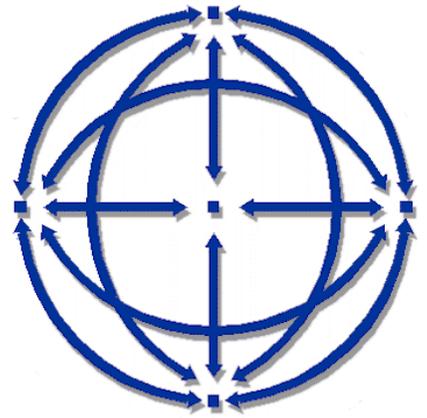


Latest Developments in the Canadian Economic Accounts

A preview of the historical revision of the Canadian System of National Accounts



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- . not available for any reference period
- .. not available for a specific reference period
- ... not applicable
- 0 true zero or a value rounded to zero
- 0^s value rounded to 0 (zero) where there is a meaningful distinction between true zero and the value that was rounded
- ^P preliminary
- ^r revised
- X suppressed to meet the confidentiality requirements of the *Statistics Act*
- ^E use with caution
- F too unreliable to be published
- * significantly different from reference category ($p < 0.05$)

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A preview of the historical revision of the Canadian System of National Accounts

Author: This paper is a compilation of the work of employees within the Canadian System of National Accounts Branch of Statistics Canada. This paper represents a summary of their research over the last year on various issues related to the adoption of the System of National Accounts 2008 within the Canadian System of National Accounts (CSNA (Canadian system of national accounts)) and the upcoming release of the CSNA2012 (Canadian system of national accounts 2012).

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Abstract: This paper provides a preview of the historical (comprehensive) revision of the Canadian System National Accounts to be released beginning in October 2012. The last revision of this scope took place in 1997. The paper highlights the changes resulting from the adoption of SNA2008 (System of national accounts 2008) which is the revised international standard for national accounting, along with statistical revisions arising from new and improved source data and methodologies. Updates to the classification systems used in the Canadian System of National Accounts are also presented along with a list of changes planned for 2014.

Introduction

The Canadian and world economies continue to change rapidly as new products and markets emerge and evolve. In addition, the interconnectedness of markets has continued to grow and transform. Statistical systems must adapt if they are to continue to deliver relevant information.

Statistical revisions are carried out regularly in the Canadian System of National Accounts (CSNA) in order to incorporate the most current information (from censuses, annual surveys, administrative statistics, public accounts, etc.) and to improve estimation methods. Regular annual revisions are limited to a few years. Periodically, the CSNA (Canadian system of national accounts) (Canadian system of national accounts) undergoes a historical or comprehensive revision. Historical revisions are much broader in scope than regular revisions and are reserved for incorporating conceptual, classification, presentational and major statistical changes. Within the CSNA (Canadian system of national accounts) (Canadian system of national accounts) these revisions have taken place at about ten to

fifteen-year intervals and affect a long economic time series. The last such revision was implemented in 1997 (CSNA (Canadian system of national accounts) (Canadian system of national accounts)97). In 1997 the Canadian economy was quite different than it is today:

- The services industries represented 66% of the economy; today they represent 72%;
- Household debt as a percentage of disposable income was 108%; today it is 148%;
- Exports as percent of gross domestic product (GDP) was 39%; today it is 29%;
- Government net debt as a percentage of GDP (Gross domestic product) (Gross domestic product) was 85%; today it is 45%.

In Canada, recent historical revisions have generally followed the updating of international standards in the field of national accounts. The CSNA (Canadian system of national accounts) (Canadian system of national accounts)97 historical revision included implementation of the United Nations 1993 System of National Accounts (SNA). It also included the establishment of a public sector universe and corresponding changes to statistical series, re-basing, and a host of other statistical revisions.

In 2008, the United Nations, European Commission, International Monetary Fund (IMF), World Bank and Organization for Economic Co-operation and Development jointly released *The System of National Accounts, 2008* (SNA2008). The SNA (System of national accounts) is a statistical framework that details a set of macroeconomic accounts that can be used by governments, businesses, and international organizations for analysis, research, and policy making. SNA2008 (System of national accounts 2008) serves as an update to *The System of National Accounts, 1993* (SNA93) which was produced under the auspices of the same five organizations. This update better reflects the changing economic landscape and advances in methodological research, data sources and compilation methods.

SNA2008 (System of national accounts 2008) is not a fundamental change but is rather considered an update from SNA (System of national accounts)93, with the expectation that countries already using this standard should be able to implement most of the new standard in a rather seamless manner. The main thrust of SNA2008 (System of national accounts 2008) is to elaborate on those aspects of economies that have become more prevalent in recent years, or that have garnered recent analytical attention. The new features of the SNA2008 (System of national accounts 2008) include the treatment and classification of assets; the financial sector; globalization and related issues; the general government and public sector; and the informal sector.

The historical revision set to be released in October 2012 will begin the process of aligning the CSNA (Canadian system of national accounts) (Canadian system of national accounts) with the SNA2008 (System of national accounts 2008). In addition, the CSNA (Canadian system of national accounts) (Canadian system of national accounts) will use this opportunity to align its international account statistics with the IMF (International monetary fund) Balance of Payments and International Investment Position Manual, sixth edition (BPM6). SNA2008 (System of national accounts 2008) retains the basic framework of SNA (System of national accounts)93 and "reflects the evolving needs of its users, new developments in the economic environment and advances in methodological research" (Foreword, SNA2008 (System of national accounts 2008)). Most countries are undertaking a similar process; therefore this historical revision not only serves to improve the overall relevance of the CSNA (Canadian system of national accounts) (Canadian system of national accounts) but also maintains its international comparability.

