A STRATEGY FOR THE DEVELOPMENT OF SERVICES STATISTICS

VOORBURG GROUP CONFERENCE
OSLO, NORWAY
SEPTEMBER 27 TO OCTOBER 2, 1993

STATISTICS CANADA
AUGUST 1993

PREFACE

This document is a summary version of a longer paper providing a strategic framework for the development of services statistics in Canada. Such a framework was felt to be essential in responding to the increasing demand for data on services while resources remain limited. The strategy paper has been prepared by a group of senior officials representing various divisions most of whom are involved in producing services statistics, including the Balance of Payments. While certain parts of the document are specific to the situation in Canada, the overall thinking and the general approach may still have a relevance to other statistical agencies faced with information gaps and budgetary constraints.

The proposed approach to the compilation of statistics on these industries starts from the simple principle that there are many industries and many variables and they do not require to be measured with the same frequency, in the same detail and on the basis of the same data sources. Based on this principle, the approach developed in the document offers guidance for the allocation of scarce resources in the most rational way possible.

The services programme as described in the document is concerned with "marketed services". Accordingly, it does not deal with government or institutional services such as Health, Education and Social Welfare. The current focus of the programme extends to: Communications; Finance, Insurance and Real Estate; and Business and Personal Services. Together these industries account for 24% of GDP in Canada. We plan, however, to extend the coverage in the near future to include the other "marketed services" - Retail and Wholesale and Transportation - in the strategic framework.

TABLE OF CONTENTS

RATIONALE, RESOURCES AND DATA NEEDS

Introduction

Obtaining better information on services is essential to gaining a better understanding of the functioning of national economies and international trade, and contributes to the development of informed economic policies. Research on services is currently inhibited by a lack of data. Efforts to fill data gaps have been constrained by conceptual and definitional difficulties as well as a shortage of resources.

In general, services are said to be invisible, intangible, non-storable and non-transferrable, notwithstanding exceptions and borderline cases. Moreover, while goods can be produced at one location, stored at another and transported to markets with relative ease, production and exchange of services normally requires direct contact between producers and consumers. This helps to explain the existence of relatively large numbers of firms in services. These characteristics of services have a significant impact on the structure of service industries, on the nature and availability of data from service industry respondents, and on the statistical techniques used to collect the data.

In addition, traditional microeconomic thinking relies heavily on the concept of a "unit of output" which is subsequently traded on some market. Theories of production, markets, utility, demand, costs and ultimately prices and profits rely on this concept. Agricultural, mining and manufacturing products are sufficiently tangible and homogeneous to justify the concept and the associated analytical practices. However, in a paper delivered to the Voorburg Group in Stockholm, in November 1987, Peter Hill presented some convincing arguments for a different treatment for services:

> "...in the case of services, the actual process of production must directly impinge on some consuming economic unit in order for a service to be provided. This makes it difficult both to devise a satisfactory classification of the outputs of service industries and to quantify the amounts of services produced on the basis of such a classification."

Because of these differences, the traditional conceptual framework used for goods statistics does not obviously apply for the production of comprehensive service industry statistics. This paper represents an attempt to refine the framework for application to service industries, and to offer a user-based rationale for criteria to determine priorities for program development.

Resources and the Need for Choice

The need for such criteria and priorities is accentuated by the relative shortage of resources available for the development of services statistics. In the vast majority of countries, the resources devoted to services statistics will most likely not be sufficient to survey all service industries at the highest (desired) frequency for the maximum (desired) set of variables. This is partly due to the size and structure of the services sector, which is characterized by large numbers of relatively small units, (with conspicious exceptions like the Telecommunications and Banking industries). This characteristic makes the development and maintenance of a survey frame difficult and expensive. It also tends to make data collection and analysis more expensive for service industries. Furthermore, the development and implementation of commodity classification and collection programs for services are in their infancy, even in the developed economies.

Finally any strategy leading to future plans for services statistics must take into account the potential for statistical information arising from the exploitation of administrative sources such as income tax and value added tax records.

