

Changes in the outputs of the capital and repair expenditures survey

I. Introduction

As part of a corporate initiative to improve data coherence across the economic survey program, the annual Capital and Repair Expenditures (CAPEX) program, along with several other economic surveys, was recently redesigned. More cohesive methods and processes have been applied to the redesigned surveys, and the latest available standards for industry and commodity coding have been implemented. The CAPEX program is part of the new economic survey model, which is called the Integrated Business Statistics Program (IBSP).¹

This report has two main objectives. The first is to inform CAPEX data users and other program stakeholders of all the changes that were implemented as part of the transition to the IBSP. These changes will take effect when data for the reference year 2013 are released, in May 2015. The second objective is to provide context on how the program changes will impact data outputs.

The document is organized into six parts. Following the introduction, Part II highlights the key methodological changes resulting from the integration of the CAPEX program into the IBSP framework. Part III describes the output from the current survey, and compares and contrasts the current outputs with the new ones that will be released. Part IV focuses on the introduction of new asset product codes that are based on the North American Product Classification Standard (NAPCS). In Part V, potential benefits resulting from the above changes are described. Part VI presents conclusions.

II. Major methodological and analytic changes to the CAPEX program under the IBSP

Statistics Canada is undertaking a major redesign of most of its business surveys under the Integrated Business Statistics Program (IBSP). The IBSP provides a common survey framework for the various business surveys conducted at Statistics Canada. The integration of the CAPEX program into the IBSP framework, which started with the reference year 2013 cycle, resulted in changes to the methods applied to select samples and tabulate estimates, and to the analytic strategy used to validate data.

The IBSP methodological and analytical approaches take into account core IBSP objectives, including reducing response burden, maintaining data quality, and maximizing the use of administrative data.

¹ For additional information, please request a copy of the Integrated Business Statistics Program Overview, The Orange Book, Enterprise Statistics Division.

The two-phase sampling approach is one of the key methods put in place to meet these objectives. The two-phase sample design is intended to improve data quality, while also minimizing response burden. It allows for more precise coverage, enhanced information on the survey frame, and more efficient targeting of questionnaires to businesses.

From a first-phase sample, a subset of businesses is targeted with a relatively short questionnaire. The goal is to obtain basic information that is not available on the economic survey frame, such as whether a business has capital expenditures or is engaged in research and development activities. The information gathered during phase 1 is then used to better target businesses that will receive a more detailed phase 2 questionnaire. The annual capital expenditures survey benefits from this approach in two ways. First, response burden is reduced, since businesses that do not have capital expenditures are identified during phase 1, and these businesses do not receive the detailed phase 2 questionnaire. The second benefit is that savings are achieved, since the detailed, phase 2, CAPEX questionnaire efficiently targets businesses that have capital expenditures, thus reducing the overall collection effort required to achieve statistical quality targets.

The IBSP model is designed to facilitate a top-down approach for data analysis and validation. For the CAPEX program, this approach is a departure from methods previously used. The idea of a top-down approach is to produce and review estimates at a very early stage, through multiple iterations in the survey processing cycle, and then to direct resources to undertake work that will result in significant quality improvements to the estimates. The key to the new analytic approach is the production of estimates at various stages of survey processing.

In the past, the first set of estimates was produced only a few months in advance of data being disseminated. It was at this time only that analysts would have a macro view of their industry estimates, and would be in a position to compare data from alternative sources as part of the validation process. Prior to the estimates being produced, analysts often spent a lot of time and effort to manually correct microdata. Although this manual work was perceived to result in much higher-quality estimates, studies indicated that some of the effort did not significantly impact estimates.

By producing estimates much earlier and more frequently in the process, analysts will be able to more easily identify domains of estimation that are not coherent, and can focus efforts on these domains. This focused editing approach may, in subsequent iterations, result in timeliness gains, since some domains will not require significant manual intervention to achieve quality targets.

Historically, a number of adjustments to the estimates have been made to the CAPEX series, to factor in conceptual differences with the Canadian System of National Accounts. These macro adjustments were applied to the majority of industries. With the redesign, the estimates will no longer be macro-adjusted.

III. Changes in Data Products

1. Output of current surveys

Statistics Canada's annual CAPEX program publication is "Private and Public Investment in Canada," (catalogue No. 61-205-X). The publication focuses on private- and public-sector organizations, as well as the residential housing sector. The major components of this publication are capital and repair expenditures on construction and on machinery and equipment. There is also a detailed breakdown of private and public expenditures. These variables are cross-classified using industrial breakdowns known as sectors and sub-sectors, as well as by province and territory. A methodology section completes the publication content.

