

Development of the Russian Economy in 2004-2005: a scenario forecast

This article deals with the development of the Russian economy till the end of 2005. The main attention is paid to an alternative scenario where a substantial growth of the world oil prices is assumed for the next two years. The results were obtained through the calculations on the basis of the quarterly macroeconomic model.

The current situation and a need for alternative scenarios. In spite of rather successful economic results of 2003, the economic situation in Russia remains uncertain from the point of view of growth opportunities in the short and middle terms. It is explained by several factors.

First, while large spare capacities still formally exist in the economy, the possibilities to increase production of goods would be competitive at least on the domestic market are rather low. The high growth rate of capital investments in 2003 has not solved the problem, because to overcome the existing deficit of capital, the necessary growth of capital investments should be at the annual level of 12-15% for several years.

Second, it is well known that Russian economy depends greatly on the external conjuncture, and especially on oil prices.

Third, the influence of a favorable foreign trade conjuncture on the Russian economy is becoming more and more unpredictable, if we take into account strengthening of the ruble and the incapability of the existing national financial system to transform the inflow of "oil dollars" into a full scale domestic demand and internal investments. We believe that the degree of uncertainty of the foreign economic conjuncture is not fully explained by those parameters which are used in the MEDT's (Ministry of Economic Development and Trade of the Russian Federation) scenarios.

The most important exogenous variable in the MEDT's forecast is the projected decreasing world oil prices. Moreover, this forecast ignores the dynamics of the interaction between the economies of the Old and New Worlds, expressed in the first place by the Euro/USD exchange rate. However, the dynamics of oil prices in the last decade have demonstrated a rather growing trend. As regards the Euro/USD exchange rate, it affects USD/ruble exchange rate in the Russian market and also affects, through the real effective ruble exchange rate, the foreign trade and the economy as a whole.

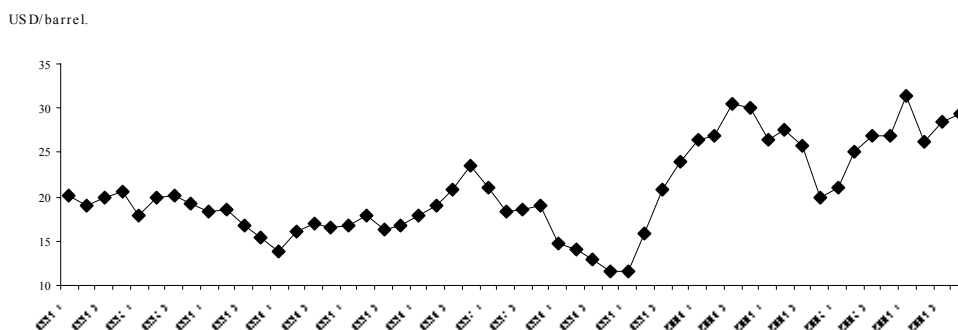


Fig. 1. Brent price, (USD/barrel)

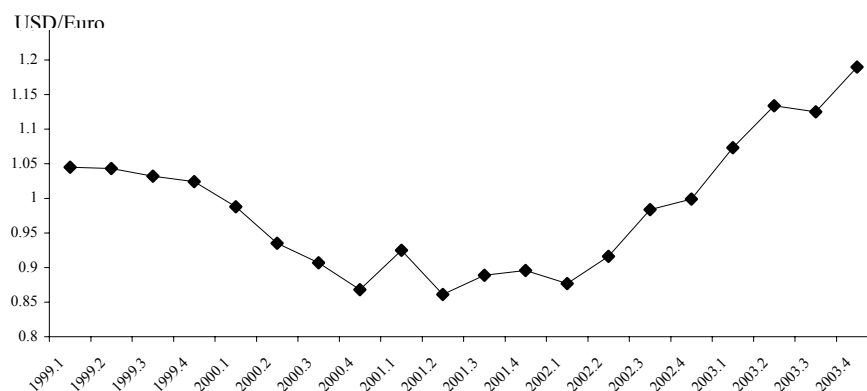


Fig. 2 Euro/USD exchange rate

In this connection, without arguing with MEDT about scenario conditions and the corresponding forecasts, we would consider three variants which use different hypotheses regarding oil price dynamics and Euro/USD exchange rates.

