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a Labyrinth of Reforms

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Russia: Out of the Post-Soviet Macroeconomic Deadlock through a Labyrinth of Reforms¹

Abstract

A steady decline in the efficiency of production and investment and the necessity to invest more and more in order to obtain the same output during the "stagnation" period of the Soviet era has led inevitably to macroeconomic deadlock. It has also meant ossification of the economic structure. The Russian reforms of 1992 were aimed at stimulating economic activity and structural change. Changes in relative prices and structural shifts towards international standards after the price liberalization of 1992 are, perhaps, the most significant and obvious results of reforms affecting the behavior of economic agents in various sectors. As it turned out, however, the flexibility of the Russian economy and its readiness for structural change have been rather low. The interenterprise arrears crisis of 1992 was one of the first signs, that producers were reluctant to change their behavior even though the only way out of the deadlock was the increase efficiency.

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1 Freezing the Structure: Immersion in Crisis

Two features, which are valid descriptions both during the "stagnation period" and at the end of the Soviet era, summed up the state of the Soviet economy in the early 1980s. These are its isolation and "frozen" structure. The aggregate structure of industrial output was fossilized in Russia as in the Soviet Union as a whole. The structure of domestic prices has also been very constant. The same was true of the structure of the state budget and of the structure of household incomes and expenditures (some structural changes showing, for instance, an increase in state subsidies and in household savings in banks appeared mainly in the second half of the 1980s when the leaders of the Soviet state launched an experiment in economic reform. In general, "stable" economic development of that kind meant that since the 1970s introduction of new production technologies and development of new industries in Russia had come to a virtual half in contrast to the modernization typical at the world economy.

Moreover, the structure of the Soviet economy as presented by leave out statistics is amazing. Table 1 gives some impression of the structure of Soviet and Russian industrial output. Almost one-fifth of industrial output was produced by the food industry in the USSR. The share of light industry was also very high. These two sectors together produced more than one-third of the industrial output and approximately 20 percent of the gross output. It is also interesting to note that the agricultural sector produced from 14 to 15 percent of the gross output! (In Finland, for instance, the share of the agricultural sector has been much lower, decreasing from 2.5 percent of the gross output in 1980 to 1.9 percent in 1989.) In general these numbers look very strange; they are rather high as the three consumer-oriented sectors of the Soviet economy mentioned produced more than one-third of the gross output, while at the same time the Soviet Union imported a lot of foodstuffs and other consumer goods. The Soviet Union has also been one of the main oil-exporting countries with strong oil and gas extracting industries, while the share of the energy sector in the USSR (fuel industry and electric power) was only about 10 percent of the industrial output, or 7 percent of the gross output. These numbers are comparable with the corresponding data for Finland. The share of the energy sector in this country during the first half of the 1980s was about 5 percent of the gross output.

These international comparisons, of course, have a conditional character for the Soviet economy: definitions of gross output are different in both countries. Sectors such as financial institutions and insurance, real estate, business services and certain others, presented in Finnish input-output tables are still not included in those for the USSR or Russia, which are considered "non-material." So Soviet or Russian gross output expressed in terms of international standards should be higher and the share of the energy sector should accordingly be lower than the above-mentioned numbers.

Table 1

Structure of Soviet and Russian Industrial Output

	U S S R						RUSSIA			
	1 9 8 0		1 9 8 5		1 9 8 9		nominal prices			
	fixed	nomin.	fixed	nomin.	fixed	nomin.	1989	1990	1991	1993 ¹
Ferrous metals	4.85	4.88	4.55	5.27	5.08	5.01	4.75	4.63	4.30	9.31
Non-ferrous	2.58	2.68	2.57	3.10	3.10	3.13	4.02	4.58	4.92	8.29
Fuel	7.13	7.11	6.98	8.31	8.56	8.48	9.47	9.39	8.80	17.54
Electric Power	2.81	2.62	2.85	3.00	3.32	3.24	3.31	3.38	3.01	8.57
Machine - building	27.03	25.62	29.58	26.33	27.75	27.03	28.50	27.48	23.12	20.23
Chemistry	6.50	6.41	6.87	6.49	6.66	6.51	7.11	7.07	6.84	7.20
Timber	3.96	4.03	3.83	4.16	4.24	4.39	5.24	5.06	5.83	3.87
Construction materials	4.32	4.15	4.14	4.21	4.42	4.36	4.39	4.32	4.18	3.24
Light	16.29	17.53	15.55	16.32	15.14	14.18	11.97	11.78	16.09	5.30
Food	21.58	21.76	20.14	19.84	18.30	20.09	17.84	18.52	18.61	12.70
Other industries	2.96	3.21	2.95	2.98	3.44	3.60	3.40	3.79	4.32	3.76
Industry total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

1) 1993 - 11 months data

Source: Former Goskomstat of the USSR, Goskomstat of the Russian Federation

As the Soviet Union has been considered a country with more advanced heavy industries (including military), the above numbers seem contradictory. All these contradictions appear because of the distorted price structure according to world standards in the USSR (this aspect of the Russian economy was discussed in [2, 5]). In reality, the structure of the Soviet or Russian economy is very different when estimated at world prices; common sense says that the shares of food, light industries and agriculture, for instance, should be much lower at world prices than they are at domestic prices, while the share of the energy sector should be essentially higher. Section III of this paper looks at this problem in more detail.

