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Development of Regional Economic Accounts and Macroeconomic Indicators in Russia

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This study discusses the results of a research of the problems pertaining to the formation of regional production account – the central element of the system of regional accounts – in Russia. There are provided methodological approaches to the calculation of production account indicators across all institutional sectors at the level of regional economies, as well as the methods pertaining to the development of aggregate regional production accounts in the matrix form. Besides, the paper discusses the problems related to the development of input – output tables and their components, as well as analyzes the Canadian experience in the development of input – output tables in the framework of the SNA methodology.

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Introduction

The growth of interest in subnational macroeconomic measurements observed across the whole globe is primarily generated by the increasingly complex tasks of regional development and interregional equalization the society faces at present. In Russia, given its enormous territory and rather substantial regional differences, the need for development of regional accounts is exceptionally urgent.

This study develops further the previous CEPRA project focused on an analysis of problems pertaining to the formation of subnational accounts and use thereof in the framework of regional analysis in Russia1.

This study discusses the results of a research concerning the problems related to the development of regional production accounts in Russia. The paper also specifically focuses on the avenues of development of input – output matrices (inter-industry balance) and their components.

The study analyzes the Canadian experience in the development of Input – Output tables in the framework of the SNA methodology. Input – Output 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 slap-shot of the structure of the whole economy: the industrial sectors that produce goods and services using various commodities and input factors. The first chapter reviews the Canadian standard and methodology in producing the Input – Output tables and discusses the possible implications for such a system for the Russian system of national accounts. The paper provides a brief discussion of the objectives and purposes of the Input – Output tables within the SNA and its applications. This is followed by an exploration on the structure of the Input – Output tables and their economic interpretations. For intertemporal analysis such as productivity growth, there is needed a set of Input – Output tables at constant prices. The methodology and measurement problems associated with these tables are also discussed in the first

chapter of this paper. In the final section of this chapter there are discussed regional Input – Output tables.

The second chapter of the study focuses on the methodological principles underlying the formation of production accounts of the subjects of the Russian Federation (regions). This chapter discusses methodological approaches to the calculation of production account indicators across all institutional sectors at the level of regional economies, as well as the methods pertaining to the development of aggregate regional production accounts in the matrix form.

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1. Input – Output Tables in the Canadian System of National Accounts

1.1. Objectives and Purposes of Input – Output Tables

The Canadian SNA consists of four major components:

- Input – Output tables and their derivatives;
- Income and expenditure accounts;
- Financial flow statements and national balance sheets; and
- Balance of payments and international investment position.

The Input – Output 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 Input – Output 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.

1.2. The Canadian Input – Output Tables

The structure and methodology of the Canadian Input – Output tables closely resemble the recommendations laid out in SNA 1986 and SNA 1993. Statistics Canada started the planning and development of Input – Output table production in the early 1960s. The first set of tables was published in 1968 for the year 1961. Annual Input – Output 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

\[2\] Details of the Canadian Input – Output tables are discussed in Hutton, 2000 and Statistics Canada, 2001.
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 Input – Output tables with definitions of the entries. The economic foundation of input-output analysis based on a production economy will also be discussed.

1.2.1. Structure and Definitions

Annual Input – Output 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 1.1 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), 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.

Table 1.1

Levels of Aggregation in the Canadian Input – Output Tables

<table>
<thead>
<tr>
<th>Aggregation Level</th>
<th>Industry ((J))</th>
<th>Commodity ((N))</th>
<th>Final Demand Category ((I))</th>
</tr>
</thead>
<tbody>
<tr>
<td>Worksheet (W)</td>
<td>300</td>
<td>727</td>
<td>170</td>
</tr>
<tr>
<td>Link (L)</td>
<td>117</td>
<td>469</td>
<td>123</td>
</tr>
<tr>
<td>Medium (M)</td>
<td>62</td>
<td>111</td>
<td>39</td>
</tr>
<tr>
<td>Small (S)</td>
<td>25</td>
<td>59</td>
<td>16</td>
</tr>
</tbody>
</table>

4 See Industry Canada’ web site for details: http://strategis.ic.gc.ca/sc ecnmy/sio/about naicseng.html
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 $yi_{kj}$ 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.

### 1.2.2. Relations and Identities

The structure of the Input – Output tables is 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.,

$$
\sum_{n=1}^{N} u_{nj} + \sum_{k=1}^{K} yv_{kj} = \sum_{n=1}^{N} v_{jn} = g_j.
$$

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

\[ \sum_{j=1}^{J} y_{ikj} + \sum_{i=1}^{I} y_{fki} = m_k \quad (1.1) \]

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

Each column in \( F \) and \( Y_F \) 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 \( e_i \):

\[ \sum_{n=1}^{N} f_{ni} + \sum_{k=1}^{K} y_{fki} = e_i \quad (1.2) \]

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 (1.1) and (1.2) 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.

1.2.3. Economic Interpretation

One of the objectives of the Input – Output tables is to provide a rich data set for productivity analysis. Here we attempt to put the Input – Output tables in the context of general equilibrium (GE) analysis of a production economy.

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 $\succeq$ 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 $w_i \in \mathbb{R}^L$. 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 $\{(X_i, w_i, \theta_{ij}, Y_j) | i = 1, \ldots, I, j = 1, \ldots, J\}$.

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 $p y_j$

---

5 See Hulten, 2001 for an overview. For discussions on building productivity accounts from the Input – Output tables see Baldwin and Harchaoui, 2005.
6 See, for example, Mas-Colell et al., 1995, chapter 16.

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

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

\[
p x_i = p w_i + \sum_{j=1}^{J} \theta_{ij} p y_j .
\]

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

\[
\sum_{i=1}^{I} x_i = \sum_{i=1}^{I} w_i + \sum_{j=1}^{J} y_j .
\] (1.3)

Under this framework, the Input – Output 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 \( R^L \) in the GE model now includes both the commodities and primary inputs in the Input – Output 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 \( p' \in R^{N+} \) be the price vector for the \( N \) commodities and \( p'' \in R^{K+} \) for the \( K \) primary inputs. Then the price vector in the GE model is \( p = (p', p'') \in R^{L+} \). In addition, define the following value vectors in \( R^L \):

\[
py_j = (p_1 y_j, \ldots, p_L y_{jL}), \quad j = 1, \ldots, J,
\]

\[
px_i = (p_1 x_{i1}, \ldots, p_L x_{iL}), \quad i = 1, \ldots, I,
\]

\[
pw_i = (p_1 w_{i1}, \ldots, p_L w_{iL}), \quad i = 1, \ldots, I.
\]
We can now make the connection between the GE model and the Input–Output 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 $v_j, u_j \in R^N$. Also, let $y_{ij} \in R^K$ be the $j$-th column of the $Y I$ matrix. Then the value vector of firm $j$ in the GE model becomes $p_v j = (v_j - u_j, -y_{ij}) \in R^L$. On the consumption side, let $f_i \in R^N$ be the $i$-th column of the matrix $F$ and $y_{fi} \in R^K$ be the vector with the first two components being the $i$-th column of the matrix $Y F$ (recall $Y F$ 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 $p_x i = (f_i, y_{fi}) \in R^L$.

Total endowments of the economy is $w = \sum_{i=1}^I w_i$. Endowments in the Input–Output account, however, are contained in two separate tables, namely $Y I$ and $Y F$. Hence we cannot identify $w_i$ for each consumer$^8$. Instead the total endowment value vector is $\sum_{i=1}^I p_w i = \sum_{j=1}^J (0_N, y_{ij}) + \sum_{i=1}^I (0_N, y_{fi})$, where $0_N$ denotes the $N$-dimensional zero vector.

In addition to the current value Input–Output 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 Input–Output 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:

$$y_j = (v_j - u_j, -y_{ij})$$  \hspace{1cm} (1.4)  

$$x_i = (f_i, y_{fi})$$  \hspace{1cm} (1.5)  

$$\sum_{i=1}^I w_i = \sum_{j=1}^J (0_N, y_{ij}) + \sum_{i=1}^I (0_N, y_{fi}).$$  \hspace{1cm} (1.6)  

Substitute the relations in (1.4) to (1.6) into the allocation feasibility condition (1.3), we get

---

$^8$ Part of the information can be obtained from the income and expenditure accounts.
\[
\sum_{i=1}^{L} (f_i, yf_i) = \sum_{j=1}^{J} (0_N, y_j) + \sum_{i=1}^{L} (0_N, yf_i) + \sum_{j=1}^{J} (v_j - u_j, -y_j) \quad (1.7)
\]

A few rearrangements of eq. (1.7) 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 sides. On the left hand side we have, using (1.2),

\[
\sum_{n=1}^{N} \sum_{i=1}^{L} f_{ni} + \sum_{k=1}^{K} \sum_{i=1}^{L} yf_{ki} = \sum_{i=1}^{L} e_i
\]

which is the expenditure based GDP. On the right hand side, since primary inputs include operating surplus, each \(y_j\) in (1.4) always add up to zero in its component. Therefore the last term in (1.7) adds up to zero in its components. With the identity in (1.1) it can be seen that the sum of the components on the left hand side of (1.7) is the income based GDP \(\sum_{k=1}^{K} m_k\).

1.3. Input – Output Tables at Constant Price

As discussed in section 1.2.3 above Input – Output tables are also published in constant price. In this section we shall further discuss the concept and the sources of the deflators used.

1.3.1. Basic Concept

The idea of a constant price value in an Input – Output 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 Input – Output tables are at various levels of aggregation, the price deflators are price indices. Suppose that \(P\) and \(Q\) are the price and quantity index of an entry in an Input – Output table, which are calculated from the price and quantity vectors of \(N\) goods, \((p_1^0, ..., p_N^0)\), \((q_1^0, ..., q_N^0)\), \((p'_1, ..., p'_N)\), and \((q'_1, ..., q'_N)\) where the
superscripts indicate the time periods. The product identity below shows the relation between $P$ and $Q$:

$$PQ = \frac{\sum_i p_i^t q_i^t}{\sum_i p_i^0 q_i^0} = \frac{v^t}{v^0} \tag{1.8}$$

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 (1.8) 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

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

Table 1.2 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.

---

$^9$ Here is different from the number of commodities we used in the previous sections.
The deflation process described above is called a fixed base index. In the Canadian Input – Output 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 Input – Output 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:

Real value added = Sum of output values deflated by output price indices – Sum of input values deflated by input price indices.

1.3.2. Sources of Deflators

The price deflators for the Canadian Input – Output 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.
   - Canadian Institute of Health Information.
   - Canadian Life and Health Insurance Association.
   - Office of Superintendent of Financial Institutions.
• Bank of Japan (Japanese export price indices).

1.4. Measurement Problems

There is a vast literature on both the theoretical and practical aspects of economic measurement\textsuperscript{10}. Here we highlight a few areas that are more relevant to Input – Output tables.

1.4.1. 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\textsuperscript{11}.

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.

1.4.2. 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

\textsuperscript{10} See, for example, Abraham, 2005; Boskin, 2000 and Moulton, 2004 for background and reviews.

\textsuperscript{11} See Triplett and Bosworth, 2003 and Diewert, 2005.
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\textsuperscript{12}.

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 (\textit{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 (\textit{Pritchard and Powell, 2001, p. 7}).

\textbf{1.4.3. 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 (\textit{Triplett, 2004}). For example, personal computers are measured with hedonic pricing in Canada. Other experimental methods are also in development\textsuperscript{13}. New products that have become popular in a short period of time also present a challenge to

\textsuperscript{12} See \textit{Mas-Colell et al. 1995, 568–570} for the idea of a Lindahl equilibrium with public goods.

\textsuperscript{13} See \textit{Prud’homme, Sanga, and Yu, 2005} for an experimental index for computer software.
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.

1.5. Regional Input – Output Tables

So far our discussions have been focused on Input – Output tables at the national level. Often Input – Output 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 1.2.1 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 \( r \). 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 Input – Output tables also satisfies the relations and identities in section 3.2.

One important feature of the regional Input – Output 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.,

$$f_{n,I+s,r} = f_{n,I+R+r,s}, \quad r, s = 1, \ldots, R, n = 1, \ldots, N$$  \hspace{1cm} (1.9)

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 $n = 1, \ldots, N$,

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

In fact this follows directly from (1.9) by summation.

In Canada, regional Input – Output tables are produced for the ten provinces and three territories ($R=13$). The provincial Input – Output 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 1.1) 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 Input – Output 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 re-
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 records 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.
2. Methodological Principles Underlying the Formation of Regional (Subjects of the Russian Federation) Production Accounts

2.1. Substance and Structure of the Production Account

The production account plays a special role in the System of National Accounts (SNA) and regional accounts, since the methodology in accordance with which it is formed to a significant degree determines the methodology of formation of many subsequent accounts. Production account embraces economic operations characterizing the results of production of outputs and expenditures for the acquisition of goods and services used in the course of production and sales of these outputs. This account also serves to measure the gross added value, which makes the base for computation of the gross domestic product – the most important generalizing indicator characterizing the level of development of the economy.

Production account is composed for industries, institutional sectors and the regional economy at large. For the structure of the account see Table 2.1.

Table 2.1

<table>
<thead>
<tr>
<th>Uses</th>
<th>Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intermediate consumption</td>
<td>Output</td>
</tr>
<tr>
<td>Value added, gross</td>
<td>Total</td>
</tr>
<tr>
<td>Total</td>
<td>Total</td>
</tr>
</tbody>
</table>

The resource section of the account reflects the size of output, whereas the section dealing with uses shows the intermediate consumption of goods and services and the balancing item of the account-added value, which is computed as the difference between output and intermediate consumption.

At the level of the economy as a whole the balancing item is the **Gross Domestic Product** (GDP), and, as concerns the regional econ-
omy – the **Gross Regional Product** (GRP). In the course of computation of GDP in terms of basic prices the sum of gross added values across industries is reduced by the value of financial intermediation services indirectly measured (FISIM), which pertains to the intermediate consumption of a conventional unit and is not distributed across industries and sectors of the economy. In the Russian Federation, the value of financial intermediation services indirectly measured is not taken into account due to the lack of respective data. In the case GDP and GRP are valued at market prices, the amount of net taxes on products (taxes on products less subsidies on products) are added to the respective indicator.

