicate these "measurements" and finally we need to get feedback from our "clients" inside and outside Statistics Canada and from our respondents so that we can make adjustments to our approaches.

REFERENCES

Beelen, G., F. Hardy and D. Royce (1997), "An Overview of The Project to Improve Provincial Economic Statistics", *PIPES Technical Series Report #5*

Bunko, E. (1999), "Data Quality Survey 1996 ", *PIPES Technical Series Report #43*

Gaudreau, M. and Hughes, J. (2000), "The Challenge of Collecting Quality Data from Large Enterprises: Lessons learned from the Key Provider Manager Approach" presented at ICES-II in Buffalo, New York, on June 19, 2001, *PIPES Technical Series Report #64*

Pursey, S. (2000), "The Data Quality of the 1997 Unified Enterprise Survey (UES) Pilot", *PIPES Technical Series Report #50*

Pursey, S. (2002), "Data Quality Survey 2000", *Statistics Canada internal report*

Royce, D. (1998), "Paper on the Project to Improve Provincial Economic Statistics from the Joint IASS/IAOS Conference", *PIPES Technical Series Report #27*

Smith, P. (1997), "The Central Goals of PIPES", *PIPES Technical Series Report #13*

Smith, P. (1997), "Challenges Involved in Using Tax Data for Statistical Purposes", *PIPES Technical Series Report #68*

Statistics Canada (1998), "Quality Guidelines, 3rd Edition", *Statistics Canada Publication no.12-539-X1E* (available free at www.statcan.ca)

Statistics Canada(2000), "Policy on Informing Users of Data Quality and Methodology", *Section 2.3 of the Statistics Canada Policy Manual*

Whitridge P. and S. Pursey (2000), "A Quality Approach to Business Surveys", *Proceedings of ICES-II, Buffalo, New York*