Implementing SNA2008 (System of national accounts 2008) and the planning horizon

When the SNA (System of national accounts)93 was formally adopted in Canada in the 1997 historical revision a 'big bang' approach was taken in that a number of the recommendations contained in the manual and not already in place were implemented. In order to accomplish such a large scale project certain parts of the CSNA (Canadian system of national accounts) (Canadian system of national accounts) program were suspended, such as the compilation of the Input-Output Tables and related benchmarking activities.

The current dynamics in relation to the ongoing historical revision are different. First, we can no longer suspend publication of the annual Input-Output Tables as they are tied to the ongoing operation of fiscal programs such as the Harmonized Sales Tax (HST) and equalization programs. Second, the data required to implement all of the SNA2008 (System of national accounts 2008) recommendations are not yet available,¹ this is especially the case for recommendations surrounding globalization and related issues.

Given these resource constraints and data availability, Statistics Canada will implement the SNA2008 (System of national accounts 2008) in a staggered fashion, setting priorities and targeting important changes. Under this flexible mode, the traditional 'big-bang' historical revision will be replaced by more frequent revisions of reduced scope which will permit Statistics Canada to introduce improvements which reflect emerging economic issues in the national accounts as and when feasible. This strategy furthers the Statistics Canada policy of maintaining the accuracy and relevancy of its economic accounts. The intent is that the reduced scope of the revisions will be less disruptive to clients as well as maintaining relevance and international comparability. Statistics Canada will keep clients up-to-date by announcing planned changes in the CSNA (Canadian system of national accounts) (Canadian system of national accounts) well in advance of the releases.

The current list of planned changes to the CSNA (Canadian system of national accounts) (Canadian system of national accounts) has been categorized into three groups;

- revisions to be adopted with 2012 releases (CSNA2012 (Canadian system of national accounts 2012));
- revisions to be adopted with 2014 releases (CSNA2014 (Canadian system of national accounts 2014));
- issues that will form part of the CSNA (Canadian system of national accounts) (Canadian system of national accounts) research agenda and will be phased in when and as resources become available.

This paper is structured along these lines. The first section highlights the changes which will be implemented for 2012; the next section outlines a list of changes planned for 2014.²

Structure of the CSNA (Canadian system of national accounts) (Canadian system of national accounts)

The CSNA (Canadian system of national accounts) is an integrated set of macroeconomic accounts. The Input-Output Tables present the most comprehensive accounting of the economy, both nationally and provincially. The information is summarized in four main tables:

- The output table shows the value of each commodity produced by each industry.
- The input table shows the commodity inputs (materials, energy, services, labour and capital) used by each industry to produce that industry's output. In other words, it shows the value of all commodity purchases for intermediate consumption, as well as the incomes paid to the factors of production (labour and capital).
- The final demand table shows the value of all commodity purchases for final consumption, such as purchases by consumers, purchases by government, investment expenditures, and purchases by non-residents.
- The inter-provincial trade flow (IPTF) table traces the origin and destination of goods and services traded between provinces.

The CSNA (Canadian system of national accounts) also includes a set of Income and Expenditure Accounts (IEA). The Income and Expenditure Accounts measure income generated through the production of goods and services (such as individuals' wages and salaries, corporation profits, and property income such as net interest paid and rent) and the final expenditures on those goods and services (such as consumer spending, government expenditures, business investments, and exports less imports). A key feature of the IEA (Income and expenditure accounts) is the grouping of participants (transactors) in the economy into four sectors, each of which covers entities with similar economic behaviour. These are known as the institutional sectors, representing households, corporations, governments, and non-residents.

For each sector, the IEA (Income and expenditure accounts) first shows income, not only from production but also from transfers (such as old-age pensions). Then they show current expenditures, either to buy goods and services or to transfer money to other sectors (for example, to pay taxes). The difference between income and expenditure is saving. Saving is used to invest in physical capital such as machinery, houses or highways. The difference between saving and investment is a sector's surplus or deficit position. Saving can also be used to invest in financial assets, such as bonds or shares or to reduce liabilities while deficits are funded by the sale of financial assets or increased liabilities. This detail is found in the Financial Flow Accounts (FFA). For each sector, the FFA (Financial flow accounts) measure net lending or borrowing, by articulating the sources and uses of funds. The FFA (Financial flow accounts) shows a measure of net financial investment, which is the difference between transactions in financial assets and liabilities (e.g. (for example), net purchases of securities minus net issuance of securities).

Like a business, the country's wealth is measured with a balance sheet. The National Balance Sheet Accounts present, for each sector, the value of physical and financial assets and the value of financial liabilities at the end of each quarter. Each sector's net worth equals its assets minus its liabilities. This net worth evolves over time as the result of capital and financial transactions and capital gains and losses. Canada's net worth is the difference between what we as a country own (both in Canada and abroad) and what we owe to the rest of the world. The Financial Flow Accounts and National Balance Sheet Accounts are presented in considerable sub-sector and asset detail (thirty sectors and twenty-five distinct types of financial instruments), showing the financing of economic activity.

The non-resident sector is represented in the Balance of Payments (BOP) account and the International Investment Position (IIP) account. These accounts, respectively, measure Canada's transactions and investment position with non-residents and form the basis for the non-resident sector in the CSNA (Canadian system of national accounts).