The *first and second variants* to a large extent use the scenario conditions of the respective MEDT scenarios. So the first scenario assumes a decrease of Brent price to \$ 26 a barrel by the end of 2004 and to \$20.5 a barrel by the end of 2005. The second variant, which is relatively more favorable, assumes a stabilization of oil price at the level of \$26 a barrel starting from the end of 2004. These two variants also assume a certain restoration of the dollar's position against Euro. To be able to compare the results of calculations and to estimate the extent of the oil price impact, which has been a key factor of economic development in the recent years, all other scenario parameters in the first two variants were assumed the same as in the second (favorable) MEDT's variant. Thus, the first two variants of forecast calculations allow to assess the consequences of the economic policy under the second (favorable) MEDT's variant where the hypotheses on oil price dynamics is different.

The *third variant* is a key one from the point of view of its content, because here, we believe, a rather probable scenario is considered, which was not paid a due attention to by the MEDT specialists and other experts.

We assume here, first, a further increase in oil prices: up to \$ 38 a barrel by the end of 2004 and up to almost \$ 41 a barrel by the end of 2005; and, second, a further increase in the Euro/USD exchange rate, respectively to 1.0/1.3 and 1.0/1.4. We do not consider this scenario improbable, on the contrary, we believe it matches the trends of the recent months best of all. This scenario is rather likely to be realized in the next 1.5-2 years. Here all other parameters are also assumed at the level of the second (favorable) MEDT scenario. So, the main differences in scenarios are the differences in assumptions on the oil price dynamics. The calculations prove that the importance of the impact of the Euro/USD exchange rate on the Russian economy is much lower than that of the impact of oil prices.

Fig. 3 shows Brent price dynamics assumed for the three variants.

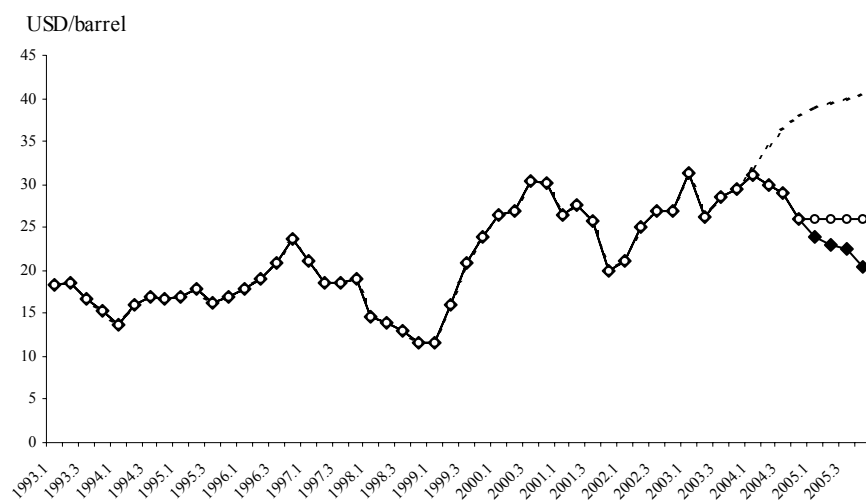


Fig. 3. Brent price, by variants (USD/barrel)
—◆— first, —○— second; ---- third

A quarterly macroeconomic model. Before we proceed with the analysis of the calculation results, we need to describe, even in a rather general way, the modeling tools used for calculations.

Macroeconomic model unlike inter-industry one uses, as a rule, one variable to describe dynamics of production. Usually this variable is GDP. The macroeconomic model MANAMORU_Q¹ described below employs the same approach. The use of a large number of variables characterizing production turns a model into an inter-sectoral one, which makes its specifications much more complicated. In this case a necessity to model interindustry ties arises.

The realization of the model pursued two objectives: on the one hand, to maintain the desired minimum of the production variables, on the other hand, to use a sufficient number of variables to prevent the quality of simulation of the economic processes from deterioration.

The natural structural variables of the MANAMORU_Q model are the components of final demand which reflect the structure of the total demand and, hence, the structure of the expenditures on GDP. These components include:

- the demand of the population which is expressed as household consumption;
- the demand of the government – government consumption;

¹ The name of the model is similar to the name of the annual macro-model Macroeconomic Natural Model of Russia. Q means a quarterly version of the model.

