Input-Output Tables in the Canadian System of National Accounts

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1 Introduction

Input-output (I-O) tables are integrated parts of the production account in the System of National Accounts (SNA) in Canada. In different levels of details, they give a snap-shot of the structure of the whole economy: the industrial sectors that produce goods and services using various commodities and input factors. This chapter reviews the Canadian standard and methodology in producing the input-output tables and discuss the possible implications for such a system for the Russian SNA. Section 2 provides a brief discussion of the objectives and purposes of the I-O tables within the SNA and its applications. This is followed by an exploration on the structure of the I-O tables and their economic interpretations in section 3. For intertemporal analysis such as productivity growth, we need a set of I-O tables at constant prices. The methodology and measurement problems associated with these tables are discussed in sections 4 and 5 respectively. In section 6 regional I-O tables are discussed.

2 Objectives and Purposes of I-O Tables

The Canadian SNA consists of four major components:

- input-output tables and their derivatives;

Details of the Canadian I-O tables are discussed in Hutton (2000) and Statistics Canada (2001).
• income and expenditure accounts;
• financial flow statements and national balance sheets; and
• balance of payments and international investment position.

The I-O tables in the SNA serve two important and useful purposes. First, the tables ensure the consistency on the flows of goods and services of the production account using different data sources. The design of the tables provides a mean to balance the income based GDP with the expenditure GDP.

Second, the tables themselves provide a rich data set for analysing the structure of the production economy. Information contained in the I-O tables can be used to carry out macroeconomic modelling and simulations, sectorial and aggregate production function estimations, productivity analysis, and import and export requirements in production. The results of these analyses are essential in empirical economic studies and policy analysis.

3 The Canadian I-O Tables

The structure and methodology of the Canadian I-O tables closely resemble the recommendations laid out in SNA 1986 and SNA 1993. Statistics Canada started the planning and development of I-O table production in the early 1960s. The first set of tables was published in 1968 for the year 1961. Annual I-O tables have since available with a 28-month lag. The Input Output Division at Statistics Canada is responsible for the production of the tables. A separate unit inside the division handles some specific parts of the data set to ensure confidentiality. In this section we shall describe the structure of the Canadian I-O tables with definitions of the entries. The economic foundation of input-output analysis based on a production economy will also be discussed.

3.1 Structure and Definitions

Annual I-O tables provide a summary of the production economy by relating the use of primary inputs and immediate inputs of each industry to its outputs. In a series of tables or matrices, the inputs and outputs relations between industries, commodities, and final demands are described. Currently, at the most detailed level the tables identify 300 industries, 727 commodities, 170 categories of final demand, and 8 primary inputs. Tables at various degrees of aggregation are also available. Table 3.1 lists the four levels of aggregation used. Level L is the most detailed level that allows the construction of consistent time series of annual data from 1961 to the current year. Industries are classified according to the North American Industry Classification System (NAICS),

\[\text{For a brief history of the Canadian I-O tables see Lal (2001).}\]
which was established by Canada, Mexico and the United States following the signing of the North America Free Trade Agreement (NAFTA) by the three countries.³

The “Make” table $V$, also called the output or supply table, is a $J \times N$ matrix, where the entry on the $j$-th row and $n$-th column, $v_{jn}$, represents the value of the gross output of commodity $n$ by industry $j$. If we add the $N$ columns of $V$ together, we get a vector $g$ of dimension $J$. Each component $g_j$ is the gross output of industry $j$. If we instead add the $J$ rows of $V$ together, we get a vector $q$ of dimension $N$, with each component $q_n$ being the total output of commodity $n$. The make table therefore describes the output of every commodity by every industry. Currently, at the worksheet (W) level, $J = 300$ and $N = 727$. Industries and commodities mostly fall into two broad categories, namely business and non-business. The business category is divided into subcategories such as primary, manufacturing, construction, communication and utilities, transportation and trade, and other services. The non-business category is subdivided into non-profit and government.

The “Intermediate Use” or simply “Use” table $U$ is a $N \times J$ matrix where the $u_{nj}$ entry represents the value of the use of commodity $n$ by industry $j$ as an intermediate input.

