Implementation of the 1993 SNA in Canada - Backcasting Issues

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Introduction

The 1993 SNA was implemented in Canada in November 1997 and all national accounts series- annual, quarterly and monthly, both at current and constant prices- were revised back to 1961. There were changes in classification of sectors and transactions, concepts and methodology. As well, we removed the statistical breaks in earlier series that arose due to our revision policy. In the spring of every year, we revise, if necessary, our national accounts series for the latest four years. Statistical breaks for earlier periods are removed only at the time of historical revisions, such as the one done in November 1997. This was the fifth and the most comprehensive historical revision of the Canadian SNA series since 1961, the earlier ones were done in the late 1960's, the late 1970's, in 1985 and in 1990. As our historical revisions have been done almost every decade, and more frequently since the 1980's, statistical breaks in the Canadian system have remained only for a short period.

There are three inter-related backcasting issues which compilers of national accounts must resolve when implementing the 1993 SNA in their own accounts. Should the new and the revised series that are consistent with the 1993 SNA be backcast? What methods should be used to backcast? How far back such series be backcast? These issues have to be resolved in the context of a country's statistical development, availability of resources and the needs of users for long time series.

In Canada, we have an integrated system of national accounts going back to 1961. This system includes annual input-output tables, annual and quarterly income and expenditure accounts, monthly real GDP by industry, quarterly financial accounts and annual balance sheet accounts. Canadian compilers and users jointly decided that it would be appropriate to backcast the new and the revised series to 1961, rather than limiting the revision to a short back period, say to 1991. The availability of a well- developed integrated set of accounts back to 1961 also helped us determine the backcasting methods. We made every effort to recompile the series for the back period for the institutional units, reflecting the changes entailed by the implementation of the 1993 SNA, using, as much as possible, their own accounting or other records available in our earlier worksheets.

Classification of sectors and transactions

As we examined the 1993 SNA in the context of its implementation in Canada, we realised that the sector classification of several important institutions such as universities , special care facilities, several government business enterprises, and many more, would need to be changed to reflect the new guidelines. Hundreds of institutional units were reclassified, the reasons were fully documented, and a revised list was prepared and made available to users upon request. The effective date for change was the inception date of the institutional unit or 1961, whichever came later. For example, the universities were reclassified from the non-profit institutions serving households (NPISH) sector to the government sector. Similarly, many special care facilities were reclassified from the NPISH sector to the government sector. The Canadian Broadcasting Corporation was reclassified from the government business enterprise sector (corporate sector) to the government sector. To incorporate all these changes, every effort was made to use the accounting records or other records in our earlier worksheets of the institutional units for the back period. It was a time-consuming exercise but well worth in terms of proper historical time series analysis.

Reclassification of transactions in the government sector constituted the next group of changes made in implementing the 1993 SNA. We also took advantage of this opportunity to better realign the conventions used in the government finance statistics with those of the SNA. For example, should the profits of government monopolies, such as lotteries, be treated as investment income of government enterprises or as taxes on products? Should grants paid in lieu of taxes by senior levels of governments to local governments be treated as grants or as taxes? Should royalty revenues received by governments from business corporations for their mining and logging activities

be treated as other taxes on production, or as investment income of government, or as sale of goods and services? Should seigniorage on coins be treated as government revenues from sale of goods and services or should it be ignored? The classifications of many of these significant transactions in the earlier series were different from those recommended in the 1993 SNA. A complete list of classification changes of transactions was prepared, the reasons for changes were documented, and the list was made available to users upon request. As in the case of reclassification of institutional units, our approach to backcasting in this domain was to recompile the revised series by incorporating accounting or other records related to these transactions for the entire back period.

Capital Account

There were several changes made in the capital account. In terms of value, the most significant were the reclassification of both purchases of non-military equipment by the Defence Department and expenditures on mineral exploration by mining units, from intermediate expenses to capital formation. In our capital stock series (though not in our SNA series), purchases of capital equipment by the Defence Department were always included in capital formation, and were also separately identified. In our pre-revision annual input-output tables for 1961 and onwards, the non-military equipment by the Defence Department was classified as intermediate expenditure and separately identified. These two sources permitted us to reclassify these expenditures from intermediate to fixed capital formation for the entire back period. In both the capital stock and the SNA series, on-site mineral exploration charges were always capitalised. The other exploration charges, called general or off-site charges, were classified as intermediate expenditures in the earlier accounts. Fortunately, total exploration charges were published for most of the back period by the Department of Energy, Mines and Resources. This permitted us to make an adjustment to our series back to 1961.

