

# **USE OF TAX DATA IN THE UNIFIED ENTERPRISE SURVEY (UES)**

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## 1. Introduction

Statistics Canada's approach to gathering and disseminating economic data has developed over several decades into a highly integrated system for collection and estimation that feeds the framework of the Canadian System of National Accounts.

The key to this approach was creation of the Unified Enterprise Survey, the goal of which was to improve the consistency, coherence, breadth and depth of business survey data.

The UES did so by bringing many of Statistics Canada's individual annual business surveys under a common framework. This framework included a single survey frame, a sample design framework, conceptual harmonization of survey content, means of using relevant administrative data, common data collection, processing and analysis tools, and a common data warehouse.

The UES has been implemented gradually since 1997 when a limited number of industries participated in a pilot test. The first full UES, conducted for the reference year 1998, involved an expanded number of industries, including the wholesale industry.

Currently, the program provides detailed annual financial and other data (such as commodities) for about three-quarters of the Canadian economy, including many service industries, wholesale, retail, manufacturing, some transportation industries and aquaculture.

This paper outlines the integrated framework used in designing the Unified Enterprise survey. The paper also describes the central frame used to design and draw samples for survey and how the tax data is used at different stages of the project. It concludes with a look at future challenges.

## 2. The Unified Enterprise Survey

### 2.1 Overview: An integrated approach to economic survey

Statistics Canada's integrated approach to economic surveys was established in the late 1990s. At that time, the Agency redesigned its entire framework for conducting annual business surveys. The goal was to integrate all business surveys into a single master survey program called the Unified Enterprise Survey (UES). For more information on the integrated approach please consult (Brodeur et al 2006).

The UES was created to achieve a number of objectives as part of the Project to Improve Provincial Economic Statistics (PIPES) (Statistics Canada 1997). Its general goal was to improve the consistency, coherence, breadth and depth of the business survey data.

The UES was designed to collect more industry and commodity detail at the provincial level than was previously possible while, at the same time, trying to avoid overlap among different survey questionnaires. The UES covers all the major industries in Canada: manufacturing, wholesale, retail and services. Some small industries, such as aquaculture and couriers, are also surveyed.

The unified survey covers close to two-thirds of gross business income. The analysis and dissemination of Statistics Canada's business surveys are the responsibility of different program areas, such as distributive trades, services, transportation and manufacturing, while the data processing is done centrally.

A vast program, the UES includes the collection of both enterprise-based and establishment-based statistics. Only the establishment portion is described in this paper. For details about the enterprise portion, please consult (Brodeur et al 2006).

Enterprise Statistics Division (ESD) was created as a central area charged with managing and coordinating all establishment-based UES activities. It is a highly integrated and interdependent approach to conducting business surveys, involving many service area partners. This division coordinates the work of partner divisions, including that of the business register, centralized collection services, operations research and development, methodology services, tax data and standards.

The UES strategy emphasizes a centralized approach that concentrates many operational activities within Enterprise Statistics Division. This allows subject matter areas to focus on data validation, analysis and subject matter specific research. This approach has allowed Statistics Canada to achieve a much more robust annual statistics program compared with what existed before PIPES.

Nevertheless, the constantly changing environment of business surveys dictates a need for further improvements in our survey programs. These must take into account the new ways in which businesses are organizing and operating in the global economy (new business models); financial pressures within Statistics Canada; and increased reliance and consequently response burden on large businesses. An integrated (unified) approach to business surveys is becoming more essential to help understand and resolve these issues.

The UES integrated principles include:

- **Frame/sampling and coverage:** Using a single unduplicated frame, a common sample design and an enterprise-centric approach to ensure full unduplicated coverage of all establishments; focusing on large complex enterprises for profiling and survey samples; using tax data for smaller simple enterprises; expanding coverage of business surveys to include all sectors of the economy; and obtaining sample sizes appropriate for the production of provincial estimates by industry.
- **Content and collection:** Using common concepts, terminology and classifications (standards); eliminating duplicate data requests through a strategy centered on enterprises and on questionnaires with a common look and feel; using the Enterprise Portfolio Manager program for most important businesses; and using electronic data collection and integrated data collection options.
- **Processing and post-collection:** Using common generic processing systems and methods (common edit and imputation methodologies); using a centralized UES warehouse for data storage, processing and analytical purposes; and allocating head office expenditures to production units and enterprise-level survey responses to establishments to accurately measure value-added by industry and by province.
- **Outputs:** Providing timely, detailed and reliable economic data; allowing the production of provincial input-output tables, while imposing minimal burden on respondents; eliminating incoherence between the establishment data and enterprise data; and facilitating analysis through the use of common analytical software and the wealth of data stored in the UES warehouse.