The “Final Demand” table $F$ is a $N \times I$ matrix where the $f_{ni}$ entry represents the value of demand (consumption or purchase) of commodity $n$ by the $i$-th categories of final demand. Currently at the worksheet level $I = 170$. All $I$ categories are classified under one of the following eight broad categories:

1. Personal expenditure on goods and services
2. Gross fixed capital formation
3. Value of physical change in inventories, withdrawals (negative entries)
4. Value of physical change in inventories, additions
5. Government expenditure on goods and services

6. Domestic exports of goods and services
7. Re-exports of goods and services
8. Imports of goods and services (negative entries)

The “Industry Use of Primary Inputs” table $YI$ is a $K \times J$ matrix where the $y_{i_{kj}}$ entry represents the value of the use of primary input $k$ by industry $j$. Currently there are eight primary input categories ($K = 8$):
1. Taxes on products
2. Other taxes on production
3. Subsidies on products (negative entries)
4. Other subsidies on production (negative entries)
5. Wages and salaries
6. Supplementary labour income
7. Mixed income of unincorporated business enterprises
8. Other operating surplus

The first four items are transfers between government and business. Item 5 and 6 are the values of labour inputs, while item 7 is the mixed labour and capital incomes for owner-operated business and partnerships. Item 8 represents the returns of capital and profits.

Finally, the “Final Use of Primary Inputs” table $YF$ is a $2 \times I$ matrix where the columns are categories of final demand as in matrix $F$ and the rows represent the first two categories of primary inputs, namely “taxes on products” and “other taxes on production”. The entries in $YF$ are therefore the values of the two taxes associated with the final demand categories.

### 3.2 Relations and Identities

The structure of the I-O tables are set up in the way that the industry account and the commodity account will balance. What follows are the relations between the five matrices described above.

For each industry $j$, the value of total outputs is equal to the total costs of input plus operating surplus (profit). Since the rows of $YI$ consist of taxes, subsidies, wages, and profits, the sum of column $j$ in $U$ and $YI$ is equal to the sum of row $j$ in $V$, i.e.,

$$
\sum_{n=1}^{N} u_{nj} + \sum_{k=1}^{K} y_{i_{kj}} = \sum_{n=1}^{N} v_{jn} = g_{j}.
$$
On the other hand, total intermediate uses and final demand for commodity \( n \) must be equal to total production, therefore

\[
\sum_{j=1}^{J} u_{nj} + \sum_{i=1}^{I} f_{ni} = \sum_{j=1}^{J} v_{jn} = q_n.
\]

Each row of \( YI \) and \( YF \) represents the income of a primary input from industries and categories of final demand respectively. Therefore the the sum of the \( k \)-th row elements of these two matrices is the total income of primary input \( k \), which is denoted by \( m_k \):

\[
\sum_{j=1}^{J} y_{ikj} + \sum_{i=1}^{I} y_{fki} = m_k. \tag{1}
\]

Note that for \( k = 3, \ldots, K \), all the entries in \( YF \) can be taken as zero since it has only two rows.

Each column in \( F \) and \( YF \) represents the expenditure on commodities and primary input consumption of each category of final demand. Therefore the sum of all entries in column \( i \) of the two matrices is the total expenditure of final demand category \( i \), which is denoted by \( e_i \):

\[
\sum_{n=1}^{N} f_{ni} + \sum_{k=1}^{K} y_{fki} = e_i. \tag{2}
\]

The sum of \( m_k \) over all primary input is by definition the income based gross domestic product (GDP). The sum of \( e_i \) over all categories of final demand is by definition the expenditure based GDP. The two ways of calculating the GDP of course should give the same result, that is, \( \sum_{k=1}^{K} m_k = \sum_{i=1}^{I} e_i \). It follows that equations (1) and (2) give

\[
\sum_{k=1}^{K} \sum_{j=1}^{J} y_{ikj} = \sum_{i=1}^{I} \sum_{n=1}^{N} f_{ni},
\]

which means that the total costs of all industry use of primary input is equal to the total expenditures of all final demand for commodities.

### 3.3 Economic Interpretation

One of the objectives of the I-O tables is to provide a rich data set for productivity analysis.\(^4\) Here we attempt to put the I-O tables in the context of general equilibrium (GE) analysis of a production economy.\(^5\)

\(^4\)See Hulten (2001) for an overview. For discussions on building productivity accounts from the I-O tables see Baldwin and Harchaoui (2005).

