

ロシアの経済改革のマクロ経済的側面

著者	Kazantsev Sergei V.
journal or publication title	東北アジア研究
number	1
page range	29-55
year	1997-01-31
URL	http://hdl.handle.net/10097/41006

MACROECONOMIC ASPECTS OF THE RUSSIAN ECONOMY TRANSFORMATION

Sergei V. Kazantsev

Institute of Economics and Industrial Engineering
Siberian Branch of Russian Academy of Sciences

Economic performance of the Russian Federation after 1991 is characterized by sharp downturn in production and severe inflation, the consumer's and producer's demand saturation not by domestic but by foreign supply, growing orientation of the domestic producers on export minerals and fuel, drain of brains and capital out of the country, and as a result by change in industrial structure of economy and falling living standards of population. This paper describes those tendencies and shows their reasons.¹

General Picture of Recent Economic Situation

The depth and duration of recession in Russia after 1991 have no precedent in a modern history of the world economy (Tables 1, 2). Average life expectancy fell down from 69.3 years in 1990 up to 65.1 in 1994 (in 1964–65 it was more than 70 years). According to the criterion that was set by the Federal government, more than 70 percent of all enterprises are regarded as bankrupts. The share of firms which carry losses in the total number of enterprises by regions of the country seems to be directly proportional to the remoteness of a region from Moscow where, according to some estimations, is concentrated 70–80 percent of all national finances. The specific weight of loss-taking enterprises is 21 percent in the Central region, 28 percent in the Ural region, 42 percent in the Western Siberia, and 43 percent in the Russia's Far East. A damage caused to economy by recession is dramatic, and it will take a long time and need a hard work to restore the power of the Russian Federation.

Table 1 Changes in macro indicators (in percent to previous year)

Indicator	1991	1992	1993	1994	1995
GDP	95	86	91	87	96
Industrial output	92	82	86	79	97
Agricultural production	95	91	96	88	92
Investment	85	60	88	73	87
Residential construction	80	84	101	94	105
Consumer price index (in times)	2.6	26.1	9.4	3.2	2.3

¹The article was written in the Center for Northeast Asian Studies, Tohoku University, Japan, where the author was invited as a visiting professor in October–December 1996.

Table 2 Decay of Russia's economy (1995 in per cent to 1990)

GDP	62	Investment	33
Industrial output	47	Food industry output (a)	55
Agricultural production	67	Freight transportation (a)	50
Light industry output (a)	27	Passengers transportation (a)	68

(a) - 1994 in percent to 1990

The role of foreign consumer goods in saturation of the Russian commodity markets grew up strongly after 1991. In 3-4 years foreign products to a considerable extent met Russia's domestic demand. Domestic producers failed to do it for dozens of years. In 1995, according to the sample survey made by the State Committee for Statistics, imported goods gave about 54 percent of total volume of country's retail turnover (in 1994 this share was 48 percent), a share of foodstuff imports in total amount of Russia's imports was 28 percent (and 16 percent in the USSR in 1990) But it is necessary to indicate that some imported to Russia consumer goods have very poor quality. Thus, according to the State Committee of the Russian Federation on Antimonopoly Policy, a share of defective items in percent to total volume of tested commodities in 1994 was rather high [2]:

Confectionery	18.3	Cooked meat	55.2
Milk & dairy products	28.7	Fish & sea products	67.0
Canned meat	50.5	Liqueurs	67.2
Butter	50.5	Baby food	71.0

Imported commodities not only hip the deficit, they also knock-out domestic producers of consumer goods. Alexander Livshits, when he was an economic advisor for President Boris Yel'tsin, expressed his opinion that some sectors that produce consumer goods in Russia will disappear by 2000 [3].

After 1991, on its way toward a market economy Russia became more oriented on export of raw materials and primary sector's products (Tables 3, 4). The volume of their export was growing albeit the production felt down. For example, in 1994 an output of electricity reduced by 8 percent but its export increased by 45 percent and an average export price of one kilowatt-hour of electricity dropped by \$ 4.1; production of ammonium hydrate felt down by 11 percent but its export enlarged by 25 percent, etc.

Table 3 Changes in output, exports, and prices in 1994 (1993 = 100)

	Crude oil	Gas	Coal
Output, %	90	98	89
Exports, %	115	114	89
Average export price, %	96	94	103
Average domestic wholesale price, times	3.2	3.9	3.2

Table 4 Share of commodities export from Russia (per cent)

Commodity	1993	1994
Fuel: Share in general resources		
Coal	7.1	6.4
Gas	26.3	28.8
Oil	30.9	35.0
Metallurgy & metalworking industry products: Share in total output		
Beams & channels	7.3	35.0
Sheets rolling	13.5	44.5
Ferrous metal rolling	14.5	47.1
Nickel	30.0	51.6
Copper	21.3	76.5
Aluminum	49.6	78.3
Ferroalloys	62.9	61.5

General resources = Production + Import from New Independent States + Stocks

This tendency is valid not only for industrial commodities but also for agricultural goods. For instance, in 1994 there was a deficit of sunflower-seed oil in Russia, but at the same time a half of sunflower seeds crop was exported. As a result in the first quarter of 1995 Russia's import of sunflower oil grew in 3.8 times.

It worth to mention that domestic producers of fuels, timber, metals, agricultural products sell the growing part of their output on the world markets not only because the prices on these markets are higher than in Russia or because the reduction in domestic demand. The do it also because foreign partners guarantee payments just in time while it takes months to receive payment after shipping commodities in Russia. The possibility to earn hard currency and to spend it for buying inputs, technology, and consumer goods on the world markets also counts.

In 1995 an orientation of the Russian producers on export of raw materials and primary sector's products received a new powerful impulse. President Yel'tsin issued the Decree "On the main principles of foreign trade activity realization in the Russian Federation" (June 6, 1995. N 245). According to this Decree "a restriction of goods and services export by means of fixation the compulsory amount of deliveries on domestic market is not allowed" and "starting from March 25, 1995, exports of strategically important raw materials is carried out without exporting enterprises and organizations registration for these purposes in the Ministry for foreign economic relations of the Russian Federation".

The Decree tends to realize the statements of the "Declaration of the government and Central Bank of the Russian Federation on economic policy in 1995" (items 34 and 35) which was elaborated for International Monetary Fund (IMF) on the threshold of signing an agreement on lending to Russia \$6.25 billions stand-by credit. It is naturally to expect that such the Decree shortage of strategic raw materials on the Russian markets will become more profound and prices will go up. It is not necessary to argue that contraction of production in a

manufacturing sector of economy (the secondary sector) caused by this processes (the tolling – that is a production of commodities from their buyer’s materials – can not radically change the general situation) will, all other things being equal, lead throughout technological links to curtailment in raw materials excavation and in the end to the reduction of their export. To avoid this consequences producers of the raw materials tend to buy their inputs not in Russia but abroad. It is doubtful that such policy may increase welfare of a majority of the Russian population which income differentiation is rather strong (Table 5).

Table 5 Differentiation of population by per capita money income
January – April 1995

Average per capita money income	Share of population	Share in total money income
High	10	33
Medium	30	37
Low	60	30

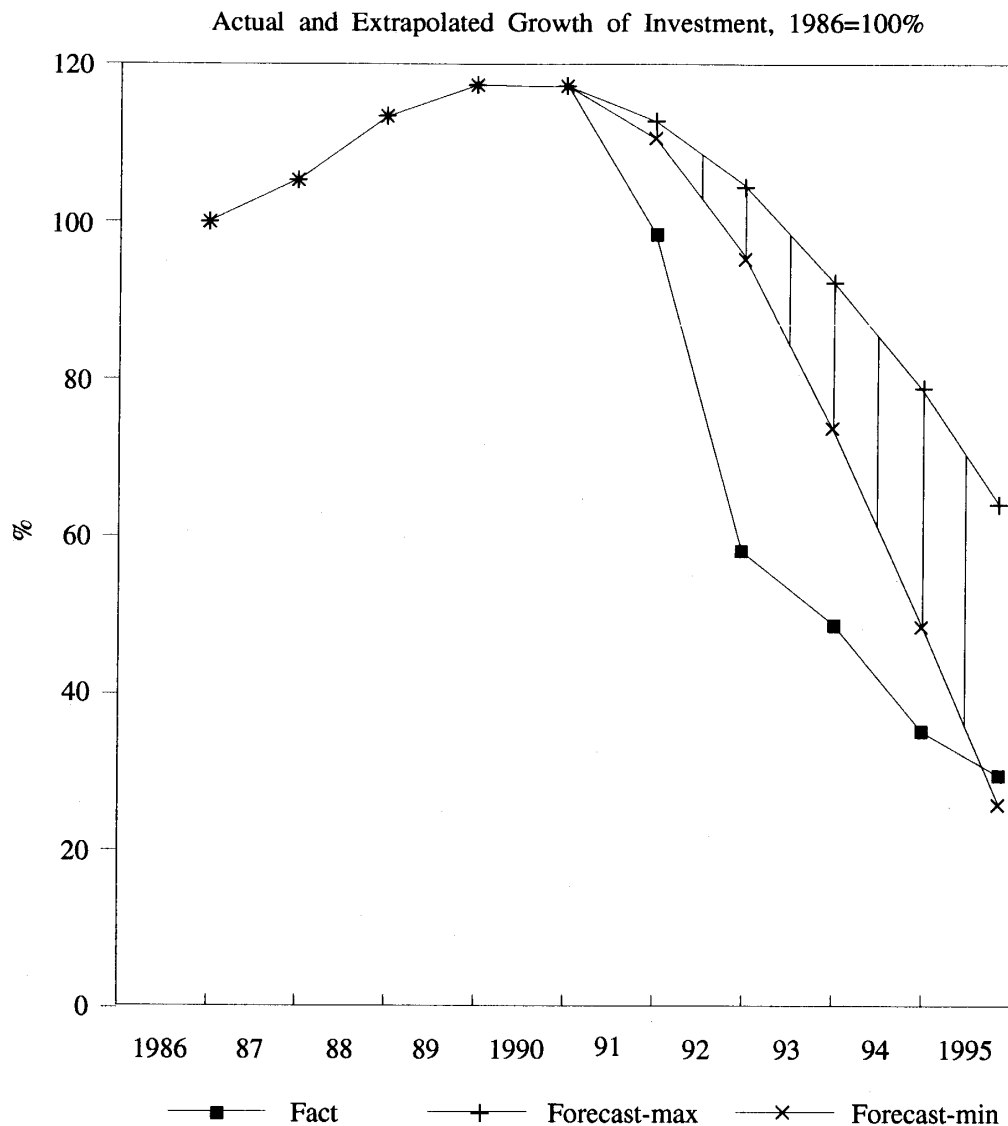
The capital also drains out of Russia. According to IMF information, \$35 billion illegally got out of the country in 1990–1993. In 1994, by the Russian experts estimations, this figure was about \$50 billions [4]. It is natural that potential investors do not invest in an unstable economy with frequently changing legislation, high taxes, and uncertain perspectives.