Taxonomy of revisions

Many of Canada's key macroeconomic indicators originate in the accounts noted above. Examples include measures such as gross domestic product (GDP), national net worth, government net debt, gross domestic income, personal disposable income, household saving, household debt, labour productivity, value added by industry, Canada's balance of payments and international investment position. The planned revision to CSNA (Canadian system of national accounts) for 2012 (CSNA2012 (Canadian system of national

accounts 2012)) will impact many if not all of these aggregates. As the economy changes, so must the standard and methods that are used to measure it. The motivation behind the proposed CSNA2012 (Canadian system of national accounts 2012) changes can be classified into three broad groups:

- **Revisions related to improving the relevance of the CSNA (Canadian system of national accounts)**, such as introducing new concepts, definitions and improving international comparability. These types of revisions align the CSNA (Canadian system of national accounts) with the current economic landscape and align the Canadian accounts with that of other countries allowing for meaningful cross country comparisons.
- **Revisions related to improving the interpretability of the CSNA (Canadian system of national accounts)**, such as the adoption of new classification systems. These revisions have both a quality and relevance dimension. The new classification systems better reflect the current economic realities rendering the data more relevant. The extent to which the classification systems are aligned with one another and used through the statistical system improve the overall coherence and quality of the estimates.
- **Revisions related to improving the quality and detail of the CSNA (Canadian system of national accounts)**, such as incorporating new data resulting from survey redesigns, new administrative data or improved estimation methods.

What follows is a detailed account of the planned changes for CSNA2012 (Canadian system of national accounts 2012), classified according to the above nomenclature. For each of the proposed changes we first describe the current treatment, if any, the proposed CSNA2012 (Canadian system of national accounts 2012) treatment, and the improvement resulting from this change.

Planned changes: CSNA2012 (Canadian system of national accounts 2012)

Revisions related to improving the relevance of the CSNA (Canadian system of national accounts)

Capitalization of research and development

Expenditures on research and development (R&D) play a key role in most economies. Organizations use R&D (Research and development) as a way to advance knowledge, develop new products or improve current products and production processes. In this regard, R&D (Research and development) spending is similar to investment in capital assets (such as machinery and equipment) since the benefits of the expenditures can accrue over a period of time. R&D (Research and development) produces intangible assets, which provides a store of value and should be reflected in measures of wealth.

In the System of National Accounts 1993 (SNA (System of national accounts)93), R&D (Research and development) spending was treated as intermediate consumption rather than capital formation. Intermediate goods and services are used only once while capital assets are "used repeatedly or continuously in production processes for more than one year." As a result, R&D (Research and development)'s contribution to the economy is under-valued. SNA (System of national accounts)93 acknowledged that R&D (Research and development) spending was essentially investment activity. However, it was retained as intermediate consumption due to a number of measurement difficulties, including: distinguishing R&D (Research and development) activities from other activities in the production process; valuing R&D (Research and development) assets, and; depreciating R&D (Research and development) capital to arrive at net stocks. In the newly updated SNA (System of national accounts) manual—SNA2008 (System of national accounts 2008), R&D (Research and development) is recognized as an intangible capital asset with associated investment flows and capital consumption charges.

With the October 2012 release of the CSNA (Canadian system of national accounts), investment in research and development along with existing investment data for software and mineral exploration will be classified into a new investment category called intellectual property products.³

The capitalization of research and development will provide an improved picture of the level of investment undertaken by businesses and other organizations. A better understanding of these investment flows and stocks will lead to a clearer understanding of the growth and the structure of the economy and the role of R&D (Research and development) in the productivity debate.

Capitalization of military weapons systems

Some defence spending is currently capitalized within the CSNA (Canadian system of national accounts), such as expenditures on defence non-residential structures and engineering (military bases, military airports). Expenditures on military weapon systems including vehicles and other equipment such as warships, submarines, military aircrafts, tanks, missile carriers and launchers are treated as current expenditures. The SNA2008 (System of national accounts 2008) recommends that military weapon systems be capitalized within a country's national accounts. Furthermore, it recommends that single-use weapons (e.g. (for example), ammunition,

missiles, rockets, bombs) be treated as inventories. Starting in October 2012, military weapons systems will be capitalized within the CSNA (Canadian system of national accounts). However, due to a lack of data, expenditures on single-use weapons will continue to be treated as current expenditures rather than inventories.

The defence-related investment in non-residential and residential structures and military weapons systems will be grouped together into a single investment category called 'defence'. This change will improve the international comparability of the CSNA (Canadian system of national accounts), as many other countries, such as the United States, are capitalizing military weapons systems. The capitalization of military weapons systems will increase GDP (Gross domestic product) (Gross domestic product) by the amount of capital consumption of weapon systems. There will also be an offsetting change between government current and capital expenditure.

Consumption of fixed capital

Currently, the consumption of fixed capital (or capital consumption allowance (CCA)) is estimated by applying differing rates of depreciation against part of the capital stock valued at historical cost and part of the capital stock valued at replacement cost. Specifically,

- CCA (Capital consumption allowance) for corporations, unincorporated businesses and government business enterprises are estimated on a historical cost basis using a linear depreciation method.
- CCA (Capital consumption allowance) within the government sector is estimated on a replacement cost basis using a linear depreciation method.
- The depreciation of residential structures and farms is on a replacement cost basis using a geometric depreciation method and the depreciation of facilities for rent is on a historical cost basis using a linear depreciation method.

SNA (System of national accounts) 1993 and 2008 both recommend that capital consumption allowance within the system of national accounts be calculated on a replacement cost basis rather than a historical cost basis. The contention is that the capital consumption allowance "...should reflect the underlying resource costs and relative demands at the time the production takes place. It should therefore be calculated using the actual or estimated prices and rentals of fixed assets prevailing at that time and not at the times the goods were originally acquired" (SNA2008 (System of national accounts 2008), section 6.248).

