

THE STRUCTURE OF RUSSIAN FOREIGN TRADE IN TRANSITION*

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Abstract

This paper intends to develop further an analysis of Russian external developments in transition. It first presents the macro and sectoral data of Russian foreign trade with third-party countries in terms of both USD-basis and ruble-basis foreign trade prices. Then, clarifying the key problems inherent in Russian foreign trade statistics, this paper shows the remarkable change in Russian dependence on foreign trade in 1992 and 1993. It also observes the foreign trade data in relation with the national income and product accounts (NIPA), and input-output accounts. Lastly, this paper presents a Leontief's "skyline" chart analysis of Russian foreign trade, using Russian and Ukrainian input-output tables, in order to develop a comparative analysis of the Russian economy.

I. *Introduction*

More than two years have passed since Russia began to challenge marketization in the move toward capitalism after the collapse of the Soviet Union at the end of 1991. For the years 1992–1993 the economic situation in Russia has been very difficult, due to the intrinsic problems arising in the reconstruction of the State itself as well as the usual difficulties associated with the process of the transition to a market economy in general.

The collapse of the centralized Soviet system and the ongoing privatization should be welcomed in principle. However, they have brought about serious drawbacks to the Russian statistical system, owing to the collapse of centralized data collection and to the continued macroeconomic imbalances, including inflation and devaluation. The required changes in the methodology from MPS (System of Balances of Material Products) to SNA (System of National Accounts) and in the taxation and exchange system have doubled the difficulties of the statistical system, although they are necessary for a well-organized market economy. For instance, the 1992 official GDP (Gross Domestic Product), the key economic indicator, of the Goskomstat RF (the State Statistical Commission of the Russian Federation) was

* An earlier version of this paper was read at the Workshop on International Trade Issues of the Russian Federation in Laxenburg/Austria on 5–7 May 1994, held by International Institute for Applied Systems Analysis (IIASA). The author is grateful to the staffs of IIASA, the Russian Statistical Commission (Goskomstat RF) and the Center of Economic Analysis of the Russian Government for their helpful cooperation. He also thanks Mr. Ronald Siani for his English editing. The work for this paper was supported by the grants of the Matsushita International Foundation, the Japan Foundation and the Ministry of Education of Japan.

revised two times in a jump-and-drop manner in 1993: the first figure, 15 trillion rubles; the second, 20 trillion rubles (a 33% increase); the final one, 18.1 trillion rubles (a 10% decline). This is mainly due to the treatment of "increase in stocks (inventories)" under a hyperinflationary situation. Starting with the data for 1993, non-registered retail sales were added to the official figure of registered retail turnover. This reflects an aspect of the liberalization of business activities. Although statistical difficulties can be seen in almost all the items, it can be said that the most outstanding is the statistics of Russian foreign trade, which is the main concern of this paper. While the difficulties of Russian statistics after the collapse of the Soviet Union are emphasized in this paper, this does not imply that the traditional Soviet statistics, including national income and foreign trade, were much more accurate than the present Russian statistics. However, here we confine ourselves to an analysis of the latter.

This paper intends to develop further an analysis of the structure of Russian foreign trade in the initial stages of the transition to an open market economy, clarifying the key problems inherent in the foreign trade statistics in the framework of national accounts. It first presents and investigates the macro data of the Russian foreign trade with third-party countries in terms of both USD-basis and ruble-basis foreign trade prices, which are near world market prices. Then, pointing out considerably different results from different data in 1991, this paper clarifies the remarkable change in Russian dependence on foreign trade in 1992 and 1993. Secondly, this paper observes the foreign trade data in relation with the national income and product accounts (NIPA), and input-output accounts. Thirdly, this paper considers the differences between two preliminary, but essential, foreign trade data by sector for the year 1992, which were compiled by two departments of the Goskomstat RF in February-April 1994. It should be noted that the official data for 1992 still remain preliminary as of May of 1994 and will continue to be preliminary for a while. Lastly, this paper presents a Leontief's "skyline" chart analysis of Russian foreign trade and industrial structures, using Russian and Ukrainian input-output tables for 1991-1992, in order to develop a comparative analysis of the Russian economy.

II. *Key Problems Inherent in Statistics of Russian Foreign Trade with Third-Party Countries*

Table 1 shows a collection of macro data of Russian foreign trade with third-party countries for the years 1989-1993. Exports and imports are evaluated at foreign trade prices, distinguished from domestic prices.

As can be seen, the annual data of USD-basis exports and imports are linked with ruble-basis (R-basis) data via the uniform, average annual exchange rate (ruble/USD). As is well known, until 1991 R-basis data were the official foreign trade data in the annual *Statistical Yearbook (Narkhoz)* of the Goskomstat. Starting with 1992, USD-basis data became the main official data of foreign trade data except that the Russian Statistical Yearbook for 1991, compiled and published in 1992, displayed R-basis data as the official data. The Goskomstat RF converted the R-basis data (up to 1991) in terms of foreign trade prices (*valiuta* rubles), which reflect the official exchange rates in effect in each transaction made (except for the transactions in 1991), to U.S. dollars by applying the average annual exchange

TABLE 1. RUSSIAN FOREIGN TRADE WITH THIRD-PARTY COUNTRIES, 1989-1993

	1989			1990			1991			1992			1993		
	1	2	3	4	5	6	7	8	9	10	11	12			
USD-basis	(at current foreign trade prices; billions of USD)														
Exports	74.4	71.1	50.9	(36.8)	38.1	40.0	42.4	(46.3)	43.0	43.0	(43.7)	43.7			
Imports	78.0	81.8	44.5	(25.6)	35.0	37.0	(37.0)	27.0	29.2	(29.1)	33.0	33.0			
Net exports	-3.3	-10.6	6.4	(11.2)	3.1	5.0	5.4	(8.7)	16.0	13.8	(13.2)	10.7			
Exchange rates	0.631	0.585	0.581	(1.746)	193	(193)	(193)	(193)	(932)	(932)	(932)	(932)			
Ruble-basis	(at current foreign trade prices; billions of rubles)														
Exports	47.1	41.6	29.6	64.2	7,353	(7,714)	(8,178)	8,939	(40,076)	(40,076)	40,687	(40,739)			
Imports	49.2	47.8	25.8	44.7	6,755	(6,755)	(7,141)	7,140	(25,164)	(27,214)	27,115	(30,718)			
Net exports	-2.1	-6.2	3.7	19.5	598	(959)	(1,037)	1,799	(14,912)	(12,862)	13,562	(9,972)			

Sources: Goskomstat RF except for the author's estimates in parentheses.

Notes: Columns 1, 7, 9 and 10 (USD-basis): *Annual Report of Goskomstat RF for 1993*, p. 87.

In column 10 imports include humanitarian and technical aid, 2.2 billion USD.

Columns 2, 3 and 6 (USD-basis): *Russian Statistical Yearbook for 1992*, p. 50.

For column 6, see also *Russian Statistical Yearbook of Foreign Trade for 1992*.

Columns 1 to 3 (ruble-basis): *Russian Statistical Yearbook for 1991*, p. 48.

Column 4: Ruble-basis data were the first official data for 1991 at the commercial exchange rate that is assumed to be 1.746 ruble per USD.

Column 5: USD-basis data were derived from ruble-based data and the exchange rate.

Column 6 to 8: Values in parentheses were computed by ruble-basis, or USD-basis, data officially given and the exchange rate for column 5.

Column 9 to 12: Values in parentheses were computed by ruble-basis, or USD-basis, data and the yearly averaged exchange rate which was given by Goskomstat RF, *Monthly Report for Jan.-March, 1994*, p. 52.

Current USD-basis official data are given by columns 1, 2, 3, 7 and 9.

(For the years 1992-1993 columns 6 and 12 also provide official data.)

Column 8 (ruble-basis): Data compiled by Goskomstat RF on March 31, 1994, which exclude exports and imports of services.

Column 11 (ruble-basis): data given in the Goskomstat preliminary SNA (March, 1994).

Column 12 (USD-basis): data given in *the 1993 Balance of Payments by the Goskomstat RF and the Central Bank of Russia*.

Columns 6 to 8: Values in parentheses were computed by ruble-basis, or USD-basis, data officially given and the exchange rate for column 5.

Columns 9 to 12: Values in parentheses were computed by ruble-basis, or USD-basis, data and the yearly averaged exchange rate which was given by Goskomstat RF, *Monthly Report for Jan.-March, 1994*, p. 52.

Current USD-basis official data are given by columns 1, 2, 3, 7 and 9.

(For the years 1992-1993 columns 6 and 12 also provide official data.)

rate. Thus columns 1 to 3 (USD-basis) were obtained and made public as a part of the time-series.