## 2.2 Role of the ESD: Orchestrating subject matter clients and partners

The UES program is managed in a matrix environment through a number of strategic and operational committees. Partner divisions provide methodological services as well as frame, standards, collection and application development services.

The role of Enterprise Statistics Division is to collaboratively orchestrate this group of subject matter clients and partners. It plans, manages and processes the UES to meet operational and strategic objectives.

The division is also responsible for providing core UES-related services associated with several functions: content harmonization and preparation of mail-out materials; collection monitoring and budget management; respondent relations (complaint resolution); processing of collected data; development and maintenance of the centralized UES data warehouse and associated tools; and the monitoring and assurance of overall data quality.

Through the division, the best ideas and practices from all UES survey managers are incorporated in the standard UES systems used by all participating divisions. Using these generalized systems across all UES surveys reduces development and maintenance costs and maintains a constantly improving and flexible processing system for the UES.

These functions are essential to meeting UES objectives and are not replicated in other divisions. Beyond the UES, the division provides corporate respondent relations services across all Statistics Canada business surveys, including survey complaint resolution and the Enterprise Portfolio Manager program for large, complex businesses.

Many surveys are conducted within a program framework. As a result, an efficient procedure for providing frames for individual surveys is to maintain a multi-purpose frame database that meets each survey's needs. This database is called the 'Business Register.'

### **3. The Business Register**

#### **3.1 'Backbone' of more than 90 surveys**

The Canadian approach to economic surveys is based on a central frame developed and maintained at Statistics Canada called the Business Register. The register (Cuthill 1990) was developed in the 1980s as part of a larger initiative to create generic tools and frameworks for conducting business surveys.

The register is now the backbone of more than 90 surveys. It is managed by the Business Register Division, a central division that provides services to survey program areas. The register consists of a suite of files, programs and processes that interface with businesses through direct profiling, survey responses and feedback and, indirectly, through administrative files such as taxation files.

The register is a list of businesses engaged in the production of goods and services. Among them are both incorporated and unincorporated businesses, except some smaller entities.<sup>1</sup> It covers all sectors of the Canadian economy: commercial, non-profit, religious, government or institutional activities.

Since businesses can vary in structure and complexity, there is a need to define a standard set of rules to adequately measure production units. Once the structure is established, various pieces of information can be maintained. The register includes identification, location, contact information, organization, classification (NAICS) and basic information, such as the number of employees and gross business income.

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1. Excluded are unincorporated businesses with no employees and with taxable sales lower than \$30,000.

### 3.2 Structure

Enterprise and establishment levels are the main concepts used for conducting business surveys. Based on these, enterprises are categorized as complex or simple in structure. Complex enterprises are comprised of multiple establishments operating in different industries (NAICS 4).

Conversely, simple enterprises are those with a single establishment or with multiple establishments all involved in the same activities (NAICS 4).

	<b>Number of enterprises</b>	<b>Number of establishments</b>	<b>Percentage of revenue</b>
Complex enterprises	21,000	115,000	62
Single establishment enterprises	2,240,000		38

#### **Legal structure**

To be created, a business needs a legal status, which implies a legal structure. Such a structure enables the business to communicate with government organizations such as Canada Revenue Agency (CRA), the national taxation agency.

Each year, businesses<sup>2</sup> must communicate with the CRA using a unique business number to report their income tax statement, to declare taxes collected as well as payroll deductions.

These reports from the CRA are transferred to Statistics Canada under agreements, and constitute the basis of the updating signals for the Business Register. The legal structure is maintained on the register.