The CSNA2012 (Canadian system of national accounts 2012) will move to value CCA (Capital consumption allowance) on a replacement cost basis using a geometric depreciation method for all sectors. The move to replacement cost CCA (Capital consumption allowance) in the corporate sector will not have an impact on GDP (Gross domestic product) (Gross domestic product) as the change in the estimate of CCA (Capital consumption allowance) will be offset by a change in corporate profits on an SNA (System of national accounts) basis. The surplus of government is equal to its CCA (Capital consumption allowance). The move to replacement cost CCA (Capital consumption allowance) on a geometric basis will increase its CCA (Capital consumption allowance) and therefore increase government output, surplus and GDP (Gross domestic product) (Gross domestic product). While this will have a relatively small impact on the growth in GDP (Gross domestic product), it will increase the level.

The reason for this change is twofold. First, it adheres to SNA2008 (System of national accounts 2008). Second, it aligns with the international presentation of income aggregates and it makes the estimate of CCA (Capital consumption allowance) within the Income and Expenditure Accounts coherent with the capital stock found in the National Balance Sheet Account.

Valuation of assets and liabilities

While SNA2008 (System of national accounts 2008) indicates that assets and liabilities should be recorded at market value, the valuation of equity in both the NBSA (National balance sheet accounts) and JIP (International investment position) is currently a mix of market value and book value. Equity of publically traded companies treated as portfolio investment is valued at market value while the balance of equity on the NBSA (National balance sheet accounts) is valued at book value. A major step forward will be the revaluation to market prices of unlisted and intercompany investment, which is the last principal component of the NBSA (National balance sheet accounts) that requires market valuation. With the October 2012 release of the National Balance Sheet Accounts and International Investment Position, all components of equity will be more consistently valued at market price.

For the international accounts, underlying book value has been the long-standing standard for valuing Foreign Direct Investment (FDI) positions. In 2006, a provisional methodology was developed to convert book value estimates of FDI to market value, with initial estimates released in the form of a paper. The current effort is an extension of this work. For the NBSA (National balance sheet accounts), the valuation of unlisted and inter-company investment has been at book value on the liability side and at acquisition cost on the asset side. The market valuation of this equity will adopt a methodology similar to the FDI and will not only enhance relevance but will also eliminate the inconsistency on the asset-liability book value estimates.

We will use the most widely-accepted methodology in the international standards to make this change—the market capitalization approach. This amounts to using capitalization ratios (market value over book value) derived from listed companies and applying these to the book value equity estimates of unlisted companies, with exceptions for specific cases (e.g., (for example), small companies, specific sectors). The steps are, in brief, as follows:

- If a subsidiary is a listed company, the market value to book value ratio of the listed subsidiary will be used to derive the market value.
- If a subsidiary is not listed then it will first be determined if the investment level is above a certain threshold; if it is not then the market value will be set equal to the book value. If the level of investment is significant, research will be undertaken to determine if there has been any recent merger or acquisition activity, and if available, this information will be used to determine the market value. If there is no recent merger or acquisition activity, then an industry average book-to-market value ratio will be applied to the equity to derive the market value.

Moving all equity to a market value will provide a more accurate picture of the value of assets and liabilities across all sectors of the economy as well as for the IIP (International investment position). It will have a tendency to increase the net worth of the household sector since the majority of this equity is ultimately held by this sector.

Treatment of environmental liabilities

During the last decade, governments and businesses have been identified as being liable for the restoration of contaminated sites and the disposal of items related to contamination. As such, they are now recognizing their obligations (referred to as environmental liabilities) to remediate areas and to improve those assets for which they are responsible within their accounting records. These estimates of environmental liabilities are currently not defined as liabilities (or assets) in the National Balance Sheet Accounts. As of 2007, governments and their enterprises have recorded \$24 billion in environmental liabilities on their balance sheets.

SNA2008 (System of national accounts 2008) does not make any clear recommendations concerning the treatment of environmental liabilities in the balance sheet, nor do they discuss the treatment of any corresponding assets. Any reference to accounting for them is made in the context of the discussion on development of a satellite account for environment accounting in Chapter 29-2. Given the lack of international consensus on their treatment, the CSNA (Canadian system of national accounts) will not include them in the NBSA (National balance sheet accounts). That said, these do represent liabilities of government and corporations and it was felt that it is important to provide this information to users. As such, we will be including a memo item in the government sector account which explicitly shows known environmental liabilities of governments. The development of new data sources is required before this item can be shown as a memo item in the corporate sector.

Financial derivatives

A financial derivative contract is a financial instrument linked to another specific financial instrument, indicator or commodity. This allows risk factors to be traded in their own right in financial markets. Derivatives are traded in organized markets known as exchange traded markets (EXT) or over-the-counter (OTC) markets. The exchange traded markets in Canada is through the CDCC (Canadian Derivative Clearing Corporation), the issuer, clearinghouse, and guarantor of equity, index and interest rate derivatives traded on the Montreal Exchange.

There are two broad types of financial derivatives: options and forwards:

- Options: where the buyer acquires the right but not the obligation to buy (call) or sell (put) an underlying item at an agreed on price by a future date.
- Forward: includes forwards, futures, swaps, and credit derivatives where there is no up-front payment but a contract to exchange a specified quantity of an underlying item (e.g., (for example), currency).

SNA2008 (System of national accounts 2008) recommends derivatives be functionally classified to the class "financial derivatives and employee stock options" for assets and liabilities. Currently within the National Balance Sheet Accounts and the Financial Flow Accounts (FFA) they are implicitly included under other assets and other liabilities. Articulating financial derivatives in the NBSA (National balance sheet accounts) and FFA (Financial flow accounts) will improve Canada's international comparability as well as improve the measure of net worth by sector.