In addition to this publication, there is a series of CANSIM tables, which can be accessed, without cost, via Statistics Canada's website.

2. Output of the new surveys

As of the actual 2013 survey year, there will be significant changes to the products released from the annual survey. Depending on the quality of responses, Statistics Canada plans to release more detailed data at the national level, as well as increased data, albeit less detailed, by province and territory. The data will also provide a breakdown of private and public ownership, by industry, and by province and territory. For some industries, the data will be released, nationally, at the detailed industry level and, for others, at a higher level of industrial aggregation. The industry-level breakdown appearing in the new data series will be virtually unchanged from what has been historically released.

Also, as part of the new outputs, the housing component will be dropped, since the primary goal of the program is to publish capital expenditures made by private- and public-sector organizations. Links to the new CAPEX data holdings will be provided when data are publicly released.

2.1 Structure of output of the new surveys

Now that "Private and Public Investment in Canada," (catalogue No. 61-205-X), is no longer published (as announced in *The Daily* on February 26, 2014), the outputs of the new survey will be published in a series of CANSIM tables. The structure of the tables will be available prior to the release of the data.

IV. North American Product Classification System (NAPCS) and changes to the CAPEX asset types

1. *The new product classification system*

The CAPEX survey is also applying the new North American standard for collecting and disseminating product data. The standard is designed to provide common product definitions for Canada, the United States and Mexico. The NAPCS-delineated products replace current CAPEX asset types.

The most significant change to data outputs will be the use of NAPCS for the asset details. With the use of the NAPCS, certain differences may exist at the lower-level groupings, but high-level groupings for non-residential construction will be identical to those that were released prior to the actual 2013 survey. The asset details for residential building construction will no longer be available. The asset details for machinery and equipment groupings will be released for the first time since they were terminated almost 20 years ago. The same level of detail provided in previous years will be made available; that is, by province and territory, or by industry.

The capital expenditures on non-residential construction and on machinery and equipment will exclude expenditures related to intellectual property, which will be part of the CAPEX release, but separate from non-residential construction and machinery and equipment.

Below are the lists of NAPCS groupings:

A. Non-residential Construction

- a. Industrial Building
- b. Commercial Building
- c. Institutional Building
- d. Marine Engineering
- e. Transportation Engineering
- f. Waterworks Engineering
- g. Sewage Engineering
- h. Electric Power Engineering
- i. Communication Networks
- j. Oil and Gas Engineering
- k. Mining
- l. Other Engineering

B. Machinery and equipment

- a. Passenger cars and light trucks
- b. Medium and heavy trucks, buses and other motor vehicles
- c. Other transportation equipment
- d. Processing machinery and equipment
- e. Other industrial machinery and equipment
- f. Computers and office equipment, excluding software
- g. Telecommunications, cable and broadcasting equipment
- h. Commercial and service industry machinery and equipment
- i. Scientific instruments and equipment
- j. Other machinery and equipment

C. Intellectual Property Product

- a. Mineral exploration and evaluation

b. Software

2. *Historical continuity of data*

To support data continuity over time, capital expenditures on construction assets, for actual 2007 to actual 2012 data, will be backcasted. The capital construction asset types will be released using NAPCS Canada, and will have the same level of groupings as for the actual 2013 survey. The data will be released by province and territory and by industrial sector. The confidentiality patterns that were used for the previously released data will be re-used for the backcasted series.

V. Benefits of the new survey

The main benefit of the new program from a data-user perspective is the implementation of the NAPCS classification. It will result in updates to asset details and individual products that better reflect today's economy. As such, federal and provincial governments and agencies, trade associations, universities, and international organizations will have access to more relevant data that will aid in making informed decisions on policy and in analyzing changes to the economy.

VI. Conclusion

This report highlights changes to the annual Capital and Repair Expenditures program, and provides insights into the products to be released publicly from the redesigned program. In determining the outputs of the new program, Statistics Canada has put emphasis on maintaining historical links to the greatest extent possible.

For further information on the annual capital expenditure and repair expenditures, copies of questionnaires, feedback, comments or suggestions, please contact Valérie Gaudreault (613-883-0624; valerie.gaudreault@statcan.gc.ca, Investment, Science and Technology Division)