Ending a brief description of painful and regrettable for population and unusual for the world economy consequences of drastic transformation of the society we may conclude that during four years (1992–1995) an active destruction of industrial and intellectual potential, genetic funds of the nation, natural resources, and environment took place in Russia. An economic potential crated by several generations of the Soviet people now permits Russian to live so long under diminishing reproduction, to live by consuming and exporting previously accumulated wealth.

Man–made Decay

It is natural to wonder if so dramatic reduction in production and a loss of an economic power were inevitable. To answer this question let us compare two paths of economic growth: a real one and that computed by extrapolating the trends of the USSR development in 1986–1990. Figures 1–3 show these paths for three pillars of the country’s economy: investment – a base of enlarged reproduction and enhancement the technological basis of society; oil – one of the main element of energy production, petrochemical industry and export; finished rolled metal products – crucial material for industry, construction and transport.

The actual outputs of all these items, as one can see on the Figures 1–3, lie considerably below the zone of reduction of their production that was computed by extrapolation. Moreover, continuation of the pattern of the USSR economic development does not have such sharp slump in output as Russia suffered in 1991 and especially in 1992. It permits us to think that



Figures 1

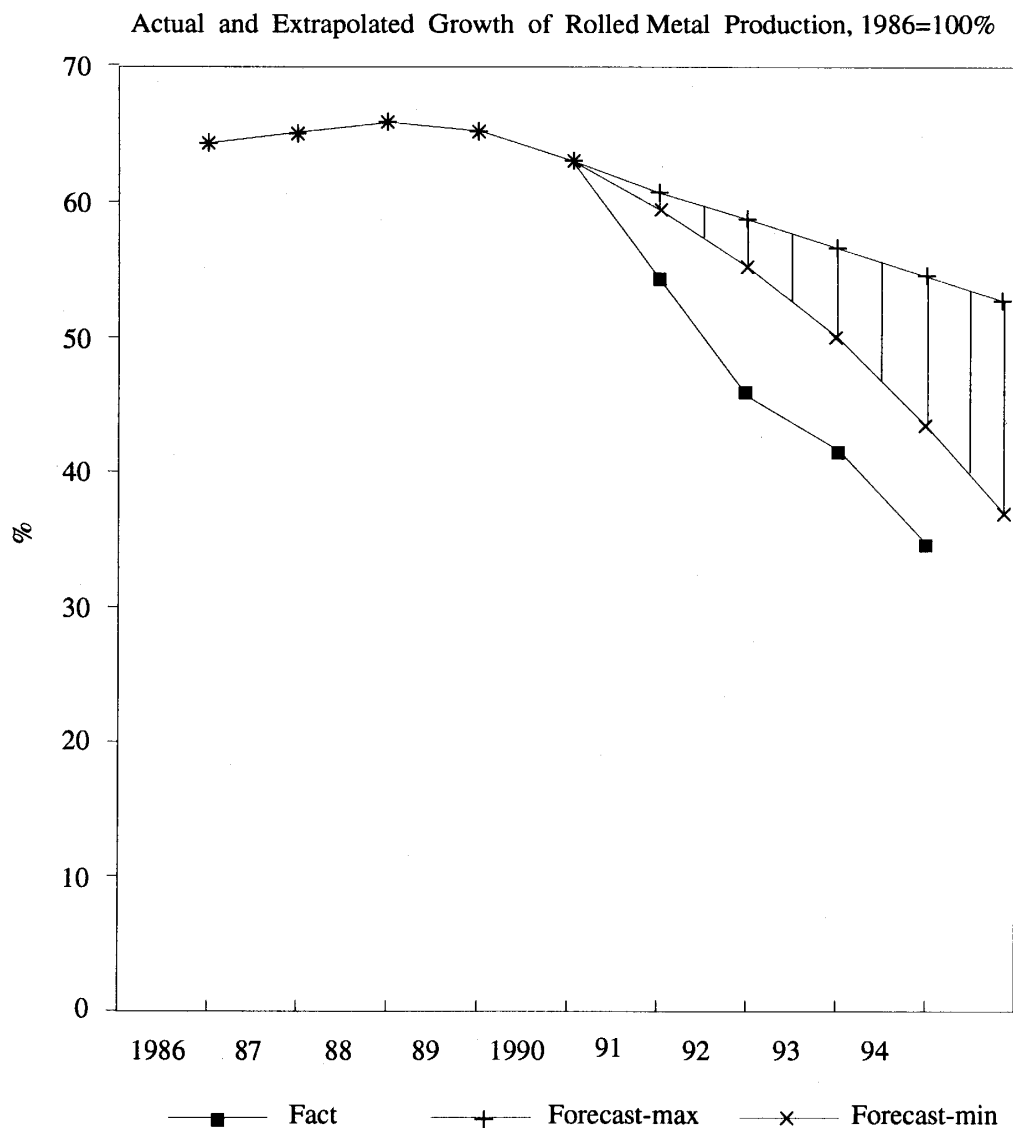
the Russian economy got into a spin in 1991-1992 (see the angles of actual outputs decline on the Figures 1-3) not because its starting point (1989-1990) was so bad, and not due to a character of previous growth. It may be stated that a degradation of Russia's economy a loss about a half of it's industry output after 1991 are the results of a deliberated policy.

The Russian businessmen put their finger on this point at the III Congress of Commodity Producers of Russia in 1994: "Downswing in production is a consequence of the government economic policy" [5].

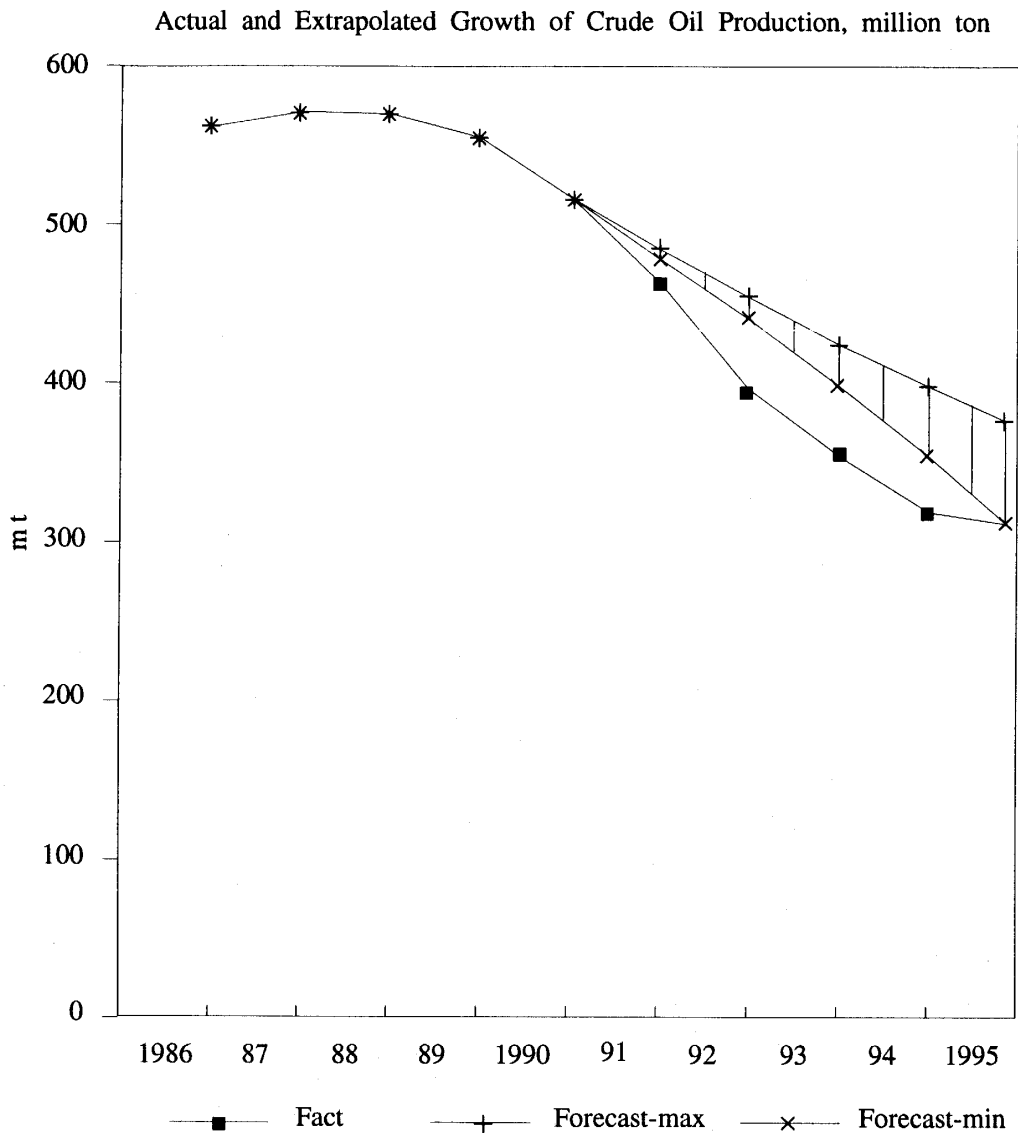
The key factors of such policy were: curtailment of the state investment in national economy; breaking up the business, informational, technological and scientific links among economic agents; destruction of historically established channels of commodity flows and logistics, elimination of a central planning system, abolishing the state control over price

formation (so called "price liberalization"). All those factors worked simultaneously, and that produced a synergy effect.