When the Goskomstat RF first published the official (preliminary) data (USD-basis) for 1992 at the beginning of 1993, it also made the R-basis data (column 5 in Table 1) public by applying the (implicit) average exchange rate, 193 rubles/USD. This average exchange rate is different from the average market exchange rate of MICE, 265 rubles/USD, for 1992 because the Goskomstat RF took into consideration the special commercial rate (55 rubles/USD) which was in effect during the first half of 1992. The USD-basis data (column 6 in Table 1) are the revised official data. Although the Goskomstat RF further revised the USD-basis data (column 7 in Table 1), USD-basis data of column 6 still remains as the official data of the foreign trade department of the Goskomstat RF. (This will be discussed later again in regard with Table 4.) The further revised value of exports, 42.4 billion USD, is equal to that given by the preliminary balance of payments for 1992 (*Economy and Life*, No. 18, 1993, p. 5) while the sources of the difference for imports between the further revised value, 37.0 billion USD, and the value, 35.0 billion USD, of column 6, which seems to be equal to the value of the unrequited transfers (humanitarian and technical aid), are not clarified. According to a preliminary version of the Russian balance of payments for 1993, the difference for imports between the value, 29.2 billion USD, of column 10, and the value, 27.0 billion USD, of column 9 is equal to the amount of humanitarian and technical aid, 2.2 billion USD. However, according to the revised balance of payments for 1993, the value of imports in 1993, including humanitarian and technical aid (1 billion USD), amounts to 27.0 (exactly 26.959) billion USD. So it can be said that lack of clarity regarding the inclusion of the unrequited transfers into imports presents a problem for the Russian import data of 1992 and 1993.

After having published column 5 in Table 1, the Goskomstat RF ceased to make public R-basis data which are clearly linked with USD-basis data. On the other hand, one department of the Goskomstat RF, which has responsibility for national accounts and input-output accounts, has compiled R-basis data by sector for foreign trade using enterprises' reports. A preliminary result for 1992, which was obtained in the spring of 1994, is shown as column 8 in Table 1. The exports are on an f.o.b. basis while imports are on a c.i.f. basis. Generally speaking, the Goskomstat RF has no choice but to employ R-basis data in the national accounts. R-basis data of column 11 in Table 1 are also official data that the Goskomstat RF employed in the national accounts for 1993.

Let us convert R-basis data to USD-basis data by applying some unique, average annual exchange rate for both the export and import figures as was performed in columns 1 to 5 of Table 1. If the proportion between R-basis exports and imports is not equal to that between the official USD-basis exports and imports, the USD-basis data estimated can not be equal to the official data. When we compute USD-basis foreign trade, using the R-basis data of column 8 and the preliminary average exchange rate (193 rubles/USD), exports and imports amount to 46.3 and 37.0 billion USD, respectively. The computed value of exports is much larger than the value of the official data, 42.4 billion USD while the computed value of imports is close to the official one.

Let us next convert the R-basis data of column 11 to USD-basis for 1993 by employing the official average exchange rate (932 rubles/USD). Then, exports and imports amount to 43.7 billion USD and 29.1 billion USD, respectively. The computed value of exports

is equal to the revised official value of column 12 while the computed value of imports is close to the preliminary data of column 10. Thus a full consistent treatment of foreign trade data still remains unsolved.

The foreign trade data for 1991 is very controversial because the Goskomstat RF itself published two official R-basis data, which are not correlated to each other. One is shown by the R-basis data of column 3 in Table 1, based on the traditional official exchange rate (1 USD=0.6 Rbl.), which was already replaced by the commercial rates (1 USD=1.75 Rbl.) in the calculations of trade turnover in 1991 and was formally abolished at the end of 1991. Another is shown by R-basis data of column 4, based on the commercial rates. While the Goskomstat RF employs the data, based on the traditional official rate, in converting R-basis to USD-basis data, it retains and uses the data, based on the commercial rate, as the data at current prices.

Two authoritative organizations such as the CIS Goskomstat and the center of economic analysis (CEA) of the Russian government converted R-basis data at the commercial rates to USD-basis data by applying the average annual commercial rate. Their results are similar to the USD-data of column 4 in Table 1 and remarkably different from the data based on the traditional exchange rate. In particular, the CEA publicly criticized the methodology of the Goskomstat RF in its periodical report (*Russia-1993*, No. 1, 1993, p. 235) by making full use of foreign trade data. It is not known how the Goskomstat RF responded to this criticism. However, it is obvious that the Goskomstat RF has retained its first USD-basis data for 1991 even after former executives of the CEA, Yu. Yurkov and V. Sokolin were appointed the new chairman and vice chairman of the Goskomstat RF, respectively, at the end of 1993.

The official USD-basis data for 1993 were already revised three times. The second version is shown by column 9 and the third version by column 12 in Table 1. The frequent revision was caused by nonregistered trade activities. The difference for imports between column 9 and column 12, 6.0 billion USD, is due to the inclusion of nonregistered activities into imports.

Here, it is worth making general remarks on the Russian foreign trade statistics.

First, customs clearance basis data of foreign trade in Russia has not existed. Foreign trade data have been based on transaction records reported by enterprises. Until 1990 enterprises sent the records at domestic ruble prices to the state foreign trade organizations. Starting with 1991, they had to send the records converted by the CB (central bank) official rates. Owing to the collapse of the centralized system, the failure of customs clearance basis data collection, remarkable changes in the exchange rate and so on, the Goskomstat RF is now facing serious difficulties in compiling consistent and reliable foreign trade data.

At the beginning of June 1994 the Russian Customs Commission provided a new figure of imports for the first quarter of 1994, 6.6 billion USD, which is much larger than the official data of the Goskomstat RF, 3.9 billion USD. While whether the Customs Commission has provided a proper set of customs clearance basis data it is not known, its figure seems to be more plausible than that of the Goskomstat RF. At any rate, in the near future the Customs Commission data should constitute the base figure of Russian foreign trade.

[After the summer of 1994 when the manuscript of this paper was submitted to the editors, the Goskomstat RF began to claim that they have employed the customs clearance basis

data of imports as the official data.]

Secondly, before 1992 Russian foreign trade data did not exist. Hence, all Russian foreign trade data for the Soviet era, including columns 1 to 4 in Table 1, are more or less hypothetical.

Thirdly, in the traditional Soviet data of foreign trade, both exports and imports are on an f.o.b. basis. It can be said that exports in Table 1 are on an f.o.b. basis. However, it is not well known whether imports are on an f.o.b. or a c.i.f. basis. The compiler of the R-basis imports of column 8 in Table 1 claims that they are on a c.i.f. basis. And according to *the Russian Statistical Yearbook of Foreign Trade for 1992*, compiled by the Goskomstat RF and the Ministry of Foreign Economic Relations of the Russian Federation, the USD-basis imports of column 6 in Table 1 are on a c.i.f. basis. However, this can not be confirmed by the data of the balance of payments for 1992. It should be noted that in the developed countries imports in the balance of payments are on an f.o.b. basis while imports in the trade statistics are on a c.i.f. basis.

III. Basic Analysis of Changes in Russian Foreign Trade

Table 2 shows annual growth rates in Russian foreign trade with third-party countries for the years 1991–1993 by using two time series of USD-basis data at current prices. While exports and imports based on the official statistics show a 17% decrease in 1992, exports and imports based on the CEA show a 3% increase and a 34% increase respectively. The trade surplus based on the CEA shows a greater decrease than that based on the official statistics in 1992 because in the case of the CEA data the increase in the import figure is much larger than that in the export figure. On the other hand, in 1991 exports and imports based on the CEA data show a marked decline; exports are half the level of 1990 and imports show a 70% decline. So long as we observe the Russian performance of foreign trade for 1991 and 1992, the CEA's assertion seems to be plausible. However, the 70% decline in the import figure in 1991 is questionable even if we take the collapse of the CMEA trade

TABLE 2. ANNUAL GROWTH RATES IN RUSSIAN FOREIGN TRADE WITH THIRD-PARTY COUNTRIES, 1991–1993

(In percent)

	1991	1992	1993		1991	1992
			a	b		
			Goskomstat RF		CEA	
Exports	-28.4	-16.7	1.4	3.1	-45.4	2.9
Imports	-45.6	-16.8	-27.0	-10.8	-68.0	33.9
Net exports	160.7	-16.1	196.3	99.1	219.9	-60.8

Notes: CEA=Center of Economic Analysis (*Tsentr Ekonomicheskoi Kon' iunkтуры*), Russian Government.