- the demand of the domestic economy for investment into fixed capital and in inventories;
- the demand of the economy for the products made outside Russia, i.e. for imports;
- the external demand which is reflected in the volume and dynamics of exports.

All the components of the final demand and the GDP are given in current and constant (1997) prices.

As regards the “nominal” side of the economic processes, it is presented in the model, first, by deflators for all components of the final demand, and second, by a system of indicators on revenues and expenditure of households, enterprises, and the government.

The control over the model is done through the exogenous variables which mainly characterize the aspects of the economic policy: tax rates, levels of the budget deficit, dynamics of money supply, minimum wages, etc. The exogenous variables characterizing the “external conditions” are also important; they are levels of the world oil prices, dynamics of the world economy, Euro/USD exchange rates.

The general logic of the model is described below:

1. The income of economic agents is estimated:

- of households, i.e. wages and salaries, social transfers, property income and entrepreneurial income. To obtain these estimates, the following exogenous variables are used: tax rates, minimum wage level, proportion of wages and salaries in the main items of the budget expenditure;
- of the government - taxes and other revenues; budget revenues by all main types of taxes are calculated in the model;
- of the enterprises – surplus and depreciation.

2. In the model, we calculated those expenditure components in current prices which characterize final demand of households, government, and enterprises: for households – expenditure on goods and services; for government – the aggregate of the budget items which can be associated with final demand of the government; for enterprises – capital investments. To obtain the expenditure estimates, the following exogenous variables were used: the rate of obligatory payments for households (in the framework of the balance of income and expenditure of households) (в рамках счета баланса доходов и расходов населения), level of expenditure by main budget items, rate of budget deficit, the size of the foreign debt service, subsidies to the economy (to estimate public capital investment).

3. To estimate the dynamics of the final demand in real terms, it is necessary to construct deflators for the respective components of the final demand in nominal prices. Deflator of household consumption was used as a deflator for household expenditure; deflator for gross capital formation was used as a deflator for investments; and the deflator for government consumption as a deflator for budget expenditure. To construct deflators, such indicators as M2 and nominal USD/ruble exchange rate were used. The deflators for exports and imports were also estimated in the framework of the model.

4. The components of final demand in constant prices (household consumption, government consumption, and gross capital formation) are calculated on the basis of the respective real (deflated) expenditure of households, government, and enterprises. The GDP dynamics is estimated on the basis of various final demand components. As regards changes in inventories, it is an exogenous variable in this version of the model.

5. The external demand is estimated on the basis of mentioned above exogenous variables (oil prices, dynamics of the world economy, Euro/USD exchange rate).

6. The current version of the model comprises about 150 variables, 33 regression equations, 36 exogenous variables. The general scheme of the model is given on Fig.4.

The logic of calculations. We need to emphasize that the results presented below are the results of a scenario forecast and do not claim to be a prediction. The main purpose was to assess the differences in the three scenarios of the Russian economic development. As it was mentioned above these differences relate mostly to the external factors, i.e. Euro/USD exchange rate and the world oil prices. The majority of other exogenous variables are the same and, where possible, correspond to the second variant of the MEDT’s scenario conditions.

In this connection, it is advisable to describe the general logic and the calculation procedures of the scenarios from the point of view of the impact of these exogenous variables on the forecast results. On a simplified chart one can see how the world oil prices, Euro/USD exchange rate, and money supply affect the Russian economy (fig.5).