In addition, based on analysis in the 1950's, the assumption was made that a fixed proportion, namely 10 %, of operating expenditures for establishments in the manufacturing, trade and utilities sectors, should be classified to gross fixed capital formation. This required a specific adjustment to the reported series since the 1950's. We were not comfortable with this assumption, as it differed from the records that the establishments were using to develop prices for their commodities. For the 1997 SNA historical revision, it was decided to undo this adjustment for the entire period which was easy to do this as the adjustment was always separately identified.

Household expenditures

A major change was made in the classification of household expenditures of goods and services. We used the 1997 version of Classification of Individual Consumption by Purpose (COICOP) as prepared by the OECD. This required us to recompile several underlying details in the household expenditure series back to 1961. Commodities were reassigned from one function to another within the household expenditures categories This backcast exercise was facilitated by our input-output tables in Canada going back to 1961, with about 200 industries, 140 final demand categories and 600 commodities.

International Trade

The most important change for backcasting the international trade series involved the revaluation of exports and imports at the border of the exporting country. This change did not affect the value of total of goods and services but the level of value of services changed, counterbalanced by a change in the value of goods. In this case, the backcasting consisted in identifying the basic records on inland freight which were available in past publications under the transportation account and to reclassify its value to goods. This backcasting went as far back as 1926 in the balance of payments series.

Financial services

Several changes were made in the area of financial intermediation services indirectly measured (FISIM). By and large, the changes for the back period were made using basic records in our worksheets, not fixed proportion techniques. We had always allocated FISIM to users, both borrowers and lenders, even when the 1968 SNA did not recommend it. We continue to allocate FISIM to users as we have implemented the 1993 SNA but we have recalculated FISIM for own funds, for the period 1961 to date, such that only the borrowers' portion of service

charges remains in FISIM. This recalculation was based on records in our worksheets for the back period. Note that we still differ from the 1993 SNA recommendation for own funds, as we believe that the 1993 SNA needs to reconsider its position on this issue. The calculation of the value of output of central bank and its allocation was changed for the entire back period. We now calculate the value of output of our central bank, the Bank of Canada, by its operating expenses and allocate the use of the entire output to the federal government. Previously, we used to allocate part of the output to the household sector. The value of the output of insurance industries has increased dramatically due to the inclusion of investment income of technical reserves. Again, as much as possible, we have gone back to basic records for this recalculation.

Concluding remarks

The 1993 SNA is a coherent, integrated and fully articulated document. Its implementation has entailed many changes from previous practices: reclassification of institutional units from one sector to another; reclassification of transactions from one class to another; reclassification of household expenditures from one function to another; expansion of several areas for capital formation; revision of guidelines for valuation of the output of several financial institutions, and many more. Such changes, particularly the ones which are materially important, made for the current period can meaningfully be backcast only by reference to the accounting and other records for the periods in question and by replicating the new methodologies for the back period. Fixed proration formulas for backcasting are not very helpful for the kind of changes required to implement the 1993 SNA. One must be very leery of adopting any proration techniques or other fixed proportion formulae relevant to a recent single year for backcasting purposes, of estimates of values of the entities due to changes in sector classification or of estimates of transactions due to changes in their classification. Similarly, changes due to reclassification of functions of household expenditures for the back period made by using a fixed proration formula derived from a recent single year would also be hazardous, as they would carry back commodities which may not even have existed in the back periods.

Given many other compelling priorities, compilers in some countries might be tempted to limit the 1993 SNA series to the 1990's only, produce data for one overlapping year, and leave the back period on the old basis. As a result, users would need to compute their own long time series for economic and historical analysis. We strongly urge that, to the fullest extent possible, one should resist this temptation. The primary raison d'être of the SNA is to produce long time series of consistently defined and measured data, for analysis; outside users can never produce series as good as those produced by the official compilers, which are made available to everybody at the same time.

Note