As was said above, there were no significant transformations in the structure of the Soviet economy in 1980s, while the world economy was developing apace. The Finnish economy, for instance, displayed some vivid and steady shifts in structure which were caused not only by internal factors, but also by changes in the world economy: the steady decline in oil prices during the second half of the 1980s was one of the reasons for the decline in the share of the energy sector estimated at nominal prices in Finland. As we can see, however, there was no such reaction in the Soviet economy.

Rapid development of business, social and personal services, financial institutions and construction were evident in the Finnish economy during the 1980s, while traditional sectors (agriculture, food processing, textiles and certain others) developed more slowly. There was also a steady increase in the share of value added in Finland: from 28.4 percent of total output in 1980 to 31.6 percent in 1989, which in general meant an increase in productivity. Shifts in the sectorial breakdown of employment, wages and investment are also obvious in Finland [3]. The same or other kinds of structural transformations (especially after the oil shocks) are typical for Finland and for many other industrial developed countries [3, 4], but not for Russia or the USSR.

Against this background it was a vivid contrast that Soviet policy makers were uninterested in developing new branches, it was easier to manage a "stable" economy, than to develop something new.

2 Investment Policy and the road to Deadlock

Investment policy was the main tool used by policymakers in a centrally planned economy to maintain that "stability." Generally speaking, they tried to reconcile different interests by allocating resources through ministries, republics and regions. And if there was additional demand to finance a new project then it was also necessary for the policymakers to reduce financing somewhere else (in an other ministry or region). That is why, as is usual in such cases, the decision was based on the principle of "minimum variance", which meant minimum changes in the previous figures. So the structure of investment, of the economy in general, etc., remained more or less constant.

There were of course some changes in the structure of investment, but not significant enough to change the structure of the economy. The breakdown of fixed investment by aggregated sectors of the economy shown in Table 2 confirms this. It is obvious from this table that since the beginning of 1970s some shift in the allocation of fixed investment has been taking place, while the share of industry remained constant (35–36 percent), that of investment in the agricultural sector and transportation increased (in the second case it comprised allocation of resources for financing the well-known and expensive project, the Baikal-Amur Railway). This additional allocation of resources in these sectors was offset by a decrease in the share of fixed investment in the non-material sphere: from 31 percent in 1970 to 26 percent at the end of 1970s and at the beginning of 1980s. This obviously meant a reduction in the share of expenditure on financing construction of new schools and hospitals, and conducting scientific research. It later contributed to a slowdown in the dynamics of living standards. As there was no corresponding increase in the output of transportation and agriculture, the Baikal-Amur railway project and the agricultural sector became economic "black holes."

Here we have touched upon the problem of allocation of fixed investment only, which according to Soviet statistics does not include investment in capital repairs. Table 3 shows the breakdown of gross investment compared with gross national product. It is apparent from this table that the share of investment for capital repairs has also been more or less constant for both the material and non-material spheres. The share of inventory investment (change in stocks in Table 3) was not at all significant. Thus in general the share of gross investment in the Soviet GNP has also been stable (30–32 percent). It was not too high compared with Japan, for instance; it was practically the same as in Japan in 1980s (32 percent). But the pace of economic growth in these countries was rather different. In West Germany this share was lower (22-23 percent). All this shows that the utilization of investment and its efficiency, were not satisfactory in the Soviet Union.

Table 2

Fixed investment in the USSR
(by sectors, at fixed 1984 prices, in billion rubles)

