



Statistics
Canada

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Mini Presentation on Turnover/Output

Telecommunications
in Canada

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1. Definition of the service being collected

In the North American Industry Classification System (NAICS 2007), the telecommunications services sub-sector comprises establishments primarily engaged in providing telecommunications and/or video entertainment services over their own or leased networks, on a resale basis or over client-supplied high speed Internet connections. The establishments are grouped into industries on the basis of the nature of services provided (fixed or mobile), the type of network used to deliver those services (wireline or wireless), and the business model they employ (facilities-based or resale).

The classification is structured as follows:

517 Telecommunications

5171 Wired Telecommunications Carriers

5172 Wireless Telecommunications Carriers (except Satellite)

5174 Satellite Telecommunications

5179 Other Telecommunications (including resellers)

The product classification is specific to the Canadian system and has been developed mainly to measure competition in telecommunications markets as organized in Canada. At the highest level of the classification, the following markets are recognized.

Telecommunication services

Local and access

Long distance

Data and Private

Internet

Broadcast distribution

2. Surveys of turnover for the telecommunications industry

Two surveys collect information on turnover by type of telecommunication services, one annual and one quarterly. These surveys are described in the following sections.

The statistical infrastructure to measure the outputs of telecommunications industries is undergoing a major redesign, the main feature of the redesign being the integration of surveys conducted by the regulator (The Canadian Radio-Television and Telecommunications Commission or CRTC¹) and the statistical agency (Statistics Canada or STC). This integration is meant to make more efficient use of resources and promote the coherence of the Canadian statistical system, by eliminating overlap and using common concepts and definitions. The redesigned program will also provide a more up-to-date description of the industry and its markets.

¹ The CRTC is an independent public authority in charge of regulating and supervising Canadian broadcasting and telecommunications. The goal of the CRTC is to ensure that, as much as possible, market forces allow for affordable, high-quality telecommunication services by encouraging competition and allowing incumbents the opportunity to develop more productive and cost effective processes, with minimum regulatory interference.



2.1 Annual Survey of Telecommunications

For the 2007 survey cycle (conducted in 2008) Statistics Canada's *Annual Survey of Telecommunications* and *Annual Survey of Internet Services Providers* were merged with the CRTC's annual telecommunications data collection. The CRTC annual data collection process was enhanced to include the collection of information essential for the production of national and provincial economic accounts.

The information collected by the *Annual Survey of Telecommunications* serves two broad objectives. The first is to measure the financial performance and economic contribution of the telecommunications services sub-sector. To meet this objective the survey collects information on revenues and expenses, fixed assets and capital expenditures by type. The second broad objective is to measure the deployment and use of the telecommunications infrastructure. To meet this objective the survey collects data on the number of fixed and wireless accesses by type and on telecommunications traffic.

The list of establishments (the frame) targeted by the survey is elaborated and maintained by the CRTC. This survey is a census of all telecommunications services providers above a given size threshold.

The *Annual Survey of Telecommunications* uses different methods to collect data from large (group 1) and small (group 2) service providers. Large providers are asked for detailed information through an on-line data collection system while smaller providers are asked for a few variables through a paper-based data collection.

Group 1 service providers generally have significant telecommunications revenues, file tariffs with the CRTC or have a license to carry international telecommunications traffic. Group 2 service providers typically generate less revenues.

Responding to this survey is mandatory under *the Telecommunications Act* and *the Statistics Act*. The survey questionnaires are available on-line or mailed in early February following the end of the reference year.

Results from this survey were released on July 31, 2008 by the CRTC in the Commission's first annual report on the communications industry². High level summary statistics are reproduced in section 3 – **Market conditions and constraints**.

2.2 Quarterly Survey of Telecommunications

The annual survey of telecommunications is complemented by a quarterly survey that collects a sub-set of key variables of the annual survey from the largest entities. The quarterly survey was also recently redesigned to reflect the revised industry definition (NAICS 2007), to align its concepts on the equivalent annual survey and to reduce response burden.

² <http://www.crtc.gc.ca/eng/publications/reports/PolicyMonitoring/2008/cmr2008.htm>



The data collected include revenues (or turnover) by broad type of service, capital expenditures, number of fixed and wireless accesses by type and selected telecommunication traffic statistics. The entities targeted by the quarterly survey account for about 90% of the industry's revenues.

The survey is a mail-out / mail back survey. The contact for the survey is obtained prior to mail-out by contacting the establishment and making reporting arrangements. Responding to this survey is mandatory. The first results from the redesigned survey are expected early in 2009.

3. Market conditions and constraints

Canadian telecommunications services markets totalled \$44.4 billion in Canada in 2007, growing at an average rate of 5.6% over the last three years (see Table 1)³. While wireline telecommunications still accounts for more than half of revenues, growth has flattened out. On the other hand, wireless telecommunications (representing over 30% of revenues) has been growing a rapid pace of about 15% per year.