Value added serves to measure values created in the process of production; therefore, it is theoretically correct to measure it on the net basis, i.e. without taking into account the consumption of fixed capital pertaining to production costs. Accordingly, net regional product is gross regional product less consumption of fixed capital. However, due to the fact that it is rather difficult to correctly assess the consumption of fixed capital, in international practice the assessment of value added in gross terms is used more widely.

### 2.1.2. Formation of Indicators Pertaining to Production Account

According to the SNA concept, enterprises simultaneously engaged in several productive activities should be divided into establishments in order to be later associated with the respective industries. An establishment is an enterprise, or part of an enterprise, that is situated in a single location and predominantly engaged in the production of a homogeneous range of products. Enterprises can be divided into establishments in the cases, where information on the main establishment performance indicators can be obtained, i.e. output volumes and respective production costs, labor and capital. In the case it turns out impossible to single out a unit of an enterprise as an establishment, its activities should be taken into account together with the principal activity of the enterprise.

Centralization of accounting resulted in the fact that establishments within enterprises not always can have information on production costs, remuneration of labor, social insurance contributions, taxes paid, profits and so on, since such information is available only with respect to the enterprise at large (an institutional unit). These indicators can be associ-
ated with establishments only by the way of calculation, what inevitably results in a certain approximation of calculations.

Proceeding from the considerations discussed above, at present it seems feasible to use enterprise (institutional unit) as the accounting unit for the formation of production accounts. In the framework of this approach (the institutional approach), the output of an industry is the output of enterprises grouped by their principal activities as registered in the Russian Classification of Kinds of Economic Activities (OKVED).

Indicators of industry-specific production accounts should be calculated by the following kinds of economic activities:

- Agriculture, hunting and forestry.
- Fishing and fish farming.
- Mining and quarrying.
- Manufacturing.
- Electricity, gas, steam and hot water production and distribution.
- Construction.
- Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods.
- Hotels and restaurants.
- Transport and communications.
- Financial intermediation.
- Real estate, renting and business activities.
- Public administration and military security.
- Compulsory social security.
- Education.
- Health and social work.
- Other community, social and personal service activities.

Output of industries across all institutional sectors is calculated on the basis of matrices characterizing formation of output by market and non-market producers.
2.2. Production Account Indicators in the Sector of Non-Financial Corporations

2.2.1. Output

Output of the sector of non-financial enterprises is the value of goods and services produced by the enterprises pertaining to this sector over the respective accounting period.

Typically, enterprises of this sector have two types of output:

- Market output;
- Output produced for own final use.

**Market output** of enterprises belonging to the non-financial sector is output sold on the market or planned to be sold on the market.

Market output includes:
1. products sold at economically significant prices;
2. bartered products;
3. products used as labor remuneration;
4. products transferred between establishments of the same enterprise;
5. increment in finished stocks and work in progress inventories intended for one or other of uses indicated above (including increment in products of animal and plant origin and construction projects in progress in the case the buyer thereof is not known as yet).

**Output produced for own final use** of enterprises of the non-financial sector comprises goods and services used for gross fixed capital formation by the same institutional unit and may include:
1. products of manufacturing industries (special machinery, machine tools, equipment and so on) included in the fixed capital over the respective accounting period;
2. non-contracted construction works;
3. agricultural produce included in the fixed capital over the respective accounting period (cattle and perennial plantings);
4. finished stocks and work in progress inventories included in reserves and planned for own final use.

Output of the sector of non-financial enterprises is assessed in basic prices.
In the cases, where reports contain the data on output at producers’
prices, in order to evaluate output at basic prices these data should be ad-
justed as follows:

\[
\text{output at producers’ prices minus taxes on products included in pro-
ducers’ prices plus subsidies on products} = \text{output at basic prices}.
\]

As concerns goods and services, the main principle of evaluation of
the market output is the use of market prices prevailing in the period, in
which these goods and services were produced. In the cases, where prod-
ucts are sold under fixed term contracts (forward, futures, option) at the
prices fixed at the time of transaction, they should be evaluated at these
prices.

In the case products are sold immediately (without being registered as
stocks), the selling price thereof may be considered to be equal to the
price as at the time of production. In the case there are sold products
taken out of stocks, the selling price of such products may significantly
differ from the prices at the moment of production, especially in the peri-
ods of high inflation rates. In such cases, the assessment of output at sell-
ing prices should include changes in the value of products resulting from
changes in prices occurring over the time these products were registered
as stocks (so called “holding” gains). In order to avoid such develop-
ments, the respective adjustment should be made.

In order to exclude the impact of the holding gains or losses, changes
in finished stocks and work in progress inventories should be computed
as the difference between input in stocks and withdrawals from the stocks
as evaluated at the prices actual at the time of input or withdrawal of
these products. However, in practice it is difficult to obtain information
concerning the input or withdrawal of product to or out of stocks within
the respective accounting period. Therefore, there should be carried out
special computation permitting to evaluate changes in finished stocks and
work in progress inventories at the average prices of the accounting pe-
riod and so remove holding gains from the calculation of the output.

Goods and services planned for own final use are assessed at basic
prices of similar market goods and services. In the case the respective
information is not available, output of goods and services planned for
own final use should be evaluated basing on the amount of current costs of the production thereof, which is measured as follows:

\[
\text{intermediate consumption plus remuneration of hired labor plus other taxes on production (less other subsidies on production) plus consumption of fixed capital} = \text{current costs of production of goods and services.}
\]

2.2.2. Intermediate Consumption

Intermediate consumption is the value of goods and services consumed by enterprises of the non-financial sector over the respective accounting period in the process of production of other goods and services (with the exception of consumption of fixed capital).

The composition of intermediate consumption includes acquired goods and services as well as goods and services provided for production purposes by one establishment to another establishment within the same enterprise. Intermediate consumption includes also payments for one-time works executed by persons outside the permanent staff of the enterprise (for instance, translations, consultations, lecturing, radio and TV appearances).

Intermediate consumption of non-financial enterprises includes following elements:

a) input of goods,

b) input of services.

**Input of goods** includes the following items:

a) raw materials and materials embodied in end products;

b) materials used in the production process in accordance with usual technologies (for instance, materials used in the process of tests and quality control; materials necessary for maintenance work, operational use and repairs of equipment, buildings and other fixed assets; spare parts for repair of equipment; tools, measuring devices, appliances, laboratory equipment not included in fixed assets; work clothes and footwear, special diet for employees and low value items);

c) intermediate products and parts assembled at the enterprise;

d) fuels of all types consumed in the course of production of all types of energy, heating, transport operations servicing own production;

e) energy of all types consumed in the course of meeting technological and other production and economic needs of the enterprise; expenditures
pertaining to production of electrical power and other types of energy by the enterprise itself as well as transformation and transfer of acquired energy to the place of its consumption;
f) net value of packing materials (i.e. the cost of acquisition of packing materials less means obtained due to the use thereof);
g) losses resulting from deficiency of material resources;
h) compensation for expenses incurred by employees for necessary tools and work wear;
i) acquisitions of food, drinks, and tobacco products by hotels, restaurants and cafés.

Input of services include:
a) production-related works and services executed by third parties (processing of raw materials; repairs and transport operations; quality control of raw materials and so on);
b) payments for communication services and services provided by computer centers;
c) payments for R & D and experimental works;
d) payments for financial services;
e) payments to educational establishments for training of employees;
f) payments to health care institutions for such services as preventive health assessment, vaccination and so on;
g) rent payments for buildings, other structures, machinery and equipment;
h) payments for communal services such as waste collection and treatment;
i) payments for legal services;
j) payments for advertising and other business services such as copying services, booking of tickets, payments to professional associations and so on;
k) payments for licensing and certification of goods;
l) payments for fire protection and watchman service;
m) payments for subscription service;
n) payments for subscription for periodicals;
o) expenditures pertaining to business trips of specialists as concerns payments for transport and hotel services, as well as relocation allowances.

Intermediate consumption of non-financial enterprises does not include:

a) expenditures for construction, modernization of buildings and other structures and repair of machinery and equipment aimed to achieve longer operating lives thereof and increase in productivity (such expenditures are treated as gross fixed capital formation);

b) goods and services provided by the enterprise to its employees for free or at reduced prices as remuneration of their labor in kind;

c) fares paid by employees to travel from home to their places of work (it is interpreted as expenditures for final household consumption);

d) expenditures pertaining to the transfer of titles to land, fixed assets and non-produced assets (such expenditures pertain to gross fixed capital formation);

e) tangible non-produced assets: land, subsurface resources, water resources, forest resources and other natural resources (such assets pertain to property income);

f) expenditures for geological prospecting and drilling operations (such works pertain to gross fixed capital formation);

g) capital expenditures for land improvements including works aimed at land clearing and melioration, preparatory works prior to forestation and gardening and so on (such expenditures pertain to gross fixed capital formation);

h) costs of social and cultural services rendered to employees and members of their families by subdivisions of enterprises, such as company housing, hospitals, clubs, stadiums and so on (such services are interpreted as services provided by non-profit institutions servicing households and are included in expenditures for final consumption of these organizations, which are financed via transfers from enterprises);

i) consumption of fixed capital.

Intermediate consumption of goods should be evaluated at purchasing prices existing at the time of consumption thereof in the process of production and not at the time of acquisition of goods. It should be noted that
the indicator of intermediate consumption computed on the base of account- ing data as a rule does not answer this principle of evaluation. The assessment of its value directly on the basis of the accounting data, especially in the periods of high inflation rates, may result in a significant underestimation of intermediate consumption and, accordingly, in overestimation of profits by the amount of change in the value of goods provided for intermediate consumption from inventories due to the changes in prices occurring over the time these goods were in the composition of stocks. Therefore, there is needed a respective adjustment of the value of intermediate consumption found out on the basis of the accounting data. This adjustment is similar to the level of adjustment for changes in materials and supplies (as a component of the indicator characterizing changes in inventories by the value of holding gains (losses).

In practice, producers usually do not register the value of goods and services put in the process of production of goods and services, but register expenditures pertaining to acquisition of goods and services to be used in production process. Therefore, in order to compute intermediate consumption the expenditures for acquisition of goods and services should be adjusted for the amount of change in materials and supplies and holding gains.

Gross value added for all kinds of activities in the sector of non-financial corporations, as well as for all other sectors is measured as the difference between the output and intermediate consumption.

Net value added is measured as the difference between gross value added and consumption of fixed capital.

2.3. Algorithm for Computation of Output in the Sector of Non-Financial Corporations

Output of enterprises of the non-financial sector across kinds of economic activities is measured as the sum of several matrixes:

1) matrices of output of large and medium sized enterprises,
2) matrices of output of small enterprises,
3) matrices of adjustments for economic activities unobservable by direct statistical methods,
4) matrices of output across individual industries based on alternative sources of information.

For the general design of the matrix of outputs, see Table 2.2.

**Table 2.2**

**Composition of Output Produced across Industries of the Economy**

<table>
<thead>
<tr>
<th>OKVED codes</th>
<th>Output of industries of the economy as broken down by OKVED codes</th>
<th>Output of products</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Agriculture (A)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fishing (B)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Manufacturing (D)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The subject of the outputs matrix reflects output of products and its predicate reflects industries of the economy as broken down by OKVED codes.

Each column of the outputs matrix characterizes the composition of an industry’s output as broken down by products. As a rule, products of the principal activities comprise the larger part of the output of each industry. For each kind of activity there is indicated output of products of the principal activity and all secondary kinds of activities. For instance, the column “Agriculture” will contain information not only on the output of agricultural produce, but the output of products of processing industries (meat products, juices, canned goods, grape wines and so on) as well, in
the case they are produced by the auxiliary processing industries of an agricultural enterprise.

Each row of this table characterizes the output of products by all industries of the economy of the region notwithstanding the fact if this type of output is produced in the framework of primary or secondary kinds of activities of enterprises. For instance, in the row “Agricultural produce” there will be indicated output of agricultural produce not only in the industry “Agriculture”, but also of all other industries, for which such output is secondary.

Column totals characterize outputs of industries as broken down by OKVED codes, whereas row totals indicate outputs of products in terms of the OKVED code set. It should be noted that totals of columns and rows for same OKVED codes will be different, since similar products can be produced by non-specialized enterprises as well.

2.3.1. Computing the Output of Large and Medium Sized Enterprises

The main source of information used for the construction of the matrix of output of large and medium sized enterprises belonging to the non-financial sector is the data of the structural survey carried out in accordance with the federal state statistical monitoring form No. 1 – enterprise (annual) “Basic facts about enterprise activities”.

In the framework of the structural survey, the enterprise (or the institutional unit) is the accounting unit.

The calculation of output of large and medium sized enterprises belonging to the sector of non-financial corporations across their kinds of activities is carried out on the basis of the data presented in section VI “Information on production and shipping of goods, works and services”, section VII “Expenditures for production and sales of goods, works and services” and section VIII “Kinds of economic activities” of the form. Below, there is presented the methodology of computation of the output in accordance with form No. 1 – enterprise approved for year 2004.

The data contained in section VIII “Kinds of economic activities” of this form contains information on the output of goods and services across pure kinds of activities. It should be noted that the sum of outputs across pure kinds of activities form section VIII may differ from the output com-
computed for the institutional unit as a whole. In order to bring these indicators in compliance, it is necessary to assess output of the industry of the economy on the basis of sections VI “Information on production and shipping of goods, works and services” and section VII “Expenditures for production and sales of goods, works and services”, since they contain the most comprehensive data on the results of productive activities of enterprises.

For the algorithm for this computation, see Table 2.3.