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Investment – total, incl.	92.26	99.10	105.95	110.76	118.53	128.48	133.95	138.70	146.62	147.62	150.85	156.44	161.94	170.99	174.28	179.46	194.50	205.45	218.22	228.44	229.80
Non-material sphere (in % to total)	28.81 31.22	30.08 30.36	31.07 29.33	31.13 28.10	32.76 27.63	35.01 27.25	36.09 26.94	37.54 27.07	38.69 26.39	39.00 26.42	39.69 26.31	41.47 26.51	43.34 26.76	46.11 26.97	47.79 27.42	49.72 27.70	55.00 28.28	60.25 29.32	64.00 29.33	67.09 29.37	69.70 30.33
Material sphere, incl. (in % to total)	63.46 68.78	69.01 69.64	74.88 70.67	79.63 71.90	85.78 72.37	93.47 72.75	97.87 73.06	101.16 72.93	107.93 73.61	108.62 73.58	111.17 73.69	114.98 73.49	118.60 73.24	124.88 73.03	126.49 72.58	129.75 72.30	139.50 71.72	145.21 70.68	154.22 70.67	161.35 70.63	160.10 69.67
Industry (in % to total)	32.47 35.20	34.29 34.61	36.68 34.62	38.71 34.95	41.40 34.92	44.96 34.99	46.91 35.02	48.90 35.26	51.19 34.91	51.18 34.67	53.25 35.30	55.26 35.32	56.77 35.05	60.47 35.36	62.71 35.98	65.45 36.47	70.98 36.49	75.03 36.52	79.47 36.42	85.67 37.50	78.80 34.29
Agriculture (in % to total)	16.11 17.46	18.62 18.79	20.36 19.22	22.37 20.20	24.35 20.54	26.25 20.43	27.27 20.36	27.95 20.15	29.19 19.91	29.64 20.08	30.02 19.90	30.77 19.67	31.20 19.27	32.25 18.86	31.35 17.99	31.75 17.69	33.89 17.42	34.58 16.83	36.74 16.84	38.87 17.02	41.00 17.84
Construction (in % to total)	3.31 3.58	3.71 3.74	3.92 3.70	3.98 3.59	4.20 3.54	4.78 3.72	5.49 4.10	5.13 3.70	5.67 3.86	5.83 3.95	5.97 3.95	5.89 3.77	6.44 3.98	6.13 3.59	5.81 3.33	6.10 3.40	6.81 3.50	6.93 3.37	8.24 3.78	10.62 4.65	9.90 4.31
Transp., communicat. (in % to total)	9.04 9.80	9.77 9.86	11.17 10.54	11.95 10.79	13.04 11.00	14.33 11.16	14.98 11.19	15.61 11.26	18.16 12.39	18.15 12.30	18.10 12.00	18.77 12.00	19.80 12.23	21.59 12.63	22.26 12.77	21.89 12.20	22.85 11.75	23.99 11.68	25.14 11.52	21.60 9.45	24.20 10.53
Other (in % to total)	1.96 2.13	2.05 2.06	2.18 2.05	2.03 1.84	2.21 1.87	2.55 1.99	2.62 1.95	2.98 2.15	3.13 2.13	3.24 2.19	3.24 2.15	3.69 2.36	3.81 2.35	3.86 2.26	3.79 2.17	3.98 2.22	4.41 2.27	4.11 2.00	4.05 1.86	4.00 1.75	5.64 2.45
Memorandum item: GNP											619.40	650.50	693.10	725.50	760.10	777.00	798.50	825.00	875.40	943.40	1000.00

Source: Former Goskomstat of the Former USSR

Table 3

Gross investment in the USSR
(nominal prices, billion rubles)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
GNP	619.40	650.50	693.10	725.50	760.10	777.00	798.50	825.00	875.40	943.40	1000.00
Gross investment: total	186.60	196.84	222.66	235.24	246.18	248.40	255.50	259.40	283.60	305.00	300.90
(in % to GNP)	30.13	30.26	32.13	32.42	32.39	31.97	32.00	31.44	32.40	32.33	30.09
Fixed equipment investment in the production and non-production spheres	134.70	139.80	149.30	157.70	174.90	179.90	196.20	206.80	219.80	228.50	229.80
(in % to GNP)	21.75	21.49	21.54	21.74	23.01	23.15	24.57	25.07	25.11	24.22	22.98
Gross investment in the material sphere	135.60	142.64	161.36	172.74	181.48	180.20	190.90	190.70	209.50	210.50	212.70
(in % to GNP)	21.89	21.93	23.28	23.81	23.88	23.19	23.91	23.12	23.93	22.31	21.27
including:											
Fixed equipment investment	99.30	102.70	109.40	115.20	126.90	130.10	142.60	149.70	164.80	159.90	160.10
(in % to GNP)	16.03	15.79	15.78	15.88	16.70	16.74	17.86	18.15	18.83	16.95	16.01
Capital repair	24.40	26.24	27.76	29.44	30.48	30.20	32.40	33.70	37.70	41.60	44.60
(in % to GNP)	3.94	4.03	4.01	4.06	4.01	3.89	4.06	4.08	4.31	4.41	4.46
Change in stocks	11.90	13.70	24.20	28.10	24.10	19.90	15.90	7.30	7.00	9.00	8.00
(in % to GNP)	1.92	2.11	3.49	3.87	3.17	2.56	1.99	0.88	0.80	0.95	0.80
Gross investment in non-material sphere	51.00	54.20	61.30	62.50	64.70	68.20	64.60	68.70	74.10	94.50	88.20
(in % to GNP)	8.23	8.33	8.84	8.61	8.51	8.78	8.09	8.33	8.46	10.02	8.82
including:											
Fixed equipment investment	35.40	37.10	39.90	42.50	48.00	49.80	53.60	57.10	55.00	68.60	69.70
(in % to GNP)	5.72	5.70	5.76	5.86	6.31	6.41	6.71	6.92	6.28	7.27	6.97
Capital repair	7.60	8.10	8.50	8.90	9.20	11.30	12.10	12.70	13.30	17.50	15.00
(in % to GNP)	1.23	1.25	1.23	1.23	1.21	1.45	1.52	1.54	1.52	1.85	1.50
Change in stocks	6.50	7.40	11.10	9.30	5.60	5.20	-3.20	-3.30	1.00	4.20	0.00
(in % to GNP)	1.05	1.14	1.60	1.28	0.74	0.67	-0.40	-0.40	0.11	0.45	0.00
Buying equipment by the budgetary organizations	1.50	1.60	1.80	1.80	1.90	1.90	2.10	2.20	4.80	4.20	3.50
(in % to GNP)	0.24	0.25	0.26	0.25	0.25	0.24	0.26	0.27	0.55	0.45	0.35

Source: Former Gosplan of the Former USSR

As is apparent from Table 3, the share of overall fixed equipment investment in the GNP was rather stable in 1980s, although some increases were apparent in the second half of the decade. There was no corresponding increase in output in the USSR. This shows, therefore that the efficiency of investment started to fall mainly in 1985-1990.

