

Chapter 2

Developments of Russian Input-Output Tables

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Abstract

This chapter reviews the features of Russian input-output tables as well as the compilation history since the era of the Soviet Union. Although the Russian statistics authority has made efforts to compile the input-output table under the new accounting system that is consistent with SNA after the break-up of the Soviet Union, there still exist many problems such as timeliness and accuracy.

Keywords: Russia, MPS, SNA, input-output table

1. A Short History of Russian Input-Output Tables (IOTs)

1.1 The Soviet era

In the 1920's, shortly after the Russian Communist Revolution, an early form of input-output analysis was developed. The most notable achievement was the Balance Sheet of the National Economy of the USSR for 1923/1924, which was compiled by the Central Statistical Administration (TsSU) in 1926 (Popov ed., 1926). This included a balance of the production and use of the social products and national income, "chessboard" balance sheets of productive consumption and an investment balance sheet. The production and use of the social product was broken down into 4 sectors and 37 products. Construction and publishing were distinguished as independent sectors. Leontief's input-output table (IOT) can be constructed by merging the balance of production and use of the social product and the balance of national income. Therefore, we can state that the TsSU balance sheet served as a proto-type for the contemporary IOT. Further, the TsSU balance sheet also included the proto-type table for the capital matrix and the employment matrix. In the balance

sheet a distinction was made between transactions in producers' prices and purchasers' prices. In the TsSU monograph we can discern the fundamental concept of input-output analysis: "it is also important to clarify the relationship and interdependence between individual industry groups of the national economy."

It is well known that in a speech at a conference of agricultural experts in December 1929, Stalin referred to the pioneering balance of the national economy developed by TsSU as a "game with figures." Under the Stalin system further development of the balance could not be expected. Instead, Wassily W. Leontief, an immigrant from Russia, developed the compilation of IOTs for the American economy and its analytical tools in the United States.

Soon after Stalin's death, Soviet economics and statistics began to be released from the confines imposed by the cult of personality and dogmatism. Soviet authorities also approved the application of input-output analysis and the optimization theory to the centrally planned economies. In 1957 a preliminary version of the Soviet input-output table began to be compiled. The first Soviet benchmark IOT for 1959 was compiled by TsSU and partially published in 1961. The benchmark IOTs for 1966, 1972, 1977, 1982, and 1987 were compiled by TsSU. Since 1966 15 republican IOTs as well as the Soviet IOTs began to be compiled in the unique format by republican branches of the TsSU. In 1987 Gorbachev reorganized the TsSU and its republican branches as the State Committee of the USSR (Goskomstat USSR) and its branches (Russian Goskomstat etc.) in 1987 in order to improve the statistics. All of these IOTs were compiled based on the traditional Soviet methodology, namely material product system (MPS). Namely, they excluded "non-material services" (education, health care, finance, administration etc.) from the production sphere, while therein "material services" (freight transport, business communications, retail and wholesale trade and social catering) were considered to be components of value added.

1.2 The new Russian era

Since the break-up of the USSR the Russian Federation (Russia) received all assets-liabilities of the Russian and external territories from the USSR. Russian Goskomstat also placed the position of Goskomstat USSR. The new Russia's main economic policy has targeted the transition to a market economy. The main task of the statistics bureau has been the conversion of the Soviet methodology, MPS into the international standard, SNA (more precisely "SNA 1993"). In 1992 Russian Goskomstat began to compile preliminary versions of SNA IOTs. This effort resulted in preliminary SNA IOTs for 1991, 1992 and 1993 with 22 production sectors where non-material services were included into the production sphere.

The Russian Federal Government decided in April 1995 that the benchmark SNA IOT for 1995 should be completed by September 1997. In accordance with this decision Goskomstat submitted the first version of 1995 IOT to the Russian cabinet at

the beginning of September 1997. This system of IOTs had epoch-making characteristics: (1) they were the first large-scale IOT system for the new Russia based on fundamental research, survey input data and other important sources; (2) they were the first benchmark IOT ever created in Russia based on the System of National Accounts (SNA) developed by the United Nations and other international organizations; and (3) they were probably the world's first benchmark IOT produced in accordance with SNA 1993, the most updated version of the SNA (UN et al., 1993). However, the first version of the Russian I-O tables had a serious drawback, shown by marked magnitudes of imbalances between demand (row sums) and supply (column sums) for various production sectors while it was useful to investigate the poor quality of data reported by enterprises and the tax evasion problems. Goskomstat made tremendous efforts to improve the first version of the IOT and finalized the well-balancing 100-sector IOTs and SUT (supply and use tables) at the beginning of 1999, while only aggregated 22-sector symmetric IOT was made public in 2000.

The benchmark 1995 IOTs/SUT were followed by annual aggregated IOTs/SUTs for 1996-2003 with 22 to 24 production sectors. They were compiled by Goskomstat or Russian Statistical Agency or Rosstat because Goskomstat was reorganized as the Russian Statistical Agency in 1999 and now as the Federal State Statistics Service (Rosstat).

All Russian SNA IOTs for 1991-2003 had a serious drawback in the sector classification which simply amended non-material service sectors by maintaining traditional material sector classification (CINE; OKONKH). In 2004 Rosstat began to reorganize all SNA data, including IOT, based on the international standard classification of economic activities, namely NACE rev.1. Rosstat finalized 2004 IOTs or SUT (supply and use tables) based on NACE rev.1. A 15-sector version of 2004 SUT was made public in 2007 although due to the lack of information of intermediate transactions they are still on the half way of completion.

2. Evolution of IOT in the USSR and the New Russia

2.1 Sector Classification

The Russian IOT during the Soviet era was based on the traditional material sectors. As is shown by Table 1, the 1987 IOT had 111 product sectors (economic activities) and its aggregated version had 18 product sectors.

In the MPS the concept of industry is quite different from the usage in the West in the sense that the Soviet industry includes mining and fishery as well as manufacturing. This terminology just recently disappeared in the Russian practice, while in China it is still employed as a key concept. Under the MPS the transport and communication services consist of only freight transport and communications related

Table 1 MPS IOT Sector Classification

111-sector original code	18-sector code	
Industry (1-100)	Industry (1-13)	1
1 Electricity (and thermal power)	1 Electricity (and thermal power)	
2 Crude oil (petroleum)	2 Oil and gas	2
3 Refined oil		
4 Natural gas		
5 Coal	3 Coal	
6 Oil shales	4 Other fuels	
7 Peat		
8 Ferrous ores	5 Ferrous metallurgy	3
9 Iron & steel		
10 Coke product		
11 Refractory materials		
12 Industrial metal products		
13 Nonferrous ores	6 Nonferrous metallurgy	4
14 Nonferrous metals		
15 Mineral chemistry products	7 Chemical industry	
16 Basic chemistry products		
17 Synthetic fibers		
18 Synthetic resins & plastics		
19 Plastic products		
20 Prints & lacquers		
21 Aniline dye products		
22 Synthetic rubber		
23 Organic synthetic products		
24 Rubber products		
25 Asbestos products		
26 Other chemicals		
27 Energy and power M&E (machinery and equipments)	8 MBMW (machine-building and metalworking)	5
28 Metallurgical M&E		
29 Mining M&E		
30 Hoisting-transporting M&E		
31 Railroad transport M&E		
32 Electric M&E		
33 Cable products		
34 Chemical equipment		
35 Machine tools		
36 Forging-pressing equipment		
37 Casting equipment		
38 Tools and dies		
39 Abrasives		
40 Precision instruments		
41 Automobiles		
42 Bearings		
43 Tractors and agricultural M&E		
44 Construction M&E		
45 Communal and daily service M&E		
46 Light industry M&E		
47 Food industry M&E		
48 Trade M&E		
49 Printing M&E		
50 Household appliances		
51 Sanitary engineering products		
52 Ships		
53 Radio and Electronics		
54 Other machine industry		6
55 Metal structure		
56 Other metal wares		
57 Repair of M&E		

111-sector original code	18-sector code	
Industry (1-100)	Industry (1-13)	
58 Logging	9 Wood and paper	1
59 Sawmills and lumber products		
60 Plywood		
61 Furniture		
62 Paper and pulp		
63 Wood chemistry products		
64 Cement	10 Construction materials	
65 Asbestos-cement and slate		
66 Roofing materials		
67 Prefab concrete		
68 Wall materials and tile		
69 Construction ceramics		
70 Polymer construction materials		
71 Other construction materials		
72 Glass and porcelain		
73 Cotton materials	11 Light industry	7
74 Flax materials		
75 Wool materials		
76 Silk materials		
77 Hosiery and knitwear		
78 Other textile products		
79 Sewn goods		
80 Other light industry products		
81 Sugar	12 Food industry	8
82 Bread and bakery products		
83 Confections		
84 Edible oils and fats		
85 Cosmetic products		
86 Alcoholic beverages		
87 Wine		
88 Fruit & vegetable products		
89 Tobacco		
90 Other foods		
91 Meat products		
92 Dairy products		
93 Fish products		
94 Bio-industry product		
95 Flour and cereals		
96 Processed animal feeds		
97 Chemicals		
98 Medical equipment		
99 Medical supplies		
100 Industry n.e.c.	13 Industry n.e.c.	9
Industry total	Industry total	
101 Construction	14 Construction	
Agriculture and forestry	15 Agriculture and forestry	10
102 Crops		
103 Livestock		
104 Forestry		
105 Freight Transport	16 Transport (freight) and communications	11
301 Transport margin		
302 Cost-transport		
106 Communications (productive)		12

111-sector original code	18-sector code	
Industry (1-100)	Industry (1-13)	
107 Trade (retail) and restaurant	17 Trade and restaurant	13
108 Procurement of agricultural products (wholesale trade)		14
109 Technical supply of materials and machinery (wholesale)		15
110 Information processing	18 Other material production	
111 Other material production		16

Sources: Goskomstat, *Russian 1987 IOTs with 111 sectors and 18 sectors*.

Notes:

1. *Industry* includes mining and fishery as well as manufacturing.
2. In the oil and gas sector mining and manufacturing are mixed.
3. In the ferrous metallurgy sector mining and manufacturing are mixed.
4. In the ferrous metallurgy sector mining and manufacturing are mixed.
5. In the MBMW sector metal-block and machinery are mixed.
6. Aircraft and military MBMW may be included into the other machine industry.
7. Agricultural products are included into the light industry.
8. Fishery (primary industry) and manufacturing are mixed
9. *Industry n.e.c.* (not elsewhere classified) consists of extraction of asbestors, graphite, asphalt, mica, and abrasives; toys (except rubber); industrial diamonds, clays for oil refining; plastic machine parts; printing and bookbinding; musical instruments; wallpaper; cardboard containers; pencils, pens, ink, notebooks, general office supplies; jewelry; buttons; art products; commercial; laundering and dry cleaning; movie film and consumer film processing; water supply systems; processed animal feeds.
10. Agriculture (primary industry) excludes agricultural services.
11. Transport excludes passenger transport.
12. Communications exclude services for household.
13. Foreign trade is excluded.
14. The procurement is part of wholesale trade.
15. The technical supply is part of wholesale trade.
16. The other material production consists of collection of metal scrap; motion picture production; publishing; noncommercial hunting, fishing, and trapping; gathering of wild fruits, nuts, herbs, and so on.

to production through the exclusion of the passenger transport and individual communication services. This method was rejected just after the introduction of SNA.