Case of the Goskomstat RF: Computed by using Table 1 (USD-based: columns 2, 3, 7, 9 [for the case a] and 11 [for the case b]). Case of the CEA: Exports and imports in 1991 are respectively 38.8 and 26.1 billion USD (CEA, *Russia—1993*, No. 3, 1993, p. 265). Data for the other years are columns 2 and 6 (USD-basis) in Table 1.

TABLE 3. RUSSIAN DEPENDENCE ON FOREIGN TRADE WITH
THIRD-PARTY COUNTRIES, 1989-1993

	1989	1990	1991	1992	1993
	(In percent)				
	Share of foreign trade in GDP				
Turnovers	16.8	13.9	8.4	84.8	42.0
Exports	8.2	6.5	4.9	45.3	25.2
Imports	8.6	7.4	3.4	39.5	16.8
Net exports	-0.4	-1.0	1.5	5.8	8.4

Notes: Based on Table 1 (ruble-basis: columns 1, 2, 4, 7 and 10) and the GDP data of the Goskomstat RF.

system into consideration.

It should be noted that the data of the Goskomstat for the years other than 1991 are the same as the CEA's. As is shown in Table 2, the export figure shows a slight increase in 1993 while the import figure shows a remarkable decrease, owing to the marked reduction of centralized imports. Although the reduction of centralized imports in 1993 may be true, whether the total imports in 1992 fell sharply as the official statistics shows is debatable, due to the large scale of informal foreign trade activities, including the so called 'shuttle' trade.

Table 3 shows the Russian dependence on foreign trade with third-party countries in terms of shares of turnover, exports and imports in GDP, employing R-basis data. It should be noted that in the discussion of the dependence on foreign trade there does not exist any essential difference between the Gosmostat RF and the CEA. As can be seen, the rates of Russian dependence on foreign trade show a sharp increase in 1992, due to the sharp depreciation of the nominal and effective value of the ruble; the nominal rate of depreciation was ten times the rate of the general price increase. In fact, the turnover of foreign trade is close to the value of GDP in 1992. In 1993 the rate of dependence on foreign trade became half that in 1992, thanks to the increase in the real effective value of the ruble. Nevertheless, the rates of dependence in 1993 shows a much higher value than the rates before 1991; more than two times the rates in 1989 and 1990.

IV. Foreign Trade by Commodity Group

Table 4 shows preliminary USD-basis data of Russian foreign trade by commodity group, or "pure" sector for 1992, compiled by the foreign trade department of the Goskomstat RF. The data are rather consistent with several previous reports of the Goskomstat RF on foreign trade for 1992 although the total of exports and the total of imports are different from the most updated official data. We may regard Table 4 as the official data of foreign trade by sector for 1992 at foreign trade prices, or roughly at world prices.

Table 5 displays preliminary R-basis data of Russian foreign trade by commodity group, which the national accounts department of the Goskomstat RF just recently compiled in order to complete their own time series of foreign trade by sector and to establish the 1992 input-output table. Starting with 1992, this department computes export and import data at foreign trade rubles which are converted from USD-basis data by applying the CBR

TABLE 4. RUSSIAN FOREIGN TRADE WITH THIRD-PARTY COUNTRIES (USD-BASIS)

	Exports	Imports	Net Exports	Exports	Imports
	(In millions of USD)			(In percent)	
1 Electric power	109	5	104	0.3	0.0
2 Oil and gas	20,330	346	19,984	50.9	1.0
Crude oil	8,545	0	8,545	21.4	0.0
Oil product	4,306	326	3,980	10.8	0.9
Gas	7,479	20	7,459	18.7	0.1
3 Coal	794	0	794	2.0	0.0
4 Other fuels	31	1	30	0.1	0.0
5 Ferrous metallurgy	2,295	1,046	1,249	5.7	3.0
6 Non-ferrous metallurgy	3,816	460	3,356	9.5	1.3
7 Chemicals	2,598	3,531	-933	6.5	10.1
8 MBMW	5,975	14,310	-8,335	15.0	40.9
9 Wood and paper	1,405	424	981	3.5	1.2
10 Building materials	81	185	-104	0.2	0.5
11 Light industry	228	4,094	-3,866	0.6	11.7
12 Food industry	1,000	4,738	-3,729	2.5	13.5
13 Industry n.e.c.	940	451	489	2.4	1.3
Industry, total	39,611	29,591	10,020	99.1	84.6
14 Agriculture	141	4,573	-4,432	0.4	13.1
15 Others	213	817	-604	0.5	2.3
Total	39,965	34,981	4,984	100.0	100.0

Sources: Preliminary data, Foreign Trade Department of Goskomstat RF, February 1994.

Notes: This table shows foreign trade by commodity group, based on Russian I-O accounts.

MBMW=Machine-Building and Metal-Working.

exchange rates. [Table 5 constitutes one part of Russian total exports and imports (R-basis) shown by Table A.1 in the appendix.]

Hence, in principle, Table 4 and Table 5 should show a similar structure of foreign trade for 1992. However, this is not true for Tables 4 and 5. The oil and gas sector shows a 50.9% share in exports in Table 4 while it shows a much lower share, 31.6%, in Table 5. Conversely, the ferrous metallurgy, the nonferrous metallurgy and the chemical industry sectors show much higher shares in exports in Table 5; 14.2%, 15.6% and 10.3% respectively while 5.7%, 9.5% and 6.5% respectively in Table 4. It should be noted that the MBMW (machine building and metalworking) sector shows the same share, in exports, 15.0% in Tables 4 and 5. Total industry also shows the same share in exports, 99.1% in the two tables. Some may wonder if Table 5 shows the structure of foreign trade by sector at *domestic prices*, as distinguished from foreign trade prices. However, this can not be verified because official foreign trade data at domestic prices are not available for 1992 and 1993. Thus, we have no choice but to expect better coordination between the two departments of the Goskomstat RF, although it would be a very time-consuming process.

Table 6 shows Russian trade with third-party countries by commodity group both at domestic and foreign trade prices for the years 1988-1992. It should be noted that trade with third-party countries has actually been carried out at foreign trade (contract) prices between Russian trade organizations and third-party countries while at domestic prices between domestic producers and trade organizations. It should also be noted that until

TABLE 5. RUSSIAN FOREIGN TRADE WITH THIRD-PARTY COUNTRIES IN
TERMS OF CURRENT RUBLE PRICES, 1992

	(at current prices)				
	Exports (f.o.b.)	Imports (c.i.f.)	Net exports	Exports (f.o.b.)	Imports (c.i.f.)
	(In millions of rubles)			(In percent)	
Material products:					
1 Electric power	20,982	1	20,981	0.2	0.0
2 Oil and gas	2,826,527	135,874	2,690,653	31.6	1.9
3 Coal	193,046	984	192,062	2.2	0.0
4 Other fuels	6	297	-291	0.0	0.0
5 Ferrous metallurgy	1,272,342	607,501	664,841	14.2	8.5
6 Non-ferrous metallurgy	1,395,800	31,503	1,364,297	15.6	0.4
7 Chemicals	921,358	788,339	133,019	10.3	11.0
8 MBMW	1,342,829	2,404,244	-1,061,415	15.0	33.7
9 Wood and paper	393,835	110,546	283,289	4.4	1.5
10 Building materials	21,859	138,409	-116,550	0.2	1.9
11 Light industry	62,946	959,364	-896,418	0.7	13.4
12 Food industry	379,850	1,172,857	-793,007	4.2	16.4
13 Industry n.e.c.	27,025	12,540	14,485	0.3	0.2
Industry, total	8,858,405	6,362,459	2,495,946	99.1	89.1
14 Agriculture	23,079	777,813	-754,734	0.3	10.9
15 Others	57,233	8	57,225	0.6	0.0
Material products, total	8,938,717	7,140,280	1,798,437	100.0	100.0
Services:					
16 Industry	19,212	92,156	-72,944	2.5	10.2
17 Construction	7,380	2,320	5,060	0.9	0.3
18 Agriculture and fishery	519	106	413	0.1	0.0
19 Trade and restaurant	22,199	33,495	-11,296	2.8	3.7
20 Technical supply	486	192	294	0.1	0.0
21 Procurement	4	0	4	0.0	0.0
22 Transport and communication	711,283	767,377	-56,094	91.2	84.7
23 Information processing	103	69	34	0.0	0.0
24 Other material products	186	202	-16	0.0	0.0
25 Education, health and culture	15,453	8,308	7,145	2.0	0.9
26 Daily life services	916	169	747	0.1	0.0
27 Administration and finance	167	65	102	0.0	0.0
28 Sciences	1,920	1,919	1	0.2	0.2
29 Social organization	6	2	4	0.0	0.0
Services, total	779,834	906,380	-126,546	100.0	100.0
Total (including services)	9,718,551	8,046,660	1,671,891		
Material products	8,938,717	7,140,280	1,798,437	92.0	88.7
Services	779,834	906,380	-126,546	8.0	11.3
Total (including services)	9,718,551	8,046,660	1,671,891	100.0	100.0

Source: Preliminary data compiled by Goskomstat RF, April, 1994.