Services Covered by the Document

This document focuses particularly on business services, including communications, real estate and financial services, and on personal and leisure services. The following sectors are excluded: distributive services (covering wholesale and retail trade and transportation) as well as government, education, health, and other non-marketed services. These services are excluded because both distributive and non-marketed services have the benefit of more developed statistical programmes which have been in place for some time, and are considered to provide more adequate coverage than is the case for the marketed services noted above.

Nature of the Need for Information

Any strategy for the development of statistical information must be aimed at satisfying the information requirements of users, to the degree possible within resource constraints. Grouping users on the basis of similarity of needs facilitates the examination of information requirements. Users within each group will have their own needs, but there is likely to be a substantial degree of overlap in requirements.

In Canada, the needs of the following groups of users were specifically considered in developing the Strategy:

1. The Canadian System of National Accounts (CSNA). Data on services are becoming more and more important in the compilation of the National Accounts and Balance of Payments (BOP). At present, the quality of monthly, quarterly and annual aggregates in the accounts related to services requires significant improvement for current dollar figures, and the need is even more evident for constant dollar or volume estimates.

2. The Federal and Provincial Governments in Canada wish to encourage the development of the most dynamic services, and have made clear their need for annual and sub-annual information on "producer services" (i.e. services to business) considered a driving force for internal and external competitiveness. Data on business dynamics (births and deaths) revenue, employment and trade are among the most sought after series.

3. Businesses are particularly interested in obtaining information on markets and cost profiles for their industry.

4. Finally, economists and researchers search for detailed data to address questions such as the impact of service development on factor productivity, the elements that determine the development of a particular industry, the "contracting out" of services, etc.

Information on the Demand for Services

Discussions on the need for services data tend to focus on the supply of services. However, for business users, the demand for various services is at least as important. Data on the value of purchased services, by commodity and industry/sector, are also used in some countries for the construction of input-output tables. Therefore, the statistical system for services must, at least periodically, provide data on purchases of services as well as production.

BASIC PRINCIPLES OF THE STRATEGY

I - Heterogeneity of Service Industries

Service industries do not all share the same characteristics. Some are simply bigger and more important to the economy; others have significant economic impact in spite of their relatively small size. They require different skills, organize their production and marketing functions differently, make use of different levels of technology, serve different markets, and respond differently to changes in economic conditions. Because of their widely varied characteristics, they do not have the same information needs nor do they raise the same measurement problems. Any proposed data collection strategy should begin by recognizing these differences and dividing the service industries into categories, each with a number of common characteristics.

The process used in Canada to develop the categories of service industries involved a committee of senior Statistics Canada officials whose examination focused on basic characteristics such as: clients served, type of organization, size of operating unit, seasonality, entry-level investment required, tendency to export, innovation/R&D potential, links to other industries, rate of change/evolution, and employee education/skills requirements. The committee identified five distinct categories of service industries with significantly different characteristics. These five categories, with their characteristics and some indication of their information requirements, are presented below.

The Five Categories

The following description focuses on the main characteristics of service industries which are significant to identify the five major groupings described below. Some of the more important information requirements are mentioned in connection with each group, but the references are not exhaustive. It should be understood that major economic variables like numbers of businesses, sales, and employment figures are required with a regular frequency for all service industries.

GROUP I: Services whose functions and operating methods tend to be traditional. They include primarily the industries providing services to individuals, and they tend to serve local markets. This group would include industries like barber shops, laundries, shoe repair, sports and recreation clubs, ski hills, etc. The outputs of these industries remain largely outside the flow of international trade, and thus differ in a significant way from the remaining service categories. The emphasis in information gathering for these industries should be on sales and employment levels and their fluctuations, as well as labour characteristics such as salary,

male/female distribution, part-time and full-time, lack of security, etc. The market may be evaluated through a good description of household characteristics, particularly income and expenditure patterns.

Group II Accommodation and Food Services. These "traditional" services are flagged as a separate category because they serve both business and individuals. They also exhibit greater seasonal variability than other "traditional" services, and the demand for their services depends to a significant extent on factors outside the local economy (tourism).Moreover, capital expenditures are significant in these industries, and special emphasis must be placed on the availability of small area data and seasonal fluctuations in demand/sales.