Table 1: Revenues (turnover) by market (\$ Cdn billions)	2005	2006	2007
Wireline telecommunications			
Local and access	9.8	9.6	9.5
Long distance	5.1	4.7	4.3
Internet	4.5	5.0	5.7
Data and private line	4.1	4.0	4.1
Total wireline telecommunications	23.5	23.4	23.6
Wireless telecommunications			
Local (Basic voice)	8.2	9.1	10.1
Long distance	0.8	0.9	1.1
Paging	0.1	0.1	0.1
Terminal	0.7	0.6	0.7
Data and other	1.3	2.0	2.5
Total wireless telecommunications	11.0	12.7	14.5
Broadcast distribution (cable and satellite television)	5.3	5.8	6.3
Grand total	39.8	41.9	44.4
Source: CRTC Communications Monitoring Report 2008, Joint CRTC and Statistics Canada Survey Totals may not add up due to rounding			

³ This figure is based on a broad definition of telecommunication markets that includes broadcast distribution in order to be coherent with the NAICS definition of telecommunications. The CRTC uses a narrower definition that excludes broadcast distribution.



Table 2 provides market share by the type of provider. The Incumbent Telecommunications Service Providers (TSPs) category refers to former territorial monopolies. De-regulation of markets began in the early 80s (terminal equipment) and was gradually extended to other markets, the latest being the local and access market.

Incumbent TSPs still hold the lion's share of most wireline markets (over 60%), the main exception being the Internet access market which was competitive from the outset. In 2007, alternative TSPs held 59% of the residential market and 40% of the business market. The main competitors to incumbent TSPs in this market are the cable television service operators, but consumers have a choice between several suppliers in many markets, especially in urban areas.

The Wireless market is dominated by three national suppliers of roughly equal size. The situation may change as a recent spectrum auction led to the entry of new players in this market. The auction was designed with that objective in mind. Competition and affordability issues in this market have been the subject of much policy debate in the last few years.

Up until 1997, the broadcast distribution market was essentially served by territorial monopolies (cable companies). The situation changed drastically with the arrival of two direct-to-direct home satellite television service providers and a few fixed wireless suppliers (MDS). Today, satellite and MDS suppliers generate 29% of revenues in this market. IPTV is now available in selected market but remains a small player.

Table 2: Market share by type of providers	% of revenues
Wireline telecommunications	
Incumbents Telecommunications Service Provider (TSP) (in territory)	68.4
Incumbents TSP (out-of territory)	7.7
Alternative facilities based TSP	17.7
Resellers	6.1
Wireline local and access services	
Incumbents TSP (in territory)	85.7
Incumbents TSP (out-of territory)	4.8
Alternative TSP	9.6
Wireline long distance	
Incumbents TSP (in territory)	64.4
Incumbents TSP (out-of territory)	6.2
Alternative TSP	29.4
Residential Internet access	
Incumbents TSP (in territory)	41.0
Incumbents TSP (out-of territory)	-
Alternative TSP	59.0
Business Internet access	
Incumbents TSP (in territory)	48.0
Incumbents TSP (out-of territory)	12.0



Alternative TSP	40.0
Data and private line	
Incumbents TSP (in territory)	53.0
Incumbents TSP (out-of territory)	25.0
Alternative TSP	22.0
Wireless Telecommunications	
Bell Group	28.0
Rogers	36.0
Telus	31.0
Others	5.0
Broadcast distribution	
Cable and IPTV (wireline)	68.5
Satellite and MDS (wireless)	29.0
Small operators (wireline and wireless)	2.4
Source: CRTC, Communications Monitoring Report 2008, Joint CRTC and Statistics Canada Survey. Totals may not add up due to rounding	

The recent trends in Canadian markets are much like those observed elsewhere. Growth is fastest in newer markets, in particular Internet access services, wireless services and innovative data protocol services such as IP-VPN and Ethernet. Between 2004 and 2007, growth was driven by these non-legacy type services while revenues from services such as local and access, legacy data and private line, and long distance have continued to decline⁴ as a result of downward pressures on prices due to increased competition and substitution effects.

4. Standard classification structure and product detail/levels.

4.1. Output

As mentioned earlier, the two main surveys that collect turnover data for telecommunication services are the *Annual Survey of Telecommunications* and the *Quarterly Survey of Telecommunications*.

The Annual survey collects extensive product detail. The general approach is best described as “drill down”. Total operating revenues (total turnover) are first broken down into broad service categories:

- Local and access
- Long distance
- Data and Private

⁴ CRTC, Communications Monitoring Report 2008.



- Internet
- Broadcast distribution

Each of these categories is further broken down by type and by market served (residential, business and wholesale), as appropriate.

4.1.1. Main variables

In addition to the turnover variables, the annual survey collects data to describe the use of the country's telecommunication infrastructure (e.g. lines by type, subscriber by type), investment into and valuation of the infrastructure (assets and capital expenditures), a few traffic indicators (e.g. long distance wireline minutes, wireless minutes and number of SMS) and the cost of producing services (operating expense by type).