\(^5\)See, for example, Mas-Colell \textit{et al} (1995), chapter 16.
Suppose that a production economy has $I$ consumers, $J$ firms, and $L$ commodities. Each consumer $i = 1, \ldots, I$ is characterized by a consumption set $X_i \subseteq \mathbb{R}^L$ and a preference relation $\succsim_i$ on $\mathbb{R}^L$. Each firm $j = 1, \ldots, J$ has a production set $Y_j \subseteq \mathbb{R}^L$. Each $y_j \in Y_j$ is a net output or production vector of firm $j$, that is, the component $y_{jl}$ is negative if commodity $l$ is an input and positive if it is an output in the production. Each consumer $i$ is endowed with a commodity bundle $\omega_i \in \mathbb{R}^L$. All the $J$ firms are owned by the consumers, with consumer $i$'s share in the $j$-th firm given by $\theta_{ij}$. For each firm $j$, $\sum_{i=1}^I \theta_{ij} = 1$. Given this set up, a production economy can be described by

$$\left\{ (X_i, \succsim_i, \omega_i, \theta_{ij}, Y_j) | i = 1, \ldots, I, j = 1, \ldots, J \right\}.$$

If we impose certain regularity conditions on the consumer preference structures and the firms’ production sets, an equilibrium with positive prices $p \in \mathbb{R}^L_{++}$ can be archived. Consider an allocation $(x, y) = (x_1, \ldots, x_I, y_1, \ldots, y_J)$ where $x_i \in X_i$ is a consumption vector for each consumer $i = 1, \ldots, I$ and $y_j \in Y_j$ is a production vector for each firm $j = 1, \ldots, J$. A vector $(x, y)$ is called a Walrasian equilibrium allocation with price vector $p$ if

1. Every firm maximizes profit $p \cdot y_j$.

2. Every consumer’s consumption bundle $x_i$ is maximal for $\succsim_i$ in $X_i$ and satisfies the budget constraint

$$p \cdot x_i = p \cdot \omega_i + \sum_{j=1}^J \theta_{ij} p \cdot y_j.$$

3. The allocation is feasible, i.e.,

$$\sum_{i=1}^I x_i = \sum_{i=1}^I \omega_i + \sum_{j=1}^J y_j. \quad (3)$$

Under this framework, the I-O tables can be interpreted as follows. We assume that each industry $j$ is represented by a single aggregate firm, $j = 1, \ldots, J$. The commodity space $\mathbb{R}^L$ in the GE model now includes both the commodities and primary inputs in the I-O tables, that is, $L = N + K$. The number of consumers $I$ in the GE model now becomes the number of categories of final demand. Here categories like the government and exports of goods and services can be treated as another domestic consumer and a foreign consumer respectively. In this context these consumers do not necessary possess the regularity conditions on their preference structures.

With these assumptions, let $p' \in \mathbb{R}^N_{++}$ be the price vector for the $N$ commodities and $p'' \in \mathbb{R}^K_{++}$ for the $K$ primary inputs. Then the price vector in the GE model is

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6The inner product of two vectors $a, b \in \mathbb{R}^N$ is denoted by $a \cdot b$, i.e., $a \cdot b = \sum_{i=1}^N a_i b_i$. 

---
\( p = (p', p'') \in \mathbb{R}_+^L \). In addition, define the following value vectors in \( \mathbb{R}^L \):

\[
\begin{align*}
py_j &= (p_{1y_j 1}, \ldots, p_{Ly_j L}), & j &= 1, \ldots, J, \\
px_i &= (p_{1x_i 1}, \ldots, p_{Lx_i L}), & i &= 1, \ldots, I, \\
p\omega_i &= (p_{1\omega_i 1}, \ldots, p_{L\omega_i L}), & i &= 1, \ldots, I.
\end{align*}
\]

We can now make the connection between the GE model and the I-O tables. Let \( v_j \) be the \( j \)-th row of the Make matrix and \( u_j \) be the \( j \)-th column of the Use matrix so that \( v_j, u_j \in \mathbb{R}^N \). Also, let \( y_{ij} \in \mathbb{R}^K \) be the \( j \)-th column of the \( Y \) matrix. Then the value vector of firm \( j \) in the GE model becomes \( py_j = (v_j - u_j, -y_{ij}) \in \mathbb{R}^L \). On the consumption side, let \( f_i \in \mathbb{R}^N \) be the \( i \)-th column of the matrix \( F \) and \( y_{fi} \in \mathbb{R}^K \) be the vector with the first two components being the \( i \)-th column of the matrix \( YF \) (recall \( YF \) is a \( 2 \times I \) matrix) and the rest equal to zero. Then the consumption-value vector of consumer \( i \) in the GE model becomes \( px_i = (f_i, y_{fi}) \in \mathbb{R}^L \). Total endowments of the economy is \( \omega = \sum_{i=1}^I \omega_i \). Endowments in the I-O account, however, are contained in two separate tables, namely \( YI \) and \( YF \). Hence we cannot identify \( \omega_i \) for each consumer.\(^7\)