Group III Services which have been provided for an extended period of time, but where the techniques used are undergoing rapid change; banks and broadcasting are good examples. These industries make extensive use of modern techniques, particularly informatics, but generally speaking they are not responsible for either their development (R&D) or their diffusion. They are distinguished from the following categories because of this characteristic. Employment and occupational mix are important variables for this group, but generally speaking they are demand-driven, and sales/revenue are among the most important variables. Annual investment and profitability must also be followed closely.

Group IV Services that develop new techniques and new functions; these services are growing and evolving rapidly. Computer services, software development and telecommunications would be included in this category. Employment and sales are important but quality and availability of skilled labour is an emerging issue. Information needs will also emphasize profitability, investment, and research and development. Markets are international, and external trade represents an important variable.

Group V Services whose essential function is to foster an improvement in the competitiveness/profitability of other industries. The advertising, engineering, training and management consulting service industries would be included in this group. These services do not provide an autonomous driving force over the short term. However, in the longer term, the initiative displayed by these industries can have a significant impact on the profitability and competitiveness of other industries. The dominant aspect for these industries should be an analysis of the use of their services by other

industries. The volume of employment is less important as a short-term variable but labour supply, occupation and skills mix are important long-term factors.

II - Differing Frequencies for Variables for Each Service Category

The first part of the proposed collection strategy contends that service industries are not all the same, and proposes five basic groups of industries which have different information needs. The second part of the strategy contends that the desirable observation schedule for each group of industries also differs for some of the basic variables.

The need for complete coverage for the System of National Accounts systems does not mean that the same priority must be given to all industries and to all variables. In a strict sense, for each variable, we should try to take into account, by industry, the fluctuations over time, the cost of collection, respondent burden, and other recognized uses. In practice, it is not possible to constantly evaluate all of these factors. However, it must be attempted from time to time for the development or refinement of this type of strategy.

The results of the Canadian committee's conclusions about the frequency and detail required about the five major groups of industries that it identified, are presented as a matrix of variables and industry groups on Page 7. The matrix uses the following code structure to show the desired frequency by variable for each of the five major industry groups.

0: variable without any major value or interest
1: sub-annual measurement indispensable
2: annual measurement desirable
3: multi-year measurement desirable (e.g. every 2 - 4 years)
4: multi-year measurement adequate (e.g. every 5 - 10 years).

The variables in the matrix are divided into two groups: those that are industry-related and those that are product-related. For the latter, additional collection activities are envisaged to obtain information from secondary producers.

PROPOSALS ON FREQUENCY AND DETAIL

VARIABLES	GROUP I and II	GROUP III	GROUP IV	GROUP V
INDUSTRY RELATED				
Business Register - Survey frame/Demography	Permanent	Permanent	Permanent	Permanent
Financial Transactions	3	1	1	1
Balance sheet items	4	2	2	2
Financial links with other industries/countries	4	2	2	2
Production Account				
Sales	1	1	1	1
Intermediate consumption	4	4	3	3
Taxes and subsidies	2	2	1	1
Labour income	1	1	1	1
Profits & revenues of individual entrepreneurs	2	1	1	1
Detail of sales by type of service	4	2	2	2
Employment				
Employment volume	1	1	1	1
Employment conditions	2	3	4	4
Qualifications	4	4	4	4
Capital				
Investment	4-2	2	2	4
R & D	0	4	2	4
PRODUCT RELATED				
Market				
Potential internal market	3	0	0	0
Consumption by other Canadian industries	0	4	3	3
Imports	(1) tourism	1	1	1
Exports	(1) tourism	1	1	1
Prices	1	1-2	2	2
Production for own-consumption (whether or not by services industries)	0	4	3	3
Services in other industries	0	4	4	4

Priorities among Service Industries

A basic premise of this strategy is that choices must be made, regarding both the frequency of industry coverage and the frequency of collection/publication for specific variables of interest in the services sector. When choices must be made among industries, the following four criteria may be used:

1. General economic importance: as indicated by employment, value of production, trade, impact on other industries, influence on diffusion of new ideas, R&D, etc., and cyclical behavior of the industry.

2. Impact on the Balance of Payments: the "international" character of an industry may justify the need for more frequent efforts to describe trade through the Balance of Payments. However, most services to individuals, with the exception of services related to tourism, have no direct or clear impact on the current account balance.

