Data Quality, Concepts and Methodology

The following information should be used to ensure a clear understanding of the basic concepts that define the data provided in this product, the underlying methodology of the survey, and key aspects of the data quality. This information will provide you with a better understanding of the strengths and limitations of the data, and how they can be effectively used and analyzed. The information may be of particular importance to you when making comparisons with data from other surveys or sources of information, and in drawing conclusions regarding change over time.

Description of the data concepts

Introduction

Beginning with the 1999 reference year, the Financial & Taxation Statistics for Enterprises program has undergone numerous significant changes which affect both the comparability and the historical continuity of the published statistics. Changes in industrial classification, methodology, data sources and content have all been introduced.

Data are now collected and compiled on the basis of the North American Industrial Classification System[1] (NAICS) for the entire incorporated business population as depicted on Statistics Canada's Business Register. Such a census of incorporated businesses is made possible by supplementing data collected through the Quarterly Survey of Financial Statements (QFS) and the survey of provincial or federal level government business enterprises, with administrative data available from Canada Customs & Revenue Agency (CCRA). Consequently, the content of the financial and taxation statistics for enterprises has been affected in two ways. First, the taxation component of the historically published data is not available for reference year 1999; however, the taxation statistics are expected to be re-introduced and published with the 2002 publication for the reference years 2000, 2001 and 2002. Second, although the financial data are still presented in the basic format of a balance sheet and income statement, certain detail items have changed.

Description & use of the data

The data presented herein comprise financial statements typically prepared by incorporated businesses to record their financial position and performance. The data include: asset, liability and equity items encompassed in a balance sheet, revenue and expense items as reported on an income statement, and several common financial performance ratios.

These statistics are used in two broad ways. First, they provide a measure of financial position and performance of incorporated businesses by industry aggregations. They are used by a wide variety of economists and industry analysts in both the private and government sectors. Second, they are used as the benchmark for the quarterly estimates of corporate profits in the Canadian System of National Accounts.

Coverage

The domestic economy consists of personal, business and government sectors. This publication covers incorporated enterprises of the financial and non-financial business sectors and business enterprises controlled by federal or provincial governments. In addition, non-profit enterprises considered to be part of the incorporated business sector are also included.

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[1] The version of North American Industry Classification System used is NAICS Canada 1997

The statistical unit

For statistical purposes, Statistics Canada defines a hierarchical structure of units for each firm. The four standard statistical units that are used are listed from largest to smallest below:

* Enterprise
* Company
* Establishment
* Location

The statistical unit for this publication is the enterprise. An enterprise is a family of businesses under common ownership and control for which a set of consolidated financial statements is produced on an annual basis.

Accounting concepts, definitions and practices

The concepts and definitions for most industries are based on the guidelines of the Canadian Institute of Chartered Accountants (CICA). Regulated industries may follow practices and definitions determined by the regulators. However, these practices are usually similar to the Generally Accepted Accounting Principles (GAAP) of the Canadian Institute of Chartered Accountants.

Financial classification and presentation

Because there is no widely accepted standard classification for financial items, it was necessary to devise one in order to present information in a homogeneous way for all enterprises. The financial item presentation for this publication has been condensed somewhat to allow for a generic presentation across industries.

Industrial classification

Commencing with 1999, Financial & Taxation Statistics for Enterprises are based on the North American Industry Classification System (NAICS)[2]. From 1988 to 1998, the Standard Industrial Classification for Companies and Enterprises (SIC-C 1980) was used.

NAICS is an activity-oriented industry classification that was developed by the statistical agencies of Canada, Mexico and the United States to provide a consistent framework for the collection, analysis and dissemination of industrial statistics used by government policy analysts, academics and researchers, the business community and the public. NAICS was primarily designed to classify economic production performed at the establishment level; the activity that contributes the most value-added determines the NAICS code for the establishment.