Sharp reduction in the volume of state investment in 1991 and especially in 1992 (Figure 1), deprived enterprises of feasibility to continue their normal reproduction process. Together with the rocketing prices it led to a situation in which there firms had no investment even to maintain and renew fixed assets were wearing out and ruining. There are no prove that such dramatic and fast decrease in state investment was economically warrant, especially at the time when there were almost no vital private enterprises. It is necessary also to stress that it do was a general reduction in total amount of investment but not their reallocation or reorientation at new aims and new objects. (The same occurred with a military conversion when the federal government simply cut defense spending² and did not reallocate the money



Figures 2



Figures 3

neither to civil sector, nor to social programs).

An economic analysis made in the Institute of Economics and Industrial Engineering, Siberian Branch of the Russian Academy of Sciences (IEIE) at the end of the 80s, showed that shrinking the share of budget investment in the USSR was not followed by the rise in efficiency. Now there are no indications that efficiency of state investment, which was achieved in the 80s, was overpassed by non-state investment made after 1991. The studies in the IEIE

²According to CIA and DIA estimations, by the end of 1991, total defense spending and procurement in the USSR were about at the level of 1970. (The Former Soviet Union in Transition. The Joint Economic Committee of the United States. Ed. by Richard F. Kaufman and John P. Hardt. 1993, pp. 19, 705). In 1991-1992 decline in real defense spending was 68 percent.

have also shown that when a share of state investment in the total volume of investment falls below 40 percent the government investment policy can not form an optimal structure of production in the USSR [6]. In 1994, the share of investment that was funded from the federal and local budgets, from extra-budgetary funds, and privileged state investment credits dropped to 33.6 percent, in 1995 it reduced to 23.4 percent. So, the Russia's federal government does not determine any more the pattern of investment and, hence, the structure and volume of production.

Disintegration of business links among enterprises of different regions, disorganization of the system of commodity flows and logistics, demolishing the planning system in Russia messed up economic activity, left firms without inputs, and made an economy unmanageable by the federal and local authorities. As far as the market mechanism and market forces are concerned, they, as it is well known, do not prevent economic recessions but cause them.

An absenteeism of the state in Russia from price formation after January 1992, under existence of monopolies in production, communication, and trade sectors, under shortage of commodities, and lack of fair competition and comprehensive legislation, under existence of numerous barriers among local markets dispersed all over Russia resulted in such upward flight in prices that no economy can stand to without collapse.

One of the argument that was widespread in mass media was that the country needs a rise in prices in order to bridge the gap among domestic and the world prices. (It was said about all prices but the price of a labor force, this argument was never applied to the wages and salaries that grew infinitely slow in comparison with prices). The argument is far from to be valid. The core is in the factors that determine a structure and a level of prices. A system of technologies in use, a level and a structure of output, a volume and a composition of solvent demand, an average per capita income are the most important of them. These factors form a basis that prices fluctuate around and these key price formation factors in Russia were and are far from an average world level. These factors are, first of all, to move closer to the world level. And so far as they are approaching it, these factors, acting in a system, will form adequate prices. Any other attempt to level domestic and world market prices inevitably causes a general price growth. That is what we observe in Russia.

There also were many pitfalls in federal legislation that lead economic agents to bankruptcy. I will illustrate it on an example of The Institute of Economics and Industrial Engineering, Siberian Branch of the Russian Academy of Sciences (IEIE) were I am a deputy director since 1989.

The Institutes of the Russian Academy of Sciences (RAS), including the Siberian Branch of RAS and the IEIE, are funded from the federal budget. Before the beginning of *perestroika* about 70 percent of the IEIE's budget went from the State budget. All the rest the Institute earned working for the federal and local authorities and on business contracts with enterprises. After January 1992, the most of enterprises have no money even to pay wages to their workers, firms' poor financial situation drained the flow of their payments to local budget, plus there was a sharp cut in the federal budget's transfers to local budgets. So, neither enterprises nor local authorities can afford business contracts with academician institutions. As far as the federal budget is concern, it gives money to our

Institute (and to other institutes of RAS) only to pay salary and tax on the salary. This money comes with up to 4 months delay, but according to the legislation we must pay tax on salary not after the salary was paid but every month on a fixed date. The tax counts on so called 'counted' wage (in the Russian official statistic even appeared a new term: 'counted wages and salaries'). If we do not pay tax in time we are charged additional one percent for every day of a delay. To survive in this situation firms and institutions in Russia started to send their staff in vacation without payment or to work two or three days a week (instead of normal five). In both cases they do not 'count' wages and salaries and hence may do not pay tax on salary. But in spring 1996 the IEIE received a government's Decree that prohibits to send employees on unpaid leaves or to introduce a shortened work day. I don't know, may be that is an occasional coincides, but shortly after this Decree the delay in transferring money to the Institutes of the Siberian Branch of RAS almost doubled.

Price growth and downturn in production

Industrial output in Russia taken in constant prices falls starting from 1990. Industrial downswing, when all other things remain constant, is followed by reduction in profits and earnings. But if there are no restrictions on a level of price a possibility arises to prevent, during some time period, the profits and earnings reduction by augmenting the prices. According to classical economic theory the rise in prices stimulates an increase in output. The logic of such effect is well known: prices grow because demand is greater than supply, a higher price yields a larger profit, so it is profitable to meet a demand by increasing an output.

Important circumstances of a real life are omitted in this chain of reasoning. First, enlargement of a scale of production of some commodity augments a variable costs of its manufacturing. So it is necessary to compare a diseconomy of scale with an increment in income. Second, prices of many other commodities may also rise. If these commodities are means of production growth in their prices either directly or indirectly will push up the cost of inputs. If they are consumer goods increase in their prices will stimulate the wages growth. In both cases it may enhance the cost of production of a commodity under consideration and make its output unprofitable. Third, enlargement of a production of any commodity, in general case, must be financially and technologically feasible for its producer.

These circumstances were crucial for Russia, and they broke the classical response of economic agents on the price growth. In a conventional theory it is assumed, and it is usually true, that a supply is an increasing function of price. In Russia's reality due to the above-mentioned circumstances a function of supply appeared to be, so to say "unconventional" one, it decreased with the growth in price. It worth to mention that such "unconventional" behavior was earlier known for a demand function: Giffen goods it is an increasing function of price.

In Russia after January 1992 prices were quickly growing, so the cost of production of every single good grew up significantly. That made a production unprofitable. For economic agents there were several principle way to cope with the high expenses: to reduce expenses by improving the management and introducing new technologies, or to reduce an output, or to rise prices. The first way was rather uncertain for the Russian producers: unstable and poor