Table 2.3

Computing the Output of Large and Medium Sized Enterprises in the Sector of Non-Financial Enterprises as Broken down by Kinds of Activities

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Item No.</th>
<th>No. of the line of No. 1 – enterprise form</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>B</td>
<td>C</td>
</tr>
<tr>
<td>Goods of own production, shipped; force account works and services (without VAT and excises)</td>
<td>01</td>
<td>line 33</td>
</tr>
<tr>
<td>Industrial products entered into fixed assets over the accounting period, produced</td>
<td>02</td>
<td>line 34</td>
</tr>
<tr>
<td>Agricultural produce entered into fixed assets over the accounting period (cattle and perennial plantings), produced</td>
<td>03</td>
<td>line 35</td>
</tr>
<tr>
<td>Non-contracted construction and installation works, fulfilled</td>
<td>04</td>
<td>line 36</td>
</tr>
<tr>
<td>Goods produced by third parties (without VAT and excises), sold</td>
<td>05</td>
<td>line 38</td>
</tr>
<tr>
<td>Industrial goods of own production transferred to own non-industrial subdivisions</td>
<td>06</td>
<td>line 39</td>
</tr>
<tr>
<td>Agricultural produce of own production transferred to own non-agricultural subdivisions</td>
<td>07</td>
<td>line 40</td>
</tr>
<tr>
<td>Expenditures for acquisition of goods for resale</td>
<td>08</td>
<td>line 51</td>
</tr>
<tr>
<td>Balances of goods for resale:</td>
<td>09</td>
<td>line 52</td>
</tr>
<tr>
<td>as at the beginning of the year</td>
<td>10</td>
<td>line 53</td>
</tr>
<tr>
<td>as at the end of the year</td>
<td>11</td>
<td>line 60</td>
</tr>
<tr>
<td>Purchase value of raw materials, completing parts acquired for output of products but sold to third parties without processing</td>
<td>12</td>
<td>line 73</td>
</tr>
<tr>
<td>Balances of finished stocks of own production:</td>
<td>13</td>
<td>line 74</td>
</tr>
<tr>
<td>as at the beginning of the year</td>
<td></td>
<td></td>
</tr>
<tr>
<td>as at the end of the year</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[
14 = 01 + 02 + 03 + 04 + 06 + 07 + 08 + 09 + 10 + 11 + 12 + 13
\]

Output of goods and services – total

\[
+ 07 + 05 + 08 - (10 - 09) + (33 + 34 + 35 + 36 + 39 + 40 + 41 + 11) + (13 - 12) + (51 - (53 - 52) + 60) + (74 - 73)
\]
The total sum of outputs of pure kinds of activities obtained in the course of making *Table 2.2* on the basis of section VIII (total of the matrix column) may differ from the output of the industry of the economy computed proceeding from the algorithm for calculation presented in *Table 2.3* (on the basis of the data of sections VI and VII). The difference between these two indicators may make from 7 per cent to 10 per cent. The main factor behind these differences is the different systems of evaluation of finished stocks. In section VIII of form No. 1 – enterprise the indicator of output includes the data on changes in finished stocks at the selling prices of the respective reporting month, whereas in section VII finished stocks are evaluated proceeding from the prices registered in the period of production of these products as it is envisaged by accounting rules.

In the case there are detected significant differences between these two indicators, it is necessary to determine the concrete enterprise, which submitted this information and find out the real cause of the difference. Depending on the explanation, there should be taken a decision about the adjustment of the information.

In the case the difference is insignificant, the total sum of outputs of pure industries from section VIII is to be adjusted to the output measured in accordance with the algorithm from *Table 2.3* as concerns the respective kinds of economic activities. The adjustment should be carried out with the use of the coefficient computed using the following formula:

\[
k_j = \frac{P_{j}^{bm}}{P_j^o}
\]

where:

- \(k_j\) is the adjustment coefficient;
- \(P_{j}^{bm}\) is the output of goods and services of kind of activity \(j\) calculated on the basis of the data presented in sections VI and VII of No. 1 – enterprise form;
- \(P_j^o\) is the output of goods and services of kind of activity \(j\) calculated on the basis of the data presented in section VIII of No. 1 – enterprise form;
Next, each element of column \( j \) of Table 2 is multiplied by the respective coefficient \( k_j \).

The results should be analyzed.

In the case the secondary kinds of activities have significant specific weight in the total amount of output of the industry, there are found out the reasons thereof by turning to the data across regions and the database of form No. 1 – enterprise for each object. In the case the actual principle kind of activity of the enterprise does not correspond to the declared one, it is recoded (in compliance with the stability rule) followed by changes in calculations.

The adjusted data represent the output as broken down by large and medium sized enterprises without changes in work in progress inventories, value of raw materials supplied by customers, subsidies on products. In accordance with the System of National Accounts (SNA) methodology, output should include these indicators. The data pertaining to these indicators are contained in sections VI and VII of form No. 1 – enterprise. Since the data on changes in work in progress inventories, value of processed raw materials supplied by customers and subsidies on products are available only as concerns the enterprise as a whole, in order to measure outputs in accordance with the SNA methodology it is necessary to distribute each of the indicators mentioned above across the concrete groups of goods and services.

The calculation is carried out by building matrices of changes in work in progress inventories, the value of processed raw materials supplied by customers, and subsidies on products.

**Matrix of changes in work in progress inventories** is designed in the following way. Changes in work in progress inventories are distributed across products in proportion to the outputs of manufacturing industries, agricultural produce, science and construction related services.

**Matrix of the value of processed raw materials supplied by the customer.** The value of processed raw materials supplied by customers is as a rule distributed across products in proportion to the values of outputs resulting form manufacturing activities in each industry of the economy with the exception of:
− enterprises, the principal activity of which is “Construction”, included in section F – raw materials supplied by customers belong to the principal activity;
− enterprises, the principal activity of which is included in section G “Wholesale and retail trade; repairs of motor vehicles, motorcycles, household goods and personal articles” – raw materials supplied by customers are distributed in proportion to outputs resulting from manufacturing activities, rendering of services pertaining to maintenance and repairs of motor vehicles and motorcycles, repairs of household goods and personal articles;
− enterprises, the principal activity of which is “Hotels and restaurants” included in section H – raw materials supplied by customers belong to the principal activity;
− enterprises, the principal activity of which is “Activities in the sphere of architecture; design engineering; geological prospecting and geophysical works; geodetic and map-making activities; activities in the sphere of standardization, metrology and related areas; kinds of activities related to the solving of technical problems not elsewhere classified” included in subclass 74.2 – raw materials supplied by customers belong to the construction works;
− enterprises, the principal activity of which is “Advertising” included in subclass 74.4 – raw materials supplied by customers belong to the principal activity.

For preliminary computation of the distribution of raw materials supplied by customers across products there is used the structure of distribution of raw materials supplied by customers for the preceding year (the total amount of raw materials provided by customers for each industry of the economy is deemed to make 100 per cent). Further, these data are adjusted in the process of reconciliation of resources and use of goods and services.

**Computing the matrix of subsidies on products.** Accounting data on the basis of which form No. 1 – enterprise is made provide information on budget subsidies pertaining to current production. It is assumed that these data should reflect only subsidies on products; however, in practice these subsidies may also include other subsidies on production.
Since output is evaluated at basic prices, it is necessary to include in the value of output only subsidies on products. The building of the matrix of subsidies on products is carried out basing on the data pertaining to budget subsidies related to current production as presented in form No. 1 – enterprise and the data presented in the “Report on the execution of the consolidated budget of the Russian Federation” as concerns subsidies on products.

Generally, the algorithm for computation of the matrix of subsidies on products is as follows.

There is also to be built an auxiliary matrix of output containing only the output of subsidized products measured on the basis of the data presented in the report “On the execution of the consolidated budget of the Russian Federation” (electrical power, services provided by the railway sector, communal services, cultural services and so on). Further, the values of the output of some producers are removed from the matrix in the case the amounts of the respective outputs are relatively small. This adjustment is made basing on the assumption that the enterprises producing these types of products as secondary activities and in small quantities do not receive subsidies from the budget. Further, the amount of subsidies on products measured on the basis of the report about the budget execution is distributed across vector rows in proportion to the output of subsidized products. The total values of subsidies on products across “economic” industries are compared across the respective industries with the amounts of budget subsidies related to current production as presented in form No. 1 – enterprise. If necessary, the values of the matrix are adjusted basing on the logical analysis.

The aggregate matrix of output of large and medium sized enterprises is computed as the sum of the following matrices:
- of output (without changes in work in progress inventories, value of processed raw materials supplied by customers and subsidies on products);
- of changes in work in progress inventories;
- of value of processed raw materials supplied by customers;
- of subsidies on products.
2.3.2. Computing the Output of Small Enterprises

Across small enterprises, output is measured on the basis of integration and logical analysis of the data on output of goods and services (without VAT and excises) presented in statistical monitoring form No. PM “Data on key indicators of the small enterprise activities” and the data on proceeds from form 2 “Profit and loss statement” of the annual financial statements. It should be noted that the data on proceeds across all kinds of activities (with the exception of those, where output is equal to the amount of the markup received over the respective accounting period) should correspond to the data on the output of products. Since there are no available data on the structure of all kinds of activities, in which small enterprises are engaged, it is hypothesized that such enterprises are engaged only in the kinds of activity registered as their principal businesses.

Basing on expected values of output of products of small enterprises, there is built a matrix of the same size as that for medium sized and large enterprises. The matrix of output of small enterprises is built by filling in its diagonal elements (graph cells, where pure industries correspond to economic industries).

For the design of the matrix of outputs across small enterprises, see Table 2.4.

Table 2.4

Output across Small Enterprises

<table>
<thead>
<tr>
<th>OKVED codes</th>
<th>Output of industries of the economy as broken down by OKVED codes</th>
<th>Output, total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>1</td>
<td>( P_{11}^s )</td>
<td>( P_{11}^s )</td>
</tr>
<tr>
<td>2</td>
<td>( P_{22}^s )</td>
<td>( P_{22}^s )</td>
</tr>
<tr>
<td>...</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i</td>
<td></td>
<td>( P_{ij}^s )</td>
</tr>
<tr>
<td>...</td>
<td></td>
<td></td>
</tr>
<tr>
<td>n</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output of the industry</td>
<td>( P_{11}^s )</td>
<td>( P_{22}^s )</td>
</tr>
</tbody>
</table>
2.3.3. Adjusting Outputs for Economic Activities Unobservable by Direct Statistical Methods

Evaluation of amounts of output (i.e. outputs across pure sectors of the economy) is based on the functional approach to the phenomena under study. In order to ensure that the amounts of output (i.e. outputs across pure industries of the economy) are measured most precisely, there are used all available sources of information: the data of current and sample statistical observations, administrative data, indirect information, formation of balances of resources and uses across individual groups of goods and services. The methodology of assessment of amounts of output of goods and services as adjusted for output unobservable by direct statistical methods, which was designed at the time the Russian Classification of Industries of the National Economy (OKONKh) was in force, was published in the Methodological Regulations on Statistics (Issue 2). At present, the respective methodology for evaluation of output of goods and services taking into account the economy unobservable by direct statistical methods, based on the groupings in the OKVED structure, is at the stage of development and will be published later. At present, in the course of the computation of the output in the structure of the OKVED the size of the economy unobservable by direct statistical methods is evaluated on the basis of certain regrouping of the data presented in the OKONHk with the use of conversion keys.

The possibility to obtain data on secondary kinds of activities of large and medium sized enterprises as a result of inclusion of all industries of the economy in the structural study permitted to significantly expand the scale of coverage of operations pertaining to production of individual groups of goods and services by methods of current statistical monitoring. Products produced as a result of secondary kinds of activities of enterprises often make significant additions to similar products produced at specialized enterprises.

2.3.4. Computing Output across Individual Industries Basing on the Data from Alternative Sources of Information

In order to ensure the fullest coverage of operations pertaining to production of goods and services in regional economies, it is necessary to
take into account the specifics of functioning of individual kinds of economic activities and specifics of reflection thereof in statistical records. First and foremost, this concerns those kinds of economic activities, where small businesses account for production of significant amounts of output: agriculture, trade as well as certain kinds of activities relating to services provided to households and so on.

In form No. 1 – enterprise, on the basis of which the table of outputs in the sector of non-financial corporations, construction activities are reflected as concerns large and medium sized contractor organizations. However, in the sphere of construction business small enterprises and individual unincorporated entrepreneurs account for significant amounts of output, the sizes of which are rather difficult to assess. The most complete data on the amounts of construction works may be obtained via investors. Therefore, it proved necessary to alternatively evaluate outputs for “pure” kind of activity “construction” on the basis of reports on investments in construction.

The kind of activity “construction” embraces activities carried out by organizations executing contracted and non-contracted construction, installation and other kinds of works as defined in section F class 45 of the Russian Classification of Kinds of Economic Activities (OKVED), including capital and current repairs of buildings and other structures, as well as the construction activities of non-corporate units (individuals engaged in construction and repair of residential housing, country houses, household outbuildings under contracts, private housing construction and repair of residential housing, country houses, household outbuildings in the framework of force account construction activities).

A specific feature of the kind of activities “construction” is longer periods of production of construction-related outputs. In this connection, the computation of output, intermediate consumption and the amount of value added of construction production is carried as production progresses, and not after its completion. Yet another specific feature of formation of the value of produced construction production and reflection thereof in statistical reports is the procedures, which govern making of contracts with organizations for construction works. The procedures, under which construction contracts may envisage execution of works with
the use of materials supplied by customers, acquisition of technological
equipment for construction sites and so on, are set by the Civil Code of
the Russian Federation. Therefore, the value taken into account as con-
cerns the group of contractors does not permit to obtain the full set of
data on produced construction products. The most complete data on the
amounts of construction works and services may be obtained from inves-
tors only. Therefore, the computation of output as concerns pure kind of
activities “construction” is carried out by an alternative method on the
basis of the federal state statistical reports on customers (property devel-
opers) with the use of additional sources of information and special com-
putation algorithms.

As concerns the kind of activities “construction”, output is the value
of contracted and non-contracted works pertaining to construction, recon-
struction and repair of buildings and other structures, as well as the value
of construction works pertaining to individual residential houses.