To determine which NAICS code should be assigned to a statistical enterprise, the NAICS code is determined for each establishment belonging to the statistical enterprise. The NAICS code representing the largest value-added is then assigned to the statistical enterprise. NAICS (unlike the 1980 SIC-C) does not provide classifications for integrated activities. For example, a petroleum enterprise may be involved in exploration, mining, refining, shipping and retailing of petroleum products. Whereas the 1980 SIC-C provided a classification code for integrated petroleum activities, under NAICS such an enterprise is classified to the individual NAICS code that relates to the activity that provides the most value-added. NAICS is a detailed, hierarchical classification with 920 individual 6-digit industries. These are aggregated into 20 sectors of activity, such as mining, manufacturing, wholesale trade, retail trade and construction.

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[2] Estimates on NAICS basis are provided for non-financial industries for 1998

The annual Financial & Taxation Statistics for Enterprises are available at three levels of industrial grouping of NAICS. The most aggregate level covers 23 industry groups, 17 of which are comprised of NAICS two-digit sectors while six are at a more disaggregated level. The second level of industry grouping, roughly analogous to the NAICS three-digit sub-sector level, covers the 57 industry grouping as presented in this publication. The most detailed aggregation covers 153 industry groupings and is available upon request. The industrial classification system is hierarchical in nature - the more detailed levels of data easily aggregated to the higher levels.

Example of industry classification:

An automobile dealership that sells new cars would be assigned to the NAICS Industry Code 44111, "new car dealers". For purposes of this publication, this enterprise would appear in the following aggregations:

Level III (153 categories): Group 4411 "Automobile Dealers"
Level II (57 categories): Sub-sector 441 "Retail Motor Vehicles and Accessories"
Level I (23 categories): Sector 44-45 "Retail Trade"

Text Table 1 indicates the composition of the industry groups included in this publication.

<u>**Text Table 1: Industry Group Composition**</u>

Industry No.	NAICS 57 Industry groupings	NAICS Canada 1997 Codes Included
1	Agriculture, forestry, fishing, hunting	11
2	Oil and gas extraction and coal mining	211, 2121
3	Mining (except oil, gas and coal)	2122, 2123, 213
4	Utilities	22
5	Construction	23
6	Food manufacturing	311
7	Beverage and tobacco product manufacturing	312
8	Clothing, textile, leather manufacturing	313, 314, 315, 316
9	Printing and related support activities	323
10	Petroleum and coal products manufacturing	324
11	Non-metallic mineral product manufacturing	327
12	Wood and paper manufacturing	321, 322
13	Chemicals, plastic, rubber manufacturing	325, 326
14	Primary metal manufacturing	331
15	Fabricated metal product manufacturing	332
16	Machinery manufacturing	333
17	Computer and electronic product manufacturing	334
18	Electrical equipment, appliance and component mfg	335
19	Motor vehicles and parts manufacturing	3361, 3362, 3363
20	Other transportation equipment manufacturing	3364, 3365, 3366, 3369
21	Furniture and related product manufacturing	337
22	Miscellaneous manufacturing	339
23	Petroleum product wholesaler-distributors	412
24	Motor vehicle and parts wholesaler-distributors	415
25	Building material and supplies wholesaler-distributors	416
26	Machinery, equipment and supplies wholesale-distributors	417
27	Wholesale food, beverage and tobacco	411, 413
28	Other wholesale	414, 418, 419
29	Motor vehicle and parts dealers	441
30	Building material and garden equipment and supplies dealers	444
31	Food and beverage stores	445
32	Clothing and clothing accessories stores	448
33	Furniture and home furnishing stores and electronic and appliance stores	442, 443
34	General merchandise stores	452
35	Transportation and warehousing	481 to 488, 491 to 493
36	Other retail	446, 447, 451, 453, 454
37	Telecommunications	5133
38	Publishing and broadcasting	511, 512, 5131, 5132, 514