Fig.4. The general scheme of the model

The general scheme of the model

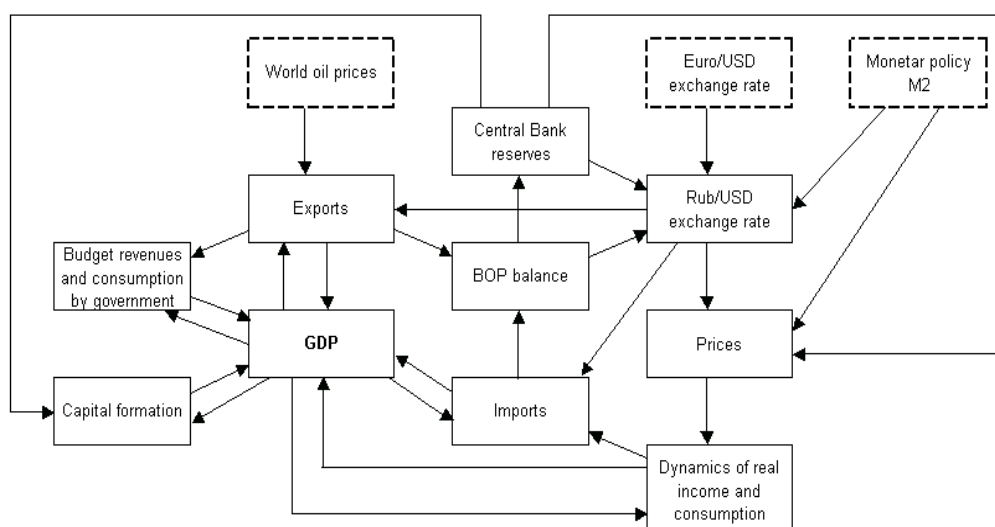
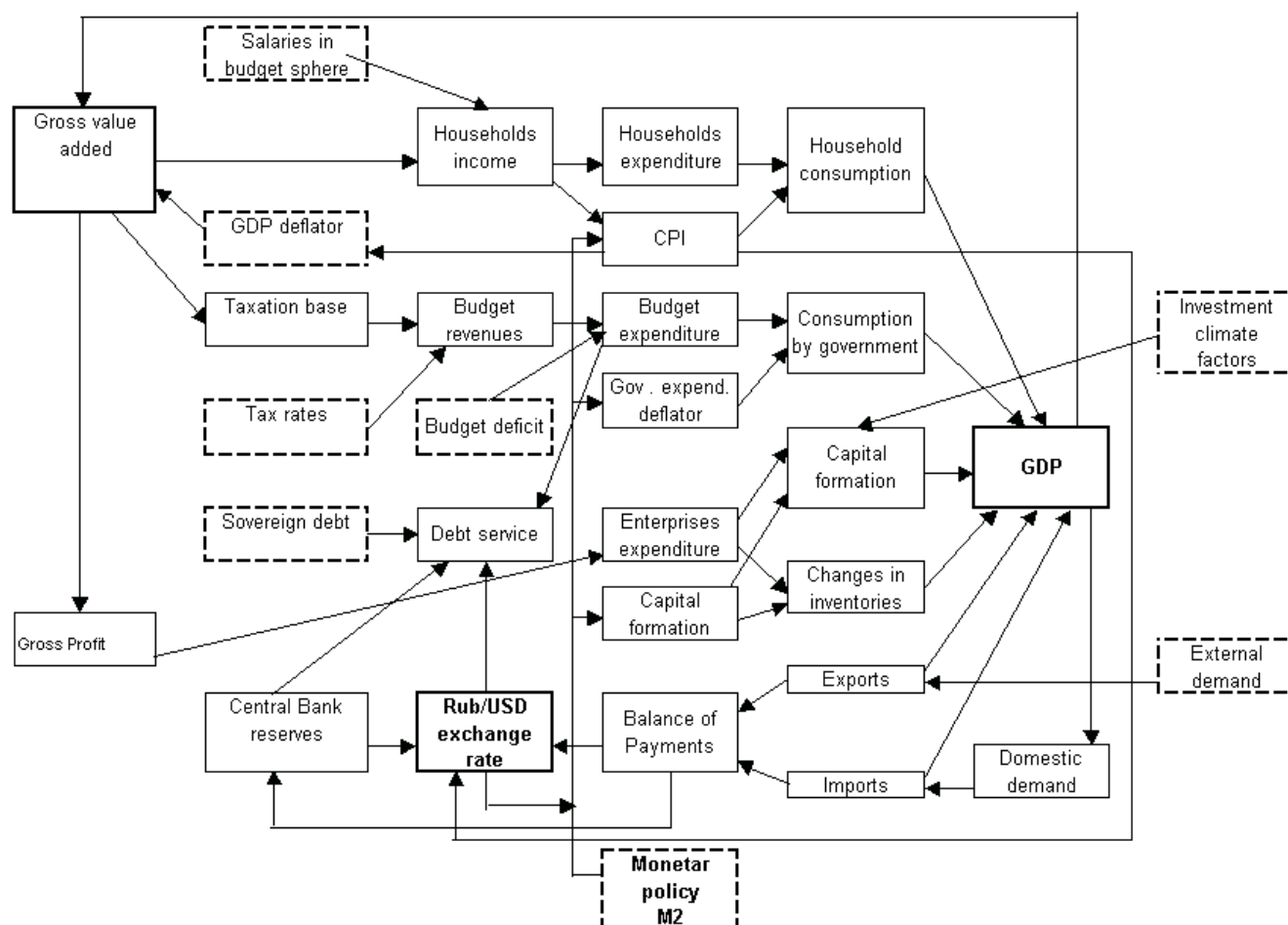