It includes:
  a) construction and installation works;
  b) value of construction of individual residential houses;
  c) exploration boring, including boring of water wells;
  d) capital and current repairs of buildings and other structures.

Computation of output of the pure kind of activities “construction”
does not take into account:
  − works pertaining to assembly of production equipment;
  − works pertaining to production oil and natural gas drilling;
  − design and exploration works;
  − costs of planting and cultivation of perennial horticultural and small
    fruit crops and protective forest strips;
  − costs incurred in relation to repayment of interest on bank loans.

In the course of calculation of output pertaining to new construction
there is used both direct and indirect information on investments in fixed
capital aimed at the execution of construction and installation works, as
well as other capital works and expenditures associated with the value of
construction products included in Table No. 1 – investments developed
on the annual basis in the full circle regime.
The computation is carried out on the basis of the annual adjusted data contained in the forms of federal state statistical reports as concerns the registered group of organizations:

- annex to form No. P-2 “Information on investment activities” (as concerns large and medium sized organizations and organizations not granted the small enterprise status, where average personnel is below 15 persons);
- form No. PM “Data on key indicators of the small enterprise activities” (as concerns small enterprises extended to the general population of organizations);
- form No. 1 – IzhS “Data on individual residential houses built by households” (information from administrative sources on the registration of owners of built residential houses);
- as well as the parameters of informal activities, including:
  - estimated costs relating to the understatement of the values of individual residential houses as declared by households in the process of registration in comparison with the respective actual construction costs, which are measured in accordance with the computation model using the data presented in form No. 1 – I ZhS and the Appraiser reference book “Residential houses. Aggregated indicators of construction costs”;
  - estimated costs relating to the construction of country houses and other outbuildings on plots of land for country houses and gardening, as well as garages and other buildings by individuals, which are determined with the use of federal state statistical monitoring form No. 1 – IND “Feedback form of the monitoring of construction on plots of land for country houses and gardening as on September 1, 2000” and the Appraiser reference book “Residential houses. Aggregated indicators of construction value”;  
  - estimated costs of construction and installation works carried out by unincorporated units engaged in entrepreneurial activities in the course of creation of new fixed assets of industry and trade, which are determined on the basis of the data presented in the
balance data on properties owned by citizens (construction of stalls, kiosks, and so on).

Other capital works and costs included in output of the pure kind of activities “construction” are computed on the basis of the federal state statistical monitoring Annex to form No. P-2 “Information on investment activities” and include:

- exploration boring;
- works related to the boring of water wells;
- other works and costs being a part of construction estimates (costs of works executed in winter by the rotating team method, secondment of workers, bonuses paid for commissioning of construction projects, and so on).

Investments in fixed capital, including the parameters of concealed informal activities are computed on the basis of the “Methodological guidelines concerning the measurement of investments in fixed capital as adjusted for the assessment of concealed and informal activities” approved by the Rosstat Resolution No. 36 of June 27, 2005.

In the process of calculation of output pertaining to repair of buildings and other structures there are used the following data:

- presented in form No. 11 (as concerns profit making organizations);
- presented in form No. 11 (brief) (as concerns non-profit institutions);
- resulting from the calculation of expenditures incurred in relation to repair of buildings and other structures by small businesses carried out on the basis of the ratio between the costs of repair of buildings and other structures incurred by small businesses and large and medium sized profit making organizations over the respective preceding period;
- resulting from the calculation of costs incurred by households in relation with repair of housing carried out on the basis of the data presented in form No. 1 – services “Information on paid services to rendered to households” as concerns costs and services pertaining to repair of housing by households.

Intermediate consumption of profit making organizations is measured on the basis of output of the pure kind of activities “construction” and the specific weight of intermediate consumption in the output calculated on
the basis of the data pertaining to organizations engaged in the kind of activities “construction,” section F class 45 of form No. 5-z “Information on costs incurred in relation to production and sales of products (works, services)”.

The specific weight of intermediate consumption in the output of other subsets of objects under observation is measured with the use of expert assessments.

Gross value added at current prices is calculated as the difference between output and intermediate consumption.

Deflation of output and intermediate consumption is carried out with the use of respective producers’ price indices in construction (output and intermediate consumption at current prices are divided by the price index).

Output of products calculated for the pure kind of activity “construction” is formed for the sector of non-financial enterprises and the household sector.

By convention, the sector of non-financial enterprises includes legal entities (large and medium sized enterprises, as well as small businesses), whereas the household sector includes unincorporated individual entrepreneurs engaged in activities related to the provision of paid services to households.

**The value of agriculture produce** is measured on the basis of the data on current statistical reports concerning activities of agricultural enterprises, production of agricultural produce in kind and respective average sale prices, estimates of production of agricultural produce by farming enterprises and households.

**Formation of outputs of the kinds of activities “Wholesale and retail trade; repairs of motor vehicles, motorcycles, household goods and personal articles” and “Restaurants”**.

As concerns these kinds of activities, the sector of non-financial corporations by convention includes legal entities (large and medium sized enterprises, as well as small businesses, including their activities unobservable by direct statistical methods). Non-corporate individual entrepreneurs, as well as activities related to sales of goods to households at market places, are included in the household sector.
The algorithm for the computation of outputs takes into account the specifics of statistical monitoring and respective sources of information as concerns each of the subsets of objects under observation mentioned above.

As concerns **large and medium sized organizations**, the statistical source of information on their output is the unified form of the federal state statistical monitoring No. 1 – enterprise “Basic facts about enterprise activities”. The output is formed in the process of building of the preliminary matrix of large and medium sized enterprises.

Output of **small enterprises** is formed on the basis of form No. 2 “Profit and loss statement” of the annual financial statements. At the **first stage** there is measured the output of small enterprises pertaining to their principal kinds of activities.

As concerns wholesale and retail trade, the output is assumed to be equal to the gross profit, whereas in the case of repairs of motor vehicles, motorcycles, household goods and personal articles, as well as restaurant activities, it is assumed to be equal to the amount of proceeds.

Since financial statements do not embrace enterprise, which switched to the simplified system of taxation, it is necessary to compute the average output per 1 small enterprise submitting its financial statement and extend the result to the number of small enterprises engaged in the respective kinds of activities in accordance to the data presented by the Statistical Register of Rosstat.

In order to obtain totals of pure industries, at the **second stage** of the calculation there is determined the coefficient of adjustment of the output of small enterprises engaged in trade for the amounts created in the course of trade activities of small enterprises belonging to the rest of the regional economy.

The computation is carried out by the comparison between the total amount of turnover of retail (wholesale) trade of small enterprises and the turnover of retail (wholesale) trade small enterprises.

Due to the fact that at present there is no methodology permitting to compute concealed output as concerns a number of kinds of activities primarily related to provision of repair and maintenance services, the data
on the share of concealment in the trade turnover calculated on the basis of current methods are used for assessment thereof.

In the sector of non-financial corporations, the results of calculations concerning large, medium sized and small enterprises are summed up and adjusted for the data on concealment.

The amounts of completed research and development activities are best reflected in statistical monitoring form No. 2 – science “Information on the execution of research and development works”. This specialized statistical form reflects the amount of works relating to research and development commissioned and written down under the established procedures, i.e. those accepted by customers as per acceptance certificates. Therefore, it is feasible to evaluate the amounts of output in the framework of this kind of activities carried out by large and medium sized enterprises exactly on the basis of this form, whereas the output of the “pure” kind of activities should be measured as the sum of respective indicators of large, medium sized and small enterprises. Further, in order to single out the output of the sector of non-financial corporations the output of research and development services rendered by organizations belonging to the public administration sector should be excluded from the total amount of output.

The methodological approaches used for evaluation of the amounts of output of “pure” kinds of activities to a certain extent correspond to the calculations of outputs of industries in the OKONKh structure and are rather extensively described in the collection “Methodological Regulations on Statistics” (Issue 2). At present, the methodological regulations are adjusted to the calculation of amounts of output of “pure” kinds of activities in the current situation of the switching to the database developed in the OKVED structure.

The results of evaluation of amounts of output of “pure” kinds of activities carried out on the basis of various data and application of various methodological approaches are compared with the results pertaining to the output of “pure” kinds of the respective activities obtained in the result of building of matrices described in other sections of this chapter. The detected quantitative differences are analyzed as concerns the reasons behind origins thereof, there are determined differences across the
institutional sectors and respective adjustments are made to the initially
developed matrices. The adjustment is carried out by developing an addi-
tional table conventionally named as the “adjustment of output for alter-
native sources of information”. In order to form this matrix, it is neces-
sary to fill in the diagonal element, which is calculated as the difference
between the amount of output of a “pure” kind of activities computed on
the basis of various data and the output of the respective “pure” kind of
activities of the sector of non-financial enterprises calculated at the first
stage.

As the result of summing up of all the matrices discussed above, there
is obtained the final matrix of output across the kinds of activities of the
sector of non-financial corporations. The production account reflects the
indicators of output across industries of the economy (the bottom vector –
line of this matrix).

2.4. Algorithm for Computation of Intermediate Consumption
in the Sector of Non-Financial Corporations

2.4.1. Computing Intermediate Consumption of Large
and Medium Sized Enterprises

The data presented in form No. 1 – enterprise permit to compute in-
termediate consumption only with respect to the enterprise at large. The
algorithm for the calculation answers the internationally accepted meth-
odology. In the course of the calculation of the indicator of intermediate
consumption there are used the indicators maximally corresponding to
enterprises’ accounting.

The calculation of intermediate consumption is based not on the data
on costs of production and sales of products, but on expenditures data
(acquisition of raw materials, fuels, energy and so on, payments for ser-
VICES provided by other organizations, rent payments and other expendi-
tures) and changes in the balances of inventories of materials and sup-
plies.

The algorithm for this calculation is presented in Table 2.5.
Table 2.5
Algorithm for Computation of the Intermediate Consumption of Large and Medium Sized Enterprises as Broken down by Industries of the Economy

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Item No.</th>
<th>No. of the line of No. 1 – enterprise form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expenditures for acquisition of raw materials, fuels, energy, purchased semi-finished products and completing parts for production and sales of outputs</td>
<td>19</td>
<td>line 54</td>
</tr>
<tr>
<td>Balances of raw materials, fuels, energy, acquired semi-finished products and completing parts in stock for production and sales of outputs (goods, works, services): as at the beginning of the year</td>
<td>20</td>
<td>line 57</td>
</tr>
<tr>
<td>as at the end of the year</td>
<td>21</td>
<td>line 58</td>
</tr>
<tr>
<td>Purchase value of raw materials and completing parts in stock for production and sales of outputs (goods, works, services), acquired for output of products but sold to third parties without processing</td>
<td>22</td>
<td>line 60</td>
</tr>
<tr>
<td>Works and services executed by third parties</td>
<td>23</td>
<td>line 67</td>
</tr>
<tr>
<td>Rental payments</td>
<td>24</td>
<td>line 68</td>
</tr>
<tr>
<td>Entertainment allowances</td>
<td>25</td>
<td>line 69</td>
</tr>
<tr>
<td>Other expenditures</td>
<td>26</td>
<td>line 70*K</td>
</tr>
<tr>
<td>Value of processed raw materials supplied by customers</td>
<td>27</td>
<td>line 71</td>
</tr>
<tr>
<td>Intermediate consumption</td>
<td>28=19−(21−20)+23+24+25+26+27−22</td>
<td>Line 54−(58−57)+67+68+69+70*K+71−60</td>
</tr>
</tbody>
</table>

Intermediate consumption measured in this way is compared with the output across the respective industries in the OKVED structure. The specific weight of intermediate consumption so determined is used further for evaluation of intermediate consumption of the sector of non-financial corporations.

2.4.2. Computing Intermediate Consumption of Small Enterprises

In order to calculate intermediate consumption of small enterprises there is used the share of intermediate consumption of large and medium
sized enterprises. As concerns individual industries, the share of intermediate consumption is measured by experts on the basis of analysis of the technologies involved in the carrying out of individual kinds of activities by small businesses.

2.4.3. Computing Intermediate Consumption for Economic Activities Unobservable by Direct Statistical Methods

In order to calculate intermediate consumption pertaining to the regional economy unobservable by direct statistical methods, the share of intermediate consumption is measured proceeding from the share of intermediate consumption in the output of large and medium sized enterprises as downward adjusted, since, as a rule, in order to reduce their tax bases enterprises overstate their expenditures for production and do not reflect full amounts of earnings and remuneration of labor in the official reporting. More precise measurement of the share of intermediate consumption in the regional economy unobservable by direct statistical methods is carried out on the basis of the data presented in the tables of supply and use of goods and services.

2.4.4. Adjustments of Intermediate Consumption

In the SNA, expenditures are classified depending on their nature and their sources of financing. According to this principle, intermediate consumption should include all expenditures similar to those mentioned above, but not included in the composition of expenditures because of being financed from profits. These expenditures include, for instance, entertainment and business trip expenses (as concerns travel and hotel expenses) exceeding the standard rates; above-standard losses and shortages of inventories occurring in the process of production, storage and transportation and so on; expenditures for research and development, etc.

Compulsory insurance payments should be included in the composition of intermediate consumption. In full, they can not be defined as payments for services provided by insurance organizations, since they are aimed not only at the defrayal of their costs and formation of profits, but also at the payment of insurance claims in the case of occurrence of insured events and formation of insurance technical reserves. Therefore, in order to measure consumption of insurance services on the part of the
sector of non-financial corporations first there should be calculated the output of services pertaining to types of insurance and further it should be distributed across kinds of activities in proportion to the paid insurance premiums.

In the sector of non-financial enterprises, the following types of insurance are most frequent:

a) compulsory and voluntary insurance of property of enterprises;

b) compulsory life and health insurance of certain categories of employees;

c) voluntary life and health insurance of employees by enterprises.

Intermediate consumption comprises only payments for services pertaining to the types of insurance indicated in items a) and b), notwithstanding of the respective sources of financing (cost or profit). Expenditures of enterprises for the types of insurance indicated in item c) are treated as labor remuneration in kind.