3. Impact on internal competitiveness: an industry may be small in relation to others, yet it may make a significant contribution to the competitiveness of the economy as a whole.

4. Ongoing Work: it would seem appropriate to continue developmental work already underway. Even though a survey in preparation may not be the highest priority if judged by the preceding criteria, maintaining good respondent relations could be at stake if work is stopped abruptly.

A structured approach to rating industries or groups of industries on the four factors, possibly using a tabular layout as depicted below, may help to clarify the difficult choices among industries imposed by resource constraints.

Industry, service or source	General economic importance	Impact on the balance of payments	Impact on competitive-ness	Ongoing work

THE DETAILED COLLECTION STRATEGY

The basic thrust of the new collection strategy is that service industries are different, and their information requirements are different as well. For some industries, information is required more frequently because they are more affected by business cycle fluctuations. For others, information needs are greater because governments have identified them as growth industries, stimulation points, trade-affected industries, etc.

The philosophy behind this approach can be summarized as follows:

- Expensive tools such as surveys, which allow measurable quality and extensive detail, as well as better control over timeliness, should be reserved for those industries and variables for which they are required.

- For the other industries, tax data should be used for yearly updates of detailed surveys carried out periodically.

The following paragraphs outline in more detail the differences in frequency and level of detail suggested for each of the five groups of service industries described above and identified in detail in Annex 1.

Group I

In this category, the firms are small, numerous, unstable, and specialized in meeting the demands of households. The producers of the services must be located near their clients, so they play a fundamental role in local employment. Thus, the first task would be to track employment - part time and full time - and demographic patterns of the establishments at the local level. This requires a good Business Register and careful handling of administrative data. Proper and consistent classification of these firms is obviously desirable, but business demographics are most important.

In the hybrid approach recommended for Group I, administrative data should represent the essential continuing statistical source for these industries. A more complete set of data could be established every five to ten years, by surveying a representative sample of establishments. In addition to detailed sales, this "basic survey" would also make it possible to collect data on intermediate consumption, investment and other topics. The universe should be verified the year before the basic survey is conducted. Such surveys could be carried out on a rotational basis. The data from the basic survey could be updated annually using tax data, which would be sufficient to follow the general economic evolution of these industries. Information on expenditures, revenues, intermediate consumption, and perhaps investment, could be estimated by applying ratios to the direct measurement of sales acquired from tax data.

The use of value added tax records, where feasible, could provide a sub-annual indication of revenues; such an indicator would undoubtedly have many advantages over the use of employment data, by avoiding implicit productivity assumptions. Prices data for these services will normally be available within the framework of the Consumer Price Index. An understanding of the market for this group can be derived from population census data, supplemented by information from household expenditures surveys, where available.

Group II - Accommodation and Food Services

The remarks on employment and demographic patterns made for Group I apply to Group II as well.

A basic survey, every 5 to 10 years, would provide details about revenue and expenses. However, the tracking of the evolution of these industries should be done by annual surveys. Given the importance of the sectors in estimating consumer expenditures, monthly surveys may be required for sales or volume indicators. Data on the origin of clients are also of significant interest for analysis. The local dynamism of this industry justifies a survey at the lowest geographical level, the "location". Questions on investment can be integrated into either the annual or "basic" survey.

Group III

In this category, as well, the use of administrative data is important, and is not limited to tax data, since some of these industries are regulated and provide a substantial amount of information to the agency to which they report. Thus, specific surveys are only necessary when the industry is not regulated. An annual survey of investment is justified for at least some of the industries. In the absence of specific surveys of these services, the use of the General Survey of Capital Expenditures seems a natural choice. Prices may be followed easily in the case of services to individuals or regulated services such as telecommunications.

For Financial intermediation, the conceptual problems of measuring production are far from being solved, and statisticians and national accountants should continue to search for a solution. Finally, for other services in this Group, the products are unique and new methods to track price change must be developed, as is the case with the following groups.

Group IV and V

In these categories there are a smaller numbers of firms, and emphasis should be put on the technology employed or transferred to the client industries.