Fig.5. Scheme: impact of the world oil prices, Euro/USD exchange rate, and money supply on the Russian economy

It is well known that the world oil prices affect the dynamics of the Russian economic development and inflation through such aggregates as exports, budget revenues, Balance of Payments, reserves of the Central Bank, and ruble/USD exchange rate. Further, the chain of impacts and relationships affects, through prices and the GDP, practically all variables of the model (except, the exogenous ones). Euro/USD exchange rate and money supply also have a comprehensive influence on the Russian economy.

As the external trade block of the model calculations is the key one in the proposed scenarios, we shall first of all discuss the results related to the functioning of this block.

The condition of the Balance of Payments and, consequently, the gold and currency reserves of the Central Bank provide a certain summary characteristic of the situation in the external world (fig.6).

Higher oil prices assumed in the third variant (the assumed Brent prices by the end of 2005 by variants are respectively \$20.5, \$26.0, and \$40.5 a barrel) predetermine a large difference in the dynamics of the gold and currency reserves. By the end of 2005, the estimated reserves will amount to \$95.8 billion under the assumptions of the first variant, \$100.2 billion – of the second, and \$124.4 billion – of the third variant. This result is rather predictable taking into account the scenario assumptions.

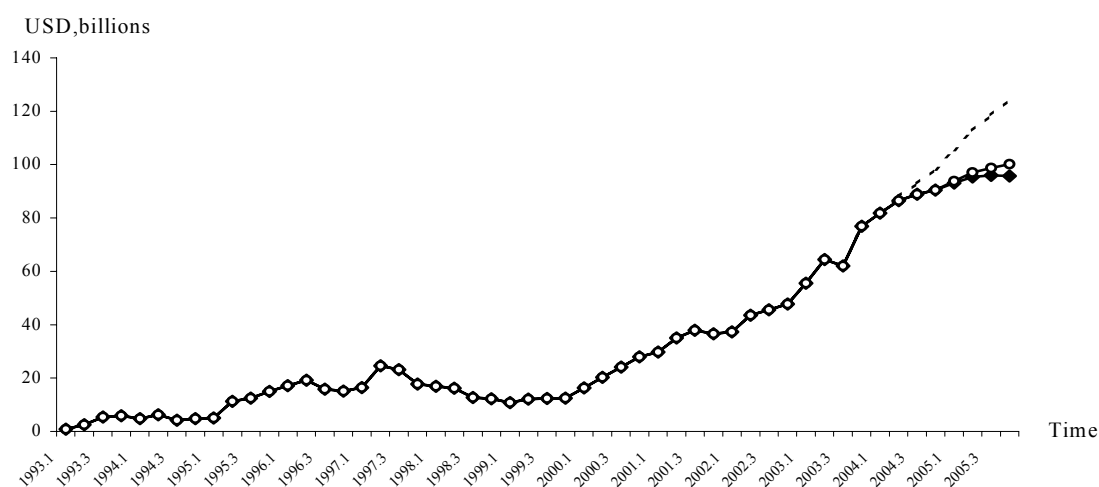


Fig.6. Gold and currency reserves, by variants (billion USD)

—●— first, —○— second; ---- third

Dynamics of the dollar/ exchange rate, which is another important characteristics of the economic situation, demonstrates less significant but still rather obvious results (fig.7).