The very specific feature of the Soviet IOT practice can be found in the treatment of the trade sector excluding foreign trade services and revenues. The Soviet national income implicitly included the foreign trade revenues generated by the differences between foreign and domestic prices of exports and imports. However, the foreign trade revenues were completely omitted in the Soviet IOT. This peculiarity disappeared with the collapse of the USSR.

Another specific feature of the Soviet IOT practice is the treatment of all aircrafts and some military machinery goods which are incorporated into the "other machine industry" sector. This "other machine industry" corresponds to the government industry in the U.S. practice, while aircraft industry is clearly shown in the US IOT. Surprisingly, this Soviet feature still remains in the present Russia.

Access to the Soviet and Russian IOTs has also been very limited. The publication of the Soviet and Russian IOTs for 1959-1972 was very strange because only part of these IOTs (the first quadrant with some omissions) was made public. During the Soviet era none of IOTs for 1977-1987 was made public. Present Russian IOTs have been published. To our regret, however, only aggregated IOTs have been so far available.

As was stated, the SNA sector classification in the early transition stage (CINE; Nation-wide Russian Classification of Industries of the National Economy; in Russian acronym OKONKH) was very insufficient. As Table 2 shows, the SNA 22-sector classification was constituted through the addition of non-material services (sectors 19-22) and the redefinition of material service sectors (transport and communications, and trade) in the MPS classification. The SNA 24-sector classification was obtained only by disaggregating the oil and gas sector of the 22-sector code into 3 sub-sectors. This disaggregation, which responded to our requirement, was rather important in the analysis of the peculiarity of the Russian economy, namely the enlargement of the trade sector. However, it did not show any progress in the principle of the sector classification.

The new Russian classification, RCEA (Russian Classification of Economic Activities; in Russian acronym OKVED) was introduced in compiling the 2004 IOT or SUT. This is totally in line with EACE rev.1 (nomenclature générale des activités économiques dans les Communautés Européennes; statistical classification of economic activities in the European Community) corresponding to ISIC rev.3. In another word RCEA is the Russian counterpart of EACE rev.1 and ISIC rev.3. As is

Table 2 MPS and early SNA Classifications prior to 2000 IOT

1966-1991	MPS 18-sector code	1991-1999 SNA 22-sector code (OKONKH)
1 Electricity		1 Electricity
2 Oil and gas		2 Oil and gas
3 Coal		3 Coal
4 Other fuel industry		4 Other fuel industry
5 Ferrous metallurgy		5 Ferrous metallurgy
6 Nonferrous metallurgy		6 Non-ferrous metallurgy
7 Chemical industry		7 Chemical industry
8 MBMW		8 MBMW
9 Wood and paper		9 Wood and paper
10 Construction materials		10 Construction materials
11 Light industry		11 Light industry
12 Food industry		12 Food industry
13 Industry n.e.c.		13 Industry n.e.c.
Industry total		Industry total
14 Construction		14 Construction
15 Agriculture and forestry		15 Agriculture and forestry
16 Transport and communications (productive)		16 Transport and communications (productive and non-productive)
17 Trade and restaurant (excluding foreign trade)		17 Trade and restaurant (including foreign trade)
18 Other material production		18 Other material production
		19 Housing, communal and personal services
		20 Health care, physical culture, social security, education, culture and art
		21 Science and scientific services, geological exploration and prospecting, geodesic and hydro-
		22 Finance, credit, insurance, pension schemes, general administration, social organizations

Sources: Soviet IOTs for 1966-1990 and Russian IOTs for 1980-1999.

known, the first level (17 aggregated sectors; A-Q) of ISIC rev.3 would be taken over unchanged in NACE rev. 1. As is shown by Table 3, in the Russian IOT for 2004 and the SNA for 2002-2007 the first 15 sectors (A-O) of this first level are taken from NACE rev.1. Namely, two sectors (P. private households with employed persons; Q. extra-territorial organizations and bodies) of NACE rev.1 are omitted in RCEA. Table 3 displays the correspondence between 2004 and 2000-2003 IOTs with explanatory notes. As can be seen, the correspondence is one to many in most cases. This suggests that the conversion from the old code into the new code can not be a simple exercise for Rosstat.

It should be noted that only aggregated IOTs/SUTs have been published. Original IOTs/SUTs have been compiled at disaggregated levels with more than 100 production sectors.

The 1995 IOT system was first compiled at the 222-sector level by Goskomstat. Most sectors, namely 207 of 222, were rather traditional: the 187-industry (mining and manufacturing) sectors, the 2-construction sectors, the 3-agriculture sectors, the 3-forestry sectors, the 1-transportation, the 1-communications sector, the 3-trade sectors, the 2-technical supply sectors, the 1-information services sector, and the 4-'other material production' sectors. Newly introduced sectors were the followings: the real estate, the market research, the mineral resource research, the 4-housing and utilities sectors, the health and social security, the education, the culture and arts, the sciences, the finance and credits, the insurance and pension, the administration, and the non-profit organization body services. Its final version was prepared at the 100-sector aggregated level, and the 22-sector version was officially published.

Table 3 Correspondence between the New Code (RACE; NACE rev.1) and the Old Code (CINE; OKONKH)

2004 15-sector code (RCEA; NACE, rev.1)		2000-2003 24 sector code	Notes
1	A Agriculture, hunting and forestry	17 Agriculture and forestry	
		11 Wood and paper	Forest harvesting
		14 Food industry	Marine harvesting
2	B Fishing	14 Food industry	Fishery
3	C Mining and quarrying	2 Crude oil	
		4 Natural gas industry	
		5 Coal industry	
		6 Other fuel industry	
		7 Ferrous metallurgy	
		8 Non-ferrous metallurgy	
		9 Chemical industry	
		14 Food industry	Salt extraction and production
		15 Industry n.e.c.	Mining (extraction) of precious and semi-precious stones (excluding diamonds), gems and amber
		16 Construction	Oil and gas extraction services

2004 15-sector code (RCEA; NACE, rev.1)	2000-2003 24 sector code	Notes
4 D Manufacturing	3 Refined oil products 4 Natural gas industry 7 Ferrous metallurgy 8 Non-ferrous metallurgy 9 Chemical and petrochemical industry 10 MBMW (Machine-building and metal-working) 11 Wood and paper 12 Construction materials 13 Light industry 14 Food industry 15 Other industry 16 Construction 17 Agriculture and forestry 20 Other material production 22 Health care, physical culture and social security, education, culture and	Installation, adjustment and commissioning of equipment Tea leaf primary processing Publishing Sound recording
5 E Electricity, gas and water supply	1 Electricity (and thermal power) 10 MBMW (Machine-building and metal-working) 15 Industry n.e.c. 16 Construction 21 Housing, communal and personal services	Wiring, repair and maintenance of electrical networks Water collection and purification Installation, adjustment and commissioning of heat network
6 F Construction	16 Construction 18 Transport and communication 21 Housing, communal and personal services	Repairs of roads, bridges, tunnels, parking Working-up building site
7 G Wholesale and retail trade; repairs of motor vehicles, etc.	19 Trade and restaurant 9 Chemical industry 10 MBMW (Machine-building and metal-working) 13 Light industry 15 Industry n.e.c.	Rubber footwear repair Repairs of personal goods Repairs of jewelry
8 H Hotels and restaurants	19 Trade and catering, material supply and procurement, real estate, general commercial activities to support 21 Housing, communal and personal services 22 Health care, physical culture and social security, education, culture and	Tourist hotels, resorts, holiday hotels, children's camping site
9 I Transport and communications	18 Transport and communication 19 Trade and restaurant 21 Housing, communal and personal services 22 Health care, physical culture and social security, education, culture and	Storage and warehousing Use of township roads, bridges, cross-walks, sea embankments, etc. Tourism activities
10 J Financial intermediation	24 Finance, credit, insurance, pension schemes, general administration, social organizations	

2004 15-sector code (RCEA; NACE, rev.1)		2000-2003 24 sector code	Notes
11 K	Real estate, renting and business activities	19 Trade and restaurant	Aerosol spray capsule filling with domestic chemical products and packaging of mineral fertilizers, crop protection agents, lacquers, paints, Computing machinery repair and maintenance Photo services Architectural activities and engineering in construction Cleaning of industrial premises and housing, equipment and motor Activities related to computing machinery and activities of private detective agencies
		9 Chemical industry	
		10 MBMW (Machine-building and metal-working)	
		15 Industry n.e.c.	
		16 Construction	
		18 Transport and communication	
		20 Other material production	
		21 Housing, communal and personal services	
		22 Health care, physical culture and social security, education, culture and Science and scientific services,	
		23 geological exploration and prospecting, geodesic and hydro-meteorological services	
12 L	Public administration and defense; compulsory social security	24 Finance, credit, insurance, pension schemes, general administration, social organizations	
13 M	Education	23 Science and scientific services, geological exploration and prospecting, geodesic and hydro-meteorological services	
14 N	Health and social services	22 Health care, physical culture and social security, education, culture and 17 Agriculture and forestry	Veterinary (animal health care)
15 O	Other communal, social and personal service activities	17 Agriculture and forestry 20 Other branches of material production 21 Housing, communal and personal services 22 Health care, physical culture and social security, education, culture and Finance, credit, insurance, pension 24 schemes, general administration, social organizations	Protection of wild areas and wildlife Media agency activities

Notes: Author's compilation based on Ustinova (2007), NACE rev.1 and OKONKH.

Following the benchmark IOT annual IOTs were compiled at the 100-sector level although only aggregated IOTs with 22 to 24 sectors were published.

Rosstat also first attempted to compile the 2004 IOT/SUT system at the 165/155-sector and 355-product level. Rosstat prepared its latest version at the 60-sector aggregated level, and published the 15-sector version.

2.2 Prices employed

The Soviet IOTs were constructed at purchasers' prices with double accounting of distribution margins. Each element, including exports and imports, therein was

evaluated at uniform domestic prices. This led to the exclusion of foreign trade revenues in the IOTs. We assume that all supplementary tables of trade and transport margins, net taxes on products and imports must have been compiled. Exports and imports were measured at FOB and CIF respectively.