39	Banking and other depository credit intermediation	52211, 52219
40	Non-depository credit intermediation	5222
41	Credit unions	52213, 52232
42	Direct life, health and medical insurance carriers	52411
43	Direct insurance (except life, health and medical) carriers	52412
44	Reinsurance carriers	52413
45	Agencies, brokerages and other insurance related activities	5242
46	Loan brokers and other financial Investment	52231, 52239, 523
47	Real estate	531
48	Other rental companies	532, 533
49	Computer systems design and related services	5415
50	Professional, scientific and technical services (except computer systems design)	5411 - 5414, 5416 - 5419
51	Management of companies and enterprises	55
52	Administrative and support, waste management and remediation services	56
53	Educational services	61
54	Health care and social assistance	62
55	Arts, entertainment and recreation	71
56	Accommodation and food services	72
57	Other services (except public administration)	81

Statistical methodology

Survey design

Three sources of data were combined to form a census of all units in the population of interest. These consisted of:

• Annualized data from the Quarterly Survey of Financial Statements (QFS) obtained from the Industrial Organization and Finance Division at Statistics Canada.

• A survey of provincial or federal level government business enterprises (GBE) that operated in the business sector, with data obtained from the Public Institutions Division at Statistics Canada.

• Administrative corporate taxation data in the form of the General Index of Financial Information (GIFI) obtained from the Tax Data Division at Statistics Canada.

The frame contains 1,104,484 units included in our population of interest. The Quarterly Survey of Financial Statements (QFS) provided consolidated data for 3,954 of the larger enterprises. The survey of government business enterprises provided data for 125 enterprises. The remaining data was obtained through administrative corporate taxation data. Although the vast majority of data comes from the administrative source it is less significant in terms of their contribution to assets and operating revenues (see Text Table 2).

Collection and processing

Data collected from the Quarterly Survey of Financial Statements were annualized and then combined with data from a supplementary annual questionnaire that was mailed to survey respondents. The supplementary annual questionnaire was designed to obtain additional detailed information on operating expenses not available from the QFS.

Information from all three data sources was provided in different formats with different sets of variables. In order to merge the data it was necessary to transform all three data sources into a common set of variables that contained a complete set of financial statement information. Certain details were omitted in the process due to the unavailability of data from all sources.

While QFS and GBE data were collected at the enterprise level, GIFI data were collected at the non-consolidated single legal entity level. Data for single legal entities belonging to a corporate family (multi-legals) are then rolled up to the enterprise level.

Edit & imputation

Several checks are performed on the data to verify internal consistency and identify extreme values. For the 1999 reference year, non-response of administrative corporate taxation units, imputation was performed using a "nearest neighbor" procedure (donor imputation) using available auxiliary information to substitute for the data from a company with similar characteristics. For non-response of administrative corporate taxation units in reference year 2000, and QFS units, imputation was performed using historical information where available, otherwise donor imputation was used. When annual supplement data was not reported, a ratio imputation technique was used to impute missing detail.

Although imputation for total non-response was required for close to 39% of enterprises, the overall impact of imputation on operating revenues across all industries is less than 28%. Text Table 3 indicates the effect of imputation on operating revenues broken down by industry grouping.

Estimation

Since data is obtained from one of the three data sources for each enterprise in the population of interest, estimates are derived from the simple tabulation of data.

Text Table 2: Contribution of Assets and Operating Revenue by Data Source, 2000

	Enterprises	Portion of Total Assets	Portion of Total Operating Revenues
Quarterly Survey of Financial Statements Data	3,954	67%	51%
Government Business Enterprises Data	125	8%	4%
Administrative Taxation Data	1,100,405	25%	45%
Total	1,104,484	100%	100%