In 1980-1985 most of the investment by state enterprises and organizations came from the budget. This was natural as the finances of enterprises were not separated from those of the state. Some changes in the composition of investment could be seen after 1987, when the government's economic reform effort began. The main idea behind the reforms was to make enterprises more independent and self-sufficient. After those decisions had been made the share of budget investment decreased from more than 97 percent (in the first half of 1980s) of total investment by state enterprises to 43 percent in 1990 (Table 4).

Table 4. **Fixed Investment with the Resources of State Enterprises and Organizations** at 1984 fixed prices

	1986	1987	1988	1989	1990
Rb bill.	5.1	32.1	74.6	101.0	113.0
in % of total fixed equipment investment by state enterprises and organizations	3.1	18	40	51	57

Source: Goskomstat of the former USSR.

Since 1987 a rapid increase in self-financing by the corporate sector (enterprises) has been evident, although this has not meant an increase in the efficiency of investment. In this sense nothing has changed for the better and reforms have not succeeded full because the key problem – altering the forms of ownership – have not even been touched. There is a rather interesting interpretation of the property problem (in [9]) in terms of political economy). The finances of enterprises have still not separated from those of the state and as the enterprises have remained state property, the state is still responsible for them, even though the enterprises are not responsible for the results of their activities. At the same time the enterprises have gained more freedom in their decision-making. But state control has relaxed and even lost. All this has caused a general decline in discipline and has hastened economic crisis in the USSR.

One of the indicators that characterizes the efficiency of investment is the amount of fixed equipment started up in a given period (or installation of fixed assets as it is called in Table 5). As seen from Table 5, the efficiency of fixed investment decreased during the second half of 1980s. In 1985 the ratio of the installation of fixed assets to investment for the entire economy was 0.958, but in 1990 it had decreased to 0.843. This represents an abnormal increase in unfinished construction and uninstalled equipment. The situation was typical mainly of the state sector. The opposite was apparent in the private sector - the same ratio (of the installation of fixed assets to investment) in the household sector equals 1. The situation for housing construction cooperatives was identical [6, 7]. The share of private investment, however, was not significant.

Table 5.

**Fixed equipment investment and gross capital formation
at fixed 1984 prices, in Rb bill**

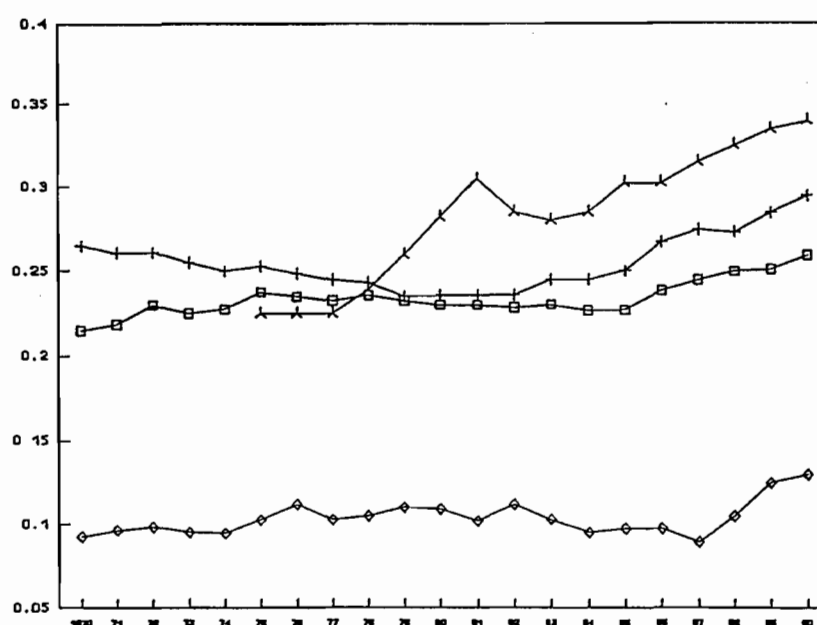
	1981-1985		1986-1990					
	1981-1985 of which: 1985		1986	1987	1988	1989	1990	
Total fixed investment	843.2	179.5	1076.3	194.4	205.4	218.2	228.5	228
in % of the previous year				108.3	105.7	106.2	104.7	1006
Installation of fixed assets	815.8	172.6	961.4	182.7	195.1	192.5	197.4	1987
in % of the previous year				105.8	106.8	98.7	102.5	981
Installation of fixed assets to investment ratio	0.97	0.96	0.89	0.94	0.95	0.88	0.86	0.84

Source: Goskomstat of the former USSR.