Russian IOTs and SUTs for 1991-2004 have been compiled at both basic and purchasers' prices. Exports and imports have been evaluated at actual foreign trade prices. Foreign trade activities and revenues have been recorded on the trade sector. All supplementary tables of trade and transport margins, net taxes on products and imports have been compiled. Exports and imports have been measured at FOB and CIF respectively.

2.3 Consistency with SNA

After the break-up of the USSR the Russian statistics authority made efforts to re-establish the national accounts based on SNA 1993 and its recommendations. We can state that their efforts for these fifteen years result in a good consistency with SNA although they still suffer from the statistical difficulties, including a large amount of the non-observed economy (20 to 22% of GDP) and the lack of periodical renovation of economic census and benchmark IOT.

3. The Most Recent IOT of Russia

As for Russia we should note the followings:

- (1) The most recent benchmark IOT of Russia is still the 1995 IOT.
- (2) The most updated IOT based on the old classification (CINE) is 2003 IOT as the final version with a high perfection level.
- (3) The most recent IOT based on the new classification of economic activities (RCEA; EACE rev.1; ISIC rev.3) is 2004 IOT/SUT as a preliminary version with a low perfection level.

3.1 The 1995 Benchmark IOT

This system originally consisted of the following eight tables: (1) a supply (resource) table (the transpose of a make table in SNA 1968); (unpublished) (2) a use table; (unpublished) (3) a symmetric product-by-product IOT at purchasers' prices; (4) a symmetric product-by-product IOT at basic prices; (5) an import table (matrix); (6) a transport margin table (matrix); (7) a trade margin table (matrix); and (8) a table (matrix) of net taxes on products.

Table 4 shows the supply table consolidated into ten sectors (unpublished). As can be seen, this table almost entirely conforms to a supply table as recommended by SNA 1993 (UN et al., 1993, Table 15.1S) except for the sector classification code.

Table 4 Russian 1995 Supply Table at Basic Prices (millions of rubles denominated on January 1, 1998)

	Output of industries														Own final use	Total output at basic prices	Imports	Total supply at basic prices
	1	2	3	4	5	6	7	8	9	10	11	12	13	14				
1 'Industry'	1,023,006	17,494	28,510	1,928	5,342	1,263	2,549	99	371	328	13,442	1,094,331	275,877	1,370,207				
2 Construction	12,207	213,156	0	0	57	0	0	0	0	0	11,095	236,515	7,604	244,119				
3 Agriculture	3,505	122	111,533	0	265	0	0	0	0	0	97,712	213,137	8,698	221,835				
4 Transport and communications	10,336	1,438	0	247,600	402	0	0	0	0	0	7,241	267,017	14,307	281,324				
5 Trade	66,599	4,963	8,182	13,585	232,635	23	4,344	150	2,565	73	98,154	431,273	6,901	438,175				
6 Other material production	37	16	59	544	11	15,378	10	3	11	1	0	16,071	3,042	19,113				
7 Housing and public utilities	32	0	0	0	0	0	118,384	0	0	0	15,661	134,077	268	134,344				
8 Education, health and culture	44	0	0	0	0	0	0	168,399	0	0	2,959	171,401	1,377	172,779				
9 Sciences	23	0	0	0	0	0	0	0	28,968	0	0	28,991	1,076	30,067				
10 Finance, credit, insurance and administration	138	0	0	0	0	0	0	0	0	183,935	8,610	192,683	1,260	193,943				
Adjustment:																		
11 Direct purchases abroad by residents	0	0	0	0	0	0	0	0	0	0	0	0	53,181	53,181				
12 Total	1,115,926	237,189	148,284	263,657	238,711	16,665	125,287	168,651	31,914	184,336	254,874	2,785,496	373,593	3,159,088				

Source: Goskomstat, unpublished.

Notes: Figures with (*) and (**) denote the amounts subtracting corresponding margins.

Table 4 (Continued)

	Distribution margins		Taxes and subsidies on products										Total supply at purchasers' prices
	Transport margin	Trade margin	Import duties	VAT	Excises	Other taxes on products	Export taxes	Subsidies on products					
	15	16	17	18	19	20	21	22	23				
1 "Industry"	128,073	377,640	8,981	47,100	28,378	7,521	19,018	-10,335	1,976,584				
2 Construction	0	997	0	18,256	0	0	0	0	263,372				
3 Agriculture	3,443	15,081	89	4,312	0	0	141	-3,853	241,049				
4 Transport and communications	-131,618	0	0	15,661	0	0	0	-10,976	154,392 *				
5 Trade	0	-396,879	0	27,334	0	0	0	-426	68,203 *				
6 Other material production	101	2,399	4	1,302	0	0	3	-754	22,168				
7 Housing and public utilities	0	15	0	4,010	0	0	0	-37,125	101,244				
8 Education, health and culture	0	465	0	742	0	0	0	-171	173,815				
9 Sciences	0	81	0	547	0	0	0	0	30,696				
10 Finance, credit, insurance and administration	0	201	0	671	0	0	0	0	194,816				
Adjustment:													
11 Direct purchases abroad by residents	0	0	9,074	119,936	28,378	7,521	19,163	-63,640	3,279,519				
12 Total													

Source: Goskomstat, unpublished.

Notes: Figures with (*) and (**) denote the amounts subtracting corresponding margins.

As was noted, "industry" in the Soviet and Russian IOT terminology included both mining and manufacturing until 2006. By reading the first ten columns along each row, one can see the products and services in any given sector were supplied by a number of different sectors. It should be noted that the main part of the supply table, which consists of the elements in the first ten rows and first ten columns, was displayed at basic prices which are obtained by subtracting distribution margins and net taxes on products from purchasers' prices. The term "basic prices" is not much used in Japan and the United States, but it is widely used in European countries which impose high value added taxes, and it is one of the basic concepts employed in SNA 1993. Basic prices are also obtained by subtracting the net taxes on products from the producers' prices.

Column 11 of Table 1 totals sectoral own final outputs (uses) by households. Its content also accorded with SNA 1993 and its magnitudes featured a transitional character of the Russian economy. The sum of outputs by households accounted for 9% of the total output at basic prices. The agricultural output by households showed a marked value, 46%, of the total output by the agriculture sector. According to other Goskomstat sources, the agricultural value added by household showed 69% of the total value added by the agricultural sector in 1995. The trade output by households also showed a rather high value, 23% of the total trade sector output. The estimate of output by households enabled us to capture one of the main activities in the informal economy of Russia and to derive a rather reasonable estimate of the Russia's GDP.

Adding Column 12, imports, to Column 11 gives us the total supply at basic prices seen in Column 14. In Columns 15 through 22, distribution margins, import duties, taxes on products and subsidies on products (deduction) were added to the total supply at basic prices so as to obtain the total supply at purchasers' prices calculated in Column 23.

The row 11 "direct purchases abroad by residents", also based upon SNA 1993, was a category which could not be ignored for the Russia in transition because individually operated shops relying on goods imported by individuals (the so called "shuttle trade") played an important role to satisfy demand for imported goods. Indeed, the direct purchases abroad by residents amounted for more than 14% of the total import. Further, this table, for the first time, clearly showed import duties, all categories of taxes and subsidies on products, and distribution margins for all sectors. They were not displayed in the annual national income statistics by Goskomstat.

Table 5 is the symmetric 1995 product-by-product IOT at purchasers' prices, aggregated into the ten production sectors. Elements of the first quadrant in this table, shown at purchasers' prices, seem to be the same as those in IOT compiled so far. However, it should be noted that the sectoral total outputs in the table were shown at basic prices. This was different from the formulas employed so far. The advantage of employing this method was that it resolved the previous problem, namely the so

called "double accounting" problem of distribution margins, in the Soviet/Russian IOT at purchasers' prices. Formally, the form used for Japan's I-O tables at purchasers' prices was adopted.

The organization of Row 11, "direct purchases abroad by residents," and Row 12, "direct purchases in domestic markets by non-residents," accorded with the recommendations made in SNA 1993.

Further, Column 17, "net acquisition of valuables," was also based on SNA 1993. This column is very important for Russia with its vast natural resources.

The appearance of the concept "mixed income" in the value added quadrant also derived from SNA 1993. This concept covered a part of informal incomes in Russia. The gross mixed income in Table 5 amounted to 12.4% of GDP.

FISIM in Row 19 and Column 11 showed the total sum of "financial intermediation services indirectly measured" in SNA 1993 which was added to the intermediate input of the finance sector and subtracted from the total value added. The sector-specific distribution of this total was not calculated in the original Russian IOTs.

In the Soviet IOT all the activities of construction sector were defined as the investment demand while Table 5 shows that intermediate demand existed in the construction sector. This accounted for over 10% of the sector's investment demand in Table 5.

Table 6 shows the aggregated product-by-product IOT at basic prices where all the elements of the intermediate transaction quadrant and final demand quadrant as well as the sectoral output totals were shown at basic prices. The IOT at producers' prices can also be prepared through distribution margin and net tax matrixes. Tables 5 and 6 show a competitive type IOT. Non-competitive IOT can easily be compiled through the import matrix.

Table 5 Russian 1995 Input-Output Table at Purchasers' Prices (millions of rubles denominated on January 1, 1998)

"Industry"	1	2	3	4	5	6	7	8	9	10	11	Total intermediate demand
1 "Industry"	587,889	102,958	49,672	76,332	47,199	3,332	47,074	39,141	6,824	46,855	0	1,007,276
2 Construction	2,723	666	372	2,327	3,535	91	5,132	6,619	433	3,478	0	25,377
3 Agriculture	55,930	0	56,431	0	3,271	0	121	2,314	45	1,872	0	119,986
4 Transport and communications	15,939	8,206	3,005	8,191	28,624	515	1,540	4,484	1,064	14,881	0	86,451
5 Trade	2,742	929	47	3,216	12,687	194	114	1,482	117	5,119	0	26,646
6 Other material production	3,424	600	84	1,057	4,837	381	321	1,772	184	3,170	0	15,829
7 Housing and public utilities	1,362	644	459	3,795	5,350	228	1,608	15,114	1,621	7,326	0	37,706
8 Education, health and culture	164	25	21	58	165	7	8	3,308	23	413	0	4,193
9 Sciences	1,146	156	58	233	1,690	13	35	720	3,463	1,131	0	8,644
10 Finance, credit, insurance and administration	6,584	402	105	844	2,978	44	776	240	108	5,315	15,446	32,842
Adjustments:												
11 Direct purchases abroad by residents	0	0	0	0	0	0	0	0	0	0	0	0
12 Direct purchases in domestic markets by non-residents	0	0	0	0	0	0	0	0	0	0	0	0
13 Total intermediate input	677,902	114,588	110,254	96,054	110,536	4,806	56,728	75,194	13,882	89,539	15,446	1,364,949
14 Total payment for labor	153,237	65,538	27,492	63,942	44,913	10,544	24,796	66,412	9,824	69,107	0	535,804
15 Gross profits	223,262	44,217	8,381	91,338	180,958	322	36,932	27,276	4,923	24,702	0	642,310
16 Gross mixed income	4,280	6,546	67,092	4,873	85,427	0	13,997	1,891	0	6,888	0	190,995
17 Other taxes on production	35,838	5,627	2,102	10,810	9,441	400	1,623	628	362	2,426	0	69,256
18 Other Subsidies on products	-188	0	-2,185	0	0	0	0	0	0	0	0	-2,373
19 FISIM	0	0	0	0	0	0	0	0	0	0	0	-15,446
20 Gross value added at basic prices	416,429	121,927	102,883	170,963	320,737	11,265	77,348	96,207	15,109	103,124	-15,446	1,420,546
21 Total (domestic) output at basic prices	1,094,331	236,515	213,137	267,017	431,273	16,071	134,077	171,401	28,991	192,683	0	2,785,496
Supplementary data:												
GDP at market prices	517,093	140,183	103,572	175,648	347,645	11,820	44,233	96,779	15,656	103,795	-15,446	1,540,977
Employment (thousands of man-years)	17,343	8,988	18,163	7,822	10,449	1,001	3,152	13,177	2,289	3,509	0	85,890
Capital stock	3,728,855	396,248	1,285,536	1,381,803	180,465	3,239	775,180	31,474	135,076	125,617	0	8,043,493

Source: Goskomstat, 1995 IOT.