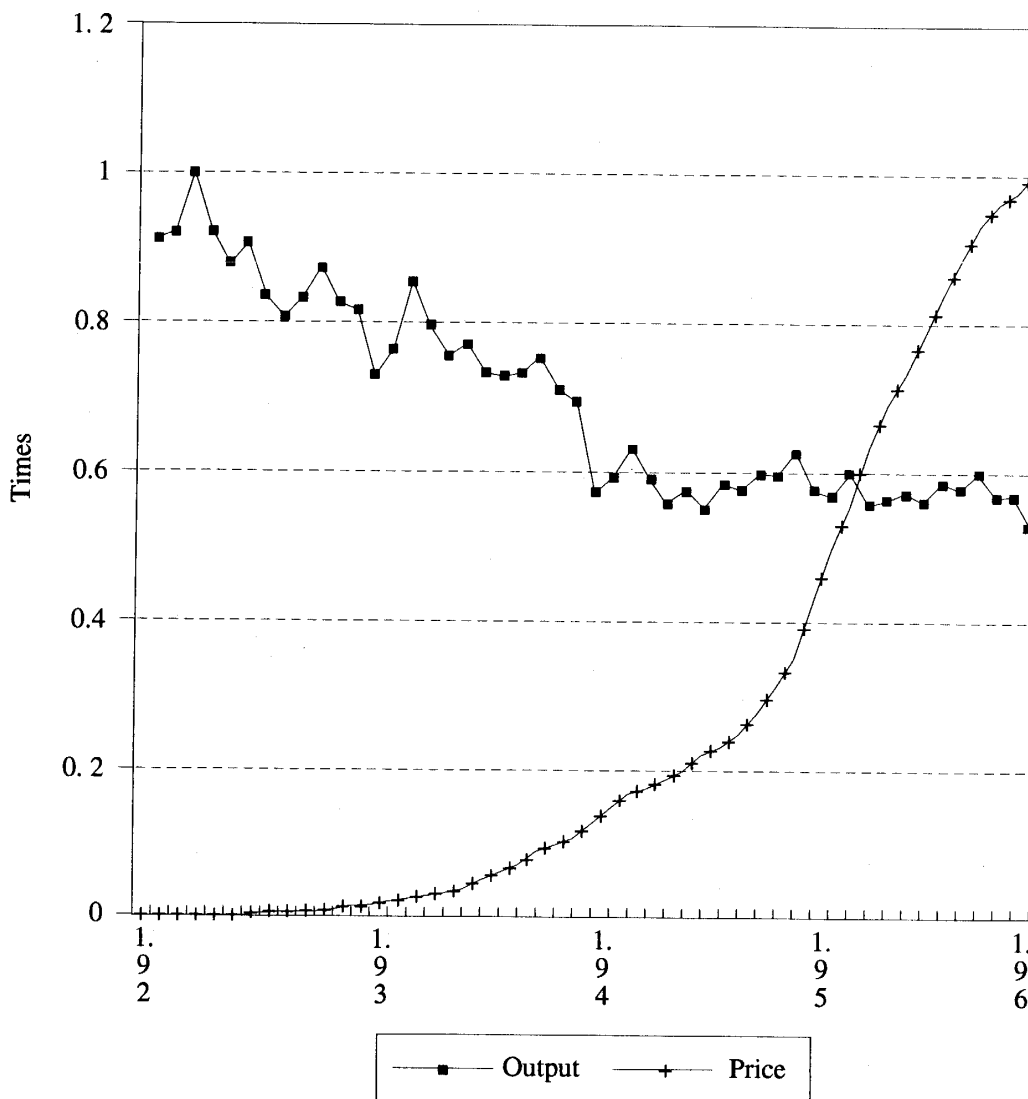
worked out legislation together with turmoiling economy brought to naught all improvements in firm's management; and galloping inflation depreciated all their accumulations, took away the circulating capital. Enterprises had not enough capital even for simple reproduction and could not borrow a credits because of extremely high (a percent and more per a day) interest rates. So they could neither to enlarge nor to renew their production. Even if they have capital for maintenance and upgrade investment, it would take time to embody investment into technology and to learn how to reduce costs significantly.

Meanwhile the second and the third ways were feasible for the Russian producers. To struggle with a growing cost of production, which augmented together with a rise in prices and degradation of machinery and technologies, enterprises reduced the scale of production continue to increase prices. They used price growth as a mean to receive profits and to pay workers, to cover the rise in production and transportation expenses. High prices reduce solvent demand. Under a shortage of investment and absence of technological progress it stimulates a contraction of outputs [7]. Even if an increase in prices was not an initial cause of a fall in output it speeds the recession. A development in the time of a chain of events: reduction of output --- increase in prices --- reduction of output, etc. - is a result of a feedback between price and output. The steady tendency of prices to grow while industrial output falls is illustrated in the Figure 4 (This tendency is so steady that some scholars attribute it to a purposeful policy of the federal government [8]). An experience of economy transformation in East European countries also indicates a lack of positive influence of increase in prices on the rates of economic growth.

High prices attract new economic agents to enter the market. According to standard economic theory any firm that charge a higher price will be undercutted by a new entrant, who charges a lower price. In Russia both existing end new enterprises and businessmen had have not enough capital to launch new production and to struggle for their niches on the new markets (at least at a scale that may stop the growth in prices). An amount of capital that is necessary to start new business is much smaller in trade and services sectors, and namely in these sectors private business in Russia started to develop most rapidly. Under a dramatic fall in domestic production, low quality and poor choice of goods in Russia it natural to start a commerce with trading imported commodities. In such a manner price liberalization in Russia inevitably spurred enlargement of the share of foreign goods in Russia's markets. Domestic producers were not ready to contest with foreign firms, suffered a defeat, and were forced to curtail their production.

On the other hand, imports are to be paid. There were two channels in Russia to get money to pay imports. First was an export of commodities that could compete on the world markets such as fuel, metals, timber and some other minerals and natural resources. In such a manner price liberalization and private initiative forced the Russian economy to export raw materials. The second way to receive hard currency to pay exports was opened by convertibility of ruble. For example, trade-shuttling salesmen (the new Russian businessmen) in 1992-1993 bought butter abroad by \$1 per kilogram, sold it in Russia for rubles, convert

Dynamics of Industrial Output (Dec.91=1) & Producer Price (Jan.96=1)



Figures 4

rubles and yielded \$3-5 per kilogram. Income usually was taken out of Russia. Numerous middle-men, dealers, and retailers also play a prominent role in boosting prices.

As a result such entrepreneurship saturated demand and absorbed monetary overhang. That is an overflow of foreign commodities in Russia's markets that, I think, played one of the central roles in forcing prices back down in Russia in 1996. On the same token it assisted in destroying the Russian processing industry to the capital flow out of the country.

Technological progress and solvent demand are, as known, the key factors that in a long-run keep prices down. Technological progress lowers the cost of production of a unit of use value, aids to increase outputs. The volume of solvent demand restrains or accelerates an extension of production. Unfortunately none of them acted in Russia during the period under consideration: there was not progress but regress in technology, and the lack of money did not

held prices from growth but provoked a growth of non-payments, debts, dollarization of economy, and an exchange of commodities by means of commodities.

From an identity equation $S * p = D$, where S - is a physical amount of supply, p - is a price, and D - is solvent demand, it is easy to see a producer's response on a decrease in solvent demand may be (1) a reduce in supply with no change in price, (2) a lowering the price with no cuts in the volume of output, (3) a diminishing both the price and the volume of production. A character of the response depends on various circumstances, particularly, on a level of supply monopolization. The stronger the monopoly, the higher probability that the first response will be realized. Change in output but not in prices is a typical reaction of a monopoly on short-term fluctuations in supply and demand. A level of monopolization of production and commerce sectors in Russia is rather high, so there is noting surprising or contradicting to the economic theory in the fact that economic agents are bringing down the volumes of production and increasing prices.

Our economico-mathematical studies of relationships between producer prices increase and gross output dynamics exposed the following features of their links.

1. If producer prices and return on inputs do not decrease it is possible to reduce the scale of output of a given commodity without decrease in a level of profit only if the price of that commodity rises. Moreover, the pace of the price growth is correlated with a size of reduction in output and depends on the level of input intensities (input-output coefficients in Leontieff's model) and on an increase in the prices of factors of production.
2. If the level of input intensities and/or wage intensity are growing it is possible to maintain a desirable level of profit, when the output is reduced by a given magnitude only, if the producer price of a commodity under consideration will grow faster than input intensities.
3. When producer prices of different goods rise with different rates, it may appears that the level of price increase, which permits a producer to keep the volume of his profit constant, is so high that it causes losses at others producers. It means that if one of producers rises his price and receives profit others may have losses.

All these characteristics can be observed in Russia during the transition period: there were strong inflation, dramatic fall in production, quick rise in profits in current prices, relative and absolute increase in a number of loss-bearing enterprises, differentiation of producers by their income.

On an information for Russia, I estimated the scale of reduction of industrial output, taken measured in physical terms, and the rates of average industry price's growth which guarantee that profit in that industry will not diminish. The results of the estimation are given in the Table 6. The data of that table shows that an actual reduction in industrial output in Russia was smaller and real increase in prices greater than it was necessary for the profit not diminishes. Hence, there was a room for increase in profit measured in current prices. The profit in current prices in Russia's industry grew in 2.8 times in 1991, 18 times in 1992, 6.8 times in 1994, and 1.8 times in 1995. At the same time a share of loss-making firms in the industry enhanced from 7 to 22.5 percent, and there was well pronounced differentiation of

producers. Similar pictures were in the other sectors of the Russian economy.

It is well known both from an economic theory and practice that it is necessary to expand solvent demand in order to sell a larger amount of goods at higher prices. Using a well known equation of a quantity of money in circulation and assuming that a velocity of money circulation is constant, I calculated an amount of money that is adequate to an expansion of solvent demand (Table 6). It appeared to be greater than was a supply of money (M2). The gap was covered mainly by an enhancement of debts. For instance, the volume of creditors debts, failed to be paid in time, in the industry, construction, agriculture, and transport sectors grew by 13.1 times and debtor debts by 9.2 times in 1993. In 1994, the rates of their growth were 5.5 and 4.5 times [9].

The results of our study of relationships between an increase in prices and reduction in industrial output the following conclusion may be made which is useful for an economic policy-making in Russia: Because the raise in prices under Russia's economic circumstances is followed by decrease in outputs it is no use to rise prices to spur the country's economic recovery. Under recent economic situation non-price instruments are to take precedence over prices in the Russian macroeconomic policy.

Table 6 Rates of growth of prices and industrial output that ensure no decline in profits (in times)

Indicator	1991	1992	1993	1994
Producer price index				
Estimate	1.5	6.9	4.3	2.5
Real	4.5	33.8	10.0	3.4
Index of industrial output (growth in physical terms)				
Estimate	0.61	0.32	0.4	0.28
Real	0.92	0.82	0.86	0.79
Money supply (M2)				
Estimate	2.2	16.8	8.5	2.6
Real	2.2-2.8(a)	7.4	5.2	2.9
Operating profit (growth in current prices)	2.8(a)	18.1	6.8	1.8

(a) - estimation

Interconditionality of Prices and Money Growth

The prices growth opens a way for monetary emission and for expansion of quantity of ready money in circulation (monetary aggregate M0). The logic of this causal relation is the following. A quantity of money in circulation always tends to be in accordance with the sum of market prices of commodities. So, all other things being equal, the volume of money should grow with an increase in prices. Rates of this growth decelerate when (a) a velocity of a quantity of money in circulation speeds up, (b) a system of cashless payments improves and

develops, (c) supply of goods and services shrinks.