At this time the data required to produce estimates of financial derivatives for all sectors is not available and needs to be developed. With the release of CSNA2012 (Canadian system of national accounts 2012), derivatives will be estimated for certain sectors where data are available. Data development will continue into 2012 and 2013 with the goal of providing full sector detail with the release of the 2014 NBSA (National balance sheet accounts) and FFA (Financial flow accounts).

The development of estimates of derivatives will fill an important data gap within the CSNA (Canadian system of national accounts). In addition, following the financial crisis, international organizations are requiring statistical agencies to provide detail within their national accounts regarding financial derivatives as means to improve the overall monitoring of a country's financial system.

Revisions related to improving the interpretability of the CSNA (Canadian system of national accounts)

Industry and commodity classifications

The CSNA2012 (Canadian system of national accounts 2012) will adopt a number of new classifications. These classifications will be implemented where applicable across the accounts within the CSNA (Canadian system of national accounts) (Income and Expenditure Accounts, Input-Output Tables, Balance of Payments, Financial Flow Accounts, National Balance Sheet Accounts, International Investment Position).

The CSNA2012 (Canadian system of national accounts 2012) will utilize the following classification systems:⁴

- An industry classification referred to as the Input-Output Industry Classification (IOIC) that reflects a special aggregation of the North American Industry Classification System (NAICS). The revised NAICS (North american industry classification system)-based IOIC (Input-output industry classification) has 241 industries, of which 99 are service-producing industries. The existing framework has 300 industries, of which 71 are service-producing industries. Articulation of expanded service-producing industries is in line with the growing importance of service industries in the Canadian economy. The new classification will also be used in the Balance of Payment and International Investment Position accounts.
- A commodity classification referred to as the Input-Output Commodity Classification (IOCC) that reflects a special aggregation of the North American Product Classification System (NAPCS).⁵ While the overall number of commodities in the new IOCC (Input-output commodity classification) classification has been reduced from 727 to 488, the number of service-related commodities has increased from 147 to 173, again reflecting the increased importance of services to the Canadian economy.
- Estimates of international trade in goods and investment will also utilize the IOCC (Input-output commodity classification), increasing the overall coherence of the CSNA (Canadian system of national accounts). In addition, increased detail will be provided in many cases. For example, the current published detail of international trade in goods within the Income and Expenditure Accounts will increase from 12 commodity groups to over 30 commodity groups.
- A classification of household expenditures, by purpose, which is based upon the international classification of individual consumption according to purpose (COICOP) will be implemented. The old household expenditure classification (referred to colloquially as the J-series) had 132 separate expenditure classes. The new classification has 107 categories, with reduced detail for purchases of goods while there is an increase in the number of services categories.
- The classification of assets and liabilities within the Financial Flow Accounts, National Balance Sheet Accounts and International Investment Position will be more reflective of the international standard. Separate asset classes within produced assets will be added for intellectual property products and defence, while derivatives have been added to financial assets. Corporate and government claims, current asset and liability categories that represent aggregated intra-corporate loans, and equity holdings will be split into the underlying asset classes.

The updating of the classifications was triggered by the need to capture the evolving structure of the Canadian economy and to align the classifications to updated international classification systems (such as NAICS (North american industry classification system)). Not only will these classifications provide a more up-to-date picture of the economy, but their implementation will result in a more consistent set of classifications. For example, in the past, commodity classifications used in the Input-Output Tables were different from those used in the Income and Expenditure Accounts. The alignment of these classifications improves the integration of these accounts and their overall quality. The implementation of these classifications will not change nominal GDP (Gross domestic product), nominal exports, imports, investment, final household consumption expenditure or government spending.

Institutional sectors

In the current CSNA (Canadian system of national accounts) there are three main resident institutional sectors: the persons and unincorporated businesses sector, the corporate sector, and the government sector. The current CSNA (Canadian system of national accounts) does not articulate separate non-financial and financial corporation sectors for incomes and outlays, and the persons and unincorporated businesses sector includes non-profit institutions serving households, credit unions, life insurance companies, fraternal organizations and collective investment schemes such as pension plans and mutual funds. Both the SNA (System of national accounts)⁹³ and the SNA2008 (System of national accounts 2008) recommend that a country's National Accounts distinguish five resident institutional sectors: non-financial corporations, financial corporations, general government, non-profit institutions serving households (NPISH), and households.

With CSNA2012 (Canadian system of national accounts 2012), we will adopt the basic SNA (System of national accounts) institutional sectoring detail. The incomes and outlays of non-financial corporations will be identified separately from that of financial corporations. The persons and unincorporated businesses sector will be split between households and non-profit institutions serving households. Credit unions, life insurance companies, collective investment schemes and fraternal organizations will be moved to the financial corporation sector.

The creation of a true household sector is an important step forward for the CSNA (Canadian system of national accounts). This change will 'purify' measures such as household incomes and outlays, household saving and household disposable income. The Canadian measures will be compatible with the international community and it will be easier to link these data to household survey information and therefore allow a clearer reconciliation between distributional information from these surveys and macroeconomic estimates.

Collective investment schemes

While collective investment schemes (CIS) such as pension funds and mutual funds constitute institutional units and have complete sets of accounts (from income statements to balance sheets), they do not, by their nature, retain earnings for their own use in the same fashion as other institutional units in the financial corporations' sector (e.g. (for example), banks). CIS (Collective investment schemes) net earnings accrue to the owners or beneficiaries of the collective investment scheme, generally households. Further, for pension funds, CIS (Collective investment schemes) contribution income (employer and employee) is part of labour compensation in the household sector.