Notes: This table shows foreign trade by commodity group, based on Russian I-O accounts. Total material imports include freight 218,266.7 million rubles and insurance 145,511.1 million rubles, the sum of which amounts to 363,777.8 million rubles.

1991 the taxes (duties) and subsidies for foreign trade have been conceptualized implicitly as the differences between foreign trade prices and domestic prices. Starting with 1992, the concept of taxes and duties on foreign trade was utilized explicitly in trade practices

TABLE 6. THE STRUCTURE OF RUSSIAN TRADE WITH THIRD-PARTY COUNTRIES, 1988-92

(In percent)

	1988	1989	1990	1991	1992	1988	1989	1990	1991	1992
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Exports at foreign trade prices					Imports at foreign trade prices				
1 Electric power	0.3	0.3	0.4	(0.5)	0.3	0.0	0.0	0.0	(0.0)	0.0
2 Oil and gas	45.7	41.4	47.5	(48.0)	50.9	3.9	2.0	1.3	(0.4)	1.0
3 Coal	1.2	1.2	0.9	(1.8)	2.0	0.9	0.5	0.5	(0.0)	0.0
4 Other fuels	0.0	0.0	0.0	(0.0)	0.1	0.0	0.0	0.0	(0.0)	0.0
5 Ferrous metal	3.3	3.3	3.6	(4.8)	5.7	6.4	5.5	4.3	(2.9)	3.0
6 Nonferrous metal	4.8	5.7	6.9	(7.8)	9.5	2.6	3.3	3.0	(2.1)	1.3
7 Chemicals	4.4	3.4	3.5	(6.3)	6.5	8.4	8.9	9.2	(9.6)	10.1
8 MBMW	31.5	35.7	28.4	(18.5)	15.0	49.6	51.9	52.2	(41.3)	40.9
9 Wood and paper	4.6	4.6	4.4	(3.9)	3.5	1.9	2.1	1.9	(1.6)	1.2
10 Building mat.	0.3	0.3	0.4	(0.4)	0.2	0.7	0.7	0.7	(0.6)	0.5
11 Light industry	1.1	0.7	0.9	(0.8)	0.6	7.7	8.0	9.1	(10.4)	11.7
12 Food industry	1.0	1.1	1.4	(2.2)	2.5	8.9	10.1	10.1	(11.8)	13.5
13 Industry n.e.c.	0.9	0.5	0.5	(2.1)	2.4	1.1	0.0	1.0	(1.1)	1.3
Industry	99.0	98.2	98.6	(97.2)	99.1	92.1	94.0	93.3	(81.9)	84.6
14 Agriculture	0.3	0.1	0.2	(0.3)	0.4	5.7	5.4	6.1	(12.9)	13.1
15 Others	0.7	1.7	1.2	(2.5)	0.5	2.2	0.6	0.5	(5.2)	2.3
Total	100.0	100.0	100.0	(100.0)	100.0	100.0	100.0	100.0	(100.0)	100.0
	Exports at domestic prices					Imports at domestic prices				
	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
1 Electric power	0.3	0.3	0.4	0.4	—	0.0	0.0	0.0	0.0	—
2 Oil and gas	28.4	25.5	25.3	24.9	—	1.2	0.7	0.6	0.1	—
3 Coal	2.1	2.0	1.5	1.3	—	0.4	0.2	0.2	0.0	—
4 Other fuels	0.0	0.0	0.0	0.0	—	0.0	0.0	0.0	0.0	—
5 Ferrous metal	4.5	4.3	4.5	4.7	—	3.7	2.8	2.0	1.4	—
6 Nonferrous metal	4.8	5.6	6.3	6.0	—	1.9	2.2	1.7	0.5	—
7 Chemicals	8.5	7.0	6.4	6.6	—	8.2	8.4	7.8	4.7	—
8 MBMW	28.8	33.7	33.4	39.1	—	36.7	36.9	38.0	25.5	—
9 Wood and paper	9.2	11.0	9.2	5.8	—	2.0	2.1	1.8	0.9	—
10 Building mat.	0.5	0.5	0.6	0.5	—	0.9	0.9	0.8	1.2	—
11 Light industry	4.4	2.6	3.4	2.8	—	20.7	21.6	23.3	24.9	—
12 Food industry	3.4	3.7	4.9	4.9	—	12.8	14.9	14.2	28.5	—
13 Industry n.e.c.	1.4	0.8	0.9	1.2	—	1.3	1.1	2.0	2.2	—
Industry	96.3	96.9	96.8	98.3	—	89.9	91.6	92.5	89.8	—
14 Agriculture	0.9	0.9	1.2	0.6	—	8.4	7.9	7.1	10.1	—
15 Others	2.8	2.2	1.9	1.1	—	1.8	0.4	0.4	0.1	—
Total	100.0	100.0	100.0	100.0	—	100.0	100.0	100.0	100.0	—

Sources: Goskomstat RF, IMF, World Bank and the author's estimates.

Notes: 1. For the years from 1988 to 1990, see Kuboniwa (1993, p. 166, Table 9).

Data in this table were compiled based on Russian activity-base I-O accounts.

2. Columns (4) and (9): Preliminary estimates using data at foreign trade prices in *Russian Statistical Yearbook for 1991* and CEA's *Russia—1993*, No. 1, 1993.

Columns (5) and (10): Table 4.

Columns (14) and (19): *Russian Statistical Yearbook for 1992*, pp. 38-39.

Columns (15) and (20): Official data does not exist.

with third-party countries.

As can be seen from Table 6, the foreign trade structure of the Russian economy changes remarkably when domestic prices are converted to foreign trade prices. This is due to the remarkable differences between the domestic and foreign trade prices of commodities, including oil and gas. According to the author's estimate, in 1990 the domestic price of oil and gas was 35% of the foreign trade price. At the end of 1992 the domestic prices of oil products became 26–28% of the world prices in spite of the marked increase in the domestic prices, owing to the remarkable decrease in the real effective exchange rate, while at the end of 1993 they became 52–58% of the foreign trade prices, due to the increase in the real effective exchange rate and the decrease in world prices. [According to the Goskomstat RF (USD-basis figures: the author's estimates), the domestic prices of gasoline and diesel fuel per ton were 18,600 rubles (44.8 USD) and 15,700 rubles (37.6 USD) respectively at the end of 1992 and 103,000 rubles (83.1 USD) and 92,000 rubles (74.2 USD) respectively at the end of 1993.] Thus the remarkable differences between the domestic and foreign trade prices still exist, although the Goskomstat RF ceased to compile foreign trade data at domestic prices.

One of the outstanding features of changes in the structure of Russian foreign trade, shown in Table 6, is the drastic decline in the export share of the MBMW sector product in 1991 and 1992, which became half the average share for 1988–1990. This is mainly due to the collapse of CMEA trade. To what extent did the reduction in exports of weapons consolidated into the MBMW sector product in 1991 and 1992 affect the decline in the MBMW export share? This is debatable, because the treatment of weapon exports in the official foreign trade data is not well known. On the other hand, the MBMW sector product shows the highest import share for the years 1988–1992, even if the import share shows a 20% decrease in 1991–1992 compared with that in 1988–1990.

Table 7 shows selected Russian foreign trade data by commodity for 1993. The oil and gas sector product shows a 7% decline in terms of nominal foreign trade prices while each item of the product shows a marked increase in exports in terms of physical quantities. This is due to the decline of world prices. It should be noted that the world prices of crude

TABLE 7. SELECTED DATA OF RUSSIAN TRADE WITH THIRD-PARTY COUNTRIES FOR 1993

	Value Mil. USD	Share (%)	Growth (%)	Quantity	Growth (%)
Exports					
Oil and gas	18,938	44.0	-7		
Crude oil	8,193	19.1	-4	79.7 mil. ton	20
Oil product	3,447	8.0	-20	34.5 mil. ton	36
Gas	7,298	17.0	-2	95.9 bil. m ³	9
Coal	630	1.5	-21	19.3 mil. ton	6
Aluminum	1,423	3.3	16	1.562 mil. ton	62
Machinery and equipment	2,865	6.7	-23		
(gold)	(1,284)	(3.0)	n.a.		
Imports					
Grain	1,554	5.8	-48	11.1 mil. ton	-62
Machinery and equipment	7,165	26.5	-42		

Sources: Goskomstat RF (*Annual Report and Yearbook for 1992 and 1993*) except for the data of gold from *The 1993 Balance of Payments*.

oil and oil product are almost equal to the world prices in 1993 unlike the case in 1992. Both exports and imports of machinery and equipment continue to show a marked decline in the volumes at foreign trade prices. It should also be noted that the coverage of machinery and equipment in Table 7 is narrower than that of the MBMW sector in Tables 4, 5 and 6. The figures for grain showed a remarkable increase in the import share in 1992 while it shows a marked decrease in the import share and volume in 1993. A reduction in exports of machinery and equipment induces a great amount of direct and indirect reductions of Russian domestic outputs, according to the result of our input-output analysis. A reduction in imports of machinery and equipment directly contributes to an increase in the trade surplus although it would result in a marked reduction in the potentiality of the Russian domestic production system.