#### **Operational structure**

Businesses manage and organize themselves differently in their daily operations than for their legal operations. Their structure depends on management methods related to various business lines, as well as accounting practices.

For instance, a single legal entity may be operating several plants and may own both wholesale and retail companies. These may all be under only one legal entity, but the operational structure could have two or more organizational and production units.

Usually,<sup>3</sup> to be part of the register, an operational unit should have employees, material and a manager and it should be recognized as an accounting unit. The type of accounting unit forms the basis of the operational structure on the Business Register. There are five types:

- **Investment centre:** responsible for accounting, which provides profits and investments.
- **Profit centre:** responsible for specific revenues and costs.
- **Cost recovery centre:** responsible for recovering its costs by charging them to other centres for goods and services provided.

2. Some self-employed companies are not required to have a BN.

3. There are exceptions; for example, an operational unit may not directly have employees but could share them with other units.

- **Cost centre:** unit for which costs are identified for management purposes.
- **Revenue centre:** responsible for generating revenues.<sup>4</sup>

The operational structure depends totally on business cycles and management decisions. As a result, the concepts intended to be measured by surveys may not be in line with the operational structure, hence the need for standard definitions of enterprise and production unit.

### **Statistical structure**

For sampling purposes, it is extremely desirable to have homogeneous units in order to have an efficient sampling design. But more important, it is mandatory to define standard units to correctly measure production as well as the flow of goods, services and capital. One survey might gather information on employment, while another may collect data from financial statements.

All this requires a common definition of businesses. At Statistics Canada, this is called the statistical structure. The statistical structure is a construction based on a series of rules to define and store on the Business Register a standard four-level structure hierarchy for all businesses. The highest level is the enterprise, while the lowest is the location. In between are the company and establishment levels.

- **Enterprise:** This is the highest level of the hierarchy and has a complete set of financial statements. It is also the level where information about the international financial position is maintained. An enterprise may have one or more company.
- **Company:** A level of somewhat homogeneous production with information related to balance sheets and income statement that enable derivation of the profit margin and return on investment. A company may have more than one establishment.
- **Establishment:** The most homogeneous level in terms of production. It can provide information on total production output, cost of material, services and wages and salaries. An establishment may have one or more location.
- **Location:** A unique physical production unit. The information available relates to employment.

In the context of single production entities, all levels are created, but they all represent the same unit. A NAICS industrial activity code is assigned for each of the lowest level units. NAICS codes are then assigned to higher levels based on a dominance rule.

### **3.3 Link with surveys**

While the Business Register is responsible for maintaining the central frame, individual survey programs are responsible for defining their respective needs.

For each cycle (annual, quarterly, monthly) of the survey, a Business Register extraction is produced and the resulting file constitutes the sampling frame. Then the sample is selected and collection entities are prepared for in-sample units. Since the statistical structure is a Statistics Canada construct, it may not always directly relate to an existing structure of the business capable of providing the requested information.

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4. It may have some marginal costs.

As a result, collection arrangements need to be organized with reporting units. This may range from an aggregated report for multiple units to a series of reports with more detail than required. In all cases, an allocation process is needed to distribute the collected information into the selected units to link responses with concepts defined by the survey.

All the information related to time-in-sample is kept and managed through sample control files. This allows survey methodologists to control the needed overlap (or non-overlap) between surveys to maintain the sample rotation strategies. Further, it provides the necessary information to reduce and manage the response burden of enterprises.

Finally, survey information regarding changes to the contact person, business structure, size and the presence or lack of activity is then fed back to the Business Register for updating.

### **3.4 Updating mechanisms**

The Business Register is updated on a continuous basis using three mechanisms. For large and complex enterprises, updating is achieved through direct profiling, which consists of contacting the enterprise and establishing its structure and contact points. This is a manual process conducted and maintained in the Business Register Division.

For most enterprises, sources for updates are administrative files produced by the Canada Revenue Agency. Among their legal obligations, enterprises must submit three sets of information to the CRA: Goods and Services Tax collected (GST), payroll deduction retained from employees, and annual income tax forms.