Instead the total endowment value vector is \( \sum_{i=1}^I p\omega_i = \sum_{j=1}^J (0_N, y_{ij}) + \sum_{i=1}^I (0_N, y_{fi}) \), where \( 0_N \) denotes the \( N \)-dimensional zero vector.

In addition to the current value I-O tables, a separate set of tables are also published at constant prices. This is done by deflating each entry in the tables by its own price index. In analysing a time series I-O table at constant price, we can imagine choosing a quantity unit for each entry such that the price is equal to 1. In this way all the entries are quantities instead of values and so the value relations developed in the last paragraph become quantities relations:

\[
\begin{align*}
y_j &= (v_j - u_j, -y_{ij}) \quad (4) \\
x_i &= (f_i, y_{fi}) \quad (5) \\
\sum_{i=1}^I \omega_i &= \sum_{j=1}^J (0_N, y_{ij}) + \sum_{i=1}^I (0_N, y_{fi}) \quad (6)
\end{align*}
\]

Substitute the relations in (4) to (6) into the allocation feasibility condition (3), we get

\[
\sum_{i=1}^I (f_i, y_{fi}) = \sum_{j=1}^J (0_N, y_{ij}) + \sum_{i=1}^I (0_N, y_{fi}) + \sum_{j=1}^J (v_j - u_j, -y_{ij}). \quad (7)
\]

A few rearrangement of eq. (7) will show that it conforms with all the identities derived in section 3.2. In particular, consider adding up the \( L \) components of the vectors on both side. On the left hand side we have, using (2),

\[
\sum_{n=1}^N \sum_{i=1}^I f_{ni} + \sum_{k=1}^K \sum_{i=1}^I y_{fi} = \sum_{i=1}^I e_i,
\]

\(^7\)Part of the information can be obtained from the income and expenditure accounts.
which is the expenditure based GDP. On the right hand side, since primary inputs include operating surplus, each \( y_j \) in (4) always add up to zero in its component. Therefore the last term in (7) adds up to zero in its components. With the identity in (1) it can be seen that the sum of the components on the left hand side of (7) is the income based GDP \( \sum_{k=1}^{K} m_k \).

4 I-O Tables at Constant Price

As discussed in section 3.3 above I-O tables are also published in constant price. In this section we shall further discuss the concept and the sources of the deflators used.

4.1 Basic Concept

The idea of a constant price value in an I-O table is to express the value in a comparison period (year) \( t \) using the price of a base period 0. Since the entries of the I-O tables are at various level of aggregation, the price deflators are price indices. Suppose that \( P \) and \( Q \) are the price and quantity index of an entry in an I-O table, which are calculated from the price and quantity vectors of \( N \) goods, \((p_1^0, \ldots, p_N^0), (q_1^0, \ldots, q_N^0), (p_1^t, \ldots, p_N^t), \) and \((q_1^t, \ldots, q_N^t)\) where the superscripts indicate the time periods.\(^8\) The product identity below shows the relation between \( P \) and \( Q \):

\[
PQ = \frac{\sum_i p_i^t q_i^t}{\sum_i p_i^0 q_i^0} = \frac{v^t}{v^0}
\]

or

\[
\text{(Price Index)} \times \text{(Quantity Index)} = \text{Value Ratio}
\]

where \( v^t \) and \( v^0 \) are the current price values of the entry in periods \( t \) and 0 respectively. The constant price value of the entry in period \( t \) is

\[
\frac{v^t}{P} = v^0 Q.
\]

In other words, deflating the current price value \( v^t \) by the deflator \( P \) is the same as multiplying the value in period in the base period \( v^0 \) by the quantity index \( Q \) from the base period to the comparison period.