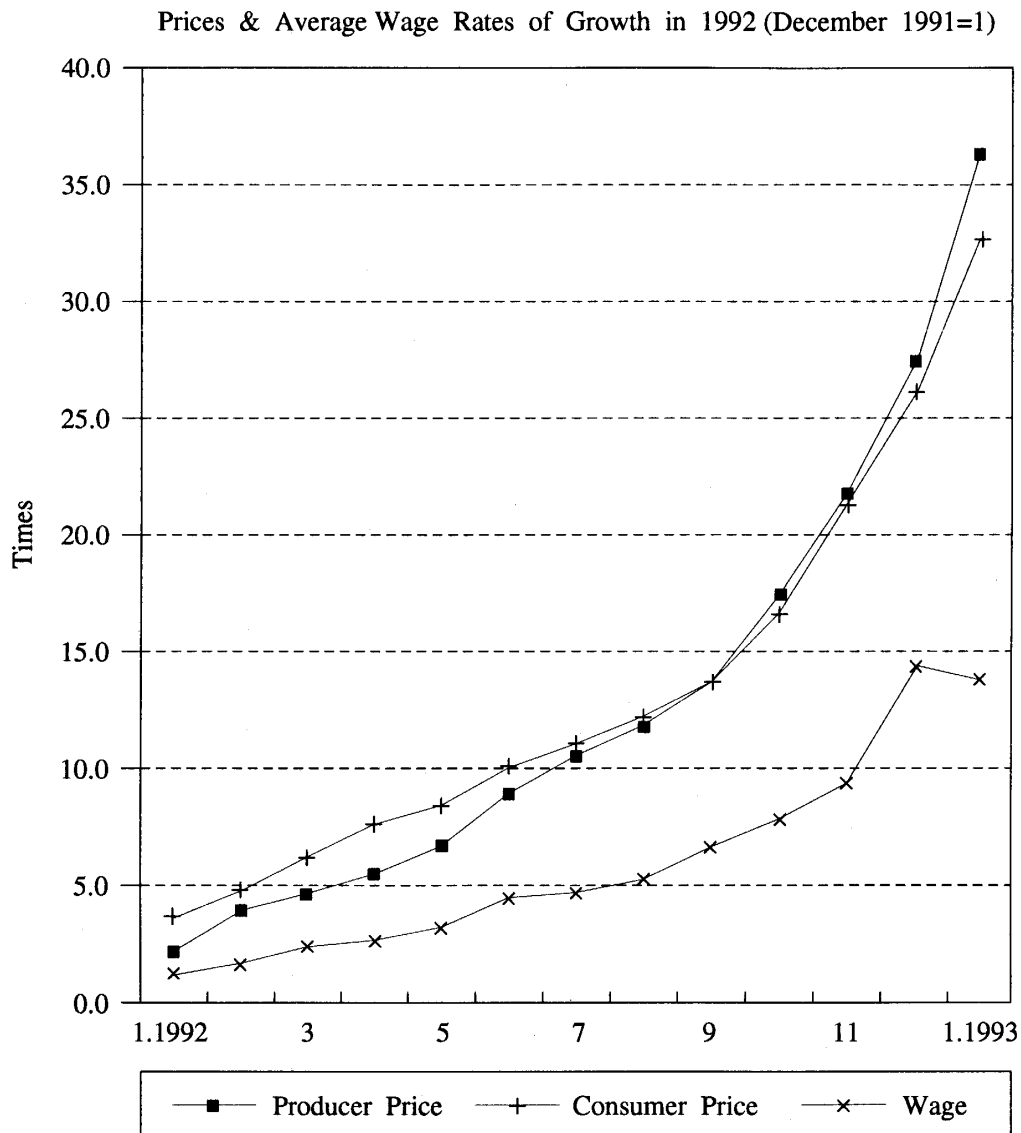
Because of disorder in functioning of financial and credit systems, regional and commodities markets localization in Russia after 1991, a velocity of money turnover did not compensate the increase in demand for money. A system of cashless payments was undeveloped. Moreover, under a high level of uncertainty and instability of political and economical situation economic units and population in Russia preferred to pay in cash. This inclination to cash was strengthened when economic agents realized that commercial banks and accounting centers dramatically increased the time of checking payments and that transactions for cash give a chance elude taxes. The reduction in domestic production and in supply of domestic commodities was exceeded by a flow of imported goods. So, all three mentioned above factors did not low a necessary quantity of real money in circulation. The demand for money was growing up and the state responded by monetary emission.

At the same time rise in consumer goods prices, transport tariffs, costs of heating and electricity increased the cost of living. In order to compensate it workers, using strikes and other methods, pushed wages up. From January 1992 an average monthly wage in Russia rushes after an aggregate consumer price index but the gap between fixed base indices is becoming larger and larger (Figures 5-7).

An increment in wages, which was stipulated not only by quality and quantity of labor but by inflation, provoked emission of money that were not secured by commodities. That is a well known wage-and-price spiral.

Analysis of an aggregate consumer price index and an index of growth of a quantity of real money in circulation (M_0) showed that in an investigated period (February 1992 – July 1996) every flight up of consumer prices was inevitably followed by a boost of M_0 . In its turn, the rise in a quantity of real money in circulation caused a rise in prices. Initial impulse to this self-reproducing process was given by price liberalization in January 1992. According to available data, an aggregate consumer price index grew faster than an index of M_0 during 26 months out of 54 months in the time series under consideration.

If a system of technologies that is used in a given society does not improve, a general increase in consumer prices rises, with a certain time lag, wages and salaries. Wages and salaries in their turn push a cost of production up that finally leads to a growth of producer's prices. The later is speed up both by producers desire to receive a greater profit even when the output falls down and by a high level of monopolization of production and trade sector in Russia. As a result producer's prices rise moreover that a public control over prices was dismantled. Throughout technological links it provokes a cost of production enhancement in all economy. (So long as consumer goods prices include cost of used means of production, the change in producer prices of the means of production affects with a certain time lag on the dynamics of consumer goods prices). The general price increase in Russia was one of the key reason of universal insolvency. Enterprises did not pay to each other for deliveries of commodities, postponed wages to their workers, did not pay taxes and duties to federal and local budgets, delayed payments for credits to banks. By the same token, banks did not return



Figures 5

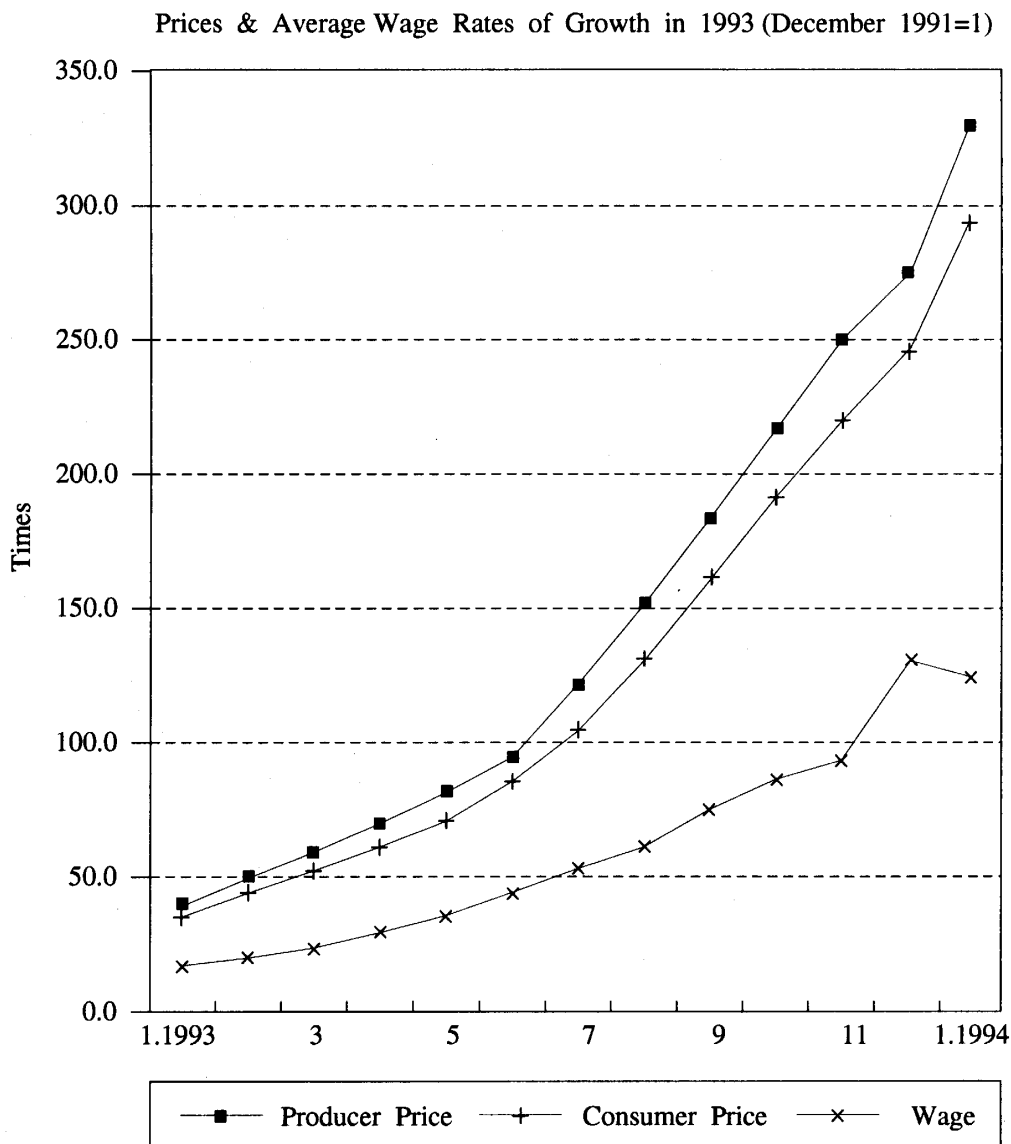
deposits to their clients and retarded monetary transactions (in August 1995 they even ceased to give credits to each other). Having no money from enterprises the units of the Russian Federation did not do their payments to the federal budget. The state, in its turn, did not pay for the commodities that it ordered to firms and postponed (often more than for six months) payments of wages and salaries in public and defense sectors, and social welfare.