Adjustment for holding gains is determined as the difference between changes in the value of inventories of materials and supplies as per the data presented in financial statements and changes in the value of inventories of materials and supplies assessed at the average prices of the accounting period. This difference is to be added to intermediate consumption. The adjustment of intermediate consumption and changes in inventories of materials and supplies for holding gains.

The electronic data processing (EDP) complex “Basic facts about enterprise activities” envisages the formation of the data on shipping of goods, works and services and the expenditures for their production and sales (the data presented in section VI of form No. 1 – enterprise) not only across kinds of economic activities, but also across groups of enterprises depending on the method, in accordance with which inventories materials and supplies are written off as they are used for production.

Individual methodologies of adjustment of intermediate consumption and inventories of materials and supplies for holding gains component should be developed for each group of enterprises.
2.5. Production Account Indicators in the Public Administration Sector

Because evaluation of the public administration sector performance is a subject for separate research, in the framework of the present paper we will provide only general characteristics of production account indicators in the public administration sector.

2.5.1. Composition of the Public Administration Sector

The public administration sector comprises two types of institutional units.

**Government units** are institutional units financed and controlled by the state. Government units include ministries, agencies and other units controlled by the state, financed, as a rule, from the state budget and primarily engaged in provision of non-market services.

**Non-market non-profit institutions (NPIs)** controlled and primarily financed by public administration agencies.

As it has been already noted, government units may produce market goods and services sold at economically significant prices as their secondary functions. In the case the amount of such sales is significant and reporting provides information on the value of such products and related production costs, it is feasible to single out a market establishment in the structure of the government unit.

In practice, reporting usually does not permit to distinguish costs of market activities, although sales proceeds may be taken into account in the overall composition of proceeds separately. In this case, it is feasible to single out a conventional market establishment attributing to it a part of the total costs on the base of expert estimates. It is feasible, for instance, to associate with such market establishments commercial departments of hospitals, higher educational establishments, activities pertaining to renting of premises on the part of government units.

In the cases, where government units sell small quantities of goods and services at market prices, they are treated as a non-market establishments and these sales are defined as secondary market output.

All establishments of government units (both market and non-market ones) pertain to the public administration sector.
**State social security funds** are government units organized for the carrying out of state social insurance programs and can function at any level of public administration.

State social security funds include pension funds, social insurance funds, compulsory medical insurance funds, social assistance funds and so on.

2.5.2. **Sources of information**

The overwhelming part of information used to calculate output of goods and services of the public administration sector is based on the data presented in reports on the execution of consolidated budgets of the subjects of the Russian Federation, the federal budget, the consolidated budget of the Russian Federation (the federal budget plus consolidated budgets of the subjects of the Russian Federation) set in accordance to the current budget classification.

Therefore, the quality of calculations is to a significant extent determined by the degree of correspondence between the data presented in such reports and the SNA principles and requirements.

Other sources of information used for the formation of the production account of the public administration sector are:
- financial statements of budget-funded entities and other units of the sector;
- statistical reports on receipt and expenditure of financial resources of state extra-budgetary funds.

The budget classification is the grouping of revenues and expenditures of all levels of the RF budgetary system, as well as sources of financing of deficits of these budgets, used for the formation and execution of budgets and ensuring comparability of indicators of budgets of all levels of the budgetary system of the Russian Federation.

In order to calculate the output of the public administration sector there are primarily used the data of the functional classification as broken down by items of economic classification of expenditures of RF budgets, as well as the data pertaining to the departmental classification of expenditures of the federal budget of the Russian Federation.
2.5.3. Output of the Public Administration Sector

**Output of the public administration sector** is measured as the value of goods and services, production of which is organized by the state and financed from the state budget and state extra-budgetary funds, and which are provided to households or the community as a whole for free or at prices of no economic significance, as well as the value of market output of market establishments of government units.

Output of the public administration sector is divided into:

- goods and services of individual nature provided to households (for instance, health care and educational services);
- collective services provided to the community as a whole (for instance, public administration and defense services).

Outputs of the public administration units are primarily evaluated basing on the sum of current expenditures for their production, which include:

- intermediate consumption (the composition of elements of intermediate consumption is discussed below);
- remuneration of hired labor (the composition of elements of remuneration of labor is in detail reviewed in the “Methodological recommendations concerning the formation of the indicators pertaining to the generation of income account across OKVED industries”);
- other taxes on production (less other subsidies on production);
- consumption of fixed capital.

As secondary activities, units of the public administration sector may also carry out the following:

- production of goods and services sold at market prices;
- own production of outputs for own final use (for instance, development of software, construction of military objects by military personnel, non-contracted construction).

If possible, for these kinds of activities there should be singled out separate establishments, outputs of which should be evaluated separately.

2.5.4. Intermediate Consumption

Intermediate consumption consists of the value of the goods and services consumed as inputs by the respective establishment in the process
of production of other goods and services over the accounting period (ex-
clusing consumption of fixed capital).

As concerns intermediate consumption of the public administration
sector, in the composition thereof there are primarily registered acquired
goods and services, as well as goods and services provided for production
purposes by one establishment to another establishment within the same
unit (for instance, output of subsidiary glasshouse farms owned by sana-
toria).

Intermediate consumption includes also payments for one-time works
executed by persons outside the permanent staff of the unit (for instance,
translations, consultations, lecturing, radio and TV appearances).

General principles, in accordance with which intermediate consump-
tion is measured has been discussed in the description of the methodology
of computation concerning the sector of non-financial corporations.

Gross value added is measured as the value of output less the value
of intermediate consumption.

Value added may be also measured in net terms, i.e. the value of out-
put less the values of both intermediate consumption and consumption of
fixed capital.

2.6. Production Account Indicators in the Household Sector

2.6.1. Composition of the Household Sector

In the SNA framework, a household is defined as a small group of
persons who share the same living accommodation, who pool some, or
all, of their income and wealth and who consume certain types of goods
and services collectively, mainly housing and food.

The household sector embraces all households being residents. It also
includes “institutional” households comprising persons, who for a long
time stay in patient care institutions, institutions for elderly care, monas-
teries, prisons, and so on. Unincorporated enterprises, fully owned by one
or several members of the same household are treated as an integral part
of such a household and not as an independent institutional unit.

In the framework of the household sector, productive activities are
carried out on the basis of enterprises directly owned, individually or col-
lectively, by household members controlling their activities.
Producer units of the household sector have the following specific features:

- low level of organization and small scale of activities;
- producer units are not independent legal entities created separately from households or members thereof;
- fixed assets and other assets are owned not by producer units as such, but by their proprietors;
- units as such can not enter into transactions or any other contractual relationships with other units and assume liabilities in their own right;
- owners organize productive activities at their sole risks and are personally and without limitations shall meet any liabilities relating to the production process;
- labor relations (if any) are based not on contracts envisaging formal guarantees, but casual employment, kinship or personal relationships;
- entrepreneurial activities are carried out by individuals either with the help of family members receiving no remuneration, or employment of one or several paid workers;
- fixed assets, as a rule, are used both for production and personal purposes;
- absence of access (or small-scale access) to organized markets, credit institutions, modern technologies, professional education and so on;
- activities, as a rule, are carried out without having permanent premises or at the owner’s home;
- sometimes, there arise situations, which force households to transgress the law (for instance, as concerns taxes, payments to social funds and labor legislation).

The household sector includes:

- unincorporated economic agents and individuals engaged in entrepreneurial activities, notwithstanding their state registration as entrepreneurs;
- farms, the heads of which are registered as unincorporated individual entrepreneurs;
− persons engaged in provision of professional or technical services (doctors, notaries, auditors and so on) notwithstanding their state registration as unincorporated entrepreneurs;
− persons engaged in provision of paid services at home (house maids, watchpersons, drivers, governesses, nurses, house cooks, house secretaries and so on) notwithstanding if they are treated as hired labor or self-employed persons;
− partnerships created under partnership agreements made between individual entrepreneurs;
− persons, whose jobs at households relate to farming, forestry, hunting and fishery, or processing of respective produce in the case the products of such activities are planned for sale at the market.

For the presentation of the kinds of activities typical for the household sector see Table 2.6.

Table 2.6

List of Kinds of Activities of the Household Sector
(as per survey of Households’ Employment Problems)

<table>
<thead>
<tr>
<th>Section / subsection</th>
<th>Class / subclass</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td></td>
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<tr>
<td>01</td>
<td>AGRICULTURE, HUNTING AND FORESTRY</td>
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<td>01.1</td>
<td>Agriculture, hunting and related service activities</td>
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</tr>
<tr>
<td>01.2</td>
<td>Growing of crops</td>
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<tr>
<td>01.3</td>
<td>Farming of animals</td>
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</tr>
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<td>01.4</td>
<td>Growing of crops combined with farming of animals (mixed farming)</td>
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</tr>
<tr>
<td>01.5</td>
<td>Agricultural and animal husbandry service activities, except veterinary activities</td>
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</tr>
<tr>
<td>02</td>
<td>Hunting, trapping and game propagation including related service activities</td>
<td></td>
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<tr>
<td>B</td>
<td>FISHING, FISH FARMING</td>
<td></td>
</tr>
<tr>
<td>05</td>
<td>Fishing, fish farming and related service activities</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>MINING AND QUARRYING</td>
<td></td>
</tr>
<tr>
<td>CA</td>
<td>Mining and quarrying of energy producing materials</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Extraction of crude petroleum and natural gas; service activities incidental to oil and gas extraction</td>
<td></td>
</tr>
<tr>
<td>11.1</td>
<td>Extraction of crude petroleum and natural gas</td>
<td></td>
</tr>
<tr>
<td>11.2</td>
<td>Service activities incidental to oil and gas extraction</td>
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</tr>
<tr>
<td>CB</td>
<td>Mining and quarrying, except of energy producing materials</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Mining of metal ores</td>
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<tr>
<td>1</td>
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<td>3</td>
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<tr>
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<td>------------------------------------------------------------------</td>
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<tr>
<td>13.2</td>
<td>Mining of non-ferrous metal ores, except uranium and thorium ores</td>
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</tr>
<tr>
<td>14</td>
<td>Other mining and quarrying</td>
<td></td>
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<tr>
<td>14.1</td>
<td>Quarrying of stone</td>
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</tr>
<tr>
<td><strong>D</strong></td>
<td><strong>MANUFACTURING</strong></td>
<td></td>
</tr>
<tr>
<td><strong>DA</strong></td>
<td>Manufacture of food products, beverages and tobacco</td>
<td></td>
</tr>
<tr>
<td><strong>15</strong></td>
<td><strong>Manufacture of food products and beverages</strong></td>
<td></td>
</tr>
<tr>
<td>15.1</td>
<td>Production of meat and meat products</td>
<td></td>
</tr>
<tr>
<td>15.2</td>
<td>Processing and preserving of fish and fish products</td>
<td></td>
</tr>
<tr>
<td>15.3</td>
<td>Processing and preserving of potatoes, fruit and vegetables</td>
<td></td>
</tr>
<tr>
<td>15.4</td>
<td>Manufacture of vegetable and animal oils and fats</td>
<td></td>
</tr>
<tr>
<td>15.5</td>
<td>Manufacture of dairy products</td>
<td></td>
</tr>
<tr>
<td><strong>DB</strong></td>
<td>Manufacture of textiles and textile products</td>
<td></td>
</tr>
<tr>
<td><strong>17</strong></td>
<td><strong>Manufacture of textiles</strong></td>
<td></td>
</tr>
<tr>
<td>17.1</td>
<td>Spinning of textile fibers</td>
<td></td>
</tr>
<tr>
<td>17.2</td>
<td>Textile weaving</td>
<td></td>
</tr>
<tr>
<td>17.3</td>
<td>Finishing of textiles</td>
<td></td>
</tr>
<tr>
<td><strong>18</strong></td>
<td><strong>Manufacture of wearing apparel; dressing and dyeing of fur</strong></td>
<td></td>
</tr>
<tr>
<td>18.1</td>
<td>Manufacture of leather clothes</td>
<td></td>
</tr>
<tr>
<td>18.2</td>
<td>Manufacture of other wearing apparel and accessories</td>
<td></td>
</tr>
<tr>
<td><strong>DC</strong></td>
<td><strong>Manufacture of leather, leather products and footwear</strong></td>
<td></td>
</tr>
<tr>
<td><strong>19</strong></td>
<td><strong>Manufacture of leather, leather products and footwear</strong></td>
<td></td>
</tr>
<tr>
<td>19.1</td>
<td>Tanning and dressing of leather</td>
<td></td>
</tr>
<tr>
<td>19.2</td>
<td>Manufacture of luggage, handbags and the like leather products,</td>
<td>saddlery and harness and other leather products</td>
</tr>
<tr>
<td><strong>DD</strong></td>
<td><strong>Manufacture of wood and wood products</strong></td>
<td></td>
</tr>
<tr>
<td><strong>20</strong></td>
<td>**Manufacture of wood and of products of wood and cork, except</td>
<td>furniture</td>
</tr>
<tr>
<td>20.1</td>
<td>Sawmilling and planing of wood; impregnation of wood</td>
<td></td>
</tr>
<tr>
<td>20.2</td>
<td>Manufacture of veneer sheets; manufacture of plywood, panels and</td>
<td>boards</td>
</tr>
<tr>
<td><strong>DE</strong></td>
<td>**Manufacture of pulp, paper and paper products; publishing and</td>
<td>printing</td>
</tr>
<tr>
<td><strong>21</strong></td>
<td><strong>Manufacture of pulp, paper, cardboard and respective products</strong></td>
<td></td>
</tr>
<tr>
<td><strong>22</strong></td>
<td><strong>Publishing, printing and reproduction of recorded media</strong></td>
<td></td>
</tr>
<tr>
<td>22.1</td>
<td>Publishing</td>
<td></td>
</tr>
<tr>
<td>22.2</td>
<td>Printing and service activities related to printing</td>
<td></td>
</tr>
<tr>
<td><strong>DF</strong></td>
<td>**Manufacture of coke, refined petroleum products and nuclear</td>
<td>fuel</td>
</tr>
<tr>
<td><strong>23</strong></td>
<td>**Manufacture of coke, refined petroleum products and nuclear</td>
<td>fuel</td>
</tr>
<tr>
<td>23.2</td>
<td>Manufacture of refined petroleum products</td>
<td></td>
</tr>
<tr>
<td><strong>DG</strong></td>
<td>** Manufacture of chemicals and chemical products**</td>
<td></td>
</tr>
<tr>
<td><strong>24</strong></td>
<td><strong>Manufacture of chemicals and chemical products</strong></td>
<td></td>
</tr>
<tr>
<td>24.1</td>
<td>Manufacture of basic chemicals</td>
<td></td>
</tr>
<tr>
<td>24.2</td>
<td>Manufacture of pesticides and other agro-chemical products</td>
<td></td>
</tr>
<tr>
<td><strong>DH</strong></td>
<td><strong>Manufacture of rubber and plastic products</strong></td>
<td></td>
</tr>
</tbody>
</table>
25 Manufacture of rubber and plastic products
   25.2 Manufacture of plastic products
DI Manufacture of other non-metallic mineral products
26 Manufacture of other non-metallic mineral products
DJ Manufacture of basic metals and fabricated metal products
   27 Manufacture of basic metals
   27.1 Manufacture of basic iron, ferro-alloys, steel hot-rolled products
   and cold-rolled (flat) products
   27.2 Manufacture of cast iron and steel tubes
   27.3 Manufacture of other ferrous metal products not elsewhere classified
DK Manufacture of fabricated metal products
28 Manufacture of fabricated metal products
   29 Manufacture of machinery and equipment
   29.1 Manufacture of machinery for the production and use of mechanical power
   29.2 Manufacture of other general purpose machinery
   29.3 Manufacture of agricultural and forestry machinery
   29.4 Manufacture of machine tools
DL Manufacture of electrical, electronic and optical equipment
   30 Manufacture of office machinery and computers
   31 Manufacture of electrical machinery and apparatus
   32 Manufacture of radio, television and communication equipment and apparatus
   33 Manufacture of medical equipment, instruments and appliances for measuring, optical instruments, watches and clocks
DM Manufacture of transport equipment
   34 Manufacture of motor vehicles, trailers and semi-trailers
   35 Building of ships, manufacture of aircraft and spacecraft, and other transport equipment
DN Other industries
   36 Manufacture of furniture and other products not elsewhere classified
   37 Recycling
E ELECTRICITY, GAS AND WATER PRODUCTION AND DISTRIBUTION
   40 Electricity, gas, steam and hot water production and distribution
   40.1 Production and distribution of electricity
   40.2 Manufacture and distribution of gaseous fuels
   40.3 Steam and hot water supply and distribution (thermal energy)
F CONSTRUCTION
   45 Construction
   45.1 Site preparation
   45.2 Construction of buildings and civil engineering works
   45.3 Building installation
   45.4 Building completion
   45.5 Renting of construction or demolition equipment with operator
WHOLESALE AND RETAIL TRADE; REPAIR OF MOTOR VEHICLES, MOTORCYCLES AND PERSONAL AND HOUSEHOLD GOODS