Table 5 (Continued)

	13	14	15	16	17	18	19	20	21	22	23	24	25
	Final household consumption	Government and NPI consumption	Gross fixed capital formation	Change in inventories	Net acquisition of valuables	Exports	Total demand at purchasers' prices	Imports	Transportation margin	Trade margin	Net taxes on products	Import duties	Total (domestic) at basic prices
1 "Industry"	471,061	559	82,974	42,968	6,717	377,769	1,989,324	-275,877	-128,073	-377,640	-104,423	-8,981	1,094,331
2 Construction	-4,127	0	244,968	0	0	469	274,941	-7,604	0	-997	-29,825	0	236,515
3 Agriculture	108,520	3,564	-13,199	19,560	0	2,070	240,501	-8,698	-3,443	-15,081	-52	-89	213,137
4 Transportation and communications	44,590	0	0	0	0	21,079	152,120	-14,307	131,618	0	-2,414	0	267,017
5 Trade	14,738	8	1	0	0	2,867	44,261	-6,901	0	396,879	-2,965	0	431,273
6 Other material production	5,280	0	229	1,119	0	73	22,530	-3,042	-101	-2,399	-912	-4	16,071
7 Housing and public utilities	41,482	22,346	0	0	0	176	101,710	-268	0	0	32,649	0	134,077
8 Education, health and culture	19,755	148,790	0	0	0	335	173,073	-1,377	0	-465	171	0	171,401
9 Sciences	0	15,202	6,251	0	0	1,579	31,676	-1,076	0	-81	-1,527	0	28,991
10 Finance, credit, insurance and administration	17,399	145,397	0	0	0	566	196,204	-1,260	0	-201	-2,059	0	192,683
Adjustments:													
11 Direct purchases abroad by residents	53,181	0	0	0	0	0	53,181	-53,181	0	0	0	0	0
12 Direct purchases in domestic markets by non-residents	-19,753	0	0	0	0	19,753	0	0	0	0	0	0	0
13 Total intermediate input	760,380	335,866	321,224	63,648	6,717	426,735	3,279,519	-373,593	0	0	-111,357	-9,074	2,785,496

Source: Goskomstat, 1995 IOT.

Table 6 Russian 1995 Input-Output Table at Basic Prices (millions of rubles denominated on January 1, 1998)

	Industry												Total intermediate demand
	1	2	3	4	5	6	7	8	9	10	11	12	
1 "Industry"	463,564	81,577	38,762	52,011	36,790	2,807	28,840	31,966	5,355	36,075			777,747
2 Construction	2,696	662	343	2,302	3,535	89	4,556	5,638	404	2,981			23,204
3 Agriculture	53,414	0	53,307	0	3,100	0	117	2,137	43	1,742			113,860
4 Transportation and communications	15,712	8,137	2,776	8,058	28,136	501	1,425	3,790	971	12,628			82,136
5 Trade	2,730	928	47	3,207	12,668	193	114	1,315	115	4,827			26,144
6 Other material production	3,301	545	79	983	4,611	372	304	1,437	168	2,586			14,385
7 Housing and public utilities	1,344	640	420	3,750	5,326	221	1,504	12,685	1,394	6,173			33,457
8 Education, health and culture	164	25	21	58	165	7	8	3,308	23	413			4,193
9 Sciences	1,140	155	55	231	1,607	13	34	642	3,213	999			8,090
10 Finance, credit, insurance and administration	6,583	402	103	843	2,776	44	731	239	107	5,292	15,446		32,566
11 Transportation margin	57,615	8,975	3,108	5,494	2,381	116	10,055	1,151	343	2,746			91,984
12 Trade margin	54,800	10,396	6,884	15,057	7,129	313	5,258	3,004	561	4,366			107,767
13 Net taxes on products	14,841	2,146	4,352	4,060	2,312	129	3,782	7,880	1,185	8,731			49,417
Adjustments:													
14 Direct purchases abroad by residents	0	0	0	0	0	0	0	0	0	0	0	0	0
15 Direct purchases on domestic markets by non-residents	0	0	0	0	0	0	0	0	0	0	0	0	0
16 Total intermediate input	677,902	114,588	110,254	96,054	110,536	4,806	56,728	75,194	13,882	89,559	15,446		1,364,949
17 Total payment for labor	153,237	65,538	27,492	63,942	44,913	10,544	24,796	66,412	9,824	69,107			535,804
18 Gross profits	223,262	44,217	8,381	91,338	180,958	322	36,932	27,276	4,923	24,702			642,310
19 Gross mixed income	4,280	6,546	67,092	4,873	85,427	0	13,997	1,891	0	6,888			196,995
20 Other taxes on production	35,838	5,627	2,102	10,810	9,441	400	1,623	628	362	2,426			69,256
21 Other Subsidies on production	-188	0	-2,185	0	0	0	0	0	0	0			-2,373
22 FISIM	0	0	0	0	0	0	0	0	0	0	-15,446		-15,446
23 Gross value added at basic prices	416,429	121,927	102,883	170,963	320,737	11,265	77,348	96,207	15,109	103,124	-15,446		1,420,546
24 Total (domestic) output at basic prices	1,094,331	236,515	213,137	267,017	431,273	16,071	134,077	171,401	28,991	192,683			2,785,496
25 Imports	275,877	7,604	8,698	14,307	6,901	3,042	268	1,377	1,076	1,260			320,412
26 Total supply at basic prices	1,370,207	244,119	221,835	281,324	438,175	19,113	134,344	172,779	30,067	193,943			3,105,907

Sources: Goskomstat.

Table 6 (Continued)

	13	14	15	16	17	18	19
	Final household consumption	Government and NPI consumption	Gross fixed capital formation	Change in inventories	Net acquisition of valuables	Exports	Total demand at basic prices
1 "Industry"	244,317	492	75,022	41,832	4,637	226,161	1,370,207
2 Construction	4,029	0	216,487	0	0	399	244,119
3 Agriculture	96,354	3,558	-13,202	19,525	0	1,740	221,835
4 Transportation and communications	49,757	0	0	0	0	17,814	149,706
5 Trade	12,576	7	1	0	0	2,568	41,296
6 Other material production	3,457	0	227	984	0	59	19,113
7 Housing and public utilities	78,394	22,346	0	0	0	148	134,344
8 Education, health and culture	19,461	148,790	0	0	0	335	172,779
9 Sciences	0	15,188	5,382	0	0	1,407	30,067
10 Finance, credit, insurance and administration	15,525	145,286	0	0	0	566	193,943
11 Transportation margin	7,926	7	882	-946	80	31,685	131,618
12 Trade margin	187,877	5	7,391	-741	1,410	93,171	396,879
13 Net taxes on products	7,279	187	29,034	2,993	591	30,929	120,431
Adjustments:							
14 Direct purchases abroad by residents	-53,181	0	0	0	0	0	53,181
15 Direct purchases on domestic markets by non-residents	-19,753	0	0	0	0	19,753	0
16 Total intermediate input	760,380	335,866	321,224	63,648	6,717	426,735	3,279,519

Sources: Goskomstat.

Table 7 shows a symmetric product-by-product 22-sector IOT at producers' prices, compiled by the author based on Table 6 and distribution margin and net tax matrixes. This table needs two adjustments for the standard input-output analysis of the Russian economy. First, the FISIM can be distributed among sectors in proportion to sectoral intermediate input share in the total intermediate input. Second, the sectoral distribution ratios of the direct imports abroad by residents, which Goskomstat estimated for 1993, can be employed for 1995: 40% for the machine-building and metal-working sector; 30% for the light industry; 8% for the food industry, 6% for the industry n.e.c. (not elsewhere classified), 7% for the transportation and communications, 5% for the education, health, culture and arts, 2% for the housing and public utilities, 2 % for the finance, credit, insurance and administration. The direct purchases in Russia by non-residents, which mainly consist of souvenirs of Russia purchased by tourists, can be omitted from the table.

As is well known, IOTs provide a database for checking the consistency of statistics in flows of goods and services derived from different sources. The input-output system is also appropriate for computing much of the economic statistics contained in the national accounts and detecting flaws. In compiling the new IOT, numerical consistency of IOT with other data including national income statistics was checked, and a number of sectoral indicators of output and intermediate consumption were revised (Masakova, 1999). Using a commodity flow method, the additional hidden outputs in the oil industry, the non-ferrous metals, the food industry, and the pipe-line transportation were found. On the other hand, the output of the science sector was reduced by 30% because in fact the scientific institutions made profits not from their own activities, but from activities of renting and leasing. The value added of the informal trade was also revised based on the I-O data on intermediate consumption. The total output of the agriculture sector was reduced in relation with the methodological change in measurement of live-stock. Intermediate consumption in the household sector for informal production of goods and services was also revised.

One of the remaining problems inherent to Russian IOT for the benchmark 1995 IOT was how to measure the output and value added (GDP) of the oil and gas sector. The major part of revenues of the oil and gas industry was generated from its foreign trade activities. This was recorded not in the oil and gas sector but in the trade sector. The supply table, however, did not show two activities/products of the oil and gas sector (the oil and natural gas production and the trade production). Taxes on the oil and gas products were paid not by the oil and gas sector but by the trade sector (IOT), while they were added to the oil and gas sector (IOT) at producers' prices. These inconsistencies should be resolved if each sectoral value added of IOT is shown not at basic prices but at producers' prices or market prices.