The GST and payroll deduction files are obtained on a monthly basis, and constitute prime information to determine the presence of activity as well as to detect new enterprises. Enterprises also provide information, such as number of employees (payroll deduction) or taxable sales (GST), on the size of the enterprise. The annual income tax files provide a more detailed picture of each enterprise. In this case, two files are available: one for incorporated businesses (T2) and one for unincorporated businesses (T1).

Finally, any new information or change to the structure and classification of enterprises is fed back to the Business Register and used to update it. This occurs when enterprises are contacted during the course of a survey, whether it is to make collection arrangements or whether it is at the actual collection time.

## **4. UES advantages and achievements**

During the early 2000s, a great deal was accomplished to improve the UES. The target for releasing survey results on a timely basis within 15 months of the end of the reference year was achieved for most UES surveys as of the reference year 2001. This shaved as much as nine months off previous norms.

Response burden was reduced significantly through a systematic multi-year plan to replace survey data with tax data for simple businesses across all surveys. This initiative cut collection costs by almost 20%. In addition, a 'score function' was used to prioritize delinquent and partial respondents for edit follow-up activities in the centralized collection areas.

Over the last few years, Enterprise Statistics Division has implemented a fully redesigned systems infrastructure, which integrates tax data in the UES process and ensures that all tax data are available in a systematic way for business surveys.

The processing environment has been re-engineered using BANFF [Statistics Canada's new SAS-based generalized edit and imputation system (BANFF Support team 2005)]. This enables the

division to produce estimates much earlier in the survey cycle (before collection is finished), thus ensuring a more top-down approach to data validation, and enabling more analysis.

Statistics Canada has been able to reduce response burden significantly – and it plans further reductions – by making greater use of tax data and using shorter questionnaires based on the Chart of Accounts (Statistics Canada 2004) and (Vinette 2005)

The Chart of Accounts links business accounts from Balance Sheet and Income Statement with SNA variables. It has a hierarchical structure and is based on business accounting concepts and practices. This allows Statistics Canada to bring its data requests more in line with standard accounting and business reporting practices.

The enterprise portfolio management program has matured and now covers most of the largest businesses in Canada. Coherence analysis to compare establishment versus enterprise data was introduced for the reference year 2003.

Enterprise Statistics Division has also achieved most, if not all, of the basic objectives for the UES. These objectives include the use of a common survey frame; integrated sampling and estimation; common concepts and definitions; common look and feel for questionnaires and mail-out materials; common/generic collection and processing systems with lower maintenance and development costs; and a common database through which we can leverage our data holdings.

Centralizing the UES management and core process functions in Enterprise Statistics Division has meant the timely delivery of these initiatives in a cost effective manner. Continuous improvement of these processes to maximize all aspects of the UES is also at the heart of the division's mandate. The following sections provide details of these achievements.

#### **4.1 Timeliness**

The duration between the end of the reference period and the appearance of estimates for publication was a real problem in the start-up years of the UES surveys. The pilot year for new surveys and the subsequent transition of existing surveys into the UES covered the reference years 1997 to 2000.

All components within the survey process contributed to the problem: questionnaire and collection applications development, data collection, survey operations processing and analysis. However, the principles of the UES clearly identified timeliness as a priority, given the importance of relevant data to the user community.

In June 2001, a UES task force was instituted to deal with the timeliness issue, with Enterprise Statistics Division taking a leadership and co-ordinating role. The task force devised a plan for improving the timeliness of all survey processes within the UES. It set a target of 15 months after the reference period to be applied to reference year 2001.

The 15-month target would be maintained for all future reference years and, where possible, a 12-month target would be sought. As of reference year 2003, all surveys have been released within 12 to 15 months.

#### **4.2 Centralized processing systems and databases**

A principal goal of the UES was to create a suite of centralized tools that could be used to both process and analyze data. The rationale for the centralization of these services included:

- reducing development costs to move away from stovepipe, stand-alone systems and approaches;



- developing best practices that can be embedded in the processing tools and shared across the bureau;
- centralizing the databases to move from a distributed model to corporate data management;
- creating a single point of access to and centralized security for all UES-related data, rather than multiple access points and multiple/differing security levels, and;
- rationalizing hardware to minimize the number of servers.