50 Sale, maintenance and repair of motor vehicles and motorcycles
  50.1 Sale of motor vehicles
  50.2 Maintenance and repair of motor vehicles
  50.3 Sale of motor vehicle parts and accessories
  50.4 Sale, maintenance and repair of motorcycles and related parts and accessories
  50.5 Retail sale of automotive fuel

51 Wholesale trade, including trade via agents, except of motor vehicles and motorcycles

52 Retail trade, except of motor vehicles and motorcycles; repair of personal and household goods
  52.1 Retail sale in non-specialized stores
  52.2 Retail sale of food, beverages and tobacco in specialized stores
  52.3 Retail sale of pharmaceutical and medical goods, cosmetic and toilet articles
  52.4 Other retail sale of new goods in specialized stores
  52.5 Retail sale of second-hand goods in stores
  52.6 Retail sale not in stores

HOTELS AND RESTAURANTS

55 Hotels and restaurants
  55.1 Hotels
  55.2 Other short stay accommodation facilities

TRANSPORT AND COMMUNICATION

60 Land transport
  60.1 Transport via railways
  60.2 Other land transport
  60.3 Transport via pipelines

61 Water transport
  61.1 Sea and coastal water transport
  61.2 Inland water transport

63 Supporting and auxiliary transport activities
  63.1 Cargo handling and storage
  63.2 Other supporting transport activities
  63.3 Activities of travel agencies

Communication
  64.1 Post and courier activities
  64.2 Telecommunications

FINANCIAL ACTIVITIES

65 Financial intermediation
  65.1 Monetary intermediation

66 Insurance

67 Activities auxiliary to financial intermediation and insurance

REAL ESTATE, RENTING AND BUSINESS ACTIVITIES
<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
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<tbody>
<tr>
<td>70</td>
<td></td>
<td><strong>Real estate activities</strong></td>
<td></td>
</tr>
<tr>
<td>70.1</td>
<td></td>
<td>Development, buying and selling of own real estate</td>
<td></td>
</tr>
<tr>
<td>70.2</td>
<td></td>
<td>Letting of own property</td>
<td></td>
</tr>
<tr>
<td>71</td>
<td></td>
<td><strong>Renting of machinery and equipment without operator and of</strong></td>
<td><strong>personal and household goods</strong></td>
</tr>
<tr>
<td>71.2</td>
<td></td>
<td>Renting of other transport equipment</td>
<td></td>
</tr>
<tr>
<td>72</td>
<td></td>
<td><strong>Computer and related activities</strong></td>
<td></td>
</tr>
<tr>
<td>73</td>
<td></td>
<td><strong>Research and development</strong></td>
<td></td>
</tr>
<tr>
<td>74</td>
<td></td>
<td><strong>Other business activities</strong></td>
<td></td>
</tr>
<tr>
<td>74.1</td>
<td></td>
<td>Legal, accounting, book-keeping and auditing activities; business</td>
<td>and enterprise management consultancy</td>
</tr>
<tr>
<td>74.2</td>
<td></td>
<td>Activities in the sphere of architecture; design engineering;</td>
<td>geophysical works; geodetic and mapping activities; activities in</td>
</tr>
<tr>
<td>74.3</td>
<td></td>
<td>Technical testing, analysis and certification</td>
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</tr>
<tr>
<td>74.4</td>
<td></td>
<td>Advertising</td>
<td></td>
</tr>
<tr>
<td>L</td>
<td></td>
<td><strong>PUBLIC ADMINISTRATION AND MILITARY SECURITY;</strong></td>
<td><strong>COMPULSORY SOCIAL SECURITY</strong></td>
</tr>
<tr>
<td>75</td>
<td></td>
<td><strong>Public administration and military security; compulsory</strong></td>
<td><strong>social security</strong></td>
</tr>
<tr>
<td>75.1</td>
<td></td>
<td>Administration of the State and the economic and social policy of</td>
<td>the community</td>
</tr>
<tr>
<td>75.2</td>
<td></td>
<td>Provision of services to the community as a whole</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td></td>
<td><strong>EDUCATION</strong></td>
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</tr>
<tr>
<td>80</td>
<td></td>
<td><strong>Education</strong></td>
<td></td>
</tr>
<tr>
<td>80.1</td>
<td></td>
<td>Preschool and primary general education</td>
<td></td>
</tr>
<tr>
<td>80.2</td>
<td></td>
<td>Basic general, secondary (senior) general, primary and secondary</td>
<td>technical and vocational education</td>
</tr>
<tr>
<td>80.3</td>
<td></td>
<td>Higher professional education</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td></td>
<td><strong>HEALTH AND SOCIAL WORK</strong></td>
<td></td>
</tr>
<tr>
<td>85</td>
<td></td>
<td><strong>Health and social work</strong></td>
<td></td>
</tr>
<tr>
<td>85.1</td>
<td></td>
<td>Human health activities</td>
<td></td>
</tr>
<tr>
<td>85.2</td>
<td></td>
<td>Veterinary activities</td>
<td></td>
</tr>
<tr>
<td>85.3</td>
<td></td>
<td>Social work activities</td>
<td></td>
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<tr>
<td>O</td>
<td></td>
<td><strong>OTHER COMMUNITY, SOCIAL AND PERSONAL SERVICE ACTIVITIES</strong></td>
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<tr>
<td>90</td>
<td></td>
<td><strong>Sewage and refuse disposal and similar activities</strong></td>
<td></td>
</tr>
<tr>
<td>90.1</td>
<td></td>
<td>Sewage and refuse disposal and similar activities</td>
<td></td>
</tr>
<tr>
<td>91</td>
<td></td>
<td><strong>Activities of membership organizations</strong></td>
<td></td>
</tr>
<tr>
<td>92</td>
<td></td>
<td><strong>Recreational, entertainment, cultural and sporting activities</strong></td>
<td></td>
</tr>
<tr>
<td>93</td>
<td></td>
<td><strong>Provision of personal services</strong></td>
<td></td>
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<tr>
<td>P</td>
<td></td>
<td><strong>PROVISION OF HOUSEHOLD SERVICES</strong></td>
<td></td>
</tr>
<tr>
<td>95</td>
<td></td>
<td><strong>Provision of household services</strong></td>
<td></td>
</tr>
</tbody>
</table>
2.6.2. Computing Output

In a general way, output is measured by multiplying the data on hours worked (Survey of households concerning employment problems in the informal sector, Table 7_2 tz gr. 1 “Hours worked in the informal sector”) and the data on the output of works and services per unit of time actually worked by employees in the group of enterprises with personnel making 2 to 5 persons as concerns similar kinds of activities (the data of enterprise statistics, Table B-1-K “Output of goods and services per unit of time worked by employees”).

As concerns the kinds of activities, where the output of goods and services per unit of worked time is impossible to measure – for instance, OKVED sections G, H, J, K, L, M, N – it is proposed to carry out calculations concerning the “household” sector in accordance with the methods used earlier with the use of conversion keys.

Individual unincorporated entrepreneurs carrying out such activities as “Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods”, “Restaurants”, “Bars”, as well as sales of goods to households on goods, mixed, and foodstuff markets belong to the household sector.

In order to measure output of individual unincorporated entrepreneurs, there are used both the data of special surveys, and certain estimates concerning the group of small businesses.

As concerns individual entrepreneurs engaged in all kinds of activities indicated above with the exception of retail trade, there are used the data on output as broken down per small enterprises and the number of individual entrepreneurs engaged in the respective kinds of activities in accordance with the information presented in the Statistical Register of Economic Agents (Statregistr) of the Rosstat. These are the final data as concerns the kinds of activities pertaining to wholesale trade and maintenance and repair of motor vehicles, personal and household goods due to the absence of other sources of information.

Further, there is measured the output of individual entrepreneurs engaged in retail trade basing on the data presented in form No. 1-ind (torg) “Questionnaire of survey of individual entrepreneurs engaged in retail trade”.

62
The source of information is Table 1 “Characteristics of surveyed individual entrepreneurs engaged in retail trade” and Table 4 “Distribution costs incurred by surveyed individual entrepreneurs” of the Supplement to the Economic Description of the task of processing of statistical information in accordance with form No. 1-ind (torg) covering entrepreneurs not engaged in trade activities on markets.

Output is computed as the difference between turnover and the cost of goods purchased for sales to households. Next, there is determined the ratio between these indicators. Further, there is measured the total amount of output of individual entrepreneurs by multiplying the obtained ratio by the approved amount of turnover of individual entrepreneurs.

Basing on the data obtained in the course of the special survey, gross incomes of individuals derived from sales of goods on goods, mixed and foodstuff markets were set at the 45 per cent level of the amount of sales. The said value is included in the amount of output of the household sector, class 52.

2.7. Production Account Indicators in the Sector of Non-Profit Institutions Servicing Households

The following kinds of productive activities are typical for the sector of non-profit institutions servicing households (NPISHs):

80 Education
85 Health and social work
91 Activities of membership organizations (with the exception of 91.11 “Activities of business and employers organizations”)
91.12 Activities of trade unions
91.2 Activities of professional organizations
91.3 Activities of other membership organizations
91.31 Activities of religious organizations
91.32 Activities of political organizations
91.33 Activities of other membership organizations not elsewhere classified
92 Recreational, entertainment, cultural and sporting activities
(with the exception of 92.11 Motion picture production, 92.12 Motion picture video distribution)
92.13 Motion picture projection
92.3 Other entertainment activities
92.5 Other cultural activities
92.6 Sporting activities
92.7 Other recreational and entertainment activities
93 Personal service activities (with the exception of 93.01 “Washing and dry-cleaning and coloring of textile and fur products” and 93.03 “Funeral and related activities”)
93.02 Hairdressing and other beauty treatment
93.04 Physical well-being activities
93.05 Other personal service activities
55.2 Other short stay accommodation facilities
70.20.2 Letting of own nonresidential property.

2.7.1. Output of NPISHs

Output of NPISHs is non-market services and is measured as the sum of current costs incurred in the process of formation and consumption of fixed capital. The amount of consumption of fixed capital across each type of services is measured in the framework of computation of this indicator across all industries of the economy as broken down by institutional sectors and is not discussed in this document.

Current costs incurred in the production process are measured on the basis of the data presented in the sample survey of NPISHs (f.1-NKO).

For the presentation of the general scheme of evaluation of the production account indicators, see Table 2.7.

Market output of NPISHs is defined as proceeds derived from letting of own nonresidential property (OKVED code 70.20.2). As concerns this industry, its output is measured on the basis of the data on proceeds as presented in Section 1 “Cash inflow” of form No. 1-NKO. By convention, it is considered that no intermediate consumption is associated with these services.