When direct state price fixing was abolished in January 1992 (and the federal authorities in the USSR set directly about 50 percent of all prices) the consumer prices rocketed. Index of their growth outstripped an index of average wholesale prices in industry. But already in October 1992 the rates of growth of wholesale prices left the consumer prices behind, after that the gap between their fixed base indices was broadening (Figures 3-5).

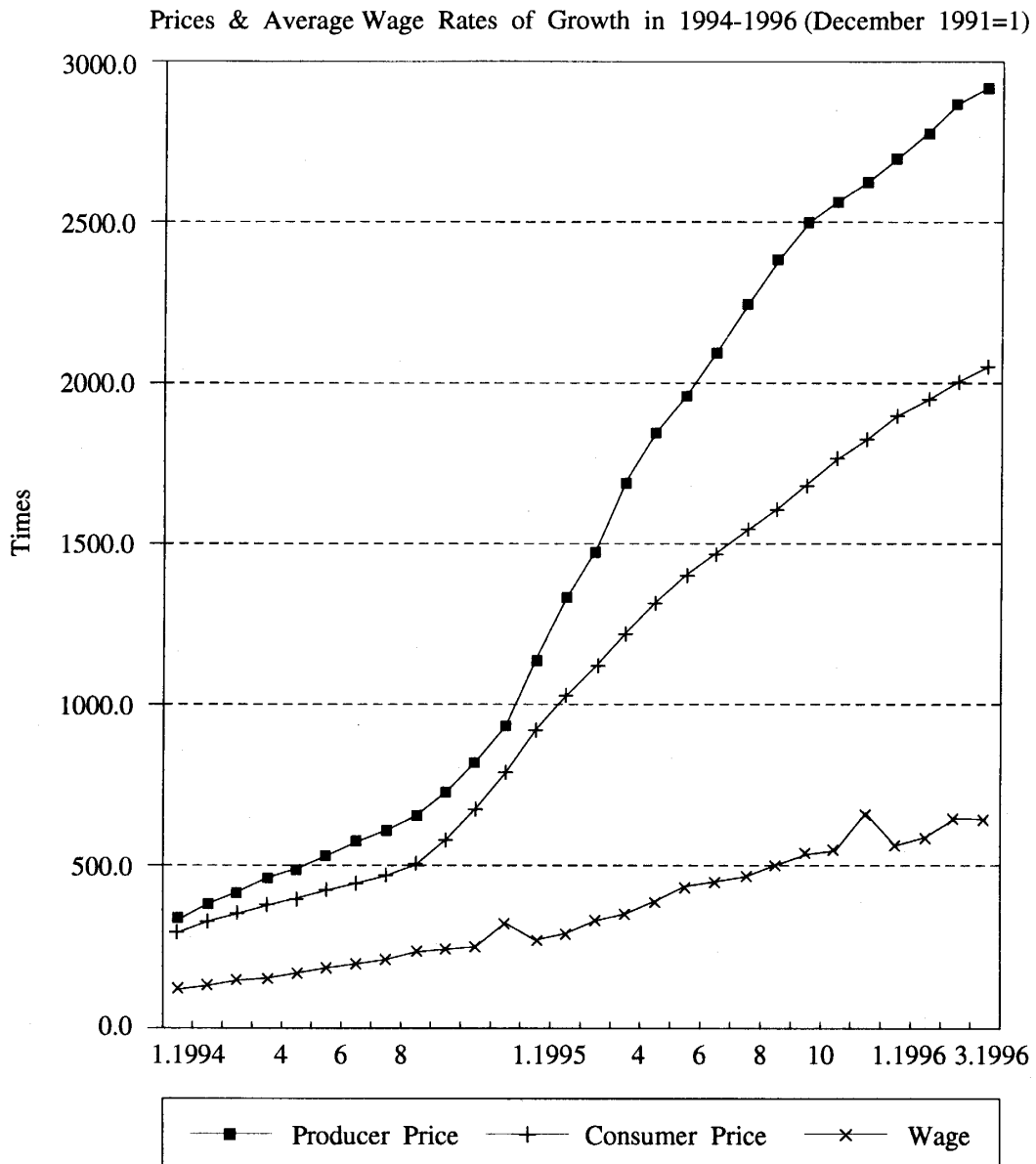
In conformity with the law of the quantity of money in circulation, the growth of producer

prices augments the quantity of money (monetary aggregate M2). During the analyzed period of time an interdependence between index of prices of producers of industrial production and index of the quantity of money M2 is similar to an interconnection between consumer price index and index of a quantity of real money in circulation M0. From January 1992 throughout June 1992 prices of producers of industrial production grew faster than M2; from July 1992 throughout November 1992 the pace of the quantity of money passed ahead of the prices. After that the prices again rose quicker, then the speed of M2 expansion outstripped that of prices, and so on and so forth. In a short, the behavior of the difference of prices and money indices in analyzing time period was alike the swings of pendulum with convergent oscillations. Inflation stirred up the increase in money supply, and in its turn it gave the rise to inflation.

In addition to all this, the price growth facilitates an income differentiation in society. An



Figures 6



Figures 7

income stratification of society promotes to the specification of the commodity groups and the prices of these commodities. They destine for concrete stratum of society with certain style of life and level of welfare.

Ending the consideration of the relationship between prices and money, I would like to assert that renunciation of the society's control over price formation was the starting point of dramatic rise in prices and increase in the quantity of money in Russia. The striving of the economic agents for enrichment in a society with no strict and fair rules of economic behavior and business ethics, the absence of technological progress and supremacy of monopolies in key sectors of economy created conditions for a self-sustaining growth of prices and quantity of money. Hence, to stop the interdependent increase in prices and quantity of money the society first of all has to introduce a public control over price formation, restrict the omnipotence of

monopolies, originate a zest to innovations and technological progress.

Structural changes and economic recession in Russia

Dynamics of economic growth and a structure of national economy are mutually related. The path of economic growth can not be changed without adequate shifts in the pattern of economy. The later to the large extent predetermines the pace and the character of the country development. By the same token, a character of economic growth causes structural changes which correspond to the nature of socioeconomic development.

In the process of transition to another social system the federal and local authorities in Russia cardinally changed their economic policy. The economic agents activity also transformed. That is natural, because a new system has its own rules, laws and regularities, and economic policy are to be in accordance with them and to seek for the most effective solutions. New economic policy inevitably involved the changes in the rates of economic development and structural shifts.

The pace of Russia's economy growth constantly drags public attention, but the problem of structural changes during the last five years sometimes arose and sometimes was forgotten. As a rule, this problem is recalled because the structure of new economy has to be formed purposefully, but as far as the pattern of the Russian economy changes spontaneously and not for the better it was immediately forgotten.

In this section we will consider some aspects of changes in the structure of national economy and the links among these changes and the behavior of a set of macroeconomic indicators. Available statistical data permit us to study some aspects of industrial structure of employment, wages, and outputs. So, let us proceed with there analysis.

The structure of employment

From 1971 through 1995 the number of employees in different sectors of economy and the number of production personnel in the branches of Russia's industry changed unevenly both in time and by sectors and branches. In 1991 the total number of employees in Russia made a turn from growth to decrease.

The number of employed in industry, construction, transportation and communication, education, culture and art grew from 1971 through 1990 and started to diminish since 1991 (Table 7)³. The reduction in number of employed in agriculture and forestry (annually by 52 thousand in 1971-1990) turned into growth (annually by 96.3 thousand in 1991-1994). There was a deceleration in the rise in employed in the health service, physical culture and sport, social maintenance for population (from 62 thousand annually in 1971-1990 to 0.5 thousand annually in 1991-1994), but acceleration of the growth of employed in commerce and logistics (from 53 thousand annually in 1971-1990 to 145 thousand annually in 1991-1994), in crediting, finance, and insurance (from 8 to 57 thousand annually).

The change in the number of employed in different sectors of Russia's economy altered

the structure of employees. The share of occupied in industry, agriculture and forestry, transportation and communication reduced, and that of employed in construction, in commerce and logistics, in housing, municipal and communal services rendered to the population, in health services, physical culture and sport, social maintenance for population, in education, culture and art, in science and scientific services, in crediting, finance and insurance grew up.