Table 7 Russian 1995 Input-Output Table at Producers' Prices (thousands of rubles denominated on January 1, 1999)

	1 Electricity	2 Oil and gas	3 Coal	4 Other fuels	5 Ferrous metallurgy	6 Non-ferrous metallurgy	7 Chemical industry
1 Electricity	4,110,452	12,029,537	1,847,198	39,535	6,188,929	4,139,358	11,211,304
2 Oil and gas	20,010,414	45,391,181	234,386	27,067	2,472,604	1,494,030	4,498,277
3 Coal	7,390,881	140,255	2,396,824	1,028	6,354,803	240,457	347,770
4 Other fuels	226,238	7,482	3,121	21,425	4,994	3,573	1,976
5 Ferrous metallurgy	660,024	582,311	431,824	9,280	25,435,696	1,686,337	2,257,006
6 Non-ferrous metallurgy	799,202	180,491	1,758	24	2,139,748	20,439,454	647,965
7 Chemical industry	1,120,263	1,860,936	1,048,890	22,161	774,290	1,680,379	21,277,668
8 Machine-building and metal working	4,150,371	2,101,418	1,828,540	41,580	2,932,981	2,343,657	2,161,790
9 Wood and paper	98,225	79,735	259,549	5,665	215,291	275,993	1,186,735
10 Construction materials	248,276	101,174	116,174	950	253,523	145,100	465,528
11 Light industry	45,971	76,056	70,390	634	183,026	30,401	641,362
12 Food industry	38,128	28,157	17,141	466	36,182	37,978	711,504
13 Industry n.e.c.	657,534	455,087	102,527	1,388	356,705	186,543	589,950
"Industry," total	39,555,979	63,033,820	8,558,322	171,203	47,348,772	32,703,260	45,998,835
14 Construction	286,067	387,874	85,558	636	297,695	256,634	256,289
15 Agriculture and forestry	35	12,013	65	0	11,851	3,554	26,997
16 Transport and communications	23,006,967	9,503,164	2,231,748	12,564	9,419,732	2,103,096	6,297,103
17 Trade and restaurant	11,820,867	4,017,576	986,830	18,399	6,102,356	3,069,745	4,034,697
18 Other material production	380,796	395,215	127,380	1,330	393,626	196,487	275,809
19 Education, health, culture and arts	123,063	216,427	73,196	703	58,289	76,839	94,836
20 Housing and public utilities	12,821	36,542	15,861	14	6,906	7,636	13,743
21 Sciences	22,665	366,531	5,315	39	104,932	7,080	160,776
22 Finance, credit, insurance and administration	610,288	1,472,054	262,304	910	247,093	443,713	366,999
Adjustments:							
23 Direct purchase abroad by residents	0	0	0	0	0	0	0
24 Direct purchase in domestic markets by non-residents	0	0	0	0	0	0	0
25 Intermediate input total	75,819,548	79,441,216	12,146,579	205,798	63,991,252	38,868,044	57,526,084
26 Labor payments	17,493,232	8,872,390	8,034,836	132,725	9,172,342	9,426,466	9,409,854
27 Gross profits	30,833,265	53,430,727	7,079,587	277,243	17,186,626	21,132,615	14,982,670
28 Gross mixed income	0	0	0	0	0	0	0
29 Net taxes on products	5,039,287	34,604,900	-3,977,313	-76,257	5,817,741	6,505,479	5,127,332
30 Taxes on imports	14	18,317	2,462	6	114,773	270,724	263,888
31 Other taxes on production	2,444,381	17,249,420	1,627,924	18,241	1,556,152	2,492,814	1,419,177
32 Other subsidies on production	0	0	0	0	0	0	0
33 FISIM	0	0	0	0	0	0	0
34 Value added (GDP) at market prices	55,810,179	114,175,754	12,767,496	351,958	33,847,634	39,828,098	31,202,921
35 Gross domestic outputs (producers' prices)	131,629,727	193,616,970	24,914,075	557,756	97,838,886	78,696,142	88,729,005

Notes: Compiled by the author using the official data.

Table 7 (Continued)

	Machine- building and metal working	Wood and paper	Construct on materials	Light Industry	Food Industry	Industry n.e.c.	"Industry," total
	8	9	10	11	12	13	
1 Electricity	10,389,475	2,861,474	4,375,688	1,546,907	3,047,179	1,601,675	63,388,711
2 Oil and gas	3,120,004	2,197,486	2,770,824	219,315	3,030,867	305,192	85,771,647
3 Coal	694,553	324,550	264,366	101,254	315,080	85,870	18,657,691
4 Other fuels	18,498	10,606	12,242	1,542	3,144	180	315,021
5 Ferrous metallurgy	20,276,935	584,327	3,303,363	72,071	434,625	360,194	56,093,993
6 Non-ferrous metallurgy	8,563,342	233,313	394,985	6,070	403,011	2,113,722	35,923,085
7 Chemical industry	6,921,825	2,321,627	1,797,450	2,293,258	1,498,199	1,426,022	44,042,968
8 Machine-building and metal-working	45,762,918	2,408,513	1,375,691	337,859	2,777,368	641,224	68,863,910
9 Wood and paper	1,505,943	14,034,624	797,336	85,191	2,257,416	1,548,304	22,350,007
10 Construction materials	613,882	259,545	8,466,333	26,809	443,463	74,015	11,214,772
11 Light industry	530,155	668,833	209,760	10,216,204	486,618	714,992	13,874,402
12 Food industry	93,238	45,023	13,650	11,404	51,815,341	1,179,996	54,128,208
13 Industry n.e.c.	812,234	135,211	207,279	92,284	1,144,480	2,207,710	6,948,932
"Industry," total	99,303,002	26,085,132	23,988,967	15,110,168	67,656,791	12,259,096	481,573,347
14 Construction	270,598	117,987	187,572	33,142	471,589	71,372	2,723,013
15 Agriculture and forestry	923	399	57	426,586	45,232,606	4,194,918	49,910,004
16 Transport and communications	6,115,970	3,885,059	5,162,951	709,359	4,110,228	996,397	73,554,338
17 Trade and restaurant	10,508,318	2,523,831	2,544,499	1,831,878	9,294,872	787,403	57,541,271
18 Other material production	643,550	121,164	190,870	115,047	328,207	175,723	3,345,204
19 Education, health, culture and arts	277,106	74,137	68,419	58,842	203,568	36,282	1,361,707
20 Housing and public utilities	20,655	8,690	6,418	4,027	22,577	7,667	163,557
21 Sciences	468,455	1,370	2,025	909	4,795	638	1,145,530
22 Finance, credit, insurance and administration	1,264,889	307,780	213,748	199,745	1,074,520	119,568	6,583,611
Adjustments:							
23 Direct purchase abroad by residents	0	0	0	0	0	0	0
24 Direct purchase in domestic markets by non-residents	0	0	0	0	0	0	0
25 Intermediate input total	118,873,466	33,125,549	32,365,526	18,489,703	128,399,753	18,649,064	677,901,582
26 Labor payments	41,734,549	10,614,021	9,720,368	6,301,090	16,125,995	6,199,132	153,237,000
27 Gross profits	27,993,179	8,637,111	11,390,541	1,364,051	26,575,218	2,378,915	223,261,748
28 Gross mixed income	895,734	95,613	102,402	1,368,119	1,818,123	-	4,279,991
29 Net taxes on products	12,191,994	3,755,000	3,693,092	1,822,870	15,598,400	1,580,169	91,682,694
30 Taxes on imports	1,262,287	352,758	114,637	594,891	5,921,178	64,908	8,980,843
31 Other taxes on production	3,636,832	1,553,429	966,370	461,127	2,052,579	359,454	35,837,900
32 Other subsidies on production	0	0	0	-187,600	0	0	-187,600
33 FISIM	0	0	0	0	0	0	0
34 Value added (GDP) at market prices	87,714,575	25,007,932	25,987,410	11,724,548	68,091,493	10,582,578	517,092,576
35 Gross domestic outputs (producers' prices)	206,588,041	58,133,481	58,352,936	30,214,251	196,491,246	29,231,642	1,194,994,158

Notes: Compiled by the author using the official data.

Table 7 (Continued)

	Construction	Agriculture and forestry	Transport and communications	Trade and restaurant	Other material production	Education, health, culture and arts	Housing and public utilities
	14	15	16	17	18	19	20
1 Electricity	3,883,593	3,821,885	15,206,725	8,618,542	240,466	14,570,409	6,119,254
2 Oil and gas	5,684,531	5,420,167	16,140,853	5,731,179	85,579	6,534,876	1,001,532
3 Coal	317,040	282,312	439,908	303,402	4,144	1,126,288	520,882
4 Other fuels	88,685	62,257	1,491	6,808	8	1,906	16,699
5 Ferrous metallurgy	10,459,082	98,224	3,094,685	286,957	8,618	1,216,392	148,790
6 Non-ferrous metallurgy	552,561	286	67,255	10,365	3,019	17,033	10,736
7 Chemical industry	3,566,637	5,777,100	2,679,936	2,657,213	34,792	1,093,828	6,842,192
8 Machine-building and metal-working	16,228,098	7,257,797	13,332,043	5,834,811	279,320	2,853,989	3,111,807
9 Wood and paper	4,273,244	1,136,786	3,233,805	3,233,805	1,172,459	235,026	931,605
10 Construction materials	38,134,108	735,853	1,665,985	2,179,210	9,734	1,680,890	818,108
11 Light industry	199,804	274,532	819,797	1,243,972	20,642	302,495	1,608,192
12 Food industry	43,347	8,968,879	339,283	7,100,973	18,734	129,841	12,525,330
13 Industry n.e.c.	205,819	8,556,648	916,531	1,010,689	1,025,578	2,002,153	1,493,928
"Industry," total	83,636,549	41,474,726	55,841,218	38,217,936	2,903,093	31,765,126	35,149,055
14 Construction	666,058	371,993	2,327,089	3,535,451	91,201	5,131,760	6,619,065
15 Agriculture and forestry	378	54,637,226	295	3,119,556	111	117,052	2,246,212
16 Transport and communications	17,181,565	6,112,801	13,685,495	31,005,050	631,056	11,595,450	5,634,943
17 Trade and restaurant	11,325,000	6,930,647	18,273,367	19,816,114	506,806	5,371,780	4,486,390
18 Other material production	550,679	83,782	996,807	4,741,166	380,780	320,655	1,676,472
19 Education, health, culture and arts	644,206	459,484	3,794,739	5,550,275	227,657	1,607,927	15,113,555
20 Housing and public utilities	25,082	20,695	57,918	165,151	7,323	8,294	3,308,385
21 Sciences	156,091	57,648	233,176	1,608,806	13,444	34,718	719,605
22 Finance, credit, insurance and administration	402,377	104,784	843,702	2,776,586	44,269	775,666	240,470
Adjustments:							
23 Direct purchase abroad by residents	0	0	0	0	0	0	0
24 Direct purchase in domestic markets by non-residents	0	0	0	0	0	0	0
25 Intermediate input total	114,587,985	110,253,786	96,053,806	110,536,091	4,805,740	56,728,428	75,194,152
26 Labor payments	65,537,700	27,492,400	63,942,000	44,912,500	10,544,101	24,796,200	66,411,700
27 Gross profits	44,216,558	8,381,126	91,338,164	180,957,638	321,559	36,932,020	27,275,955
28 Gross mixed income	6,546,057	67,092,385	4,873,030	85,426,571	0	13,997,352	1,891,193
29 Net taxes on products	18,255,905	599,706	4,685,439	26,907,383	550,382	-33,115,162	571,707
30 Taxes on imports	0	88,973	0	0	4,484	0	0
31 Other taxes on production	5,626,600	2,102,300	10,809,600	9,440,500	399,800	1,622,700	628,400
32 Other subsidies on production	0	-2,184,997	0	0	0	0	0
33 FISIM	0	0	0	0	0	0	0
34 Value added (GDP) at market prices	140,182,820	103,571,893	175,648,233	347,644,592	11,820,326	44,233,110	96,778,955
35 Gross domestic outputs (producers' prices)	254,770,805	213,825,679	271,702,039	458,180,683	16,626,066	100,961,538	171,973,107

Notes: Compiled by the author using the official data.