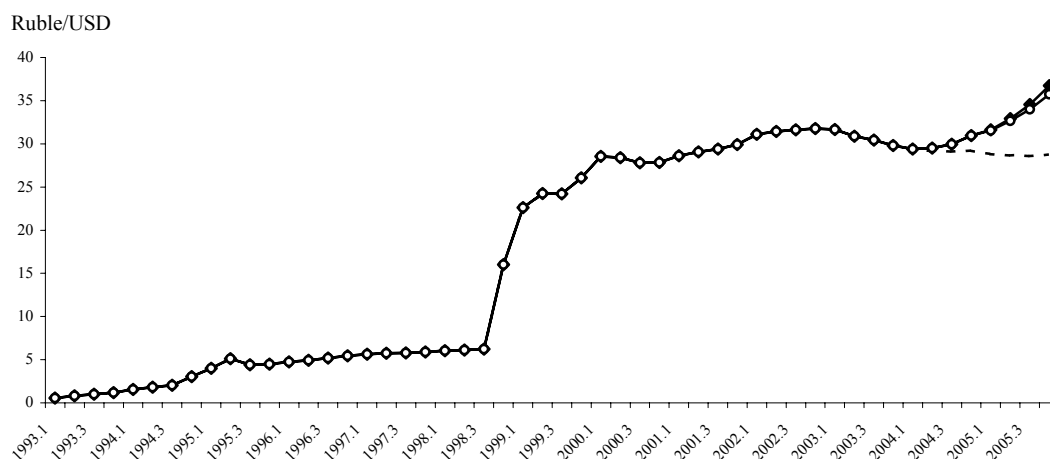


Fig. 7. Dollar/ruble exchange rate, by variants:

—●— first, —○— second; ---- third

In the first variant the trend of the recent months of the dollar/ruble exchange rate depreciation is overcome in the beginning of 2004; by the end of 2005 the dollar/ruble exchange rate is 1/36.8. In the second variant the situation is similar, by the end of 2005 the dollar/ruble exchange rate is 1/35.8. The third variant is characterized by a slight depreciation of the dollar/ruble exchange rate, and by the end of 2005 it is equal 28.5. Such difference

in the exchange rate dynamics is related not only with the condition of the Balance of Payments and the size of gold and currency reserves, but also with a different Euro/dollar exchange rate in the third variant.

In this connection, it makes sense to describe briefly the relationships that determine the dollar/ruble exchange rate in the Russian market (fig.8). These relationships were reflected in the model equations and determined the projected dynamics of the dollar/ruble exchange rate.

The dollar/ruble exchange rate and the price dynamics determined the dynamics of the real ruble exchange rate (fig. 9)².