V. Foreign Trade and National Accounts

Table 8 shows the Russian gross domestic expenditures (GDE) at current ruble prices for the years 1989–1993, compiled based on the methodology of the United Nations SNA. In Table 8, according to the Western practice, the annual value of GDE is set to be equal to that of gross domestic product (GDP). In the Russian SNA, trade balance implies total

TABLE 8. STRUCTURE OF RUSSIAN GROSS DOMESTIC EXPENDITURE (GDE), 1989–1993

	1989	1990	1991	1992	1993	
					(a)	(b)
	(In billions of rubles)			(In trillions of rubles)		
GDE (=GDP)	573.0	644.0	1,300.1	18.1	162.3	161.6
Final Consumption	384.1	444.4	826.3	9.7	93.9	103.5
Household consumption	266.0	305.0	564.3	6.5	65.8	70.2
Government consumption	118.1	139.4	262.0	3.2	28.1	33.3
Gross capital formation	193.9	194.1	508.7	5.8	41.8	40.8
Fixed capital formation	182.0	184.9	326.9	3.7	33.3	33.0
Increase in stocks	11.9	9.2	181.8	2.1	8.5	7.8
Total trade balance	5.1	1.4	3.9	2.9	20.6	19.2
Statistical discrepancy	-10.1	4.1	-38.8	-0.3	6.0	-1.9
	(In percent)			(In percent)		
GDE (=GDP)	100.0	100.0	100.0	100.0	100.0	100.0
Final Consumption	67.0	69.0	63.6	53.6	57.8	64.0
Household consumption	46.4	47.4	43.4	35.9	40.5	43.4
Government consumption	20.6	21.6	20.2	17.7	17.3	20.6
Gross capital formation	33.8	30.1	39.1	32.0	25.8	25.3
Fixed capital formation	31.8	28.7	25.1	20.4	20.5	20.4
Increase in stocks	2.1	1.4	14.0	11.6	5.3	4.9
Total trade balance	0.9	0.2	0.3	16.0	12.7	11.9
Statistical discrepancy	-1.8	0.6	-3.0	-1.7	3.7	-1.2

Source: Goskomstat RF.

Notes: 1990 and 1991: *Statistical Yearbook for 1992*.

1992 and 1993(a): *Annual Report of Goskomstat RF for 1993*.

1993(b): Alternative data of the Goskomstat RF.

Total trade balance is defined as the sum of net exports to third-party countries and to the former Soviet Republics.

TABLE 9. FOREIGN TRADE AND NATIONAL ACCOUNTS: 1989-1993

(In billions of rubles)					
	1989	1990	1991	1992	1993
	(at domestic prices)			(at current prices)	
1 Total exports	109.6	109.1	185.6	12,295	54,846
2 Exports to third countries	34.5	33.7	48.9	9,719	40,687
3 Exports to FSU	75.1	75.4	136.7	2,577	14,159
4 Total imports	144.3	144.9	181.6	9,391	36,843
5 Imports from third countries	73.6	77.1	76.7	8,047	27,125
6 Imports from FSU	70.7	67.8	105.0	1,344	9,718
MPS: I-O					
7 Total trade balance (1-4; 8+9)	-34.7	-35.8	3.9		
8 Trade balance (2-5)	-39.1	-43.4	-27.8		
9 Trade balance for FSU (3-6)	4.4	7.6	31.7		
MPS: NIPA					
10 Foreign trade earnings	43.5	44.4	(32.6)		
11 Total trade balance (7+10)	8.9	8.6	(36.5)		
SNA: I-O and NIPA					
12 Trade adjustment	(39.8)	(37.2)	(0.0)		
13 Total trade balance (7+12)	5.1	1.4	3.9		
14 Total trade balance (1-4)				2,904	19,238
					[18,003]
15 Trade balance (2-5)				1,672	13,562
16 Trade balance for FSU (3-6)				1,233	5,676
					[4,441]

Sources: Goskomstat RF except for the author's estimates in parentheses.

Notes: Lines 1 to 9 for 1989-1991: *Russian Statistical Yearbook for 1989-1991*.

Lines 10 and 11 for 1989 and 1990: National accounts of Goskomstat RF.

Lines 10 and 11 for 1991: Residual estimates based on official national accounts and input-output tables. Line 10 concerns only trade with third-party countries.

Line 12: Residual estimates.

Line 13: *Russian Statistical Yearbook for 1992*.

Lines 1 to 6 and 14 to 16 for 1992 and 1993: Preliminary data of Goskomstat RF and *The Russian Balance of Payments for FSU in 1993*, compiled by the Central Bank of Russia. 19,238 and 5,676 are figures given by the Goskomstat SNA. 18,003 and 4,441 are derived from *The Balance of Payments for FSU*.

trade balance, defined as the sum of net exports to third-party countries and to the former Soviet Republics.

The share of total trade surplus in GDP rose sharply in 1992. This is mainly due to the remarkable increase in the rates of Russian dependence on trade with third-party countries. However, in the case of the Russian SNA the methodological change in measuring trade surplus in 1991 also affects the marked increase in the trade surplus share in GDP, as can be seen from Table 9. Table 9 clarifies how the Goskomstat RF calculated the annual total trade surplus. [In Table 9 "I-O" and "NIPA" refer to the trade balance in input-output accounts and in national accounts respectively; and "MPS: NIPA" refers to the trade balance in NMP (net material product)]. It is obvious that a large part of the so called "(special) foreign trade earnings," which is here called "trade adjustment," is included in the total trade balance for 1989-1990, while the total trade balance for 1991 is purely expressed in domestic prices. [The concept of "foreign trade earnings" is originally defined

as “net imports at domestic prices” plus “adjustment coefficient” \times “net exports at foreign trade prices,” where the coefficient is defined as “exports at domestic prices”/“exports at foreign trade prices.” However, this is exactly true only for the foreign trade of the former Soviet Union.] The Goskomstat treatment results in an inconsistency because in 1991 as well as in 1989–1990 domestic prices are quite different from foreign trade prices (compare lines 2 and 5 in Table 9 for 1989–1991 with columns 1, 2 and 4 in Table 1) and there is no reason why the case for 1991 should not include “foreign trade earnings.” Starting with 1992, the methodology for foreign trade in the national accounts is brought in line with normal Western practice. However, as we mentioned in Sections 2 and 3, a number of problems remain to be solved.

VI. *Skyline Chart Analysis of Russian Foreign Trade*

We have conducted research on the recent Russian foreign trade statistics, considering changes in the structure of foreign trade. Let us next investigate the pattern of the Russian industrial and foreign trade structure in comparison with that of the Ukrainian structure, employing the Leontief skyline chart analysis.

As is well known, the “skyline” concept in input-output analysis was conceptualized by Leontief (1963) as a tool to study the structure of the economic development and foreign trade patterns of developing countries. We apply this concept to clarify foreign trade characteristics of the Russian economy. Here, exports and imports include exports to, and imports from, both third-party countries and the former Soviet Republics.

In the skyline chart, the vertical axis of the chart represents the self-sufficiency rate. The self-sufficiency rate is defined as the actual gross domestic output (GDO) divided by the hypothetical GDO, which is induced by domestic final demand. The hypothetical GDO is the GDO directly and indirectly required to produce domestic final demand, which consists of consumption plus investment, including imported consumption and investment goods. The hypothetical GDO is based on the assumption that all outputs required to meet domestic final demand are produced domestically, with no imports.

The horizontal axis represents the hypothetical GDO of each sector. In the skyline chart all hypothetical GDO's are assumed to be 100% (100% self-sufficiency rate). Atop each GDO block is added a direct and indirect “export” block (output induced by exports). Direct and indirect “imports” (output induced by imports) are subtracted from the direct and indirect “export” block, and the remainder is added to the GDO to derive the final configuration of the sector block. This procedure is performed for each industrial sector. The actual industrial structure is therefore described by the solid line which has the appearance of a city skyline. [For the mathematical background for skyline chart analysis, see Kuboniwa (1989, pp. 140–141).]