Table 7 Distribution of employees by sectors of Russia's economy, %

Sector	1970	1975	1980	1985	1990	1995
Industry	33.9	33.0	32.5	32.5	30.5	25.7
Agriculture & forestry	17.6	15.6	15.0	14.0	13.2	14.8
Transport & communication	8.9	9.4	9.6	9.7	7.8	7.9
Construction	8.9	9.6	9.6	9.4	12.0	9.7
Commerce & logistics	7.7	8.2	8.3	8.3	7.8	9.7
Housing, municipal and communal services rendered to the population	3.2	3.6	3.9	4.1	4.3	4.9
Health services, physical culture and sport, social maintenance for population	4.8	4.9	4.8	5.0	5.6	6.7
Education, culture and art, science and scientific services	11.8	12.2	12.7	13.1	13.8	13.8
Crediting, finance and insurance	0.4	0.4	0.5	0.5	0.5	0.8(a)
Administrative bodies of management	1.9	2.0	1.8	1.9	2.3	2.5
Other sectors	0.9	1.1	1.3	1.4	2.4	4.3(b)
Total	100.0	100.0	100.0	100.0	100.0	100.0

(a) - in 1993

(b) - including crediting, finance and insurance

The industrial structure of production employees also changed noticeably. During the period under consideration the number of production employees decreased in forestry, woodworking, pulp and paper industry, constructions materials sector, and in light industry. It rose in electric power production and electric energy services, fuel sector, ferrous metallurgy, non-ferrous metallurgy, food industry. The largest reduction of the personnel was in machine-

³The supporters of a shock therapy and free marketeers outside Russia often complain that retrenchment in employees in Russia is not large enough. Let me on an example of the IEIE to show some difficulties on the way of dismissing personnel. On summer 1996 there were around 450 employees in the Institute. More than 90 have already passed their pension age. Before perestroika we may retired them according to the SSSR Labor Legislation, during M.S. Gorbachev presidency the Labor Legislation was changed and now can not do it. Before 1991 we may fire our worker if he or she have another job which was received without the director of the Institute permission, but now, according to President Boris Yel'tsin Decree, we also can not do it. To dismiss someone on the reason of cutting personnel we are obliged by our Labor Legislation, first, to receive an agreement from the Institute trade unions (and they by their mission have to protect but not lay out their members), and, second, to pay to this person two months' wage (in some cases we have to pay wage for three months). How can we do it if we have no money to pay even one month's wage?

It seems that instead of firing workers the IEIE may cut their salaries. But we can not do it because legislation prescribes to pay employees in accordance with Common Tariff System that fixes the volume of payment in accordance with profession and skill of a worker.

building and metalworking sector: by 573 thousand annually. Then goes light industry: 196 thousand annually. The share of production employees occupied in electric power production and electric energy services, fuel sector, ferrous and non-ferrous metallurgy, chemical and petrochemical industry, constructions materials sector, food industry increased (Table 8).

Changes in remuneration of employees

Average monthly money wages in the sectors of Russia's economy and in the branches of industry changed, similar to the number of employees, unevenly both in time and by industries. Separate sectors and branches sometimes improved, sometimes lost their positions in the level of workers remuneration. In 1970, the highest average wage among sectors was in construction. It was 1.3 times higher than an average in economy. The construction was followed by transport, science and scientific services (1.8 times higher than an average). The lowest average wage was paid in agriculture (74 percent of an average wage in economy), in culture and art (75 percent), in health services, physical culture and sport, social maintenance for population (78 percent). An average wage in construction was 1.7 times greater than in agriculture.

From 1970 through 1990, payments to employees enhanced, but its rates of growth were different in different sectors of economy and branches of industry. By Goskomstat's data, crediting, finance and insurance, construction, administrative bodies of management were leaders in an average monthly wage increase. In 1990, the average monthly money wage in crediting, finance and insurance was 35 percent higher than an national economy average, in construction and in administrative bodies of management by 24, in science and scientific services by 16 percent higher than average wage in economy. The lowest average wage were in culture and art. It was 62 percent of an average in economy and 2.2 times smaller than in crediting, finance and insurance.

Table 8 Industrial structure of industrial production personnel, %

Industry	1970	1975	1980	1985	1990	1995 estimate
Industry - Total	100	100	100	100	100	100
Power energetic	1.8	1.9	2.1	2.3	2.6	4.4
Fuel industry	3.9	3.4	3.6	3.7	3.8	5.3
Ferrous metallurgy	3.8	3.6	3.6	3.7	3.7	4.7
Non-ferrous metallurgy	2.4	2.3	2.3	2.3	2.3	3.3
Machine-building & metalworking sector	41.0	43.5	45.2	46.0	46.0	43.5
Chemical and petrochemical industry	5.3	5.4	5.4	5.4	5.4	6.0
Forestry, woodworking, pulp & paper industry	10.8	9.9	9.0	8.7	8.5	8.7
Constructions materials sector	5.5	5.6	5.5	5.5	5.2	6.2
Light industry	14.6	13.4	12.4	11.4	10.9	8.5
Food industry	7.6	7.8	7.0	6.9	7.4	9.4

In the period from 1991 through 1995 the highest rates of growth of wages and salaries were in two sectors: housing, municipal and communal services rendered to the population; crediting, finance and insurance. The slowest paces of wages and salaries growth were in agriculture, science and scientific services, forestry, and construction. In the result the largest wages and salaries in 1995 were paid in crediting, finance and insurance: 1.64 times higher than an average in economy. Wages in transport were in 1.57 times higher than the average in economy. Very low wages and salaries were in science and scientific services (63 percent of that in average in economy), in culture and art (58 percent) and in agriculture (47 percent of the average in economy). An average remuneration in crediting, finance and insurance was by 280 percent greater than in culture and art.

In industry the largest wage in 1970 was paid to production employees in non-ferrous metallurgy, fuel sector and in ferrous metal industry. Wages in light and food industries were below an average in the industry (Table 9). An average monthly money wage in non-ferrous metallurgy was 1.99 times greater than in the light industry. There also was a strong differentiation in wages among subbranches of aggregated branches of industry.

From 1970 through 1990 the average monthly wages grew most rapidly in electric power engineering, light and food industries (about 240 - 250 percent). The slowest paces of an average monthly wage growth were in chemical and petrochemical industry (210 percent), non-ferrous metallurgy (213 percent), forestry, woodworking, pulp and paper industry (219 percent).

In 1990, on the first places by the level of wage were fuel sector, non-ferrous metallurgy, and electric power energetic. The light industry had the lowest wage - 82 percent of an average monthly wage in industry and 1.8 times less than in the fuel sector.

In 1991-1995, electric power energetic, fuel sector, and non-ferrous metallurgy were ahead by the rates of monthly monetary wage increase. So, in 1995, as in 1990, they have the largest wages (Table 9). Machine-building and metalworking sector, light industry, forestry, woodworking, pulp and paper industry were outsiders. The level of wage in every of these branches of industry was below an average in the industry. Branches differentiation by the level of wages and salaries rose significantly in 1991-1995.

Relationship between the number of employees and the level of average wage in Russia

The wage in the USSR, as known, was not the only criterion for a working or looking for a work person in making a decision about the search or change a job. A possibility to improve the living conditions, privileges of working for some firms, social maintenance provided by a firm, and some other factors used to play important role in choosing a place to work. After the dissolution of the USSR and an elimination of socialism in Russia a part of such non-wage factors disappeared (for example, a possibility to improve the living conditions), a part little by little are losing its former importance in comparison with the size of wage (for example, a prestige of profession, access to privileges, social maintenance availability), but some continue

to affect on the choice of a job besides the level of earnings (education and professional skill, inclination and calling, possibility or impossibility to move to another place of living are among such factors).

Table 9 Ratio of an average monthly wages indifferent branches of industry to an average monthly wage in industry, %

Industry	1970	1990	1992	1995(a)
Industry - Total	100	100	100	100
Power energetic	107	121	221	212
Fuel industry	143	148	290	248
Ferrous metallurgy	115	117	170	134
Non-ferrous metallurgy	152	145	250	223
Machine-building & metalworking sector	100	97	87	84
Chemical and petrochemical industry	102	96	128	105
Forestry, woodworking, pulp & paper industry	103	102	110	102
Constructions materials sector	104	104	116	109
Light industry	77	82	85	54
Food industry	93	103	127	124

In the course of the Russian society transformation a new group of circumstances that force a person to change a working place came into the picture. The curtailment of production, stoppage and bankruptcy of the firms, halting of some kinds of activities (for instance, a ceasing of production of some types of weapons and ammunition) are crucial in this group of circumstances. At the same time, due to commodity nature of a labor force in a market economy interindustry redistribution of employees inevitably experience an influence of the level and movements of the wages and salaries.

The hypothesis about an existence of relationship between the money wage the number of employees in different sectors of economy and in branches of industry was tested for the Russian Federation in the period from 1971 through 1993. The test show existence of a rank correlation between the rates of growth of the number of production employees in the branches of industry and the size of money wage in these branches. The number of employees rose in branches with high level of wage, such as non-ferrous metallurgy, fuel sector and electric power energetic, and decreased noticeably in the light industry where were the lowest workers' earnings. During the period under consideration the level of wages and salaries decreased considerably in comparison with other branches in machine-building and metalworking sector (the sector mover from the second place from above by the level of wage in 1970 to the ninth in 1991-1993), forestry, woodworking, pulp and paper industry, (this sector moved form the forth place by the level of wage in 1970 to the seventh place in 991-1993). Respectively, there was corresponding reduction in the number of employees in these sectors.

At the same time a hypothesis about correlation between the rates of growth of the number of production employees in the branches of industry and the pace of change in wages in these branches was statistically rejected.

For the aggregated sectors of national economy the hypothesis about positive correlation between the number of employees and the size of their wages was statistically proved only for the period from 1986 through 1990. The hypothesis about positive correlation between the number of employees and the rates of increase in their wages was statistically proved only for two years: 1991 and 1993. On the level of aggregated sectors of national economy there are, it seems, other factors that affect on the movements of labor force much more stronger than wages and salaries. The crucial among them, one may presume, are the possibility receive a job and dwelling.