Table 7 (Continued)

	21	22	23	24	25	26	27
	Sciences	Finance, credit, insurance and administrative	FISIM	Intermediate demand	Final household consumption	Government and non-profit organization consumption	Gross fixed capital formation
1 Electricity	1,378,975	9,420,233	0	126,648,793	2,832,256	0	0
2 Oil and gas	698,903	4,381,674	0	131,450,941	4,923,594	0	0
3 Coal	13,943	845,813	0	22,511,423	436,288	0	0
4 Other fuels	243	468	0	493,586	10,774	0	0
5 Ferrous metallurgy	249,683	7,453	0	71,663,887	67,542	0	0
6 Non-ferrous metallurgy	82,515	0	0	36,666,855	0	0	0
7 Chemical industry	1,039,157	1,678,105	0	69,411,928	9,147,867	13,063	0
8 Machine-building and metal-working	1,940,676	10,379,495	0	130,081,946	35,038,514	321,740	74,259,654
9 Wood and paper	150,042	1,421,696	0	35,123,396	8,421,493	0	1,438,518
10 Construction materials	98,707	83,298	0	56,620,665	2,990,426	0	0
11 Light industry	50,705	2,049,482	0	20,444,023	58,949,114	0	0
12 Food industry	70,191	6,948,902	0	90,273,688	161,808,670	0	0
13 Industry n.e.c.	147,737	2,744,848	0	25,052,863	3,278,179	145,165	4,267
14 Construction	433,368	3,477,843	0	816,443,994	287,904,717	547,776	75,702,439
15 Agriculture and forestry	44,067	1,832,300	0	25,376,841	4,126,809	0	243,971,098
16 Transport and communications	1,407,431	17,627,160	0	111,907,201	98,243,055	3,563,800	-13,201,888
17 Trade and restaurant	677,684	9,484,279	0	178,435,289	52,516,269	6,553	881,677
18 Other material production	183,606	2,991,233	0	134,413,338	202,615,452	13,041	7,391,626
19 Education, health, culture and arts	1,620,725	7,326,115	0	15,270,384	3,389,069	0	227,313
20 Housing and public utilities	23,283	412,831	0	37,706,390	41,467,057	22,346,030	0
21 Sciences	3,462,789	1,130,812	0	4,192,519	19,290,502	148,790,200	0
22 Finance, credit, insurance and administration	108,006	5,315,232	15,445,800	8,562,619	0	15,202,100	6,251,264
Adjustments:				-32,640,503	17,399,331	145,396,700	0
23 Direct purchase abroad by residents	0	0	0	0	53,181,090	0	0
24 Direct purchase in domestic markets by non-residents	0	0	0	0	-19,753,270	0	0
25 Intermediate input total	13,882,436	89,559,272	15,445,800	1,364,949,078	760,380,081	335,866,200	321,223,529
26 labor payments	9,823,500	69,107,300	0	535,804,401			
27 Gross profits	4,922,964	24,702,452	0	642,310,184			
28 Gross mixed income	0	6,887,986	0	190,994,565			
29 Net taxes on products	547,275	671,371	0	111,356,700			
30 Taxes on imports	0	0	0	9,074,300			
31 Other taxes on production	362,100	2,425,800	0	69,255,700			
32 Other subsidies on production	0	0	0	-2,372,597			
33 FISIM	0	0	-15,445,800	-15,445,800			
34 Value added (GDP) at market prices	15,655,839	103,794,909	-15,445,800	1,540,977,453			
35 Gross domestic outputs (producers' prices)	29,538,275	193,354,181	0	2,905,926,531			

Notes: Compiled by the author using the official data.

Table 7 (Continued)

	Increase in stocks	Net acquisition of precious metals	Exports	Difference on VAT	Imports	Final demand	Gross domestic uses
	28	29	30	31	32	33	34
1 Electricity	0	0	1,942,709	230,379	-24,410	4,980,934	131,629,727
2 Oil and gas	-2,516,405	0	63,897,787	2,659,383	-6,798,330	62,166,029	193,616,970
3 Coal	472,440	0	2,867,791	144,127	-1,517,994	2,402,652	24,914,075
4 Other fuels	12,742	0	18,133	24,309	-1,788	64,170	557,756
5 Ferrous metallurgy	451,226	0	37,204,604	1,048,572	-12,596,945	26,174,999	97,838,886
6 Non-ferrous metallurgy	1,071,774	2,488,897	43,580,383	997,834	-6,109,601	42,029,287	78,696,142
7 Chemical industry	3,447,518	0	30,921,743	-1,277,675	-22,935,439	19,317,077	88,729,005
8 Machine-building and metal-working	18,652,516	0	37,164,578	828,083	-89,758,990	76,506,095	206,588,041
9 Wood and paper	2,786,153	0	18,179,409	-471,236	-7,344,252	23,010,085	58,133,481
10 Construction materials	881,562	0	1,005,418	1,653,571	-4,798,706	1,732,271	58,352,936
11 Light industry	3,950,946	0	3,894,972	-2,626,827	-54,457,884	9,770,228	30,214,251
12 Food industry	14,225,162	0	10,861,833	-15,159,680	-65,526,328	106,217,558	196,491,246
13 Industry n.e.c.	1,258,841	2,738,430	1,551,059	-791,207	-4,005,955	4,178,779	29,231,642
"Industry," total	44,694,475	5,227,327	253,090,419	-12,740,367	-275,876,622	378,550,164	1,194,994,158
14 Construction	0	0	469,000	-11,568,665	-7,604,278	229,393,964	254,770,805
15 Agriculture and forestry	19,563,850	0	1,900,266	547,855	-8,698,460	101,918,478	213,825,679
16 Transport and communications	-945,731	80,239	52,763,228	2,271,911	-14,307,396	93,266,750	271,702,039
17 Trade and restaurant	-740,665	1,409,734	96,037,060	23,942,559	-6,901,462	323,767,345	458,180,683
18 Other material production	1,075,717	0	66,732	-361,555	-3,041,594	1,355,682	16,626,066
19 Education, health, culture and arts	0	0	175,925	-466,309	-267,555	63,255,148	100,961,538
20 Housing and public utilities	0	0	334,885	742,276	-1,377,275	167,780,588	171,973,107
21 Sciences	0	0	1,578,516	-979,731	-1,076,493	20,975,656	29,538,275
22 Finance, credit, insurance and administration	0	0	566,096	-1,387,974	-1,260,475	160,713,678	193,354,181
Adjustments:							
23 Direct purchase abroad by residents	0	0	0	0	-53,181,090	0	0
24 Direct purchase in domestic markets by non-residents	0	0	19,753,270	0	0	0	0
25 Intermediate input total	63,647,646	6,717,300	426,735,397	0	-373,592,700	1,540,977,453	2,905,926,531
26 labor payments							
27 Gross profits							
28 Gross mixed income							
29 Net taxes on products							
30 Taxes on imports							
31 Other taxes on production							
32 Other subsidies on production							
33 FISIM							
34 Value added (GDP) at market prices							
35 Gross domestic outputs (producers' prices)							

Notes: Compiled by the author using the official data.

3.2 The 2003 IOT/SUT based on the Old Classification

The benchmark 1995 IOT was followed by annual aggregated IOTs for 1996-2003. The last annual IOT system is the 2003 IOT/SUT (see appendix). How large is the oil and gas sector? This problem in 2003 can be shown by Table 8. When the value added data at basic prices is employed, Table 8 shows that the share of the oil and gas industry value added in the total value added accounts for only 8%. This is quite strange in comparison of data on exports of the oil and gas product. To resolve this problem, value added of the trade related to the oil and gas should be computed and this part of value added should be transferred to the oil and gas industry. Adding the transferred value added and the net taxes on the oil and gas product to the original value added of the industry (left-hand side column of Table 8) would yield the right-hand side column of Table 8. Namely, the GDP share of the oil and gas industry in 2003 amounts to 20% which sounds quite plausible. This change would lead to some modifications of annual IOT/SUT where some part of intermediate inputs and

Table 8 Industrial Structure of Russian GDP (CINE): 2003

		2003 (%)	
		Gross value added at basic prices official	GDP at market prices estimation
1	Electricity	2.9	2.8
	Oil and gas	7.7	19.8
2	Crude oil	5.9	10.0
3	Refined oil	0.9	4.7
4	Natural gas	0.9	5.1
5	Coal	0.4	0.4
6	Other fuels	0.01	0.01
7	Ferrous metallurgy	2.0	1.9
8	Non-Ferrous metallurgy	2.7	2.6
9	Chemicals	1.2	1.6
10	MBMW	4.2	5.0
11	Wood and paper	1.1	1.3
12	Construction materials	0.8	0.9
13	Light industry	0.4	0.8
14	Food industry	3.1	6.0
15	Other industry	0.6	0.7
	<i>Industry, total</i>	27.2	43.7
16	Construction	7.3	7.1
17	Agriculture and forestry	5.8	5.2
18	transport and communication	9.2	7.5
19	Trade and restaurant	30.6	19.5
20	Other material production	1.0	1.0
21	Housing and utilities	3.1	2.1
22	Health, sports, social security,	6.7	5.8
23	Science	1.5	1.4
24	Finance, insurance, management and social organizations	9.5	8.3
	FISIM	-1.8	-1.6
	Total	100.0	100.0

Source: Russian 2003 IOT and Rosstat-Kuboniwa estimation.

value added of the trade sector in the original IOT/SUT should also be transferred to the oil and gas industry.