Figure 1 shows the skyline of Russia for 1991 based on the official 1991 I-O table (MPS-type) while Figure 2 shows that based on a preliminary 1991 I-O table (SNA-type). Although this 1991 SNA I-O is preliminary, it is the first Russian SNA I-O compiled by the Goskomstat RF. As can be seen from the two figures, the move from MPS to SNA implies an enlargement of the skyline pattern; non-material service sectors, including education, health, culture, art, daily-life service, administration (government, defence etc.),

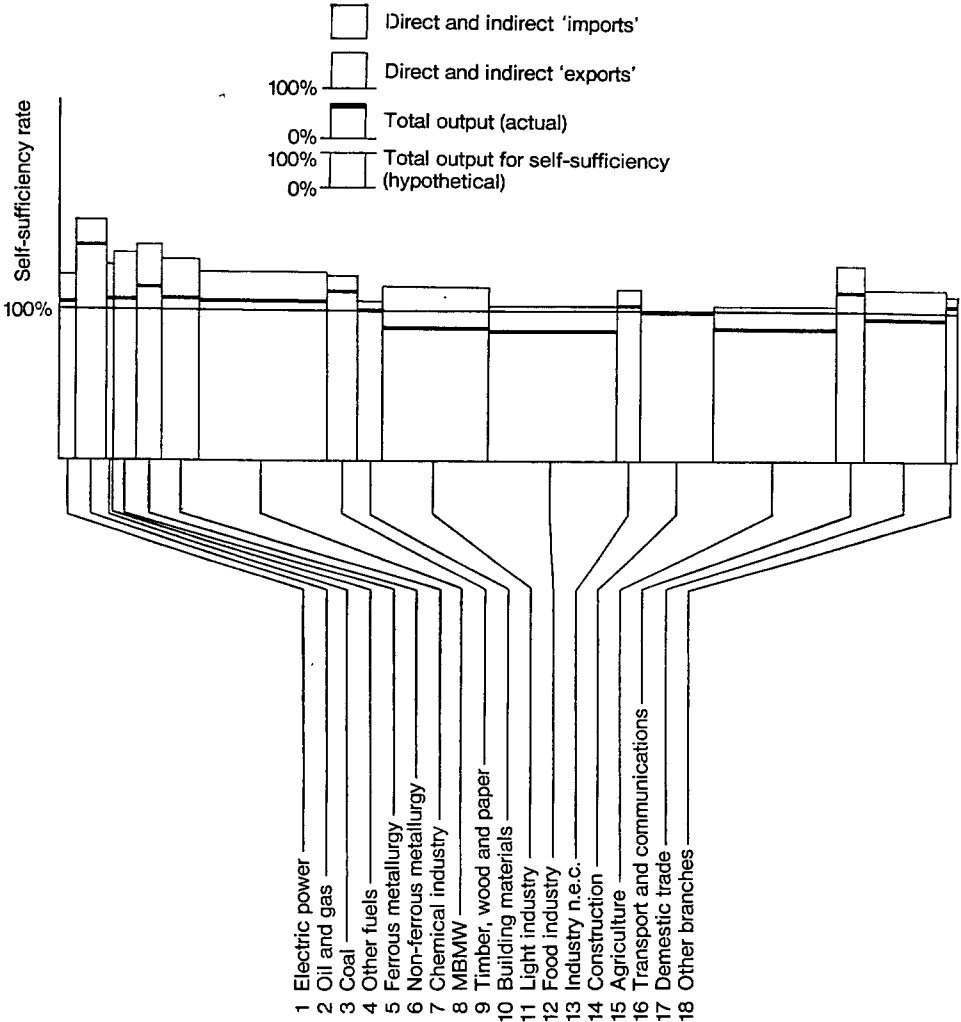


FIGURE 1. SKYLINE CHART FOR RUSSIA, 1991 (MPS)

finance and sciences, appear in Figure 2, although in 1991 the non-material service sectors show only a small share in the total actual and hypothetical output. As the export and import sectors for 1991 do not include foreign trade of services, the output inducement effect by exports and imports of the non-material service sectors can not be identified visually.

As an official or preliminary Russian I-O for 1992 has not yet been compiled, let us here describe an experimental skyline (Figure 3), based on the I-O which was obtained by multiplying each column in the 1991 MPS I-O by the official vector of nominal output growth rates for 1992. Hence, Figure 3 reflects the actual outputs and 'fictitious' exports and imports for 1992. Although Figure 3 is experimental, we may claim that it would suggest

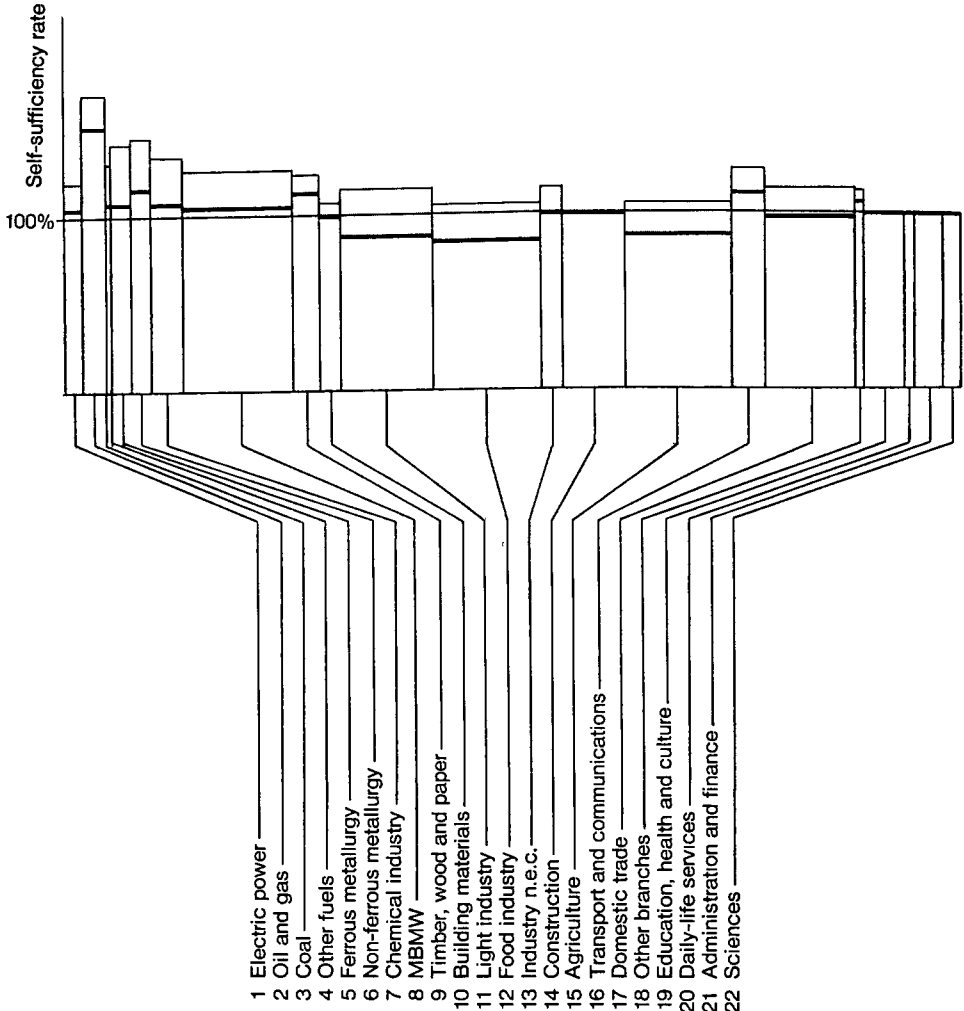


FIGURE 2. SKYLINE CHART FOR RUSSIA, 1991 (SNA)

the pattern of the Russian 1992 skyline.

Figures 4 and 5 show the skyline of Ukraine for 1991 and 1992, respectively, employing the official 1991 and 1992 I-O tables based on MPS.

The changes in the Russian and Ukrainian total foreign trade, are shown by Tables A.1 and A.2 in the appendix.

In regard to the Russian and Ukrainian skyline charts we can see the following:

First, the Russian skyline charts are rather flat in comparison with skylines of the other former Soviet republics, including Ukraine.

