

Notes specific to Canada

Monthly estimates of Real Value Added at Basic Prices for Service Industries

Notes to the spreadsheet *Canada Questionnaire.xls*

Overview of the estimation process

As part of its monthly estimates of Real Gross Domestic Product at Basic Prices by Industry, Statistics Canada produces a sub aggregate corresponding to Real Value Added at Basic Prices for Service Industries. In what follows we will simply call it GDP for Service Industries.

The estimates of GDP by industry are released about 60 days after the end of the reference month, following a fixed schedule set out a year in advance. The estimates are valued in Canadian dollars, using 1997 as reference year.

The monthly indicators are selected to measure the output of an industry from all its establishments and from all their activities, whether the secondary activities form part of the industry's definition or not. They are first deflated, if necessary, then seasonally adjusted using the X-11-Arima method, and finally weighted by benchmarking them to the output values of the deflated annual input-output (I/O) tables using, in general, the proportional Denton method as modified by Cholette.¹ The monthly estimates of valued added are then obtained by benchmarking the monthly output estimates to the I/O annual values.

Note that the monthly estimates are subject to regular revisions, and that at times adjustments are made to the basic data to reflect such things as timing issue in the reporting of a particular month's production, and economic events that would not have been properly captured by the survey data, such as strikes occurring toward the end of a month.

All published components of GDP by industry are obtained as annually chained Fisher indexes with a Laspeyres tail, which we now describe. The weights used to aggregate the indicators of value added across industries are obtained from Canada's deflated annual input-output (I/O) tables. Because of the complexity in deriving complete supply-use I/O tables for 300 industries and 727 commodities, they become available only about 2½ years after the reference year.

¹ See Chapter VI of Bloem, AM, Dippelsman, RJ and Mæhle, NØ (2001) *Quarterly National Accounts Manual. Concepts, Data Sources and Compilation*; Washington: International Monetary Fund. Available at: <http://www.imf.org/external/pubs/ft/qna/2000/Textbook/index.htm>.

For years for which the I/O tables are available, these annual estimates of value added by industry are used as weights to aggregate the indicators into chain-Fisher indexes. Hence, the indicators are rebased yearly, but not monthly as is the case of the U.S. Index of Industrial Production for example.

For years for which the I/O tables are not yet available, the weights used are those for the last available I/O year and there is no annual chaining. Thus, in effect, for all periods following the last I/O year, the indicators of value added are of the Laspeyres form at constant prices of the last I/O year. For instance, the estimates about to be released for reference month March 2003, are chained-Fisher estimates up to December 1999, and Laspeyres estimates at constant prices of 1999 for reference months January 2000 to March 2003 inclusively. In the fall of 2003, the I/O tables for the year 2000 will become available, and these new weights will be incorporated in the computation of valued added by industry.

Industrial coverage and classification

The industry classification used is the *1997 North American Industry Classification System* (NAICS).² The differences between NAICS and ISIC Rev. 3 are important. For instance, the NAICS industry group 5612 – *Facilities Support Services* does not exist in ISIC. Another important difference with respect to ISIC service industries concerns the NAICS sector 51 – *Information and Cultural Industries*. This NAICS sector includes establishments from various ISIC classes, including some that are part of the manufacturing sector, such as ISIC D2211 – *Publishing of books, brochures, musical books and other publications*.

Because of these differences, a direct mapping between the components that are used to derive GDP for Service Industries and ISIC classes does not exist. A fairly accurate mapping exists between NAICS and ISIC at a high-level of aggregation, and is used to provide the monthly estimates of GDP by industry to the OECD. However, it is not precise enough for the purposes of the Short Term Indicators for Services Task Force (STISTF).

To facilitate the comparison of Canada's derivation of GDP for Services with equivalent measures for other countries, we developed an approximate mapping between ISIC classes and the NAICS components used to derive Canada's GDP for Services. Using Statistics Canada Standards Division's mapping between the six-digit NAICS classes with the 4-digit ISIC classes,³ we obtained an approximate description of the 4-digit ISIC classes in terms of 4-digit NAICS industry groups. Then we identified the actual indicators used for each 4-digit NAICS groups.

² See <http://www.statcan.ca/english/Subjects/Standard/naics/1997/naics97-menu.htm>.

³ See <http://www.statcan.ca/english/Subjects/Standard/concordances/naics97-to-isicrev3.htm>.

To get an idea of the precision of this mapping, the ISIC codes shown in the spreadsheet are followed by the symbol “(-)” to indicate that the NAICS industries listed as components do not completely cover these ISIC industries. Likewise, some NAICS industry codes are followed by the symbol “(+)” to indicate that they include portions of other ISIC classes.

Although in general there is a good match between the NAICS industry detail shown in the spreadsheet and the level at which GDP for Services is derived, there are many instances where the indicators are used only for a higher level of aggregation than that shown. One such area for instance is the breakdown of *ISIC 749 – Business activities n.e.c.*: the value added of the NAICS sector *5613 – Employment Services* is not derived directly; rather, it is the value added of the combination of NAICS sectors *5611-5614, 5619 – Other Administrative and Support Services* that is derived, because that is the finest detail of industries for which the I/O weights are available that includes 5613.

To give an indication of the level of details currently published for Canada’s monthly GDP for Services, the entries in the spreadsheet that exactly correspond to a published level have their industry codes and names in **BOLD**.

The NAICS Service industries correspond to the NAICS sectors 41 to 91 inclusive with the single exception of *NAICS 919 – International and Other Extra-Territorial Public Administration* (equivalent to *ISIC Q – Extra-territorial organisations and bodies*). Following the SNA 1993, the establishments in this class do not have a domestic activity, and hence their domestic value added is equal to zero.⁴ Hence, the NAICS Service industries approximately correspond to the ISIC categories G to P inclusively.

A special note about Wholesale and Retail Trade

Even though most sub-annual economic surveys at Statistics Canada have been redesigned in accordance with the NAICS industry classification, there are two important exceptions: the Monthly Retail Trade Survey and the Monthly Wholesale Trade Survey. These surveys are still designed by trade groups that correspond to aggregations of 4-digit 1980 SIC retail and wholesale industries. Both surveys will be redesigned to use the NAICS classification in 2004.

Hence, in the accompanying spreadsheet, we show each trade group and their approximate definitions according to both NAICS 1997 and ISIC Rev. 3. For most of these trade groups, Total Sales constitutes a single indicator for their output. For both

⁴ There is another special case, *NAICS 914 – Aboriginal Public Administration*. Because of a lack of sufficient information, these establishments are currently part of other service industries. Work is currently in progress at Statistics Canada to change that.

the Wholesale Trade and Retail Trade sectors, the I/O weights are only available at the sector level, i.e. for the whole NAICS sectors 41 – *Wholesale Trade* and for 44-45 – *Retail Trade*.

A final word of caution: this spreadsheet is still preliminary, and is subject to revisions.