The efficiency of investment could also be characterized by another indicator called "the investment to gross output ratio." This indicator shows the volume of investment necessary for the economy to produce one ruble of gross output. As apparent from chart 1 this ratio increased steadily for agriculture and was more or less constant invariable for the entire economy from 1970 till 1985; after 1985, however, it began to increase in every sector. In the early 1980s it was necessary to invest an average of 0.095 rubles to produce one ruble of gross output. By 1990 this figure had increased to 0.106 rubles.

Chart 1.

Investment to output ratios by sectors



The decline in the efficiency of fixed equipment investment means an increase in the average period of new construction in the country. In the second half of the 1980s it was more than 8 years, and in some sectors even longer. For example, in the energy, chemical and machine-building industries the average period of construction of new enterprises was 9 to 12 years. In metallurgy it was even longer: between 15 and 16 years.

The situation for the entire USSR was more or less the same as that for Russia and for all the republics of the former Soviet Union. Russia accounted for 62 - 63 percent (Table 6) of fixed investment in the Soviet Union and the breakdown of fixed investment by budget investment and by investment with the enterprises own resources has been described with the same structure as in the USSR [6, 7]. The share of fixed investment in the overall amount of budgeted state fixed investment also decreased for Russian state enterprises and organizations from 97 percent in mid the 1980s to 82 percent in 1987, 57 percent in 1988, 49 percent in 1989, and 42 percent in 1990 [7]. Thus the trend was the same throughout the USSR.

Table 6. **Fixed equipment investment**
Rb bill. of 1984 prices

	1980	1985	1986	1987	1988	1989	1990
USSR	150.9	179.5	194.4	205.4	218.2	228.5	229.8
Russia	94.3	111.0	121.2	128.4	138.2	143.9	144.0
in % of USSR	62.5	61.8	62.3	62.5	63.3	63.0	62.7

Source: Goskomstat of the former USSR.

All of the decreases in the Soviet economy were also typical of Russia. The Russian economy was characterized by the same type of correlation between investment and the installation of fixed assets as the Soviet economy. Unfinished construction in Russia increased from 79.6 billion rubles in 1985 (of which 63 billion rubles was unfinished construction in industrial production) to 132 billion rubles in 1990 (of which unfinished industrial construction for 99.4 billion rubles).

Low investment efficiency was typical of the entire socialist system, but not of the Soviet Union alone. To confirm this point of view Kornai cites F.L.Pryor's data (see Table 7):in "The Political Economy of Communism."

Table 7.

Growth of GDP and Capital Investment: International Comparison

	Average Annual Growth Rates, 1950-79:	
	GDP	Gross Fixed Capital Investment
Socialist countries		
Bulgaria	5.43	10.89
Czechoslovakia	3.67	6.11
East Germany	3.77	8.52
Hungary	3.64	8.85
Poland	4.12	9.70
Romania	5.81	11.33
Soviet Union	4.95	8.02
Capitalist Countries		
Australia	4.54	4.43
Canada	4.57	4.36
Finland	4.48	4.54
Greece	6.20	7.16
Italy	4.92	4.79
Netherlands	4.58	5.10
Norway	4.15	4.93
Sweden	3.69	4.18
West Germany	4.85	5.69

Source: Kornai Janos: "The Political Economy of Communism."

In completing the analysis of investment policy in the former USSR it should be mentioned that low investment efficiency led to an increase in old equipment, which was one of the factors contributing to the decline in production efficiency (mainly in industry). This decline in efficiency in turn caused a need for more and more investment to obtain the same output. At the beginning of 1990 the average age of equipment was about 9 years (Table 8 shows the age structure of the machines and equipment with the breakdown by aggregated sectors). According to estimates by specialists of the former Goskomstat of the USSR, in order to ensure the average normal economic life time of the equipment it was necessary to replace 4 percent of the equipment annually (i.e. 1.6 times true replacement figure).

Table 8.

**Age structure of equipment at the end of 1989
in percentages**

Total including equipment at: Average						
	equipment	less than 5 years	6-10 years	11-20 years	more than 20 years	age
National economy	100	37.7	29.5	22.5	10.1	8.8
including:						
Industry	100	31.5	28.6	26.2	13.7	10.2
Agriculture	100	69.9	34.1	6.0	0.0	4.4
Construction	100	55.2	30.9	13.3	0.6	5.2
Transport	100	42.8	31.8	22.7	2.7	6.9
Telecommunications	100	42.0	28.1	23.8	6.1	7.8

Source: former Goskomstat of the former USSR

It is obvious from this table that the most obsolete equipment was in industry. The best situation was evident in agriculture, where 60 (!) percent of the equipment was less than 5-year-old. This did not, however, present the well-known decline in agricultural production.

This decline in the efficiency of utilization of investment resources shows that, by the end of the Soviet era, the economy has become underinvested. However, it can also be concluded that the overall volume of investment was sufficient for the entire economy. Better utilization, accompanied perhaps by some structural adjustment and targeted redistribution in order to develop specific sectors could have improved the situation and possibly postponed the economic crisis. But the policy of "freezing" the structure definitely led to economic deadlock.