Income of pension funds (contributions and investment income) and mutual funds is included in household income and contribute to saving and flow to the CIS (Collective investment schemes) via investment flows in the financial account, while pension benefits and other withdrawals are treated as draw-downs of financial assets. SNA2008 (System of national accounts 2008) suggests a different presentation for pensions, with benefits as income, and contributions as outlays. This presentation requires an adjustment to saving. Other countries (most notably, the U.S.) are not following this presentation yet and European Union countries are not planning to make any changes until 2016 or later.

While the CSNA (Canadian system of national accounts) will maintain its current presentation in 2012, it can be argued that the SNA2008 (System of national accounts 2008) treatment does provide a good analytical measure of current period personal disposable income—income available to fund current period consumption. Therefore, the CSNA (Canadian system of national accounts) will publish, as information supplementary to its household income and outlay table, the SNSA2008 presentation for personal disposable income

Revisions related to improving the quality and detail of the CSNA (Canadian system of national accounts)

Revisions to the net income of unincorporated businesses

Over the last number of years, Statistics Canada has been able to acquire updated personal tax information from the Canada Revenue Agency. This new administrative data is the most comprehensive data source available for developing estimates of the net income of unincorporated businesses. The data represents a census of fully assessed unincorporated businesses. In many cases, the industrial classification is provided on the file. When an industry code is not provided the data are linked to Statistics Canada's business register to obtain the industrial classification. A preliminary analysis of this data reveals that the net income of unincorporated businesses have been understated, mainly because the new method uses later vintages of the tax data, which include an increase in the number of records (presumably late filers), resulting in more net income.

In addition to the new data source, the CSNA (Canadian system of national accounts) will also review the size and breadth of its underground economy adjustment to the net income of unincorporated businesses. Currently, adjustments for underground economic activity are made in the construction, retail trade (tobacco smuggling) and social assistance (daycare) industries. The CSNA (Canadian system of national accounts) is evaluating these adjustments to determine if these types of adjustments should be expanded to other industries.

Overall, these adjustments will most likely increase GDP (Gross domestic product); result in increased output in industries dominated by unincorporated businesses such as lawyers and accountants, and; generate higher household income as unincorporated businesses constitute part of the household sector.

Revisions to dividend receipts in the household sector

Currently, dividend income recorded in the household sector is derived residually as follows: an estimate of total dividends declared is calculated; then, the flow of dividends to the corporate sector and to non-residents is estimated and the residual is assigned to the household sector. Over the last number of years, Statistics Canada has secured access to a number of administrative data sources which permit the direct compilation of dividends received by the household sector. A preliminary investigation has indicated that the current estimates are somewhat lower than those estimates calculated directly from these new administrative data sources. In addition to these new data sources, the CSNA (Canadian system of national accounts) is currently developing new estimates within an interest and dividend matrix framework. This matrix balances payment and receipt of interest and dividends by instrument and by sector.

Compilation of interest and dividend flows within this matrix will result in an overall improvement in the quality of interest and dividend payments and receipts across all sectors of the economy, alongside improved estimates for the household sector flowing from the new administrative data. While the interest and dividend matrix will not be fully in place until 2014, preliminary results support the higher estimates for dividends in the household sector.

Revisions to labour income benchmarks

Benchmark estimates of labour income are derived from administrative data. At the time of the last CSNA (Canadian system of national accounts) historical revision, a number of adjustments were made to this administrative data source to arrive at the final benchmark estimates. These adjustments included such things as additions to wages and salaries to account for nannies, babysitters, valets and gardeners employed by households. Another example was an upward adjustment for tips for workers in accommodation, food and beverage establishments, barbers and hairdressers. These adjustments will be reviewed to ensure that they are still relevant and either be maintained, updated or removed. In addition, new adjustments may be incorporated to ensure the highest possible quality of benchmark estimates of labour income.

Within the CSNA (Canadian system of national accounts), estimates of labour income are compiled by industry and by sector. Sector estimates cannot be developed by simply concurring an industry to a sector. Sector estimates need to be constructed from the bottom up—classifying the individual institutional units to the sector and then deriving the aggregates. At the time of the last historical revision the administrative data could not be compiled by sector. Over the last number of years sector estimates have been developed directly from the administrative data by classifying each institutional unit to its given sector. These new sector estimates will be incorporated into CSNA2012 (Canadian system of national accounts 2012). While the total value of labour income will not change as a result of this revision, the value of labour income by sector (corporate, household, government, non-profit institutions serving households) will improve.

Revisions to international trade price indexes

Four years ago, Statistics Canada launched a project to develop import and export prices indexes from price information collected directly from Canadian importers and exporters. This project has now matured and price indexes for selected traded commodities have been generated. These price indexes will be incorporated within the import and export deflation program. Recently, import prices have generally fallen and export prices have generally increased. Preliminary results from the Export and Import Price Index Program show that the decline in import prices is less than current published estimates and the increase in export prices is less than the current published estimates. In general, this will serve to lower real imports and increase real exports, resulting in an upward revision to real GDP (Gross domestic product). The majority of these revisions will appear in the 2001 to 2010 period, the time during which relatively large fluctuations in exchange rates occurred.

Revisions to travel expenditures

The Canadian Travel Survey of Residents of Canada (TRSC) has undergone a series of changes. It has not always been possible to incorporate these changes into the CSNA (Canadian system of national accounts). Work has begun to utilize the micro-data produced by the program to improve the distribution of travel expenditure by commodity. These changes will be incorporated with the 2012 historical revision and will affect the Provincial and Territorial Economic Accounts through the travel expenditures of residents of Canada when they travel from one province to another.