In the UES's early stages, many of these systems were developed independently of one another. This was not so much by choice as it was a result of the requirement to get the system up and running in time to meet the UES production schedule.

A major accomplishment of Enterprise Statistics Division over the last two years has been incorporating the UES processing system and databases into an integrated suite of tools that have a common look and feel and a shared methodology.

### **4.3 Use of tax data in the UES**

#### **4.3.1 UES establishment sample design**

Before tax replacement occurs, samples have to be selected. Since the establishment part of UES is generic, the UES establishment design is therefore presented globally.

The starting point for the UES sample design is the production of a survey universe file from the Business Register at the time of sampling. First, the frame is stratified by four-digit NAICS classifications and by province. Based on this frame, small establishments accounting for a total of 10% or less of the revenue in each stratum are not considered for sampling. These are called "take-none" units and are below the exclusion thresholds. Not surveying these small units has the double advantage of reducing response burden for small firms and making the design more efficient.

For the rest of the units, the population, though truncated, is still skewed. The stratum is essentially divided into a census portion for large units (take-all) and a survey portion (take-some) for the other ones. The boundary between the two groups and the sample size allocation are optimally determined to achieve desired quality levels for the available budget (63,000 establishments in 2004).

The "take-all" portion is also supplemented by some important units identified by subject matter specialists. Finally, the "take-some" portion is further divided into two strata by size. For the take-some portion, sampling is achieved by a simple random selection, without replacement, within each stratum.

Currently, the take-none portion is estimated using tax data. The take-some portion is partly obtained from surveyed establishments and partly from tax data. Indeed, about 50% of each take-some stratum is surveyed. For the other half, tax data are used in lieu of surveyed information for financial variables. Estimation for the take-all portion comes entirely from surveyed information.

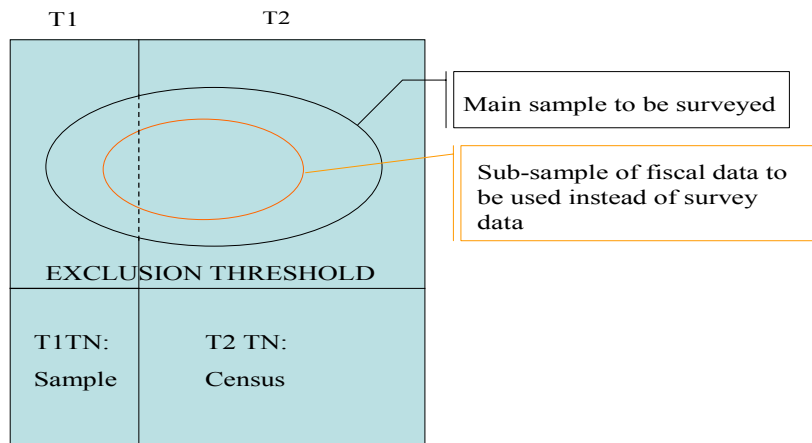
Significant progress has been achieved in making greater use of tax data. In the UES, survey data are being replaced with tax data in many cases, both as planned tax replacement and for survey non-response. In the reference year 2004 alone, 17,000 tax records were used from a sample of 55,000. This initiative has cut the response burden for smaller enterprises.

Over 50% of simple businesses previously in the sample are no longer receiving a UES questionnaire. Enterprise Statistics Division has also implemented a fully redesigned systems

infrastructure. It integrates tax data in the process and ensures that all tax data are available in a systematic way for business surveys.

Research continues on the best ways to fully use available tax data to further reduce response burden. Several simulations have been done with different rates of tax replacement for simple enterprises. These simulations have clearly shown that a small sample of simple businesses or characteristics surveys is needed to model the non-financial information.

**Figure 4.1: UES Sampling Design**



**4.3.2 UES tax strategy**

Table 4.1 shows the share of the take-none population relative to the total population for the entire UES program from 1997 to 2004. It is evident from this table that data for the majority of businesses in Canada are obtained from administrative records but their impact is small.