3 The structure of the economy: relative and world prices

As mentioned in section I, the distorting mirror of domestic prices misrepresented the supply side of the Soviet or Russian economy. Nevertheless, we must accept all the above conclusions in section II drawn from statistics at nominal prices, as they are based mainly on ratios and not directly on data at nominal prices. As has been also said, the distortion in the price structure and methodological differences in the definitions complicate international comparisons of the Russian economy. This makes it difficult to understand the reasons for the collapse of the Soviet system. Hence an attempt to estimate Russian or Soviet output at world prices seems helpful.

It is clearly a very complicated problem to make accurate calculations of Soviet or Russian output at world prices. For instance, it is practically impossible to compare the quality and prices of Russian (Soviet) and German or American agricultural machines and other equipment. It is easier to compare electric power, oil, gas, timber, metals and some other intermediate products. That is why in general, in making certain assumptions, we will be interested in a qualitative picture of the above-mentioned problem rather than in accurate data.

The approach for estimating domestic output at world prices is based on the comparison of world and domestic prices for basic commodities and their aggregation into pure industries using corresponding weights. A comparison of prices for several basic commodities on the world market and in Russia is presented in [2]. Table 9 shows the structure of Russian industrial output estimated at world prices and the amount much it differs from that calculated at domestic prices.

Table 9. **Structure of Russian Industrial Output in 1991 at World and Domestic prices**
in percentages

	world prices	domestic prices
Ferrous Metallurgy	3.53	4.30
Non-Ferrous Metallurgy	4.34	4.92
Coal Industry	2.23	0.99
Oil and Gas	23.38	7.78
Other fuel	0.09	0.04
Electric Power	12.43	3.01
Mechanical Engineering	19.00	23.12
Chemistry	2.16	6.84
Timber, Wood-working, Pulp and Paper	13.54	5.83
Construction Materials	5.36	4.18
Light Industry	2.90	16.09
Food Industry	8.20	18.61
Other Manufacturing	2.83	4.32
Industry Total	100.00	100.00

Source: Goskomstat RF's, own calculations based on Goskomstat's data and international price statistics.

A considerable increase in the share of oil and gas and electric power industries is evident in the estimate of Russian industrial output at world prices. Thus the table reveals that in 1991 the energy sector in Russia accounted for more than 38 percent of industrial output! And this is the sector oriented mainly to the intermediate products market. The table also shows that the percentage of main consumer-oriented sectors (light industry and food) decreases significantly when estimated at world prices. Light industry contributes only about 3 percent of industrial output and the food industry slightly more than 8 percent. Of course the accuracy of these figures can be disputed, but it seems that Table 9 in general answers many of the questions posed in section 1.

As the structure of Russian output has been "frozen," this table also shows that Russia is an exporter of energy not only today but has been so far perhaps dozens of years. It did not become one only after the reforms of 1992, as argued by the adversaries of the 1992 liberalization in Russia. This table also confirms that in reality manufacturing in Russia was less developed than mining, as the presentation of the structure of the Russian economy at domestic prices probably suggests. At least this table gives the impression that the efficiency of manufacturing was rather low. And finally, as the share of consumer oriented sectors was in reality very low, this explains the substantial deficit in food, clothes, cars, and other durable and non-durable consumer goods in Russia (as well as in the Soviet Union).

The figures from Table 9 could be presented in more aggregated form. They could be also combined with the corresponding data for the Finnish economy (see Table 10). Table 10 quantitatively confirms for instance the contention that the percentage of food industry output in the Russian economy was too low. In Finland the ratio of production to consumption of foodstuffs in 1989 was substantially more than 1 (from 1.1 to 1.3 for various groups of foodstuffs [1]). It is therefore obvious why the percentage of the food industry in Finland is higher than in Russia.

The estimate of Russian industrial output at world prices also moves the share of timber industry closer to the Finnish case (also a northern country with an advanced timber, wood-working and paper industry).

Table 10.

**Structure of Russian and Finnish Industrial Output
in percentages**

	Russia 1991		Finland 1989
	domestic prices	world prices	
Industry	100	100	100
of which:			
Basic metals (mining and manufacturing)	9.22	7.87	7.02
Energy	11.82	38.13	11.04
Timber, Logging, Wood-working, Paper, Cellulose, etc.	5.83	13.54	25.02
Mechanical engineering	23.12	19.00	22.64
Chemicals	6.84	2.16	7.22
Construction materials, Faience, Glass *)	4.18	5.36	3.64
Light	16.09	2.90	2.87
Food	18.61	8.20	14.61

*) in the case of Finland, part of the construction materials industry is allocated to some of the sectors mentioned (basic metals, wood-working, etc.)

Source: Goskomstat of RF, Statistics Finland, my own calculations.

Considering the different structures of the Russian economy estimated at world and relative prices, it is clear that the dynamics of production estimated at world or at domestic prices should also be different².

² For instance this difference is about 2 percent for 1992, but it is not within the context of this paper to analyze the dynamics of Russian industrial output or GDP in detail.