Text Table 3: Imputation Impact, 2000

Industry No.	NAICS 57 Industry Groupings	Number of Enterprises	Operating Revenue (million $)	Imputation Impact on Revenue
1	Agriculture, Forestry, Fishing and Hunting	49,699	33,641	B
2	Oil and Gas Extraction and Coal Mining	3,093	74,697	B
3	Mining (except Oil, Gas and Coal)	7,926	26,096	B
4	Utilities	883	79,420	B
5	Construction	130,894	120,996	C
6	Food Manufacturing	6,433	64,691	B
7	Beverage and Tobacco Manufacturing	678	11,812	B
8	Clothing, Textile and Leather Manufacturing	6,809	17,536	B
9	Printing and Related Support Activities	6,216	12,490	B
10	Petroleum and Coal Products Manufacturing	380	49,034	B
11	Non-metallic Minerals	2,296	12,914	B
12	Wood and Paper Manufacturing	5,293	73,511	B
13	Chemicals, Plastic and Rubber Manufacturing	5,179	76,478	B
14	Primary Metals	754	29,506	B
15	Fabricated Metal Product Manufacturing	9,459	29,418	B
16	Machinery and Equipment	6,505	26,031	C
17	Computer and electronic product manufacturing	3,100	49,333	D
18	Electrical and Appliance Manufacturing	1,430	14,553	B
19	Motor Vehicles and Parts Manufacturing	1,545	139,571	A
20	Other Transportation Equipment Manufacturing	1,299	19,620	B
21	Furniture and related product manufacturing	4,340	13,099	B
22	Miscellaneous Manufacturing	6,427	8,165	C
23	Petroleum product wholesaler-distributors	1,491	22,186	B
24	Motor vehicle and parts wholesaler-distributors	5,074	29,501	B
25	Building materials and supplies wholesaler-distributors	9,198	49,872	B
26	Machinery, equipment and supplies wholesaler-distributors	18,021	77,786	C
27	Wholesale Food, Beverage and Tobacco	8,578	65,020	B
28	Other Wholesale	33,123	101,497	B
29	Motor vehicles and parts dealers	13,585	79,626	B
30	Building material and garden equipment and supplies dealers	6,752	13,695	B
31	Food and Beverage Stores	17,993	74,193	B
32	Clothing and Clothing Accessories Stores	12,544	18,582	C
33	Furniture and Home Furnishing Stores and Electronic and Appliance Stores	14,944	21,589	C
34	General Merchandise Stores Retail	3,861	33,629	B
35	Transportation and Warehousing	47,072	95,538	B
36	Other Retail	43,256	52,295	B
37	Telecommunications	1,041	32,404	B
38	Publishing and Broadcasting	16,138	33,153	C
39	Banking and Other Depository Credit Intermediation	138	86,167	A
40	Non-Depository Credit Intermediation	8,559	18,986	B
41	Credit Unions	..	12,387	B
42	Direct Life, Health and Medical Insurance Carriers	..	37,434	B
43	Direct Insurance (except Life, Health and Medical) Carriers	..	26,207	B
44	Reinsurance Carriers	..	3,668	D
45	Agencies, Brokerages and Other Insurance Related Activities	..	5,932	C
46	Loan Brokers & Other Financial Investment	61,581	40,940	C
47	Real Estate	74,004	32,080	C
48	Other Rental Companies	14,315	18,156	D
49	Computer Systems Design and Related Services	29,500	18,702	C
50	Professional, Scientific and Technical Services	105,641	55,999	C
52	Administrative and Support, Waste Management and Remediation Services	48,466	42,472	C
53	Education Services	8,303	3,898	D
54	Health Care and Social Assistance	30,271	17,475	C
55	Arts, Entertainment and Recreation	18,370	26,300	B
56	Accommodation and Food Services	62,153	43,511	C
57	Other Services (except Public Administration)	58,368	31,754	C
	Total All Industries:	**1,041,704**	**2,305,246**	**B**
51	Management of Companies and Enterprises	62,780	28,817	C
	Total All Industries Including Management of Companies and Enterprises:	**1,104,484**	**2,334,062**	**B**

A	0-10%	Excellent
B	10-33%	Very Good
C	33-50%	Good
D	50-60%	Acceptable
E	60%+++	Unreliable

The combined survey results were analyzed before publication. Generally, this entails a detailed review of the individual responses (especially for the largest enterprises), a review of general economic conditions and trends, and comparisons with other relevant sub-annual surveys.