Secondly, in Russia of 1991 the oil and gas industry shows the largest self-sufficiency rate, 152%, followed by the nonferrous metallurgy sector, 117% and the wood and paper industry, 113%. Other than these three sectors the transportation and communication

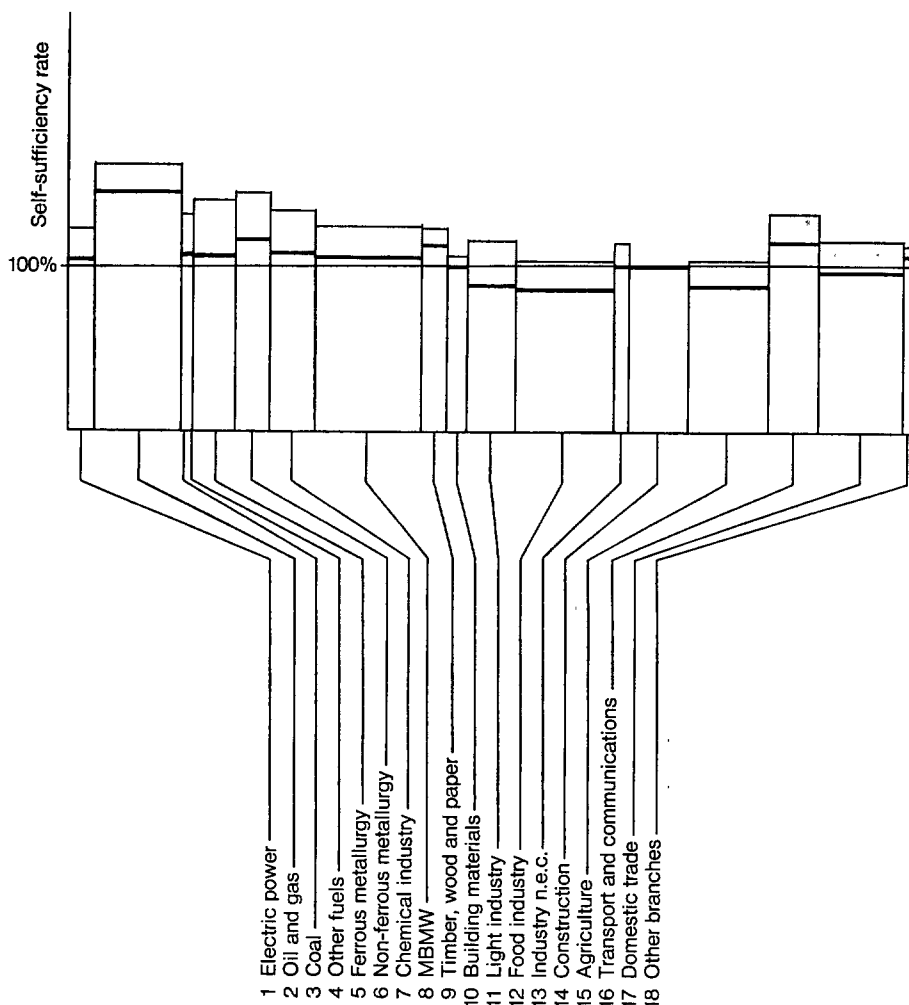


FIGURE 3. 'EXPERIMENTAL' SKYLINE CHART FOR RUSSIA, 1992 (MPS)

(one of the material service sectors), 111%, the chemical industry, 109%, the coal, 108%, and the ferrous metallurgy, 108%, sectors show self-sufficiency rates over 100%. The actual and hypothetical outputs of the oil and gas sector would show a marked increase in 1992 as is shown by Figure 3, while those of the MBMW would show a great reduction. The nonferrous metallurgy sector would show a remarkably higher self-sufficiency rate in 1992 due to the marked increase in share in the total export figure.

Thirdly, in Ukraine in 1991, the ferrous metallurgy sector shows the largest self-sufficiency rate, 159%, followed by the coal sector, 146% and the MBMW sector, 119%. On the other hand, in contrast with Russia, the oil and gas sector shows the least self-sufficiency rate, 46%. The metallurgy sector shows a much higher self-sufficiency rate, 210%, in 1992, remarkably extending the actual output share, owing to the price increase. The coal sector

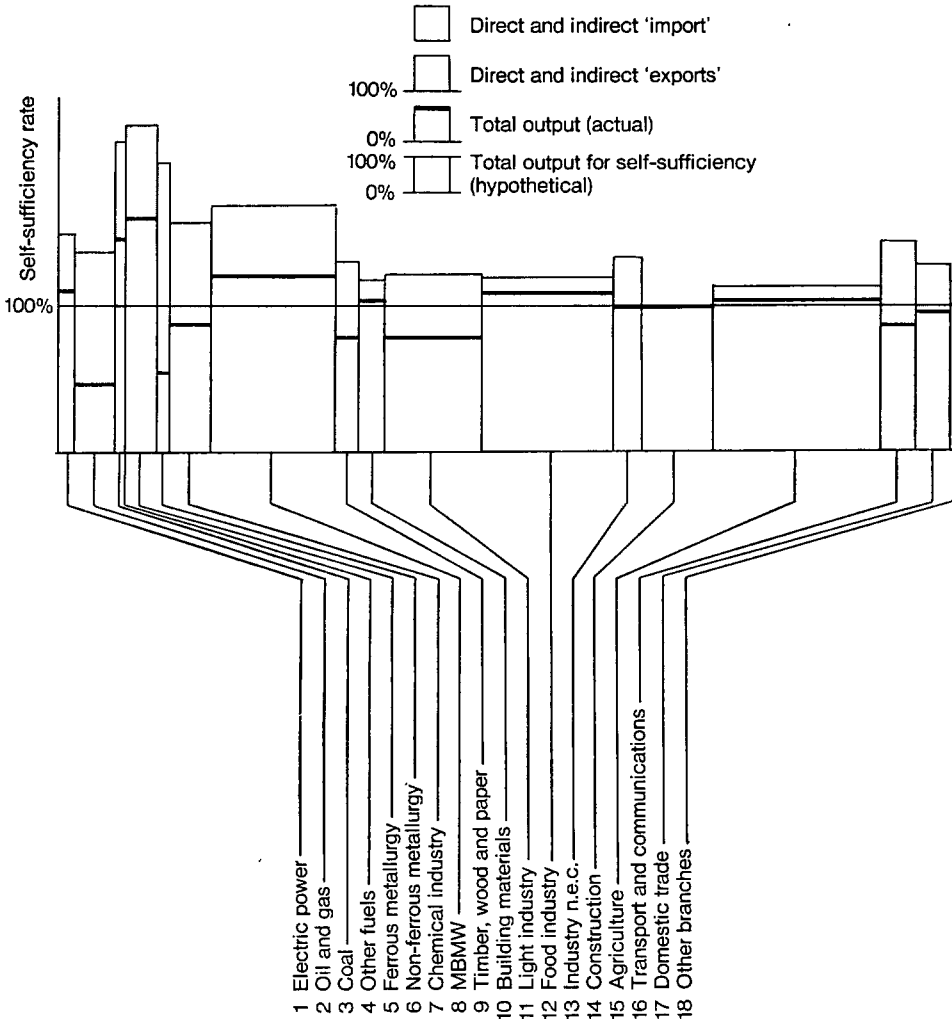


FIGURE 4. SKYLINE CHART FOR UKRAINE, 1991 (MPS)

shows a slightly higher self-sufficiency rate, 148%, but shows a marked increase in the output share. The oil and gas sector self-sufficiency rate is reduced to 33% in 1992, while it shows a marked extension of the shadowed area ('import' block) due to the price increase of oil and gas imported from Russia.

Fourthly, in Russia in 1991 the food industry shows the least self-sufficiency rate, 85%, followed by agriculture, 87% and light industry, 88% while in 1989 light industry showed the least self-sufficiency rate, 67%. As for the year 1991, in Ukraine five of 18 sectors, including the oil and gas (with the least self-sufficiency rate, 46%), the nonferrous metallurgy, the wood and paper, and the light industry and the chemical industry sectors show much lower self-sufficiency rates than the lowest Russian rate (Figure 4). It seems to be