4 Transformation of the structure of the Russian economy after the reforms of 1992

As was said above, the major goal of the reforms was to change the structure of the economy. The problem is two-fold: to improve the price structure and to alter the proportions of different sectors in the GDP in real terms (the latter means more development of consumer-oriented sectors). As for the second part, no radical structural shifts in the Russian economy or increases in the production of consumer goods have occurred yet. Against the background of overall economic decline, such transformations are not so obvious?

As for the first part, there was a rather rapid transformation of prices after deregulation in 1992–1993. As a result, there were obvious changes in the industrial output structure at nominal relative prices (see Table 1). If one compares the figures in Table 9 with these in from the last column in Table 1, showing the structure of Russian industrial output at nominal prices in January–November 1993, then it is evident that the proportion of the energy sector in 1993 has increased significantly and moved towards its preportion of industrial output estimated at world prices. The same movement towards a price structure estimated at world prices is apparent for mechanical engineering, light industry and food production: the percentages of these industries have decreased in comparison with 1991. These changes should be regarded as positive.

The situation was totally different for metallurgy. Prices in this sector increased much more than they should have. The main reason was that this sector is oriented towards the intermediate products' market, where all payments are cleared by non-cash money. In Russia it was possible to increase prices substantially for metallurgical enterprises because demand was not limited in practice; the lack of non-cash money in turnover was offset in 1992 by delays in payments, which in turn caused the well-known arrears crisis. The arrears crisis was subsequently solved by expansion of the money supply and mutual clearing. Another reason for the substantial increase in metal prices was the ease with which it was possible to export metals.

Financing flow tables provide a more general outlook of the economy. Table 11 shows the macrostructure of the Russian economy in 1991 and Table 12 that in 1992. Some general shifts in the Russian economy were apparent in 1992. These tables reveal that payments to industrial extra-budgetary funds increased from 2.5 percent of GDP in 1991 to 6.5 percent in 1992. This is explained by the establishment in 1992 of new extra-budgetary funds which were a form of additional taxation. Indirect taxes also increased from 7.7 percent of GDP in 1991 to 16.8 percent in 1992. The percentage of direct taxes in GDP did not change so significantly. Corporate sector profits increased from 28 percent of GDP in 1991 to 31.3 percent in 1992; depreciation decreased at practically the same rate as profits increased. Thus against the background of the apparent increase in taxes, the growth in various subsidies to enterprises in 1992 was quite natural.

Table 11.

Gross Domestic Product and Financing Flows in 1991 (in percent of GDP)

	GDP	Households	Enterp.	State	External	Monetary
Gross Wages	-47.8	47.8				
Net Other Incomes	-9.1	4.9	4.2			
Profits	-28.0		28.0			
Depreciation	-10.9		10.9			
Indirect taxes	-7.7			7.7		
Extra-budgetary (stabilization) fund	-2.5			2.5		
Subsidies	6.0			-6.0		
Debt write off			2.5	-2.5		
Direct taxes		-16.7	-8.9	25.6		
Pensions, benefits, deposit compensat.		16.9		-16.9		
Capital transfer			6.7	-6.7		
Expenditure from funds		1.8	-1.8			
Net exports	1.2				-1.2	
Total fixed investment	24.1	-0.2	-23.9			
Total consumption	65.8	-41.6		-24.2		
Change in stocks	8.8		-8.8			
<hr/>						
Income less expenditure		12.9	8.8	-20.5	-1.2	
<hr/>						
Total financing flow		-12.9	-8.8	20.5	1.2	
<hr/>						
Credit flow		1.3	15.4	23.2		-39.9
Currency flow		-6.7				6.7
Deposit flow		-12.5	-15.5	-3.6		31.7
Interbank flow			-2.6			2.6
Net foreign assets flow		-0.2			1.2	-1.1
Other financing		5.2	-6.1	0.9		

Table 12.

Gross Domestic Product and Financing Flows in 1992
(in percent of GDP)

	GDP	Households	Enterpr.	State	External	Money
Gross Wages	-37.8	37.8				
Net other incomes	-13.2	3.1	10.1			
Profits	-31.3		31.3			
Depreciation	-6.4		6.4			
Indirect taxes	-16.8			16.8		
Extrabudgetary funds (except social)	-6.5			6.5		
Subsidies (including import)	12.2			-12.2		
Interest subsidies			1.7	-1.7		
Subsidized credits (by the government)			9.2	-9.2		
Financing of non-material sphere						
Direct taxes		-14.0	-9.8	23.8		
Pensions, benefits		6.0		-6.0		
Capital transfer			7.2	-7.2		
Expenditure from funds (money)		1.9	-1.9			
Expenditure from funds (goods)		3.3	-3.3			
Net exports	10.4				-10.4	
Total investment	20.2		-20.1			
Total consumption	58.3	-35.5		-22.8		
Change in stocks	11.1		-11.1			
<hr/>						
Income less expenditure		2.6	19.6	-11.9	-10.4	
<hr/>						
Total financing flow		-2.6	-19.6	11.9	10.4	
<hr/>						
Credit flow		0.8	20.5	15.8		-37.1
Currency flow		-7.9	-0.5			8.4
Ruble deposit flow		-2.0	-18.1	-6.4		26.5
Foreign exchange deposits			-12.7			12.7
Interbank flow			-4.4			4.4
Net foreign credits				14.9	-14.9	
Net credits to FSU				-8.5	8.5	
Foreign assets flow					15.0	-15.0
Privatization receipts			-0.6	0.6		
Other financing		6.5	-3.7	-4.4	1.7	