<b>Table 4.1. Take-none Population vs. Total Population of the Unified Enterprise Survey Program</b>					
<b>Reference year</b>	<b>Number of industries surveyed</b>	<b>Take-none population</b>	<b>Total revenue take-none population (\$billion)</b>	<b>Total population</b>	<b>Total UES revenue (\$billion)</b>
1998	18	181,270	7.2	400,823	485.9
1999	20	411,985	31.3	940,647	891.4
2000	40	301,421	60.1	843,970	1,505.8
2001	42	331,326	73.1	857,968	1,558.8
2002	42	527,720	92.1	898,229	1,610.4
2003	42	566,680	112.9	901,499	1,672.3

The tax data replacement initiative involves obtaining data for a subset of businesses from administrative records rather than through the survey process. This initiative incorporates both a 'pre-identified' component and replacement for non-response as described in the sample design section.

The pre-identified component involves pre-selecting units within the UES sample and obtaining their administrative data rather than burdening them with a questionnaire. The replacement for non-response component involves using administrative data to replace and impute questionnaire responses for delinquents.

Table 4.2 shows the number of sampled units for which administrative data were used in lieu of survey response.

<b>Table 4.2. Unified Enterprise Survey tax replacement progress, reference year 2004</b>						
Industry	Number of simple single enterprises in the sample	Pre-identified tax replacement targets	Pre-identified tax replacement units received	Non response tax replacement units received	Total tax replacement units received	
					Units	Percent of simple single sample
Distributive Trades	13,109	4,895	4,394	2,812	7,206	55
Service Industries	20,288	10,458	8,193	2,672	10,865	54
Manufacturing	30,052	23,881	22,722	2,565	25,287	84
Other	486	130	118	53	171	35
<b>Total</b>	<b>63,935</b>	<b>39,364</b>	<b>35,427</b>	<b>8,102</b>	<b>43,529</b>	<b>68</b>

#### 4.4 Reducing the respondent burden

##### *Reduction in questionnaire content and the Chart of Accounts*

Since the introduction of the Annual Survey of Manufactures, major steps have been taken to reduce the respondent burden associated with the UES. Faced with increased collection difficulties and poor response to some questions, starting in reference year 2001, divisions slashed their questionnaires, typically from 12 to 14 pages to four or five. This was accomplished through a combination of requesting fewer variables and moving detailed instructions from the form to accompanying guides.

While moving the instructions likely did not cut the time required to complete the forms, it was felt that the questionnaire would at least appear to be far less intimidating, and would elicit a better response. For reference year 2002, many initiatives came on stream to tackle the issue of burden more aggressively. The financial concepts used in the UES questionnaires and in the tax financial statements are sometimes different.

Statistics Canada's Methods and Standards Committee decided to incorporate the Chart of Accounts standard. The Chart of Accounts was designed to be GAAP-compliant and consistent with SNA and subject matter needs. The Chart of Accounts has established a correspondence between the survey and tax concepts, which has successfully helped in the tax data replacement. In some instances, the survey concepts were adapted to better suit the needs of the businesses.

From the survey year 2000 to 2004, the expected response burden, as measured by hours required to complete surveys, declined by almost 40% through a combination of tax replacement and reductions in survey questionnaires (Table 4.3). This significant reduction provided relief to a large number of small businesses previously receiving UES questionnaires.

<b>Table 4.3. Reduction in response burden hours for the Unified Enterprise Survey</b>					
<b>Survey grouping by industry</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
Services	22,478	26,026	18,010	24,750	12,410
Trade	43,253	38,852	27,696	21,500	19,669
ASM	49,044	51,221	53,704	40,125	39,148
Other	2,270	2,701	1,939	2,000	763
<b>UES totals</b>	<b>117,045</b>	<b>118,800</b>	<b>101,349</b>	<b>88,375</b>	<b>71,990</b>