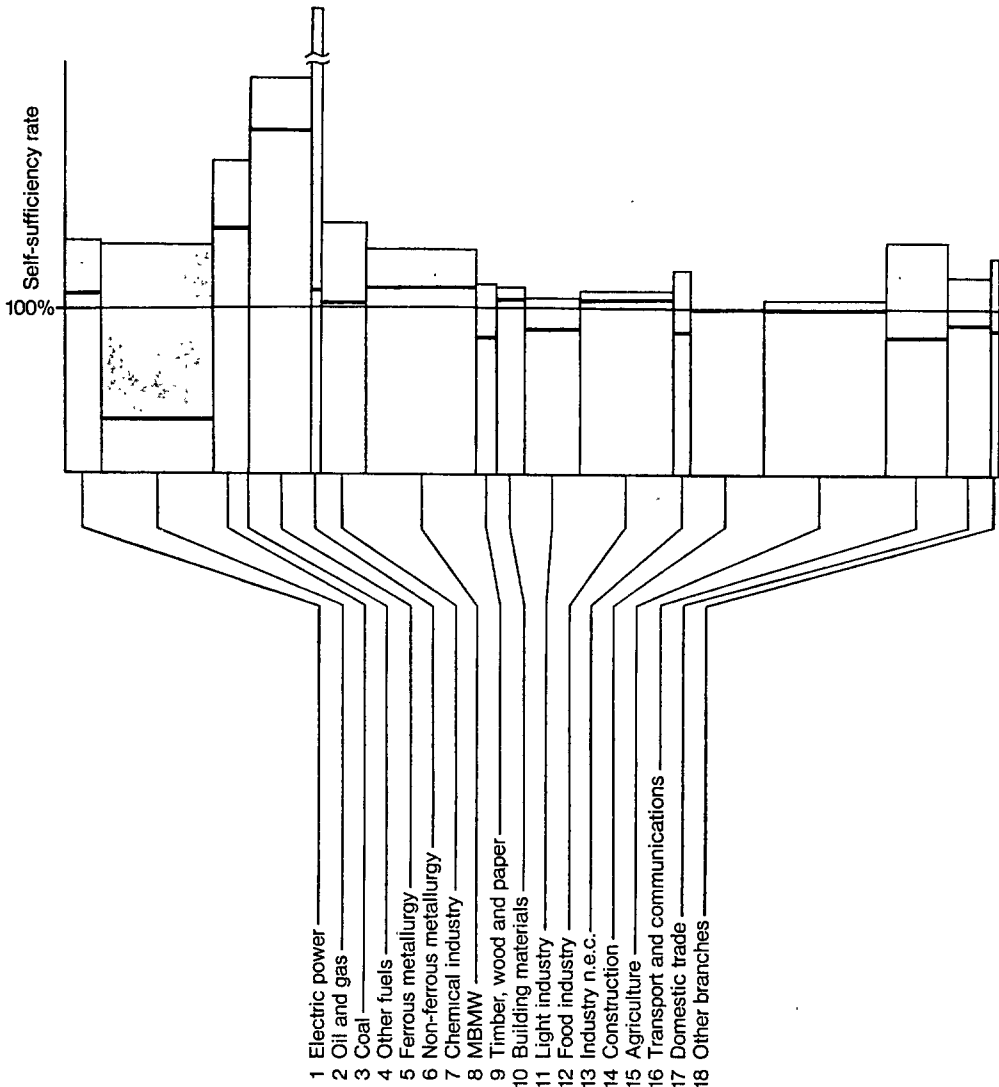


FIGURE 5. SKYLINE CHART FOR UKRAINE, 1992 (MPS)

a historical tragedy that the Ukrainian agriculture sector shows a rather low self-sufficiency rate, 103% in spite of its great potential. Namely, the development level of the Russian economy is much higher than that of Ukraine, judging from the skyline chart analysis for 1991. It should be noted that the self-sufficiency rate of the Russian light industry would show a marked decline in 1992, due to the remarkable decrease in export share (from 10.8% to 1.3%) and so on. In Ukraine in 1992 the scale of production and foreign trade of the light industry and agriculture shows a great reduction.

Lastly, in 1991 the self-sufficiency rate of the Russian machine building and metal-

working industry is at a medium rank, 106% over 100% although in 1989 it was 92% below 100%. The 'export' ratio and the 'import' ratio of the MBMW sector are respectively 27% and 21%. As in 1989 they were respectively 29% and 37%, the increase in the self-sufficiency rate of the MBMW sector in 1991 is mainly due to the decrease of the import rate. The MBMW self-sufficiency rate would also show a marked decrease in 1991 because its export share in the year shows a remarkable change; from 32.8% in 1991 to 15.5% in 1992, as is actually observed in Ukraine. The impact analyses for the years 1989 to 1991 suggest that the core of Russian domestic production is constituted by the machine industry, half of which has been related to military demand, and light industry. Thus, reduction of final demand for these industries, including exports, and a delay of military conversion and technical progress will prove to be fatal to the Russian domestic production system. This is also true for Ukraine.

In conclusion, it should be emphasized that due to the lack of necessary data (e.g. official or preliminary I-O) and reliable trade data for Russia in 1992 a thought-provoking analysis of the economy in transition has been difficult. Although the statistical environment in Ukraine appears to be better than in Russia at a glance, it should be noted that this is simply due to the marked delay of marketization in Ukraine.

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APPENDIX

TABLE A.1. STRUCTURE OF RUSSIAN TOTAL EXPORTS AND IMPORTS
IN TERMS OF CURRENT PRICES, 1990-1992

	(In percent)					
	1990	1991	1992	1990	1991	1992
	Total exports (at domestic prices) (f.o.b.)			Total imports (at domestic prices (c.i.f.))		
Material products:						
1 Electric power	0.7	0.9	0.6	0.4	0.6	0.2
2 Oil and gas	16.2	17.5	34.0	1.7	1.8	2.4
3 Coal	0.8	0.7	2.0	0.4	0.4	0.4
4 Other fuels	0.0	0.0	0.0	0.0	0.0	0.0
5 Ferrous metallurgy	6.7	6.2	13.2	5.1	5.3	10.5
6 Non-ferrous metallurgy	5.0	5.0	13.1	2.0	2.5	1.2
7 Chemicals	10.4	10.1	10.3	8.0	6.4	11.1
8 MBMW	34.5	32.8	15.5	34.5	25.0	32.8
9 Wood and paper	6.3	5.5	4.6	1.5	1.1	1.5
10 Building materials	1.3	1.2	0.3	1.0	1.1	1.8
11 Light industry	7.9	10.8	1.3	20.1	21.1	12.3
12 Food industry	3.8	3.0	4.0	16.4	23.5	15.5
13 Industry n.e.c.	2.7	3.4	0.3	2.1	1.9	0.2
Industry, total	96.2	97.1	99.3	93.2	90.8	89.9
14 Agriculture	0.7	0.4	0.2	6.0	8.5	10.1
15 Other branches	3.0	2.5	0.5	0.8	0.6	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Total (million rubles)	109,120	185,591	11,309,128	144,889	181,640	8,335,164
Material products, total			92.0			88.8
Services, total			8.0			11.2
Total (including services)			100.0			100.0

Sources: Goskomstat RF.

Notes: Data for 1990 and 1991 are obtained from *Russian Statistical Yearbook for 1990 and 1991*. Data for 1992 are from preliminary data by Goskomstat RF, March 31, 1994. 'Total' exports (imports) are given by the sum of exports to (imports from) third-party countries and the former Soviet Republics.

TABLE A.2. STRUCTURE OF UKRAINIAN TOTAL EXPORTS AND IMPORTS
IN TERMS OF CURRENT PRICES, 1990-1992

	(In percent)					
	1990	1991	1992	1990	1991	1992
	Total exports			Total imports		
Material products:						
1 Electric power	1.5	1.5	0.7	0.4	0.4	0.5
2 Oil and gas	1.4	1.2	3.9	7.3	13.3	37.0
3 Coal	1.5	0.8	2.9	0.7	0.4	2.6
4 Other fuels	0.0	0.0	0.0	0.0	0.0	0.0
5 Ferrous metallurgy	16.7	14.0	38.0	5.0	5.5	5.2
6 Nonferrous metallurgy	2.0	2.5	5.7	4.0	6.0	7.0
7 Chemicals	8.6	8.4	10.9	10.8	11.3	11.3
8 MBMW	39.1	44.1	24.9	34.0	29.8	16.6
9 Wood and paper	0.9	1.6	0.7	3.5	4.6	3.9
10 Building materials	1.4	1.8	1.5	0.9	1.3	0.4
11 Light industry	5.1	6.3	1.5	18.3	15.4	5.8
12 Food industry	14.6	11.6	6.5	7.6	5.7	3.0
13 Industry n.e.c.	2.5	4.8	2.1	3.4	4.7	4.6
Industry, total	95.2	98.7	99.3	96.0	98.5	97.9
14 Agriculture	3.6	1.2	0.6	2.6	1.4	2.0
15 Other branches	1.2	0.1	0.2	1.4	0.1	0.1
Total	100.0	100.0	100.0	100.0	100.0	100.0

Sources: Ministry of Statistics of Ukraine, *Ukrainian Input-Output Tables for 1990-1992*.

Notes: Based on data at Soviet domestic prices for 1990-1991 and at current prices for 1992. 'Total' exports (imports) are given by the sum of exports to (imports from) third countries and the former Soviet Republics.