Gross wages (wages plus payments to extra-budgetary social funds) decreased from 47.8 percent of GDP in 1991 to 37.8 percent in 1992. This in turn affected the decline in consumption by households and the decrease in savings at banks. It may therefore seem that the main losers in 1992 were households. But this is only partly correct, because Tables 11 and 12 are based on the corresponding data at nominal prices. Transformation of the price structure (a more rapid increase in energy prices in comparison with other commodity prices and a more rapid increase in producer prices in comparison with consumer, see also [2]) was the main cause of the redistribution of incomes. The old diseases of the economy had clearly revealed themselves in 1992.

The increase in net exports could be conceived as another shift in the GDP structure in 1992. This is explained by the introduction in 1992 of a market exchange rate; in 1991 it was fixed at a rather low level. The increased exchange rate and the gap between the level of domestic and world market prices forced the government to subsidize imports. These hidden subsidies are not shown in the budget.

The government sector in Tables 11 and 12 consists of federal and local budgets and extra-budgetary funds. The consolidated balance sheet of the extra-budgetary funds established in 1992 was brought into balance with surplus, while the Federal budget suffered a lack of money to cover the deficit. Although the surplus of the extra-budgetary funds could not be used to cover the budget deficit, the deficit of the consolidated state sector in 1992 in Table 12 is lower than that of 1991 in Table 11.

The only definite beneficiaries in 1992 were the enterprises (the same conclusion is apparent in [8]). They received a variety of substantial subsidies. They were subsidized by the banking system as inflation was higher than the interest rate. They were also subsidized by the government not only in the form of direct subsidies but also in the form of subsidized credits (they received credits for 10 or 20 percent per annum, while the interest rate was considerably higher). Another hidden privilege was the option to delay payment and thereby benefit from the flourishing inflation.

Rapid stockpiling during the reforms is another understandable tendency. In 1991–1992 it accounted for 9–11 percent of GDP in Russia. In the late 1980s it was about one percent of GNP in the USSR while in the early 1980s it was 3–6 percent of GDP (see Table 3). On the one hand it can be said that the increase in inventories in 1991 and in 1992 offset a lack of the same in the second half of 1980s: years of total economic deficit. But on the other hand, this increase could be explained by adjustment of price structure: the main commodities comprising these inventories were for example fuels and metals. Prices for these had increased much more than those for other commodities. At least it is understandable that in 1991 those enterprises expecting further price increases tried to save money by purchasing commodities. In 1992, apart from the increasing inventories, some of the enterprises stored their production because they could not sell it. There was not enough demand in the country: at the same time, however, they continued to produce the very same goods. Thus the arrears were the reaction of the corporate sector to the shocks caused by liberalization of the economy in 1992.

From the macroeconomic point of view as depicted in Tables 11 and 12 some structural changes in the economy are obvious in Russia. They are mainly caused by the adjustment of the price structure, and not by changes in the volume of

production in different sectors. This still does not constitute real treatment and structural adjustment of the economy. It is only the initial stage.

Perhaps some shifts in the structure of investment are necessary for the adjustment of the output structure in real terms. In principle, the proportion of gross investment in GDP did not change significantly during the reforms of 1991–1992. It was still more than 31 percent of the GDP in 1992, but the proportion of fixed investment decreased. This suggests that enterprises have enough money for modernization of their assets and restructuring of the production. The main problem is redistribution of resources. As suggested by many economists in Russia, an increase in centralized investment is a necessary condition of recovery. This is a rather controversial point of view. Section II shows that the efficiency of investment (i.e. centralized) has decreased significantly. What can increase the efficiency of centralized investment now that the entire former system of control and distribution has been destroyed?

5 Conclusion

Russian reforms are more like a long journey through a labyrinth than a leap over a precipice. Taking account of the results of the December 12 elections, the government may seek another way out of the labyrinth in 1994 by altering its economic policy; it may strengthen the role of the state, fix some prices, increase social welfare, and subsidize producers (mainly in the agricultural sector). Perhaps a new course is necessary. Resources are the only problem, and this is the approach outlined above is likely to be incorrect. Enterprises (the corporate sector) are the strongest and most powerful sector of the Russian economy. They play the key role. Enterprises can influence government economic policy significantly by claiming more and more privileges and subsidies. They will still try to maintain their advantageous position and are reluctant to alter their behavior. But the only way out of the post-Soviet deadlock is the to increase the efficiency of production and thereafter implement structural adjustment. Only then will it be possible to solve many of the social problems.

Perhaps this slowdown in reforms is necessary as it is understandable that the mentality of Russian society should be changed. It will take time for society to accept bankruptcies, to get accustomed to unemployment and other inevitable side effects of a market economy. No single remedy is adequate; a combination is required. Perhaps government economic policy should be one of the compromises made in order to find the correct combination needed to reconcile the existing contradictions and thus to maintain political stability. But sooner or later, society will return to the idea of liberalization.

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