Gross value added is the balancing item of this account. It is computed as the difference between output and intermediate consumption.
Table 2.7

Scheme of Computation of the NPISHs Production Account Indicators

<table>
<thead>
<tr>
<th>Indicators, f. No. 1-NKO</th>
<th>Output</th>
<th>Intermediate consumption</th>
<th>Value added</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Material costs</td>
<td>+</td>
<td>100% gr. 1</td>
<td></td>
</tr>
<tr>
<td>Remuneration of labor and social payments</td>
<td>+</td>
<td>100% gr. 1</td>
<td></td>
</tr>
<tr>
<td>Unified social tax</td>
<td>+</td>
<td>100% gr. 1</td>
<td></td>
</tr>
<tr>
<td>Rental payments</td>
<td>+</td>
<td>100% gr. 1</td>
<td></td>
</tr>
<tr>
<td>Payments for services rendered by third parties</td>
<td>+</td>
<td>100% gr. 1</td>
<td></td>
</tr>
<tr>
<td>Taxes and fiscal charges</td>
<td>+</td>
<td>100% gr. 1</td>
<td></td>
</tr>
<tr>
<td>Other current expenditures</td>
<td>+</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Deficiencies, losses resulting from damage of valuables</td>
<td>+</td>
<td>100% gr. 1</td>
<td></td>
</tr>
<tr>
<td>Other expenditures</td>
<td>+</td>
<td>20% gr. 1</td>
<td>+</td>
</tr>
</tbody>
</table>

2.7.2. Database

The database, on the basis of which production account indicators of the sector of NPISHs are calculated, consists of:
1) data of sample surveys of non-profit institutions servicing households (form No. 1 – NKO);
2) data of federal statistical survey form No. 12 – F “Data on the use of financial resources”.

The sample survey of NPISHs comprises all non-profit institutions servicing households engaged in the following kinds of activities:
80 Education
85 Health and social work
91 Activities of membership organizations (with the exception of 91.11 “Activities of business and employers organizations”)
92 Recreational, entertainment, cultural and sporting activities (92.13 “Motion picture projection”, 92.3 “Other entertainment activities”, 92.5 “Other cultural activities”, 92.6 “Sporting activities”, 92.7 “Other recreational and entertainment activities”)
93 Personal service activities (93.02 “Hairdressing and other beauty treatment” and 93.04 “Physical well-being activities”)

65
55.2 Other short stay accommodation facilities (55.23.1 “Activities of camps for children during holidays,” 55.23.2 “Activities of holiday hotels, rest homes and so on”);

and of the following organizational and legal forms:

- Public movements (Russian classification of organizational and legal forms (OKOPF) code 84),
- Religious organizations (OKOPF code 83),
- Institutions (OKOPF 81),
- Public organizations (associations) (with the exception of employers’ trade unions) (OKOPF code 83),
- Foundations (OKOPF code 88),
- Non-profit partnerships (OKOPF code 96),
- Other non-profit institutions (OKOPF code 89).

As concerns units of organizational and legal forms 81, 83, 88, 89, 96, the following conditions should be met:

- the ratio between proceeds and production costs should be below 50 per cent,
- receipts from the state budget and extra-budgetary funds should make less than 50 per cent of production costs.

Basing on these two conditions, surveys should cover the institutions, which derived proceeds as a result of their activities and the institutions, which derived no profits.

The sample survey of non-profit institutions servicing households is carried out each two years. The data received in the course of the sample survey carried out in 2003 were already structured across kinds of activities envisaged by OKVED. The next sample survey is planned for year 2006.

In the periods between surveys, output and intermediate consumption are computed by projecting the data obtained in the year the survey was carried out using the volume index and personal service deflator.

Another source of information is the data presented in federal statistical survey form No. 12 – F “Data on the use of financial resources”. Form No. 12 – F should be submitted by legal entities, establishments thereof (with the exception of small enterprises, banks, insurance and budget-funded entities). In this form, profit making enterprise reflect pur-
poses, for which they use their proceeds, including maintenance of their sanatoria and resort facilities, health care, educational and cultural institutions. Services of these institutions rendered primarily to employees of enterprises are deemed to be non-market ones, and the value of these services is measured as the sum of current expenditures and consumption of fixed capital.

The data on the output of institutional units belonging to the NPISHs sector across kinds of activities are entered in the matrix fields, where rows and columns of respective kinds of activities intersect.

*Table 2.8*

**Matrix of Output of the NPISHs Sector**

<table>
<thead>
<tr>
<th></th>
<th>55.2</th>
<th>70.20.2</th>
<th>80</th>
<th>85</th>
<th>91</th>
<th>92</th>
<th>93</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total across kinds of activities</strong></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>55.2 Other short stay accommodation facilities</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>70.20.2 Letting of own nonresidential property</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>80 Education</td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>85 Health and social work</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>91 Activities of membership and religious organizations</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>92 Recreational, entertainment, cultural and sporting activities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>93 Personal service activities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td></td>
</tr>
<tr>
<td><strong>Total across kinds of activities</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>*</td>
</tr>
</tbody>
</table>
2.8. Computing Indicators of the Regional Production Account of the Sector of Financial Corporations

In this study, no special focus is made on the evaluation of the sector of financial corporations, since at the regional level the amount of data suitable for calculations concerning this sector is rather limited.

The sector of financial corporations comprises all corporations and quasi-corporations principally engaged in financial intermediation or in auxiliary financial activities which are closely related to financial intermediation.

The sector of financial corporations consists of financial corporations *per se* (including financial quasi-corporations), as well as non-profit institutions financed and controlled by financial corporations.

The grouping of financial institutions across sub-sectors is of importance, since in the course of the computation of output of different groups of financial institutions there are employed different approaches; therefore, it is feasible to initially calculate the output across sub-sectors.

The sector of financial corporations comprises the following sub-sectors:
- Bank of Russia,
- Other depository corporations,
- Other financial intermediaries, except insurance corporations and non-state pension funds,
- Financial auxiliaries,
- Insurance corporations and non-state pension funds.

2.8.1. Output

Financial corporations are engaged in very many kinds of activities. These activities include transactions concerning various financial instruments, provision of various services, creation of conditions for financial activities. Depending on their reflection in SNA, all kinds of activities, in which financial institutions are engaged, can be classified into three groups:
- financial intermediation;
- auxiliary financial services;
transactions involving financial assets, for which output is not measured.

As broadly defined, intermediation activities of banks and other financial institutions are aimed at attraction and accumulation of available financial resources of various institutional units (primarily households and enterprises), which have savings, with the purpose to transfer these resources for temporary use on paid basis to the institutional units, primarily non-financial corporations, which plan to use these resources for financing of investments. In other words, banks and other financial institutions, the output of which is to be measured, act as intermediaries between the institutional units, which save and those institutional units, which invest. Intermediation activities of financial institutions imply that they not only incur expenditures related to the transfer of resources between institutional units, but also assume certain risks and assume financial liabilities.

According to SNA principles, the process of crediting is not treated as economic production per se; therefore, SNA proceeds from the fact that output of financial institutions is created not as a result or in the process of crediting, but in the process of intermediation activities resulting in the transformation of liabilities assumed by financial institutions into financial assets; in this process of transformation they incur certain expenditures and assume certain risks. SNA 1993 defines financial intermediation as follows: “Financial intermediation is a productive activity in which an institutional unit incurs liabilities on its own account for the purpose of acquiring financial assets by engaging in financial transactions on the market”. Financial intermediaries attract lenders’ financial resources on temporary paid basis transforming these resources in ways suitable to meet borrowers’ needs.

Financial institutions do not collect direct payments for financial intermediation services. Payments for such services are either implicitly included in interest paid by borrowers of the respective funds, or, also implicitly, collected from those institutional units, which lend resources to financial institutions by applying lower interest rates. Therefore, financial institutions finance their costs and derive profits from this activity setting different interest rates for borrowers and lenders. Because of this,
in SNA the value of output of financial intermediation services (FISIM) is measured indirectly.

The main producers of financial intermediation services are financial corporations included in sub-sectors “Other depositary corporations” and “Other financial intermediaries, except insurance corporations and pension funds”. Central banks may be involved in intermediary activities; however, their activities are primarily related to macroeconomic regulation, i.e. is similar to activities carried out by government units, what determines the specifics of the measurement of their output (it is valued at cost).

SNA proceeds from the assumption that lending carried out by certain non-financial units (for instance, individuals) results in services to be included in GDP. However, these services are not classified as financial intermediation services; nevertheless, the amount thereof may be measured as the difference between the interest received and the interest charged with the use of the basic rate of interest.

SNA does not treat operations involving acquisition and withdrawal of financial assets, as well as acceptance and repayment of financial liabilities, as economic production; therefore, with respect to these transactions output is not measured.

Other kinds of financial activities are auxiliary financial services, the payments for which are directly charged as commission fees. The respective output is valued at the amount of such payments.

By definition, auxiliary financial institutions are not involved in the process of financial intermediation; however, financial institutions primarily engaged in financial intermediation may render auxiliary financial services as their secondary activities. On the other hand, it should be noted that there exist institutions providing services very much like financial intermediation services, but not being such due to the fact that these institutions are not entitled to acquire financial assets and assume any risks.

Therefore, output of financial institutions may comprise different components: output of FISIM, output of auxiliary financial services, or output valued at current costs. At present, no evaluation of FISIM is carried out at the regional level.
Computing output of auxiliary financial services. All financial institutions provide auxiliary financial services to their customers. While for some of them it is the principal kind of activity (auxiliary financial institutions), for others it is a secondary kind of activities supplementing the regulation of credit and money in circulation (Bank of Russia), provision of FISIM (financial intermediaries), or provision of insurance services (insurance corporations). Financial institutions receive payments in the form of commission fees or in some other forms for auxiliary financial services rendered by them to their customers.

The data on proceeds derived from provision of auxiliary financial services by other financial intermediaries, with the exception of insurance corporations and pension funds using general type of accounting, may be presented in their profit and loss statements as a component of gains from sales of goods and services or other operational earnings, from where they should be singled out.

Output of financial auxiliaries (with the exception of non-profit institutions) is valued at the amount of payments for their services. The source of information for the computation of the output of financial institutions belonging to this sub-sector is the data presented in their financial statements.

Output of services provided by stock, currency, and currency and stock exchanges as concerns the activities relating to organization of trade is valued at the amount of commission fees charged by exchanges for respective transactions (as percentage of the amount of transaction or a certain amount of payment not related to the amount of transaction).

Output related to exchanges’ activities aimed at provision of various services (consulting concerning stock market, foreign exchange market, settlements and so on) is valued at the amount of payments for such services.

Output related to exchanges’ activities concerning sales and purchase transactions involving securities and all types of transactions involving foreign exchange (including futures and options) is valued at the amount of difference between sales and purchase prices as adjusted for elimination of holding gains.
Output of services provided by managers (being individuals or legal entities) of investment funds is valued at the amount of remuneration received by such managers for the services rendered to investment funds. This sub-sector includes only activities carried out by legal entities; services provided by individuals are accounted for in the sector of households.

Output of non-profit institutions belonging to the sector of financial institutions is valued at current costs, including consumption of fixed capital.

Insurance corporations and pension funds. At present, insurance activities embrace the following types of voluntary and compulsory insurance:

− life insurance;
− pension and rent insurance;
− other personal insurance (including accidents and sicknesses, passengers and so on);
− medical insurance;
− insurance of property owned by citizens and economic agents (including vehicles, cargo, financial risks);
− liability insurance (including failure to meet obligations, owners of motor vehicles, transport operators, professional liability, enterprises being sources of increased danger, and so on).

As a rule, policy holders are not charged payments for services rendered to them by insurance companies in explicit forms; therefore the value thereof needs to be measured indirectly on the basis of the data on financial resources of insurance companies and use thereof.

In order to measure the value of output of insurance services there is used the difference between the amounts of financial resources and technical expenditures incurred by insurance companies, which is the amount remaining at the disposal of insurance companies for covering their costs and formation of profits.

Financial resources of insurance companies consist of two components:

1) insurance premiums;
2) proceeds resulting from investment of insurance technical reserves.
The raw data used for the computation of output of insurance institutions are the information presented in reports on activities of insurance institutions as concerns insurance contributions (insurance premiums in the SNA terms) and insurance payments (insurance claims in the SNA terms) – form No. 1 – SK “Information on the activities of the insurance institution”.

Since in the SNA framework insurance premiums and claims are treated differently depending on the type of insurance, it is feasible to distribute insurance premiums and insurance claims yet at the stage of computation of output across the following types of insurance:
- life insurance (with the exception of pension and rent insurance);
- social insurance (pension and rent insurance, medical insurance);
- other insurance (insurance of accidents property, passengers, liability and so on).

In the case in the reports on their activities insurance companies present their earnings from investment of insurance reserves with respect to all insurance operations as a whole, these data should be distributed across types of insurance in proportion to insurance contributions. In the case there are singled out earnings from investment of life insurance reserves (including pension and rent insurance), it is necessary to determine the amount associated with all other insurance operations by the way of deduction and distribute it across individual types of insurance in proportion to insurance contributions.

The data on the output of institutional units belonging to the sector of financial corporations across kinds of activities are entered in the matrix fields, where rows and columns of respective kinds of activities intersect.

First, output of financial institutions is calculated at producers’ prices. In order to compute output at basic prices, it is necessary to exclude taxes on products paid by financial institutions first and add subsidies on products these institutions receive from the budget.

Taxes on products typical for financial institutions include, for instance, the tax on purchase of foreign paper currency and payment instruments denominated in foreign exchange, the tax on transactions involving securities. Besides, financial institutions may be liable to pay some other taxes on products.
The data necessary for the respective calculations are reflected in the composition of expenditures incurred by institutions, as a rule, in implicit forms. In the case it proves impossible to single out such data from the composition of expenditures as reflected in financial statements, they can be measured by the way of calculations in the course of distribution of the total amount of taxes across sectors.

Subsidies on products received by financial institutions include subsidies paid to them from the state budget in order to compensate their current losses.

### 2.8.2. Intermediate Consumption

The main sources of information for the calculation of intermediate consumption of financial institutions are:

- profit and loss statements;
- reports on activities carried out by exchanges, insurance institutions, non-state pension funds and other institutions.