3.3 The 2004 IOT/SUT based on the New Classification

The published version of the 2004 IOT system (RCEA; EACE rev.1) consists of only supply and use tables (SUT). Rosstat did not provide the symmetric 2004 IOT as was done for 1995-2003.

Tables 9 and 10 display the supply table and use table for 2004. Imbalances between demands and supplies given by two tables are shown in the use table. These statistical discrepancies lie in the very small range.

Rosstat did not meet any difficulty in compiling the supply table at basic prices. When they found some lacks in the data of distribution margins and net taxes on products of a similar product group, they employed the available margin (net tax)-supply ratios of a product in the 1995 benchmark IOT at basic prices in estimating the non-available data.

Rosstat did not face any problem in estimating all items of final demand and sectoral totals of intermediate demand for fully disaggregated 355 products. Household final consumption by product was estimated by using the household budget survey data. Gross fixed capital formation for machinery and equipments by sector was estimated through the commodity flow method.

Rosstat met serious difficulties in estimating the intermediate transaction matrix. Statistical reports from enterprises covered only 20% of all inputs. The commodity flow method and experts estimates based on the 1995 benchmark IOT were employed to estimate missing data on intermediate inputs. Surprisingly, Rosstat also made use of information through the internet sites of selected large scale enterprises.

Though only highly aggregated 2004 SUT at a preliminary stage were made public, we should not make light of the significance of the 2004 SUT based on the international standard classification of economic activities. These tables would provide the better database for a comparative analysis of input-output relations of Russian and European economies.

Let us here look at Table 11 which shows the Russian industrial structure of GDP in 2004 derived from the SUT and supplementary matrixes. The GDP share of the mining and quarrying sector including the oil and gas extraction was 12% while that of the trade was 18%. The GDP share of the oil and gas industry corresponding to Table 8 is estimated as about 20% in 2004-2006 by the Russian federal government. However, any accurate estimation of this figure has not yet been done.

Table 9 Supply Table of Russia, 2004

	01	02	03	04	05	06	07	08
	Agriculture, hunting and forestry	Fishing	Mining and quarrying	Manufacturing	Electricity, gas and water supply	Construction	Wholesale and retail trade	Hotels and restaurants
A Agriculture, hunting and forestry	01	1,459,582,639	288,523	511,350	5,579,082	596,347	1,849,498	69,516
B Fishing	02	177,222	97,324,163	519	9,351,210	2,654	11,889	6,751
C Mining and quarrying	03	174,622	0	2,052,279,020	19,644,438	9,493,010	7,890,411	4,801
D Manufacturing	04	88,822,649	11,856,227	163,432,576	7,840,582,708	38,458,168	128,343,929	998,771
E Electricity, gas and water supply	05	2,670,446	102,769	5,379,673	41,162,333	2,641,792	16,811,862	83,193
F Construction	06	1,590,247	10,846	37,982,171	31,641,859	1,683,155,993	5,005,740	28,643
G Wholesale and retail trade	07	9,239,123	338,273	11,700,871	207,814,447	5,919,484	4,308,765,596	2,541,249
H Hotels and restaurants	08	1,605,367	31,055	1,749,933	10,020,934	664,962	11,403,006	239,052,861
I Transportation and communication	09	4,168,592	456,350	11,662,957	15,368,395	19,147,537	47,508,430	585,983
J Financial intermediation	10	0	0	51,935	93,513	103,603	265,000	2,022
K Real estate, renting and business activities	11	1,686,927	389,306	15,971,777	16,997,771	25,149,838	144,251,002	2,105,648
L Public administration and defense; compulsory social security	12	0	0	0	0	0	0	0
M Education	13	35,361	3,125	109,848	599,806	43,145	33,164	17,106
N Health and social services	14	49,875	23	1,717,401	3,374,453	237,573	209,312	562,860
O Other communal, social and personal service activities	15	682,919	6,993	1,867,575	4,107,135	677,992	861,051	1,630,965
Direct purchases abroad by residents	16	0	0	0	0	0	0	0
CIF/FOB adjustment	17	0	0	0	0	0	0	0
Total industry output at basic prices	18	1,570,485,989	110,807,653	2,304,417,606	8,229,147,430	1,461,017,088	4,673,209,890	247,690,369

Sources : Annual Report on Russian SNA, 2007, Table 4.1.

Table 9 (Continued)

	09	10	11	12	13	14	15	16
	Transportation and communication	Financial intermediation	Real estate, renting and business activities	Public administration and defense; compulsory social security	Education	Health and social services	Other communal, social and personal services activities	Total product output at basic prices
A Agriculture, hunting and forestry	865,085	0	1,844,077	0	79,057	342,722	950,776	1,473,111,682
B Fishing	88,151	0	273,156	0	0	22	6,204	107,294,391
C Mining and quarrying	14,600,941	0	12,857,681	0	0	0	51,340	2,117,005,845
D Manufacturing	19,235,860	1,020	47,571,503	0	415,231	210,523	6,394,712	8,353,460,801
E Electricity, gas and water supply	8,400,050	0	42,070,754	0	16,807	458,144	3,635,319	1,500,317,091
F Construction	15,931,430	0	17,935,268	0	132,920	68,715	2,045,004	1,807,070,706
G Wholesale and retail trade	27,413,297	8,524	13,999,917	0	90,373	751,302	1,503,726	4,597,089,718
H Hotels and restaurants	5,158,167	0	2,516,004	0	367,165	955,917	1,682,554	276,213,485
I Transportation and communication	2,668,532,199	0	6,994,852	0	168,635	258,171	5,625,273	2,782,796,612
J Financial intermediation	12,416	694,293,541	353,397	0	3,242	9,966	328,320	695,538,849
K Real estate, renting and business activities	23,683,054	2,195,000	2,063,947,215	35,910,547	527,009	531,832	7,149,685	2,380,303,728
L Public administration and defense; compulsory social security	0	0	0	1,567,393,180	0	0	0	1,567,393,180
M Education	266,351	0	180,290	0	560,128,184	25,541	492,982	562,481,372
N Health and social services	2,084,856	0	912,177	0	14,335	787,269,992	131,498	796,700,841
O Other communal, social and personal service activities	3,720,985	0	10,693,581	0	47,526	317,260	459,156,471	520,578,803
Direct purchases abroad by residents	0	0	0	0	0	0	0	0
CIF/FOB adjustment	0	0	0	0	0	0	0	0
Total industry output at basic prices	2,789,992,842	696,498,085	2,222,149,872	1,683,303,727	561,990,484	791,200,107	489,153,864	29,537,357,104

Sources : Annual Report on Russian SNA, 2007, Table 4.1.

Table 9 (Continued)

	Imports	CIF/FOB adjustments	Total product supply at basic prices	Transportation margin	Trade margin	Net taxes on products	Total product supply at purchasers' prices
	17	18	19	20	21	22	23
A Agriculture, hunting and forestry	01 122,381,953	0	1,595,493,635	45,826,676	185,531,451	53,916,958	1,880,768,720
B Fishing	02 2,720,364	0	110,014,755	79,372	11,633,539	4,373,420	126,101,086
C Mining and quarrying	03 95,560,253	0	2,212,566,098	198,679,316	1,472,953,228	600,011,539	4,484,210,181
D Manufacturing	04 2,696,104,322	0	11,049,565,123	335,029,202	2,698,234,048	1,229,669,148	15,312,497,521
E Electricity, gas and water supply	05 11,777,544	0	1,512,094,635	17,642	0	2,338,786	1,514,451,063
F Construction	06 87,813,341	0	1,894,884,047	0	0	92,676,280	1,987,560,327
G Wholesale and retail trade	07 9,308,570	0	4,606,398,288	0	-4,368,362,773	15,400,660	253,436,175
H Hotels and restaurants	08 0	0	276,213,485	0	0	36,712,309	312,925,794
I Transportation and communication	09 128,832,715	-76,740,672	2,834,888,655	-579,632,208	0	91,176,032	2,346,432,479
J Financial intermediation	10 56,411,359	-3,031,336	748,918,872	0	0	-2,261,077	746,657,795
K Real estate, renting and business activities	11 168,268,620	0	2,548,572,348	0	0	33,127,671	2,581,700,019
L Public administration and defense; compulsory social security	12 0	0	1,567,393,180	0	0	0	1,567,393,180
M Education	13 1,344,547	0	563,825,919	0	0	37,194	563,863,113
N Health and social services	14 91,591	0	796,792,432	0	0	788,005	797,580,437
O Other communal, social and personal service activities	15 18,831,378	0	539,410,181	0	10,507	10,456,903	549,877,591
Direct purchases abroad by residents	16 454,188,941	0	454,188,941	0	0	0	454,188,941
CIF/FOB adjustment	17 -79,772,008	79,772,008	0	0	0	0	0
Total industry output at basic prices	18 3,773,863,490	0	33,311,220,594	0	0	2,168,423,828	35,479,644,422

Sources : Annual Report on Russian SNA, 2007, Table 4.1.

Table 10 Use Table of Russia, 2004

(in current prices, 1000 rubles)												
		A		B	C	D	E	F	G			
		Agriculture, hunting and forestry		Fishing	Mining and quarrying	Manufacturing	Electricity, gas and water supply	Construction	Wholesale and retail trade			
		01	02	03	04	05	06	07				
A	Agriculture, hunting and forestry	01	351,107,998	897,176	2,105	520,111,410	0	135,605	5,685,490			
B	Fishing	02	539,232	5,434,447	100,000	21,789,030	0	0	298,899			
C	Mining and quarrying	03	9,135,233	620,944	237,491,873	1,117,845,979	334,746,294	34,169,554	78,933,233			
D	Manufacturing	04	281,125,211	35,541,072	227,358,897	2,925,245,455	172,178,974	678,726,250	307,254,914			
E	Electricity, gas and water supply	05	35,824,176	1,205,178	106,677,286	376,298,868	269,293,535	26,695,677	40,606,077			
F	Construction	06	2,125,171	195,689	27,785,254	49,211,509	26,336,099	12,873,686	8,065,603			
G	Wholesale and retail trade	07	2,134,254	26,700	5,540,694	11,430,600	1,131,052	6,283,433	118,885,936			
H	Hotels and restaurants	08	130,959	25,789	665,837	2,565,379	453,399	1,338,858	1,400,221			
I	Transportation and communication	09	26,369,152	2,193,965	93,268,559	205,904,897	16,397,272	57,073,108	549,110,343			
J	Financial intermediation	10	7,485,425	437,093	17,149,180	62,024,232	12,425,189	10,292,338	22,143,822			
K	Real estate, renting and business activities	11	7,703,125	1,534,235	97,655,940	223,815,390	43,688,421	92,313,710	462,366,990			
L	Public administration and defense; compulsory social security	12	184,235	48,694	340,130	12,481,050	3,933,871	1,258,792	33,610,314			
M	Education	13	110,804	35,665	820,465	2,409,968	955,814	571,393	1,196,545			
N	Health and social services	14	2,363,341	41,041	430,924	1,175,085	383,724	287,276	501,345			
O	Other communal, social and personal service activities	15	545,691	29,573	791,421	11,151,879	14,141,498	1,166,267	2,938,089			
	Direct purchases abroad by residents	16	0	0	0	0	0	0	0			
	Direct domestic purchases by non-residents	17	0	0	0	0	0	0	0			
	Total intermediate inputs at purchasers' prices	18	726,884,007	48,267,261	816,078,565	5,543,460,731	896,065,142	923,185,947	1,632,997,821			
	Gross value added at basic prices	19	843,601,982	62,540,392	1,488,339,041	2,685,686,699	564,951,946	863,106,151	3,040,212,069			
	Total output at basic prices	20	1,570,485,989	110,807,653	2,304,417,606	8,229,147,430	1,461,017,088	1,786,292,098	4,673,209,890			

Sources : Annual Report on Russian SNA, 2007, Table 4.2.