The product identity (8) effectively restricts the choice of index number formulae used for \( P \) and \( Q \). For example, once we choice an index formula for the deflator \( P \), the quantity index is implicitly defined as

\[
Q = \frac{1}{P} \frac{v^t}{v^0}.
\]

\(^8\)\( N \) here is different from the number of commodities we used in the previous sections.
Table 2: Index Choices from the Product Identity

<table>
<thead>
<tr>
<th>Price index $P$</th>
<th>Quantity index $Q$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laspeyres</td>
<td>Paasche</td>
</tr>
<tr>
<td>Paasche</td>
<td>Laspeyres</td>
</tr>
<tr>
<td>Fisher</td>
<td>Fisher</td>
</tr>
</tbody>
</table>

Table 2 lists three commonly used price deflator and their implicit quantity indices. In practice, since the price deflators are obtained from a wide variety of sources, it is difficult to deflate every entry with the same type of price index. The overall result is a mixture of formulae.

The deflation process described above is called a fixed base index. In the Canadian I-O tables the base period is changed about every ten years. For example, the data for 1961 to 1971 are in 1961 prices, and data for 1971 to 1981 are in 1971 prices (Statistics Canada, 2001, p. 9). In passing, it should be mentioned that when the entry of a constant price I-O table is a value added item, the so-called double deflation method is employed. That is, the input values and the output values are deflated by different price indices:

$$\text{Real value added} = \text{Sum of output values deflated by output price indices} - \text{Sum of input values deflated by input price indices}.$$ 

### 4.2 Sources of Deflators

The price deflators for the Canadian I-O tables are taken from various sources, which are listed below. Details are discussed in Statistics Canada (2001).

1. Statistics Canada divisions:
   - Prices Division (CPI and IPPI)
   - Agriculture Division
   - Labour Statistics Division
   - International Trade Division
   - Income and Expenditure Accounts Division
   - Manufacturing, Construction and Energy Division
   - Culture, Tourism and the Centre for Education Statistics

2. External sources:
   - Canadian Advertising Rates and Data
5 Measurement Problems

There is a vast literature on both the theoretical and practical aspects of economic measurement.\(^9\) Here we highlight a few areas that are more relevant to I-O tables.

5.1 The Service Sector

The proportion of the service sector has been increasing in industrialized countries in the post war era. In Canada the sector has grown to above 60 percents of the overall economy. Although progress has been made, measuring prices and outputs in a number of areas remain problematic.\(^10\)

Although values are relatively easy to measure, prices or quantities of some types of services are not easily defined. Many professional practices such as legal, accounting, and engineering services provide works that are specific to individual projects and therefore difficult to standardized. Sometimes the quality differences between clients and providers further exacerbate the problem. For most engineering contracts, the pricing processes involve bargaining and tendering. Prices and outputs involved in each project is unique and difficult to quantify. Over time, quality changes in some sectors also create biases in price and quantity measurement.

5.2 Non-Business Sector

Goods and services produced by the non-business sector which includes non-profit organizations, government departments, and some crown corporations share similar measurement problems with the services sector. In addition, a lot of services offered by this sector lack market prices. That is, the services are often offered to citizens free of charge or at prices well below the market prices. This poses a serious challenge to economic statisticians who try to measure constant price output. For some so-called pure public goods such as national defence and radio broadcasting without advertisements, the diversion between output and consumption creates another conceptual difficulty.\(^11\)

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\(^9\)See, for example, Abraham (2005), Boskin (2000), and Moulton (2004) for background and reviews.


Traditionally, when the appropriate market price are not available, the output value such product are taken as the total cost of its inputs. The consequence of this practice is that the value added and any productivity measure are zero. For this reason, SNA 1993 (p. 402–3) recommends direct measurement of non-market output quantities whenever possible. Some countries such as the U.K. has already implemented a direct measurement method called the cost-weight activity index (Ashaye, 2001). There are, however, conceptual issues in direct measurement procedures such as the U.K. method. First, many of the procedures are ad hoc in nature and lack an economic foundation. Second, the types of non-business sector output range from pure public goods such as national defence to marketable goods such as health care and education. Different evaluation methods may be necessary for goods and services of different nature. Third, as a result of the ad hoc nature of some procedures, the implicit deflators are not price indices (Pritchard and Powell, 2001, p. 7).