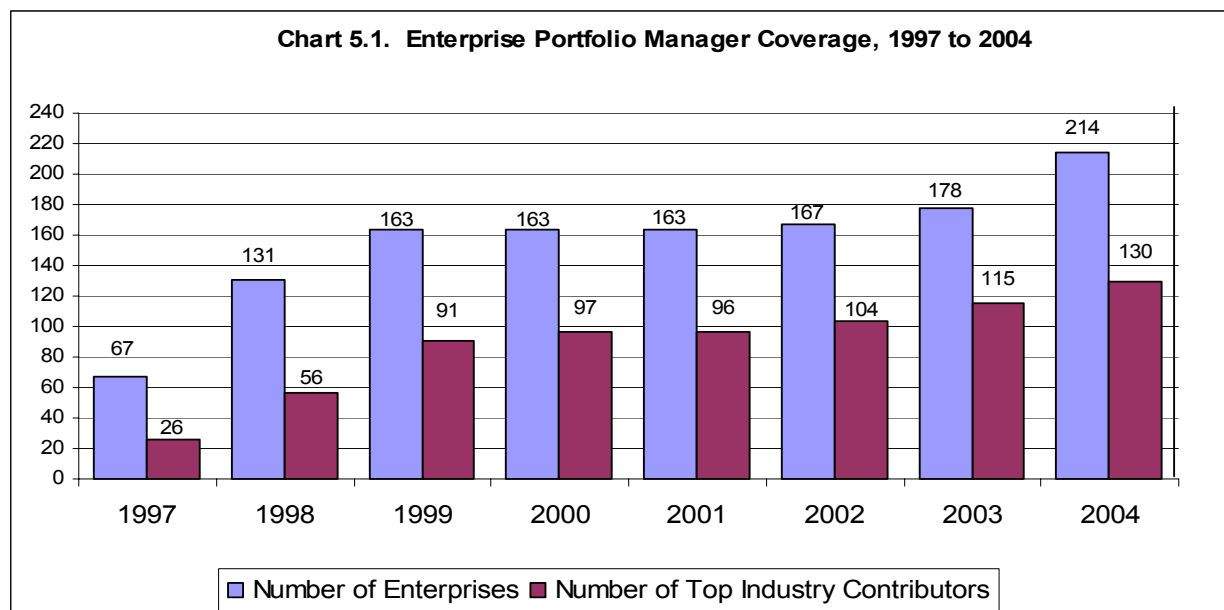
### ***Increased EPM coverage***

The UES has an Enterprise Portfolio Manager (EPM) program that handles response management and coherence for large businesses. The EPM program has been effective in improving response, timeliness and quality of survey data. A great deal of this success has been the result of lessening the burden imposed on EPM enterprises.

This has been achieved through streamlined reporting arrangements and the development and extensive use of electronic spreadsheets customized to match companies' accounting records and aligned to the business survey questionnaires.

Subject matter divisions continue to refer enterprises to the enterprise portfolio management program for resolving problems. Enterprise Statistics Division is also partnering with these divisions to introduce a form of enterprise portfolio management programs for individual divisions.

The objectives are to extend the coverage of EPM treatment without additional resources, and to give subject matter managers experience in dealing with large, complex businesses. The subject matter programs would have responsibility for a small number of companies, and would focus on maintaining, rather than building, the relationships. The enterprise portfolio management program would continue to provide co-ordination and support.



Recognizing the increased and growing importance of large businesses, the enterprise portfolio management program continues to encourage subject matter divisions to treat respondents as their customers. The goal is to foster a more enterprise-centric view of these large businesses, and to communicate corporate intelligence to Statistics Canada staff.

Enterprise Statistics Division is now working towards a better integration of our respondent relations and EPM programs to find innovative ways of dealing with more large businesses. The number of companies covered and the knowledge we have about these important respondents have been improved, so we can increase response rates and data quality.

## 5. UES collection and processing

### 5.1 UES collection and processing systems

As seen in Section 4, one of the advantages of UES is its centralized processing systems. The current suite of tools includes:

- The Unified Survey Tracking Analysis and Retrieval Tool:** USTART is an SAS-based, web-deployed analytical tool that provides analysts and survey managers access to all the data contained within the UES Data Warehouse. USTART offers the analyst data retrieval, querying and report building-functionality. In addition, it provides analysts with access to all the UES metadata and scanned UES images. Currently, there are more than 512 USTART users in 24 Statistics Canada divisions.
- The Facility to Review Impute and Correct:** FRIC is a Visual Basic correction and analysis tool that allows analysts to produce 'flash estimates' at the industry (NAICS) and geography (GEO) dimensions and to drill through to the microdata to examine top contributors and outliers. FRIC allows the analyst to correct capture, processing or response errors at the micro level. FRIC includes a series of edits to ensure consistency following microdata changes by analysts. There are currently more than 175 FRIC users across seven Statistics Canada divisions.