Relationship between the change in the number of employees and growth of industrial production

The scale, industrial and regional structure of employment depend on the supply and demand for labor. In its turn, supply and demand for labor are formed, if all other things being equal, by the situation on a market and by production growth. The feedback influence of the number of workers on the development of economy becomes weaker with the progress in technologies used by society.

In Russia the indices of actual volume of production were lowering in 1976–1990. Their reduction was relatively monotone in the machine–building and metalworking sector, chemical and petrochemical industry, electric power production and electric energy services, fuel sector, and ferrous metallurgy. In the forestry, woodworking, pulp and paper industry, constructions materials sector, light and food industries the decrease went with fluctuations.

In 1991, the actual volumes of production decreased in all branches of industry but in electric power production and electric energy services. Starting from 1992, the volumes of output in constant prices were reducing in all branches of Russia's industry (Table 10). Statistical analysis proved that the spread in the rates of growth of production in different branches of industry did not differ for the following time periods: 1971–1975, 1976–1980, 1981–1985. It means that branches grew more or less simultaneously and uniformly. In 1985–1990, the spread in the rates of growth of different branches was smaller than in 1971–1975 and 1976–1980. The spread of branches' rates of growth sharply augmented in 1990 and was identically high in 1992 and 1993. It indicates that traditional pattern of development in the Russian industry was broken and differentiation of branches by the speed of growth started.

The lessening the rates of growth of industrial output slackened the paces of increase in employees. Prior to 1991 the rates of industrial output growth outstripped the pace of growth of employees, starting from 1991 the later grew faster than the first.

The general reduction in industrial production after 1990 caused the drop in the number of employees. It occurred even in spite of the desire of the enterprises' administration to keep the personnel. The rank correlation test proved the hypothesis about positive correlation among

MACROECONOMIC ASPECTS OF THE RUSSIAN ECONOMY TRANSFORMATION
Sergei V. Kazantsev

Table 10 The average annual growth rates in output of large and medium size enterprises
(in constant prices, per cent)

Industry	1971 -75	1981 -85	1986 -90	1991	1992	1993	1994	1995
Industry - Total	107	103	103	92	81	84	77	97
Power energetic	107	104	103	100	97	95	91	97
Fuel industry	106	101	101	94	86	85	89	99
Ferrous metallurgy	106	103	102	93	83	83	83	108
Non-ferrous metallurgy	107	102	101	91	75	86	...	88
Machine-building & metalworking sector	111	106	104	90	85	84	62	94
Chemical and petrochemical industry	110	105	102	94	78	79	71	110
Forestry, woodworking, pulp & paper industry	108	103	102	91	85	81	69	95
Constructions materials sector	107	103	103	98	76	82	71	94
Light industry	104	100	102	91	74	77	53	72
Food industry	105	103	104	91	81	91	78	91

... - data are not available

physical indices of industrial output of branches of industry and the number of employees in these branches after 1991.

The relationship among indices of volume of industrial output and rates of wage growth in branches of industry

In 1961-1990, the wages and salaries in the USSR, as it is known, rose in a large measure independently of the growth of industrial output and national income. A similar independence took place in Russia in 1991-1993. Statistical test rejected a hypothesis about correlation between the rates of growth of production and the paces of increase in wages in the branches of Russia's industry for 1971-1992, and confirm such a correlation for 1993.

On a macro level correlation coefficients, computed for the rates of growth of industrial output and that of an average monthly earnings of employed in economy (monthly earnings were taken both in current prices and deflated by an aggregate consumer price index), indicated the absence of linear correlation between them (including time lagged series with the lag from one though five months) [10]. But there were a strong correlation between the pace of increase in money income of population and consumer price index. Starting from January 1992, an average monthly money wage in Russia's economy tries to come up with consumer price, but the gap between them are extending in time. Consumer prices, in their turn, followed the prices of producers of industrial production. The gap between them also rose.

Conclusion

The principal inferences of the study of macroeconomic aspects of Russia's economy development after 1991 in brief are the following.

1. Russia faced an unprecedented, for a peaceful time, recession and fast destruction of its economic power created by several generations of people. An average real wage and an average life expectancy decreased significantly. A spread of changes in the scale of production and in the levels of profit in different sectors of economy coupled with differentiation in incomes of population rose dramatically after 1991
2. On the grounds of an analysis of economic indicators on macro, sectorial, and regional levels an economic recession in Russia may be characterized as universal but not structural. To a considerable extent it was provoked by socio-economic transformation in society. The recession is deeper in sectors and regions, which produce mainly machinery, equipment, instruments, apparatus, and consumer goods, it is mild in extractive industries and regions.
3. Decrease in production entailed the employees lay off, the rate of which was lower than the reduction of output. Structure of employment changed in favor of sectors with high and fast growing earnings: crediting, finance and insurance; electric power production and electric energy services; fuel sector; communication; administrative bodies of management; non-ferrous metallurgy, housing, municipal and communal services rendered to the population. Workers avoided such spheres of activity as light industry, agriculture and forestry, science and scientific services, machine-building.
4. Recession took place under tremendous general increase in prices which was unlashd in January 1992. From January through September 1992 retail prices grew faster than wholesale prices but from October 1992 the later outstripped the first. The gap between their fixed base indices is broadening. The wholesale prices growth was one of the main reason of retail price boost. An average monthly wage lags behind prices.
5. In order to receive profits and to pay wages and salaries to their workers under diminishing reproduction firms in Russia rose prices. The increase in price reduces demand and augments the cost of production. With no improvements in technologies it leads to reduction in output. After that the process starts from the beginning: the desire to maintain the level of profits and earnings incites enterprises to new enhancement of prices.
6. An aspiration of every producer, middle-man, and vendor to cover expenses by price increase, degradation of technological systems of production and poor logistics inevitably give the rise to inflation and incomes differentiation. Under such circumstances the economic agents, which production is indifferent or weakly related to a solvent demand on domestic market, which have their niche on foreign markets, are in more favorable position. These economic units usually are in a primary sector of economy, in the beginning of technological chains of production. Producers that are in the end of technological chains of commodities production, that do not have their niches on the world market are in a worse situation. In such a way business in Russia are forced to work not for domestic but for a foreign consumer.

7. Foreign producers that are more competitive than the Russian producers won Russia's consumer goods market.
8. The Russian economy orientation on export of minerals, natural resources, raw and strategic materials intensified after 1991. Volumes of their export grew even if production decreased. Large-scale export of these commodities pushed down their average world prices. So, to receive the same amount of income the Russian producers had to enhance the volume of their exports.
9. The expansion of exports was made at the expense of reduction of minerals, natural resources, raw and strategic materials supply on Russia's domestic markets. That promoted the greater recession and fastened the price rise. In the future, with a certain time lag, it can not help to retard the expansion of export.

Notes

1. The Central region of Russia embraces 13 of 79 administrative units of the Russian Federation including the city of Moscow and Moscow oblast. The Ural region has 7 administrative units, the Western Siberia 9, the Far East 10 administrative units.
2. *Rossiiskaia Gazeta*, 1995. No 145, p. 14.
3. Livshits A. Where we are going? The economy of Russia in 2000. In: *Izvestiya*, 1994. No 217, p. 4. (In Russian).
4. *Rossiiskaia Gazeta*, 1995. No 22, p. 14; *Business Morskoye Novosti*, 1995. No 22, p. 8.
5. On the situation in the Russian economy. Theses for the III Congress of Commodity Producers of Russia. *Delovoi Mir*, 1994. No 202. (In Russian).
6. Bulgakov, S. N., Kazantsev, S. V., Finkel, S. M., Investment Support for Economic Development, 1993. "Nauka" Publishing House, Novosibirsk Chapter 1. (In Russian)
7. Reduction in output of a given product just after arising its price is not an attribute only of an economy in transition. It took place in the USSR during long enough period. See, for example, Balitskaia E. V., Kazantsev S. V., Statistical verification of two judgments about prices. In: *Reproduction processes and their regulation*, 1983. "Nauka" Publishing House, Novosibirsk, pp. 92-122.
8. See, for example, Dubianskaya G., There always is an alternative to antisocial reforms. In: *Delovoi Mir*, 1995. No 17; Kirilov V., Is recession stopped or it is only a "luft"? In: *Delovoi Mir*, 1995. No 25. (In Russian).
9. Osnovnie pokazateli sotsialno-ekonomicheskogo polozheniya i khoda ekonomicheskikh reform v Rossiiskoi Federatsii v 1994 godu. Moscow, Goskomstat Rossii, 1995.
10. Computations were done by Dr. Miron Iagolnitsner

List of Figures

1. Actual and extrapolated growth of investment, 1986 = 100%
2. Actual and extrapolated growth of rolled metal, 1986 = 100%
3. Actual and extrapolated growth of crude oil, million tons
4. Dynamics of industrial output (December 1991 = 1) & producer price (January 1996 = 1)
5. Prices & average wage rates of growth in 1992 (December 1991 = 1)
6. Prices & average wage rates of growth in 1993 (December 1991 = 1)
7. Prices & average wage rates of growth in 1994-1996 (December 1991 = 1)

List of Tables

1. Changes in macro indicators (in percent to previous year)
2. Decay of Russia's economy (1995 in per cent to 1990)
3. Changes in output, exports, and prices in 1994 (1993 = 100)
4. Share of commodities export from Russia (per cent)
5. Differentiation of population by per capita money income January - April 1995
6. Rates of growth of prices and industrial output that ensure no decline in profits (in times)
7. Distribution of employees by sectors of Russia's economy, %
8. Industrial structure of industrial production personnel, %
9. Ratio of an average monthly wages indifferent branches of industry to an average monthly wage in industry, %
10. The average annual growth rates in output of large and medium size enterprises (in constant prices, per cent)