In addition to changes to the interprovincial travel expenditures, changes will also be made to the treatment of expenditures by foreign students and payment for medical treatment received outside of the country or province. Currently, spending by foreign students and medical treatment received outside of the country are considered domestic expenditures. In order to conform to the treatment in the Balance of Payment Accounts, these expenditures should be treated as travel expenditures, and therefore imports and exports of services.

Revisions to the estimate of personal expenditures on used vehicles

The estimation of the personal expenditure on used motor vehicles was based on a model that was built in the 1960s. While this model has been relatively good over the years at estimating the importance of the used motor vehicles sales made by motor vehicle dealers, it has not properly dealt with the more recent phenomenon of the return of leased vehicles that were subsequently exported. It also tends to overstate the output of used car sales by new motor vehicle dealers.

A new model has been developed to better estimate the value of personal expenditure on used motor vehicles. It considers the impact of the transfer of the ownership of used motor vehicles from the household sector to non-residents and differing margins between the sale of used vehicles by new car dealers and used car dealers. This new model will be incorporated into CSNA2012 (Canadian system of national accounts 2012). The end result will be a decrease in personal expenditure on used motor vehicles and GDP (Gross domestic product).

Revisions to imports and exports of services

Starting in 2006, a new processing system was developed to capture and compare all available sources of data related to international trade in commercial services. The result was a large increase in the frame of enterprises engaging in international trade in services. A main component of the revisions was the incorporation of administrative data identifying intra-firm international trade in services. During the same period, Statistics Canada's Unified Enterprise Survey Program added a specific module on international trade to several of its surveys. Despite some limitations in the details available, the new module covered both exports and imports, an improvement over the previous module which mainly focused on exports of services. The new module was introduced with reference year 2005 and refined for reference year 2007. The last major change to the trade in commercial services program was an increase in the survey sample. The number of units surveyed by the International Trade in Commercial Services Survey was increased from 1,800 to 3,500 between reference year 2006 and reference year 2007. A preliminary analysis of the results indicates that the level of imports and exports of services will increase. Further, the upward revision to exports is greater than the upward revision to imports, leading to an overall increase in GDP (Gross domestic product).

Planned changes: CSNA2014 (Canadian system of national accounts 2014)

Due to resource constraints, data limitations and methodological constraints, not all of the recommendations within SNA2008 (System of national accounts 2008) will be implemented with CSNA2012 (Canadian system of national accounts 2012). In accordance with the CSNA (Canadian system of national accounts)'s new revision policy, rather than waiting 10-15 years to implement these changes, the CSNA (Canadian system of national accounts) plans to implement another series of changes with the 2014 release of the CSNA (Canadian system of national accounts). For the most part, these changes will not have a significant impact on GDP (Gross domestic product) but rather represent the development of new accounts, improved integration between the CSNA (Canadian system of national accounts) and Government Finance Statistics, additional detail, and presentational changes that better align with international standards. The following are the planned changes for 2014.

Other changes in assets account

The CSNA (Canadian system of national accounts) is an integrated set of accounts. It consists of production accounts and a host of sector accounts including: income and outlay accounts, capital and finance accounts (financial flow accounts), and the national balance sheet accounts. However, the other changes in assets account—comprised of other changes in the volume of assets account and the revaluation account—are currently implicit and not produced in any detail nor released. This component account constitutes the missing link between the transactions' accounts and the balance sheet.

The revaluation account represents the change in the monetary value of an asset or liability due to changes in the level and structure of its price. These revaluations are generally separated into two sub-components: exchange rate changes and price changes.

The other changes in volume account represents changes in the value of assets that are neither due to transactions nor revaluation. Examples include write-offs, economic appearance and disappearance of assets, reclassifications, and changes in financial assets resulting from institutional units changing their economy of resident.

These accounts are being developed, but this work will not be completed in time for the 2012 release. A provisional set of estimates will be produced prior to 2014 to familiarize users with this new account as well as to solicit feedback on their detail and structure.

Financial intermediation services indirectly measured (FISIM)

The recent financial crisis and its impact on both the demand and supply of credit have brought renewed interest not only in the regulations that surround the financial sector, but also in the importance of, and challenges in, measuring the output of the financial sector. This is particularly true in a number of countries where, during the recent crisis, existing methodologies produced unreasonable

estimates. This has led the international community to reconsider the guidance in SNA2008 (System of national accounts 2008) and an international Working Group is now deliberating this issue.

While the Canadian methodology did not produce unreasonable estimates during the crisis, there is general agreement that our methodology should be reviewed and updated. However, since there is not yet a consensus on the revised guidance, revision of the FISIM (Financial intermediation services indirectly measured) methodology has been postponed to 2014 to allow the review to benefit from the ongoing international deliberations.

Pensions

Pension accounting in the national accounts is becoming an important issue, partly because of the aging population and the increasing household reliance on retirement incomes, and partly the growing burden on government and business finances with respect to defined benefit plans. Notably, due to pension funding pressures, many businesses are shifting away from "defined-benefit" plans to "defined contribution" plans for new workers. In addition, governments are looking at the pension issue and considering whether changes to the CPP (Canadian pension plan) are warranted.

With the introduction of accrual accounting and fair-value accounting, business and government accounting for pensions is changing and transparency is taking on increasing importance. Furthermore, national accountants are being asked to improve the articulation of pensions in the sequence of accounts. New guidelines for accounting for pensions are set out in SNA2008 (System of national accounts 2008).

In the CSNA (Canadian system of national accounts), employees who participate in a pension plan are considered owners of the assets of the plan. Employer pension contributions are treated as labour income or compensation of employees in the national accounts. Interest and dividends earned on pension plan assets are included in personal income. Pension benefit payments, on the other hand, are not included in personal income but treated rather as transaction in financial assets.