We would want to emphasize the "establishment" level, by developing specific surveys by industry detailing the services sold. Where

numbers of establishments are small, surveys could be made representative of the universe as a whole, thus dispensing with tax data, at least for the initial evaluations. These surveys should also provide information on employment and payrolls. Occasional surveys every 3-5 years could focus on intermediate consumption and, possibly on employment by occupation.

For Group IV particularly, there should be an annual survey of investment. The investment survey could be linked with the specific annual survey by establishment, or form part of the General Survey of Capital Expenditures. Integration with the annual survey would facilitate the industry analysis. Research and Development data should also be obtained, probably through annual surveys.

The prices of services in Groups IV and V are difficult to estimate using traditional methods. The ongoing experiment using model pricing for engineering services has shown that observation is possible, and that annual indices would be meaningful.

A periodic survey of purchased services, every 3-5 years, would cover potential users of the services provided by businesses in Groups IV and V, and would provide useful data for a study of the extent to which these services were being purchased rather than being produced "in house". They might also be used to obtain data on the use of foreign suppliers of these services, thus supporting data obtained from balance of payments surveys. These data could be collected using existing surveys of establishments (including head offices) in the manufacturing industries, trade, transportation, and other service industry sectors.

Indirect Estimation of Sub-Annual Data

A number of the variables shown on the matrix on page 7 must be incorporated on a monthly or quarterly basis in national accounts aggregates. When they cannot be derived from direct observation, indicators must be used to project annual data on a monthly or quarterly basis, as required. Employment figures are often used as the indicator, simply because they are the only data available.

1. In industries where there are many firms and where these are often small (Group I in particular), it would be preferable to use information from value added tax records where such information is regularly available and accessibble to statistical agencies. This indicator of the value of sales can generally be deflated by available price indices to obtain constant price data. The result would undoubtedly be better than that obtained from data on employment, which are incomplete as far as the smallest establishments are concerned, and the use of which requires hypotheses on apparent labour productivity that are unreliable over the short term.

2. For the other industries (Groups II through V), the most promising source for current measurements would appear to be quarterly surveys of financial data, which could be carried out at the enterprise level. Revenue data from these surveys could be used as indicators of industry output where the differences in level and classification (enterprise versus establishment) don't introduce too much distortion. Where they do, employment data may have to be used in spite of their limitations as noted above.

SOME GENERAL ISSUES

Classification of Service Commodities

A basis for further development of service commodities is provided by the provisional Central Product Classification, but experience has shown that adjustments and modifications are necessary to:

- identify precisely the services being produced;
- facilitate responses by business, by grouping items that are difficult to distinguish in practice;
- produce more homogeneous categories; for example, in terms of the methods used to establish prices;
- add items that are important or eliminate those that are not;
- harmonize with the practices of specific types of businesses.

The availability of suitable classifications will be a prerequisite for the conduct of surveys that are stable over time. However, their development will benefit greatly from the first basic survey carried out in an industry, as well as from the very detailed information collected during the preparation of price indices.

A specific problem appears when we consider international trade in services. Improvement of the quality of the statistics and development of their use depends on better comparability of classifications between countries. Progress also depends on being able to relate the international trade classification to the classification used for domestic production. The importance of developing coordinated international nomenclature, even if imperfect, thus becomes evident.

Classification of Service Industries

Another factor affecting comparability among statistical series can be found in the industrial classification of the units included in each survey. At present, the 1980 Standard Industrial Classification is used by all Statistics Canada surveys involved with service industries. Work currently underway will ensure that all surveys use this classification in the same way to classify the same units or units linked through ownership to the same enterprise. The central Business Register will play an obvious role in this effort.

With respect to international comparability, Statistics Canada has embarked upon a revision of its 1980 Standard Industrial Classification, to make it more compatible with that of the United States. A concordance with ISIC, the Standard Industrial Classification of the UN, makes it possible to convert and compare data internationally.