Due to certain financial reporting constraints, data for enterprises in the insurance industry could not be obtained through the administrative data source. Data for the industry are therefore derived using QFS weighted estimates rather than a census.

Data Accuracy

While considerable effort was made to ensure high standards throughout all collection and processing operations, the resulting estimates are inevitably subject to a certain degree of error. There are two categories of errors in statistical information - sampling errors and non-sampling errors. Non-sampling error is the only type that applies to this program, given that there was no sampling process used to produce these estimates[3].

Non-sampling errors can arise from a variety of sources and are difficult to measure and their importance can differ according to the purpose to which the data are being put. Among non-sampling errors are gaps in the information provided by corporations in their tax returns and errors in processing, such as data capture.

Comparability of Data and Related Sources

Estimates for 1998 were created under the same framework as 1999, however there are some material differences in how the data was collected and processed. The process continues to evolve in terms of improved quality and reduction of burden to respondents. The major differences between the two years in terms of coverage, processes and content are outlined in Text Table 4.

In 1998, data was collected via a separate annual questionnaire that was supplemented by QFS data. The questionnaire was sent only to 754 enterprises with multiple legal entities and revenues over 25 million dollars according to the Business Register at Statistics Canada. In 1999 and 2000, QFS data was annualized and used directly in combination with a smaller supplement questionnaire.

The first year for using GIFI administrative data was 1998; since then, the quality of the GIFI administrative data has improved.

There are no comparability issues for 1999 and 2000.

Text Table 4: Major differences of Coverage, Processing and Content between reference years 1998 and 1999-2000

	1998	1999-2000
Industries covered	Non-financial industries only	All industries

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[3] with the exception of the insurance industry

Period covered	Fiscal period ending in 1998	Calendar year for QFS data source and fiscal period ending in 1999 for other data sources
Enterprises included	Those alive on December 31st 1998	Those alive for at least one day during the calendar year 1999
Questionnaire	Annual Survey of Enterprises	Quarterly Survey of Financial Statements (annualized) with Annual Supplement
Financial detail	76 financial variables	137 financial variables

Reference period

The objective of this annual series is to cover business activity within a calendar reference period. Data derived from the Quarterly Survey of Financial Statistics approximate the calendar period. The Government business enterprise data reflect fiscal periods which often are governed by the April to March fiscal year of governments. The administrative data used from CCRA is based on financial statements filed along with income tax returns by corporations for their fiscal year which ended in the calendar period. Thus the calendar period is estimated by industry aggregations which actually consist of a combination of both calendar and fiscal periods which may not coincide perfectly with the calendar period.

Confidentiality

The confidentiality of the reported statistics is protected under the provisions of the Statistics Act. For this reason, statistics are released in aggregate form only, with no potential identification of individually reported information. The confidentiality provisions of the Statistics Act override the provisions of the Access to Information Act to guarantee the confidentiality of reported data of individual respondents.

Limitations of the Data

To be valid for either time-series or cross-sectional analysis, the definitions of data must be consistent within time periods or across time periods. Put differently, the differences and similarities in data must reflect only real differences and not differences in the concepts or definitions used in preparing the data.

The ability to use the data for analysis depends on the conceptual framework in which the data is being used.

These data are consistent with the Generally Accepted Accounting Principles (GAAP) of the Canadian Institute of Chartered Accountants. As such they do not agree with the concepts of the CSNA for example. If the GAAP concepts are appropriate for the application of the data then there may still be some problems of consistency (between units or over time) for items where GAAP does not prescribe a particular treatment or allows some latitude. One of the general problems with GAAP for some uses is that it prescribes a historical cost treatment of assets (i.e. their cost at the time of acquisition). This means that comparisons over time and across industries may not be valid for balance sheet data or for ratios derived from the Balance Sheet.