Table 10 (Continued)

(in current prices, 1000 rubles)

	H	I	J	K	L	M	N
	Hotels and restaurants	Transportation and communication	Financial intermediation	Real estate, renting and business activities	Public administration and defense; compulsory social security	Education	Health and social services
	08	09	10	11	12	13	14
A Agriculture, hunting and forestry	13,245,513	0	0	1,003,110	22,281,921	8,305,340	14,180,274
B Fishing	1,871,419	0	0	117,475	1,890,178	866,247	2,231,604
C Mining and quarrying	382,825	67,862,268	191,000	26,120,796	21,343,032	4,594,238	7,425,093
D Manufacturing	62,195,249	479,598,951	8,129,164	242,664,232	290,185,337	60,315,280	188,445,311
E Electricity, gas and water supply	5,600,614	108,139,834	3,545,830	71,375,610	57,609,908	46,085,018	43,484,505
F Construction	2,676,564	53,466,519	2,406,459	45,394,308	40,875,800	6,082,215	7,035,660
G Wholesale and retail trade	528,652	19,616,085	757,236	10,237,688	3,032,651	380,486	1,611,672
H Hotels and restaurants	140,497	2,033,103	353,595	2,245,056	12,803,011	2,690,718	9,177,335
I Transportation and communication	2,972,814	208,676,938	1,990,773	50,477,281	130,901,178	5,694,067	20,032,054
J Financial intermediation	789,041	17,861,155	125,922,186	9,187,550	4,576,591	345,991	656,520
K Real estate, renting and business activities	14,429,652	208,500,969	39,012,208	291,321,488	167,260,186	14,276,412	8,341,125
L Public administration and defense; compulsory social security	56,885	2,600,861	171,094	3,449,162	186,316	293,733	794,860
M Education	58,332	1,923,431	958,292	2,418,089	200,724	4,330,514	523,059
N Health and social services	152,406	1,680,156	742,928	711,110	985,706	1,160,429	4,526,799
O Other communal, social and personal service activities	1,005,745	3,013,372	956,022	52,352,973	46,657,389	5,779,058	9,186,886
Direct purchases abroad by residents	0	0	0	0	0	0	0
Direct domestic purchases by non- residents	0	0	0	0	0	0	0
Total intermediate inputs at purchasers' prices	106,106,208	1,174,973,642	185,136,787	809,075,928	800,789,928	161,199,746	317,652,757
Gross value added at basic prices	141,584,161	1,615,019,200	511,361,298	1,413,073,944	802,513,799	400,790,738	473,547,350
Total output at basic prices	247,690,369	2,789,992,842	696,498,085	2,222,149,872	1,603,303,727	561,990,484	791,200,107

Sources : Annual Report on Russian SNA, 2007, Table 4.2.

Table 10 (Continued)

		Final consumption							
		Other communal, social and personal service activities		Total product output at basic prices	Intermediate demand	Household consumption	Government expenditures on individual goods and services	Government expenditures on collective services	Non-profit organization expenditures for household
		15	16	17	18	19	20	21	
A	Agriculture, hunting and forestry	01	3,913,493	0	940,869,435	772,915,660	369,900	29,485,700	57,014
B	Fishing	02	379,122	0	35,517,653	13,692,972	0	3,101,800	0
C	Mining and quarrying	03	4,280,934	0	1,945,143,296	14,940,364	1,479,800	0	0
D	Manufacturing	04	77,025,199	0	6,035,989,496	5,058,602,260	16,203,800	0	1,132,656
E	Electricity, gas and water supply	05	28,344,713	0	1,220,786,829	234,376,980	59,390,820	0	0
F	Construction	06	3,656,674	0	288,187,210	41,875,857	0	0	0
G	Wholesale and retail trade	07	2,387,033	0	183,984,172	68,877,126	231,600	0	0
H	Hotels and restaurants	08	278,209	0	36,301,966	268,555,584	1,317,300	0	7,394,604
I	Transportation and communication	09	20,146,939	0	1,391,209,340	690,610,120	34,242,000	0	0
J	Financial intermediation	10	1,327,215	307,147,400	599,770,928	132,059,000	0	0	0
K	Real estate, renting and business activities	11	38,903,403	0	1,711,123,254	478,861,677	20,005,600	56,630,600	0
L	Public administration and defense; compulsory social security	12	1,554,833	0	60,964,830	8,529,400	0	1,497,902,084	0
M	Education	13	383,294	0	16,896,389	100,067,278	437,456,800	0	8,102,395
N	Health and social services	14	2,220,970	0	17,363,240	147,412,400	599,339,200	0	32,164,965
O	Other communal, social and personal service activities	15	28,526,263	0	178,242,126	151,576,758	90,328,799	0	99,524,554
	Direct purchases abroad by residents	16	0	0	0	454,188,941	0	0	0
	Direct domestic purchases by non-residents	17	0	0	0	-152,898,720	0	0	0
	Total intermediate inputs at purchasers' prices	18	213,328,294	307,147,400	14,662,350,164	8,484,243,657	1,260,365,619	1,587,120,184	148,376,188
	Gross value added at basic prices	19	275,825,570	-307,147,400	14,875,006,940				
	Total output at basic prices	20	489,153,864	0	29,537,357,104				

Table 10 (Continued)

(in current prices, 1000 rubles)		Increase in stocks										Discrepancy							
		Gross fixed capital formation		Increase in stocks at producers		Increase in stocks at consumers		Increase in stocks at traders		Net acquisition of precious metals		Exports		Total demand at purchasers' prices		Discrepancy absolute values (demand - supply)		Discrepancy relative (%)	
		22	23	24	25	26	27	28	29	30									
A	Agriculture, hunting and forestry	01	-5,171,919	40,581,823	7,927,788	53,090	0	94,294,371	1,881,382,862	614,142	0								
B	Fishing	02	0	305,885	61,580	-2,492	0	73,428,413	126,105,811	4,725	0								
C	Mining and quarrying	03	93,336,428	16,336,182	-979,039	3,748,726	4,000,000	2,383,162,902	4,461,168,659	-23,041,522	-1								
D	Manufacturing	04	1,155,765,692	97,874,590	77,307,616	163,390,684	35,073,892	2,685,355,418	15,326,696,104	14,198,583	0								
E	Electricity, gas and water supply	05	0	1,303,694	13	0	0	14,828,272	1,530,686,608	16,235,545	1								
F	Construction	06	1,597,724,617	10,323,080	0	0	0	45,428,085	1,983,538,849	-4,021,478	-0								
G	Wholesale and retail trade	07	0	0	0	0	0	554,158	253,647,056	210,881	0								
H	Hotels and restaurants	08	0	0	0	0	0	0	313,569,454	643,660	0								
I	Transportation and communication	09	0	0	0	0	0	237,790,041	2,353,851,501	7,419,022	0								
J	Financial intermediation	10	0	0	0	0	0	14,737,100	746,567,028	-90,767	-0								
K	Real estate, renting and business activities	11	177,951,847	10,183,202	0	0	0	120,376,110	2,575,132,290	-6,567,729	-0								
L	Public administration and defense; compulsory social	12	0	0	0	0	0	0	1,567,396,314	3,134	0								
M	Education	13	0	0	0	0	0	1,287,264	563,810,126	-52,987	-0								
N	Health and social services	14	0	0	0	0	0	259,932	796,539,737	-1,040,700	-0								
O	Other communal, social and personal service activities	15	27,292,893	-54,622	0	0	0	8,225,647	555,136,155	5,258,564	-1								
	Direct purchases abroad by residents	16	0	0	0	0	0	0	454,188,941										
	Direct domestic purchases by non-residents	17	0	0	0	0	0	152,898,720	0										
	Total intermediate inputs at purchasers' prices	18	3,046,899,558	176,853,834	84,317,958	167,190,008	39,073,892	5,832,626,433	35,489,417,495	9,773,073	0								
	Gross value added at basic prices	19																	
	Total output at basic prices	20																	

Sources : Annual Report on Russian SNA, 2007, Table 4.2.

Table 11 Industrial Structure of GDP (RCEA; EACE rev.1) : 2004

(at current prices;%)		
2004		
	Value added at basic prices	GDP at market prices
1 Agriculture, hunting and forestry	5.7	5.3
2 Fishing	0.4	0.4
3 Mining and quarrying	10.0	12.3
4 Manufacturing	18.1	23.0
5 Electricity, gas and water supply	3.8	3.3
6 Construction	5.8	5.6
7 Wholesale and retail trade	20.4	17.9
8 Hotels and restaurants	1.0	1.0
9 Transportation and communication	10.9	10.0
10 Financial intermediation	3.4	3.0
11 Real estate, renting and business activities	9.5	8.5
12 Public administration and defense; compulsory social security	5.4	4.7
13 Education	2.7	2.4
14 Health and social services	3.2	2.8
15 Other communal, social and personal service	1.9	1.7
FISIM	-2.1	-1.8
Value added, total	at basic	100.0
prices		
GDP, total at market prices		100.0

Sources : Annual Report on Russian SNA, 2007, Tables 4.1,4.2.

4. Concluding Remarks

We reviewed the Soviet and Russian experiences of IOT for 80 years. Russian statistical authority made tremendous efforts to develop and improve IOT database at each stage. Although we respect these efforts, the published result was only 15-sector preliminary version. The 1995 benchmark IOT has been already obsolete. However, the Russian government with much budget surplus still hesitates to assign the budgetary funds for the new economic census and benchmark IOT which are essential in improving the quality and coverage of the present whole system of economic statistics. We hope that Rosstat will finalize their discussion with the ministry of finance about the new organization of economic census and benchmark IOT. There is no other way for further developments in Russian IOT and economic statistics in general.

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