- **Edit and Imputation:** An SAS-based, web-deployed batch edit and imputation system using Statistics Canada generalized systems. Over the last year, Enterprise Statistics Division has converted its edit and imputation system from GEIS to BANFF (the System Development Division and Business Survey Methods Division re-designed generalized imputation system). The UES edit and imputation system uses generalized functions such as error localization, deterministic, donor, proration and estimation. All UES surveys pass through this system.
- **Allocation/Estimation:** An SAS-based, web-deployed system used to allocate survey information from the collection entity to the statistical establishment or location. In addition, the Business Survey Methods Division has constructed a survey estimation module that Enterprise Statistics Division has incorporated within the processing system. The estimation module calculates the final survey weights, coefficients of variation, response rates and imputation fractions. All UES surveys also pass through this system.
- **Integrated Questionnaire Metadata System:** IQMS is a visual basic application that stores the majority of the UES metadata (cell descriptors, formats and code sets). It is also the tool that survey managers use to enter their data capture edits and output specifications. The tool is evolving to become the warehouse for all UES-related metadata. Currently there are 162 IQMS users across seven Statistics Canada divisions.
- **Enterprise Portfolio Manager Information System:** EPMIS is a visual basic application that allows survey managers to monitor the interactions between the key provider managers and Canada's largest businesses. The system allows managers to review reporting arrangements, response rates, EPM comments and other relevant information. There are currently 160 users of EPMIS in 17 divisions.

## 5.2 Allocation

As outlined in Section 4.3, even if UES is interested in surveying units (establishments) according to the statistical structure. Sometimes there is a need to make collection arrangements with enterprises since businesses do not necessarily keep their books in exactly the form we think they do.

As a result, negotiations between Statistics Canada and businesses are required to determine the most appropriate responding unit (collection entity). Then, a questionnaire is sent for each collection entity, which may represent any collection of establishments. Once survey results come back, an allocation process is triggered to provide information at the establishment level.

The allocation process attempts to find the share of each establishment in the enterprise mainly based on revenue, but also in some cases on expenditures, wages and salaries and depreciation.

First, the UES historical information about the enterprise is considered. If the current structure is similar to last year's the share of each establishment from the previous year is used and applied to the questionnaire-level data. Otherwise, or if historical data is not available, information from the tax files is used. Again, the process is similar but the share is only available for the provincial breakdown.

Finally, the gross business income available on the Business Register is used. Based on these data surveys, allocation from revenue and the three other variables are produced and combined to obtain an establishment level allocation<sup>5</sup> for each enterprise.

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5. In fact, only the NAICS 4 by province breakdown is produced.

## 6. Conclusion

The UES has accomplished a lot in 10 years: Reduction of response burden, timeliness, use of tax data. Despite all its achievements, the UES is not yet fully mature. It is still undergoing transformation, and requires further adjustments and improvements.

Not all of the UES's objectives have been fully achieved. Enterprise Statistics Division has made important progress towards many of these objectives, such as central frame and sampling, use of tax data, common systems, central data store, better timeliness and co-ordinated respondent relations.

However, still more work is needed in several areas, such as the details available for the SNA, improving coverage of the UES, more use of tax data, an enterprise-centric approach to data collection and a better understanding of large enterprises and their data.

The biggest threat to the business statistics program is the growing reluctance among respondents to provide data through our traditional survey questionnaires. They are now less willing to complete the many separate survey requests we send them each year. This requires a change in the way we interact with these businesses.

Respondents expect a more co-ordinated, integrated and unduplicated approach to data collection, with the option of responding electronically in a user-friendly environment. They also appreciate that we use their tax data. We must understand our total data needs and deal with companies in an integrated way (from the companies' perspective), instead of one survey at a time.

Our challenge will be to improve our surveys and make better use of tax data while improving our interaction with respondents.

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