ANNEX 1

SERVICE INDUSTRIES IN FIVE STRATEGIC GROUPS (1980 SIC)

GROUP 1

Amusement and Recreational Service Industries
Personal and Household Services
Other Service Industries
Real Estate Operators and Insurance Agent Industries

GROUP 2

Accommodation Service Industries
Food and Beverage Service Industries

GROUP 3

Telecommunication Broadcasting Industries
Motion Picture, Audio and Video Production and Distribution
Finance and Insurance Industries

GROUP 4

Telecommunication Carriers Industry
Other Telecommunication Industries
Postal and Courier Service Industries
Computer and Related Services

GROUP 5

Service Industries Incidental to Agriculture
Services Incidental to Fishing
Forestry Services Industry
Service Industries Incidental to Mineral Extraction
Service Industries Incidental to Construction
Other Service Industries Incidental to Transportation
Employment Agencies and Personnel Suppliers
Accounting and Bookkeeping Services
Advertising Services
Architectural, Engineering and Other Scientific and Technical Services
Offices of Lawyers and Notaries
Management Consulting Services
Other Business Services

ANNEX 2

GENERAL EXPLANATION OF VARIABLES

Frame-related:

Demography	Monitoring of births and deaths
Survey frame	Business Register

Financial data:

Balance sheet items	Asset and liability items Income and expenditures other than those in the production account (miscellaneous sales, depreciation, etc)
Financial links, including links with other countries	Belonging to group under common ownership and control

Production account

(see detailed definitions provided by the Standards Division, June and September 1991)

Sales	Sales of services produced by the firm sales of goods produced by the firm sales of goods or services without further processing
Intermediate consumption	Purchases of services purchases of goods purchases of goods or services without further processing
Taxes and subsidies	Other than VAT and sales taxes
Labour income	Salaries and benefits
Capital earnings	Profits of incorporated business, net income of unincorporated business, and interest paid less interest received.
Details of sales	Breakdown in accordance with a classification of service commodities

Employment	
Employment volume	Number of jobs, number of hours worked
Employment conditions	Full- time/Part-time and temporary jobs
Skills	Occupations
Capital	
Investment	including own account investment
R&D	including current and capital expenditures
Market	
Potential internal market	
Final consumption	Final consumption of households and governments
plus	
Business consumption	Purchase of services by businesses in other industries
and	
Imports	Purchase of services in or from other countries
Exports	Sales of services to non-residents and to other countries
Prices	Sale price (CPI or IPPI)

Some standard economic variables such as inventories are not included in this list because they are not significant variables for most service industries. Nevertheless, in a "company/legal entity" approach dealing with financial variables, surveys should of course cover inventories, since many firms have goods production or resale activities carried on in parallel with service activities, and are therefore managing inventories.

ANNEX 3

CATEGORIES OF SERVICES

GROUP I

CHARACTERISTICS:		DATA NEEDS:
GENERAL:	traditional service functions	
INPUTS: LABOUR:	fluctuating employment low salary lack of security	employment turnover salaries
CAPITAL:		
PRODUCTION PROCESS:	traditional operating methods	sales
MARKET:	individuals	structural description of households, incomes

GROUP II - "ACCOMMODATION and FOOD" SERVICES

CHARACTERISTICS:		DATA NEEDS:
GENERAL:	traditional service functions	
INPUTS: LABOUR:	as in GROUP I	employment turnover salaries
CAPITAL:	relatively large capital required	investment
PRODUCTION PROCESS:	traditional with seasonality	sales - local, sub-annual
MARKET:	individuals and business; tourism	

GROUP III

CHARACTERISTICS:		DATA NEEDS:
GENERAL:	traditional service functions	
INPUTS: LABOUR:	fluctuating employment, higher skill level	employment occupational/skills
CAPITAL:		investment
PRODUCTION PROCESS:	modernized and changing techniques	profit-making capacity
MARKET:	business and individuals	

GROUP IV

CHARACTERISTICS:		DATA NEEDS:
GENERAL:	new services functions	
INPUTS: LABOUR:	reduced importance in analysis	employment (for local analysis only)
CAPITAL:		investment, R & D
PRODUCTION PROCESS:	development of new production techniques	profit-making capacity
MARKET:	business: international; foreign market very important	external trade

GROUP V

CHARACTERISTICS:		DATA NEEDS:
GENERAL:	function is to improve the competitiveness of other industries	
INPUTS: LABOUR:	reduced importance in analysis	employment
CAPITAL:	investment comes from other industries	investment
PRODUCTION PROCESS:	development of new production techniques	
MARKET:	client industries	