Profit and loss statements of credit institutions (hereinafter referred to as “banks” for convenience) reflect the expenditures they incur for main-

### Table 2.9
Matrix of Output of the Sector of Financial Corporations

<table>
<thead>
<tr>
<th></th>
<th>65.1 Monetary intermediation</th>
<th>65.2 Other financial intermediation</th>
<th>66 Insurance</th>
<th>67 Activities auxiliary to financial intermediation and insurance</th>
<th>Total across kinds of activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>***</td>
<td>***</td>
<td>***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>65.1</td>
<td>*</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>65.2</td>
<td>*</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>66</td>
<td>*</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>67</td>
<td>*</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total across kinds of activities</td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
tenance of the managerial staff and other expenditures. However, the content of the items of these expenditures not always permits to directly associate them with SNA indicators. Therefore, it is feasible to distribute the items of these expenditures across all indicators of current expenditures in accordance with the SNA categories first.

Some expenditure items are in full associated with intermediate consumption, i.e. those items representing payments for purchased goods and services provided by third parties.

Many expenditure items are complex; therefore, it is necessary to single out the respective portions associated with intermediate consumption. Thus, in the composition of expenditures for business trips expenditures for fare and accommodation, as well as payments for visas and various fees related to business trips belong to intermediate consumption.

As concerns rental payments, there should be excluded lease of land, which is attributed to property incomes, as well as payments relating to property received under financial leasing contracts, which is taken into account on the side of the lessee.

It is necessary to more precisely determine the composition of the following items, which can also have elements of intermediate consumption:

- other expenditures (in the composition of expenditures for maintenance of the managerial staff);
- other expenditures (in the composition of other operational expenditures);
- other expenditures (in the composition of other incurred expenditures).

Some expenditure items may contain values of transactions involving financial instruments (respective purchase prices), or results of revaluation thereof, which should not be taken into account in the composition of current expenditures at all and intermediate consumption in particular.

Expenditures incurred in past years should in principle be reflected in the respective accounting periods, i.e. calculations concerning past years should be adjusted for the respective amounts. However, in the case no such adjustment is made, it is permissible to take such expenditures into account in the calculations pertaining to the accounting period in order to compensate possible failure to detect such discrepancy in this period.
In the course of the calculation of intermediate consumption of banks, it is necessary to correctly take into account the consumption of insurance services, which, similarly to FISIM, is measured indirectly. Therefore it is necessary to exclude from expenditures for intermediate consumption insurance premiums paid by banks and add the estimated value of consumption of insurance services on the part of banks.

In financial statements of other financial institutions, the data on their expenditures are, as a rule, much less detailed than in reports presented by banks. Here, material costs including expenditures for purchase of goods for daily operations, as well as works and services of productive nature. Other expenditures SNA associates with intermediate consumption are taken into account in the composition of complex items, such as “other expenditures” and “non-sale expenditures”. Such expenditures include costs similar to those borne by banks. The bulk of the expenditures indicated above are of general nature and are incurred by all units in the sub-sectors under observation; at the same time some types of financial institutions incur specific expenditures.

Costs associated with activities of investment funds and, accordingly, with their intermediate consumption include, alongside with typical elements, the following types of expenditures for goods and services pertaining to the specifics of their activities:

- expenditures for remuneration of intermediaries and agents for the placement of stocks issued by investment funds;
- payments for current services rendered by depositaries of investment funds;
- payments for services of independent auditors of investment funds;
- payments for services of managers of investment funds made under management contracts;
- expenditures relating to market research and calculations of investment portfolio value (remuneration of consultants, purchase of research and informational materials and so on);
- expenditures relating to payments to mass media as concerns publication of prices of investment funds’ stocks;
- payments for the registration of quotations of stocks of investment funds at stock exchanges;
- expenditures relating to the calculation and distribution of dividends among stockholders of investment funds, replies to stockholders’ inquiries (expenditures for envelopes, paper, payments to communication organizations);
- expenditures relating to publication of reports of investment funds in mass media and forwarding of such reports to the respective agencies.

Intermediate consumption of professional stock market operators includes the following special expenditures:
- contributions paid to the institutions engaged in organization of trade and other institutions;
- expenditures for maintenance and servicing of trade areas;
- expenditures for expert evaluation of the authenticity of submitted documents;
- expenditures relating to the disclosure of information on activities of stock market operators;
- expenditures for participation in stockholders’ meetings held by issuers of stocks at their requests.

Intermediate consumption of insurance organizations includes the following special expenditures:
- remuneration of insurance intermediaries (agents, brokers) for making of insurance contracts;
- remuneration of services rendered by actuaries, medical institutions, detectives, lawyers and other specialists, cash messengers;
- payments for services relating to production of insurance certificates (policies), registered high security forms, receipts and other documents;
- remuneration of consulting, intermediary and other services relating to investment management;
- payments for services rendered by organizations by employees’ requests as concerns non-cash transfers of insurance contributions deducted from wages and salaries.

Intermediate consumption does not include:
- remunerations and directors’ percentage of profits paid under reinsurance contracts; remunerations of co-insurers paid under insurance con-
tracts. These are payments from profits made between insurance institutions and are a form of incentive for permission to take part in re-insurance and coinsurance contracts. Since these are flows within same sector (and sub-sector), these flows are consolidated and not reflected in SNA accounts;

- contributions to the reserve of preventive measures and fire safety funds created by insurance institutions.

Intermediate consumption of non-state pension funds includes the following special expenditures:

- remuneration of management companies, depositaries, professional stock market operators;
- expenditures related to storage, maintenance and evaluation of property, in which pension reserves are invested;
- remuneration for services relating to the making of pension contracts;
- payments for services provided by actuaries;
- payments for services relating to production of pension certificates (policies), registered high security forms, receipts and other documents.

Whereas some expenditures attributed to intermediate consumption are included in the costs borne by units in the course of carrying out their activities only within certain approved limits (for instance, entertainment expenses, relocation allowances, per diem payments) and the portions of such expenditures exceeding approved standards are included in losses, in accordance with the SNA methodology intermediate consumption should include the total amount of respective expenditures.

Intermediate consumption of non-profit institutions is measured in the result of distribution of their current expenditures across the SNA categories.

The total amount of intermediate consumption of the sector of non-financial institutions and respective sub-sectors is formed as the sum of intermediate inputs measured on the basis of reports presented by financial corporations and includes consumption of services of investment funds, NPIs and insurance institutions, non-market output of the Central Bank and respective portion of imports of financial intermediation services indirectly measured. Consumption of services of investment funds
is added to intermediate inputs in the amount equal to the portion of their output not covered by receipts from service related payments.

Consumption of services of investment funds is first measured for the sector of financial corporations as a whole; it is distributed across sub-sectors in a way similar to its distribution across sectors, whereas in the case necessary information is not available it is included in intermediate consumption of sub-sectors in proportion to their output valued at basic prices.

The total amount of consumption of insurance services by the sector of financial institutions is included in intermediate consumption of sub-sectors in proportion to their output measured in basic prices.

* * *

After the tables of output across all institutional sectors are completed, there is formed the summary table of output across the regional economy as a whole as a result of summing up of the respective elements of the matrices of output across all institutional sectors: non-financial corporations, financial corporations, public administration, households, non-profit institutions servicing households.

Accordingly, intermediate consumption is calculated by summing up the values of intermediate consumption across institutional sectors.

The amount of value added of industries as broken down by institutional sectors and as concerns the regional economy as a whole is measured as the difference between output and intermediate consumption across the respective industries.

The sum of values added of all sectors is equal to GDP as measured at basic prices. In order to measure GDP at market prices, there should be added taxes on products and deduct subsidies on products.

**Taxes on products** consist of the following most commonly occurring taxes:

- Value added tax (VAT) and taxes of the VAT type;
- Excises: taxes levied on specific kinds or groups of goods (alcoholic beverages, tobacco and fuels);
Taxes levied on specific kinds of services: taxes on transportation, communications, insurance, advertising, entertainment, gambling and lotteries, sporting events and so on;

Profits of government-owned enterprises that have been granted a legal monopoly over the production or distribution of a particular kind of good or service in order to raise state revenues (fiscal monopolies);

Current compulsory payments made by enterprises to the state economic and special extra-budgetary funds (in the cases where such payments made by enterprises are set in proportion to the value of produced and sold goods and services, for instance, those set at standard rates of earnings derived from sales of products, value of commissioned works and services and so on);

Tax on exports;
Tax on imports.

**Subsidies on products** consist of:
Subsidies on products used within the economic territory are specific amounts of money per unit of quantity of a good or service or specified percentage of the price per unit; it may also be calculated as the difference between the economic price based on production costs and the lower market price actually paid by a buyer;

Subsidies to government owned trade organizations selling goods at lower prices than those at which they purchased the goods (the difference between the purchase and the selling prices);

Subsidies to government owned enterprises consist of regular transfers paid to government owned enterprises which are intended to compensate for persistent losses which they incur as a result of charging prices which are lower than their average costs of production;

Subsidies on export are payments made to resident producers after exported goods cross the borders of the economic territory, or provision of services to nonresidents, as well as payments made to loss making government owned organizations purchasing products provided by residents and selling these products to nonresidents at lower prices and subsidies resulting from the use of multiple exchange rates;

Subsidies on import are payments to resident institutional units after imported goods cross the borders of the economic territory, or provision
of services to resident institutional units by nonresidents, as well as pay-
ments made to loss making government owned organizations purchasing
products provided by nonresidents and selling these products to residents
at lower prices and subsidies resulting from the use of multiple exchange
rates.
Annex

### Aggregated regional production account matrix for Krasnodar krai (2004, Rub. mln.)

<table>
<thead>
<tr>
<th>Economic activities</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Agriculture, hunting and forestry</td>
<td>94 282,5</td>
<td>16,1</td>
<td>0,0</td>
<td>148,7</td>
<td>0,2</td>
</tr>
<tr>
<td>B. Fishing, fish farming</td>
<td>90,1</td>
<td>386,8</td>
<td>0,0</td>
<td>7,1</td>
<td>0,0</td>
</tr>
<tr>
<td>C. Mining and quarrying</td>
<td>1,3</td>
<td>0,0</td>
<td>6 904,4</td>
<td>112,9</td>
<td>0,0</td>
</tr>
<tr>
<td>D. Manufacturing</td>
<td>6 258,1</td>
<td>40,7</td>
<td>39,2</td>
<td>155 350,8</td>
<td>124,1</td>
</tr>
<tr>
<td>E. Electricity, gas and water production and distribution</td>
<td>71,9</td>
<td>5,6</td>
<td>6,9</td>
<td>271,6</td>
<td>25 939,8</td>
</tr>
<tr>
<td>F. Construction</td>
<td>173,2</td>
<td>1,4</td>
<td>434,7</td>
<td>1 226,4</td>
<td>481,7</td>
</tr>
<tr>
<td>G. Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods</td>
<td>883,7</td>
<td>5,2</td>
<td>21,2</td>
<td>734,1</td>
<td>55,0</td>
</tr>
<tr>
<td>H. Hotels and restaurants</td>
<td>252,8</td>
<td>0,2</td>
<td>95,2</td>
<td>287,8</td>
<td>50,7</td>
</tr>
<tr>
<td>I. Transport and communication</td>
<td>272,5</td>
<td>1,7</td>
<td>184,9</td>
<td>921,5</td>
<td>36,9</td>
</tr>
<tr>
<td>J. Financial activities</td>
<td>0,0</td>
<td>0,0</td>
<td>0,0</td>
<td>0,0</td>
<td>0,0</td>
</tr>
<tr>
<td>K. Real estate, renting and business activities</td>
<td>68,5</td>
<td>1,1</td>
<td>1,0</td>
<td>262,0</td>
<td>28,2</td>
</tr>
<tr>
<td>L. Public administration and military security; compulsory social security</td>
<td>0,0</td>
<td>0,0</td>
<td>0,0</td>
<td>0,0</td>
<td>0,0</td>
</tr>
<tr>
<td>M. Education</td>
<td>5,3</td>
<td>0,0</td>
<td>0,1</td>
<td>3,1</td>
<td>5,2</td>
</tr>
<tr>
<td>N. Health and social work</td>
<td>12,4</td>
<td>0,0</td>
<td>727,7</td>
<td>18,7</td>
<td>29,7</td>
</tr>
<tr>
<td>O. Other community, social and personal service activities</td>
<td>38,2</td>
<td>1,6</td>
<td>1,9</td>
<td>65,5</td>
<td>781,9</td>
</tr>
<tr>
<td>P. Provision of household services</td>
<td>0,0</td>
<td>0,0</td>
<td>0,0</td>
<td>0,0</td>
<td>0,0</td>
</tr>
<tr>
<td>Total output of goods and services</td>
<td>102 410,5</td>
<td>460,5</td>
<td>8 417,2</td>
<td>159 410,2</td>
<td>27 533,4</td>
</tr>
</tbody>
</table>

*Intermediate consumption*

\[
\text{Intermediate consumption} = \begin{pmatrix} 48 970,2 \\ 262,3 \\ 2 472,8 \\ 123 107,8 \end{pmatrix} \text{ Rub. mln.}
\]

*Gross value added at basic prices*

\[
\text{Gross value added at basic prices} = \begin{pmatrix} 53 440,3 \\ 198,1 \\ 5 944,4 \\ 36 302,4 \end{pmatrix} \text{ Rub. mln.}
\]
<table>
<thead>
<tr>
<th>Economic activities</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Agriculture, hunting and forestry</td>
<td>5,0</td>
<td>61,2</td>
<td>0,0</td>
<td>18,6</td>
<td>0,0</td>
</tr>
<tr>
<td>B. Fishing, fish farming</td>
<td>0,0</td>
<td>0,2</td>
<td>0,0</td>
<td>8,2</td>
<td>0,0</td>
</tr>
<tr>
<td>C. Mining and quarrying</td>
<td>82,8</td>
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*Intermediate consumption*

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*Gross value added at basic prices*

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<th>M</th>
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<th>O</th>
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<td><strong>Gross value added at basic prices</strong></td>
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<td>15 353,1</td>
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References