The quarterly survey collects the same type of data (with the exception of expenses) at a higher level of aggregation from a smaller number of entities.

4.2 Main Classifications

The main classification systems underlying the relevant surveys describe the industry (NAICS) and its markets (survey product classification).

The redesigned surveys put more emphasis on product detail than on industry detail. This approach reflects needs (the original purpose of the survey was to monitor competition in telecommunication markets), the survey entity definition (legal entity) and the blurring of traditional industry lines in Canada (merging of entities).

The product classification was designed to describe the Canadian market structure and fulfil monitoring needs. As such it does not follow official classification schemes such as NAPCS or CPC. However it should be possible to map the detail data into these product classifications. This work remains to be done.

Finally, selected statistics are available by province including turnover by type for broad service category.

5. Evaluation of standard definition and market conditions

The redesigned statistical system represents a significant improvement over the previous one, in particular with regards to the measurement of turnover by product. The new classification of products better reflects current markets and should better meet the needs of external and internal users. For instance, the revised Input-output tables will recognize one telecommunication service industry but several telecommunication services markets.

As well the new survey design should make it easier to measure total market size and market share, two basic indicators of the impact of increasing competition in these markets.



6. National accounts concepts and measurement issues for the area related to GDP measurement

6.1. Output – Annual GDP

In the Canadian System of National Accounts, Telecommunications (Series number W517A00) comprises of five NAICS 4-digit industries: 5171 Wired Telecommunications Carriers, 5172 Wireless Telecommunications Carriers (except Satellite), 5173 Telecommunications Resellers, 5174 Satellite Telecommunications, 5179 Other Telecommunications. NAICS 5175 Cable and Other Program Distribution is measured separately as W517500.

The main data source is the annual survey of telecommunications, which targets establishments of the telecommunications sub-sector of NAICS 517 except for NAICS 5175 - Cable and Other Program distribution.

The industry gross output is based on total operating revenue. Non-operating revenues such as subsidies, investment income and late payment charges are excluded. When necessary, the allocation of surveyed revenue details to SNA commodity details is based on benchmarking similar industries as well as historical distribution.

6.2. Deflation – Monthly GDP

For monthly GDP, changes in constant price output are used as indicators of the growth rates in constant price value added. The movement in constant price output is assumed to be represented by the month-to-month growth rates in constant price revenues from providing local and toll services by telephone systems. Revenue from local telephone service is calculated using the number of network access lines in operation for residential and business use, the number of subscribers for cellular service, pagers, and Internet services, high speed and dial-up. Revenue from toll service is calculated based on the number of long distance calls. Constant price revenue is derived by using base year fees for access lines, residential and business, by type of service, and base year revenue per long distance toll message.

6.3. Deflation – Annual GDP

Constant price measure of gross value added or GDP by industry is not deflated directly, rather it is derived indirectly by the *double deflation method*, as the difference between a) gross output value by industry at constant price derived by summing the deflated commodity values of each industry in the output matrix, and b) the value of intermediate inputs deflated by an implicit price index for these inputs based on net supply. In the absence of an output price, the major output commodity - Telephone and other Telecommunication - is deflated using the Consumer Price Index for telephone services.



7. Turnover/output data method(s) and criteria for choosing various output methods.

In the case of telecommunications, the decision to use the described output method (joint STC-CRTC annual survey) came out of the desire to reconcile two sets of statistics and avoid duplication, thereby reducing respondent burden. Supplementing the detailed results from the new annual survey with quarterly survey data provides timely sub-annual data on turnover/output that can be used by the national accounts and other data clients.

The decision to focus on product data detail, rather than industry detail, stems from the rapid pace of convergence in the industry and the evolution of markets and the need for market data by communities outside of the typical national accounts perspective. Separating industry activity at a finer level detail is nearly impossible, as telecom carriers enter into broadcasting distribution, cable television distributors provide telephone service, and Internet and wireless service offerings from traditional providers in both broadcasting and telecommunications are expanded.

8. Evaluation of comparability of turnover/output data with price indexes.

Previously, STC did produce an annual and then a quarterly SPPI for telecommunication services, for long-distance wireline services *only*. However, these series have been suspended with the re-design of the turnover/output surveys. Originally, the annual SPPI series relied on the respondent micro-data supplied directly to the SPPI program. However, this series was replaced by a new, quarterly SPPI, which used average unit prices (revenue per minute by respondent and class of customer) derived from the previous *Quarterly Survey of Telecommunications* micro-data to calculate the index.

With the re-design of the quarterly and annual turnover surveys, a much richer source of micro-data will now be available to continue producing a quarterly series, along with developing several new SPPIs for the remaining telecommunication products (wireless etc.,)

9. Summary

In Canada, as in other countries, the telecommunications industry is continually evolving in size and scope. Convergence and innovation are leading to measurement challenges, one of them being a re-think of how turnover statistics detail are organized and published. However, the successful re-design of the turnover surveys and the joint effort by STC and the CRTC to maintain a robust statistical structure should lead to more reliable detail for the users in the end.