5.3 High-Tech Sector

Measuring prices and output in high-tech sector has received a lot of attention from price statisticians. High-tech products such as computer software and hardware undergo constant and rapid quality changes. Traditional quality adjustment method like the matched model often underestimate the quality changes and the resulting price indices are downward biased. New techniques in price measurement such as hedonic analysis have been successfully applied to these products (Triplett, 2004). For example, personal computers are measured with hedonic pricing in Canada. Other experimental methods are also in development.\textsuperscript{12} New products that have become popular in a short period of time also present a challenge to national accountants. Products such as mobile phones and plasma TVs are included in the SNA but their price deflators often are slow to develop, resulting in a biased measurement of the constant price output.

6 Regional I-O Tables

So far our discussions have been focused on I-O tables at the national level. Often I-O tables at the regional level are needed for regional economic analysis, regional development policies, and fiscal policy decisions between the national and regional governments.

The basic idea of regional accounts is to replicate the national accounts structure for each regional. Of course these accounts are related so that the total values of the regions add up to the national values. Suppose that the national economy is divided into $R$ regions. Effectively all the tables defined in section 3.1 become three dimensional matrices. For example, there are $R$ “Make” matrix $V$, each with dimension $J \times N$. With the additional dimension, let $v_{jnr}$ be the output of commodity $n$ by industry $j$ in region

\textsuperscript{12}See Prud’honne, Sanga, and Yu (2005) for an experimental index for computer software.
Then
\[ \sum_{r=1}^{R} v_{jnr} = v_{jn}, \]
where \( v_{jn} \) is the total output of commodity \( n \) by industry \( j \) at the national level. All the other matrices and vectors in the regional accounts have to satisfy this additivity property. Each set of regional I-O tables also satisfies the relations and identities in section 3.2.

One important feature of the regional I-O tables is inter-regional trade within the national border. Since imports and exports are included in the final demand categories, the number of categories increases from \( I \) to \( I + 2R \). For example, in the “Final Demand” table \( F \), the first additional \( R \) columns in region \( r \)’s account represent imports from other regions, while the second additional \( R \) columns represent exports to other regions. Hence the entry \( f_{n,I+s,r} \) is the import of commodity \( n \) by region \( r \) from region \( s \), and \( f_{n,I+R+s,r} \) is the export of commodity \( n \) from region \( r \) to region \( s \). By definition, import of a commodity by region \( r \) from region \( s \) must be equal to export of that commodity from region \( s \) to \( r \), i.e.,

\[ f_{n,I+s,r} = f_{n,I+R+s,r}, \quad r, s = 1, \ldots, R, \quad n = 1, \ldots, N \]  \tag{9}

Also, \( f_{n,I+r,r} = f_{n,I+R+r,r} = 0 \) for all \( r = 1, \ldots, R \) and \( n = 1, \ldots, N \). That is, imports and exports of any commodity by any region \( r \) to and from itself is by definition zero. At the national level, the sum of all regional imports and exports must be balanced, so for \( n = 1, \ldots, N \),

\[ \sum_{r=1}^{R} \sum_{s=1}^{R} f_{n,I+s,r} = \sum_{s=1}^{R} \sum_{r=1}^{R} f_{n,I+R+s,r}. \]

In fact this follows directly from (9) by summation.

In Canada, regional I-O tables are produced for the ten provinces and three territories \((R=13)\). The provincial I-O tables are available annually starting from 1997. The original propose was to provide information on how to distribute revenues from the Harmonized Sales Tax (Hutton, 2000). The tables are available at the S level only (see table 3.1) and are produced by Statistics Canada in Ottawa. Three provinces, namely Quebec, Ontario, and Alberta, publish their own economic accounts and projections on a quarterly basis. For example, the Ontario Economic Accounts (OEA) provide an overall assessment of the Ontario economy using a national income and expenditure accounting approach. A large number components in these accounts on the production side and inter-provincial trade are derived from the provincial I-O tables from Statistics Canada (Bradley, 2005).

Regional accounts are very data intensive and require extensive data collection effort. Therefore some components of the accounts are calculated with strongly assumptions and within a certain degree of approximation. A common practice is to estimate fixed
coefficients for each regions from historical data and distribute the national values proportionally. Another difficulty involves internal transactions of national corporations. First, these transactions are often confidential from the corporations’ perspective. Second, even the data are released by the corporations, they are sometimes internal record for tax purposes and may not represent the true economic values of the transactions.

Russia is divided into 89 political regions, with a wide variety of economic characteristics. Therefore it is not practical for the Federal State Statistics Service to produce separate economic accounts for each region. A more feasible plan is to agglomerate them into a number of more manageable statistical regions.

References