The SNA2008 (System of national accounts 2008) recommends that estimates of household wealth with respect to defined benefit plans be based on the actuarial liability for future benefits rather than the value of the plan assets. It also recommends that household compensation be measured by increases in the pension entitlement (less employee contributions and property income) earned within a particular time period. This accrual method contrasts with the cash basis currently used to measure employer contributions to pension plans in the CSNA (Canadian system of national accounts). This cash treatment has caused volatility in the labour income estimates when large irregular cash pension contributions have been made by employers to reduce actuarial liabilities in defined benefit plans or when employers take contribution holidays when the plans have been in actuarial surplus. For the government sector, where GDP (Gross domestic product) is measured by the sum of costs, the volatility in pension contributions has affected the overall nominal GDP (Gross domestic product) estimates as well as the GDP (Gross domestic product) deflator. This has been particularly noticeable at the provincial level. For the business sector, the cash treatment of pensions in labour income may result in a growing inconsistency with the way businesses expense pensions in their own financial statements. Therefore, accrual measures tend to be smoother and better reflect changes in pension entitlements over the period.

For employer-related defined benefit pension schemes, the contributions and property income must equal the change in entitlements. There are a number of factors that can impact pension entitlements in a defined benefit pension scheme:

- Current service increase, associated with wages and salaries earned in the period
- Past service increase, associated with the fact that all participants are one year closer to retirement (i.e., (that is to say), one fewer discount factor used in calculating the present value)
- Decrease due to the payment of benefits to retirees of the scheme
- Other factors (recorded in other changes in assets account)

When the sum of the employer and employee actual contributions and investment income are not equal to the current service entitlement, an additional contribution from the employer must be imputed to ensure equality (even if the payment is not actually made) between the contributions and the entitlements. At the end of the accounting period, an actuarial estimate of pension entitlements due to past and present employees is made. This reflects the present value of the amounts to be paid in retirement and takes into consideration such things as expected lives, annual pay, and years of service.

For employer-related defined contribution pension schemes, the treatment does not change. Employer contributions are treated as compensation of employees when the contributions are made. There are no 'imputed' contributions required since the employee is not liable for any future payments other than the contributions that have been made and the earnings of the fund.

Provisional estimates are being developed to move from a cash treatment of defined benefit pension contributions to an accrual treatment. Given data limitations (currently we only have partial data from 2007 onwards), it has been decided to delay the implementation of this recommendation until 2014. In addition, a long time series in which comparisons between the accrual series and

the cash series would be preferable.

Employee future benefits

Governments and autonomous funds, crown corporations and private corporations, sponsor a variety of employee future benefits from which employees and former employees can benefit, during or after employment or upon retirement. The most common types of future benefits include:

- Vacation and sick leave obligations
- Severance benefits (also called retiring allowances or termination benefits)
- Disability and worker's compensation
- Early retirement programs and death benefits
- Health care and dental plans (retired employees)

With the adoption of the accrual accounting, governments at various points in time have begun to reflect liabilities for employee future benefits in their accounts.

In most instances, employee future benefits are not funded and thus have no assets, resulting in a plan deficit equal to the accrued benefit obligations. The plan deficit is the amount reported in the liabilities of the balance sheet. For some plans that are contributory (such as for some health and dental plans), retired employees contributions will be made only in the year the benefits are payable to retirees. Therefore, employer's liability and costs are shown net of members' contributions. Employers might also set up reserves or funds to meet their employee future benefits' obligation, especially when liabilities are significant in the long term.

Within the context of CSNA2012 (Canadian system of national accounts 2012), consideration was given to include employee future benefits in the National Balance Sheet Accounts. It was decided to postpone this until at least 2014 for two important reasons. The first is that since most countries do not include this on their balance sheet, implementing it would result in major differences between Canadian indicators of government debt to GDP (Gross domestic product) and that of other countries. In addition, while there is information for the government sector, corporate sector estimates still require development. It will take a number of years to develop these estimates, and, depending on the direction of the international community in 2014, Canada may or may not decide to include this on the National Balance Sheet at that time.

Concluding remarks

The goal of the CSNA (Canadian system of national accounts) remains the same; relevance and quality. The CSNA (Canadian system of national accounts) historical revision aims to deliver on both these fronts. The implementation of new data sources and estimation methods and techniques will serve to improve the overall quality of the CSNA (Canadian system of national accounts). The adoption of the new international standards and classification standards will ensure that the statistics produced through the CSNA (Canadian system of national accounts) framework remain relevant for users of Canadian macroeconomic statistics.

The intention of this paper was to provide users with an overview of the planned changes for the revised CSNA (Canadian system of national accounts) to be released in 2012, as well as the on-going research agenda. It does not attempt to quantify the changes to the various aggregates in the CSNA (Canadian system of national accounts), this is left for later, once all the new data have been developed, integrated and balanced within the CSNA (Canadian system of national accounts).

Notes

1. This is the case for a number of countries.
2. We will continue to consult on this list over the next number of years.
3. The SNA2008 (System of national accounts 2008) definition of intellectual property products includes research and development, computer software and data bases, entertainment, literary or artistic originals and mineral exploration and evaluation. Due to lack of data, the CSNA (Canadian system of national accounts) will not capitalize data bases, entertainment, literary or artistic originals.
4. The detailed classifications will be available in the publication *Latest Developments in the Canadian Economic Accounts* (13-605).
5. NAPCS (North american product classification system) is currently under review and a new version will be released at the end of 2012. The CSNA (Canadian system of national accounts) classifications have used a preliminary version of this update and will move to align to NAPCS (North american product classification system) 2012 once survey programs have been able to incorporate it.