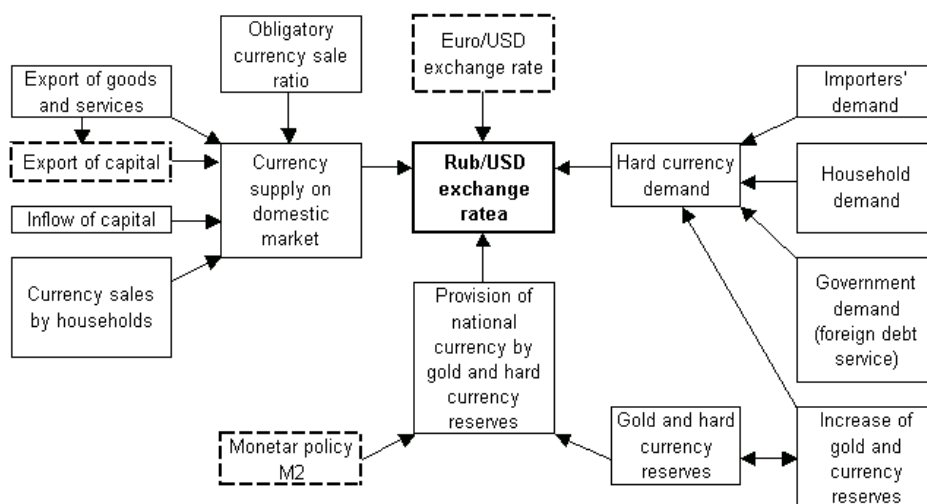


Fig. 8. Forming a ruble/dollar exchange rate

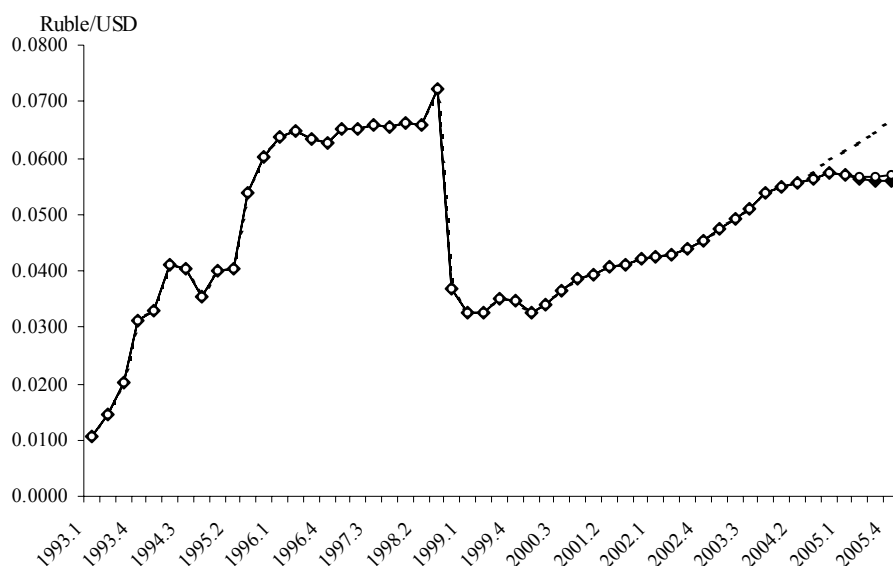


Fig. 9. Dynamics of the real ruble exchange rate, by variants
—◆— first, —○— second; ---- third

Only the third variant assumes a preservation of the recent trend of a fast appreciation of ruble against dollar. The first two variants assume a stabilization of the real ruble exchange rate starting from the end of 2004.

In its turn, price dynamics, to a large extent, depends on the exchange rate. A lower dollar exchange rate in the third variant predetermines a lower price growth starting from the end of 2004.

The dynamics of the real ruble exchange rate is a key variable explaining the differences in the growth of the GDP and its components by variants. A faster ruble appreciation in the third variant is a key factor of the fast growth of imports (fig. 10)⁴ and the related fast growth of household consumption (fig. 11).

² After Euro launching, it is better to use currency basket to estimate real ruble exchange rate. However, taking into account the remaining importance of the US dollar to the Russian economy, we will traditionally estimate the real ruble exchange rate in respect to US dollar..

⁴ Fig. 10, 12, 13 in average annual prices of 2000.

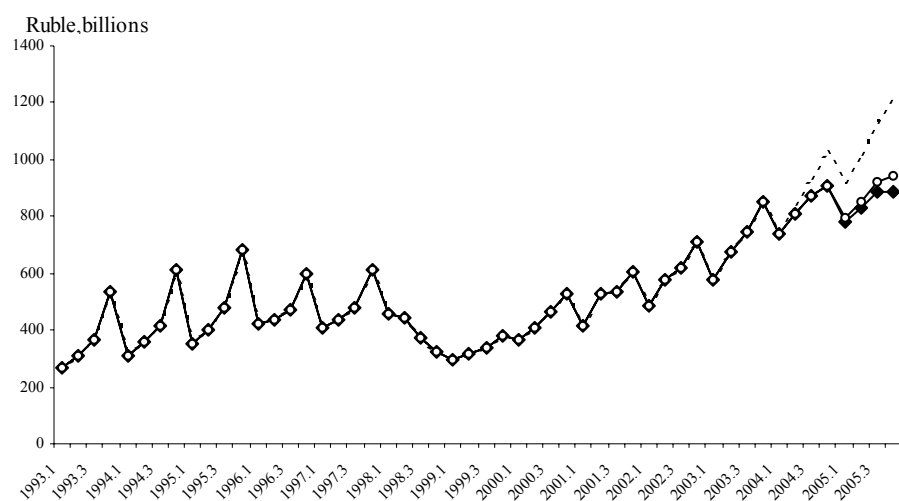


Fig. 10. Imports, by variants:
—◆— first, —○— second; ---- third

Significantly higher oil prices assumed in the third variant result in higher export volumes (fig. 12). It has been the price situation that explains an unprecedented growth of exports of hydrocarbons during last three years.

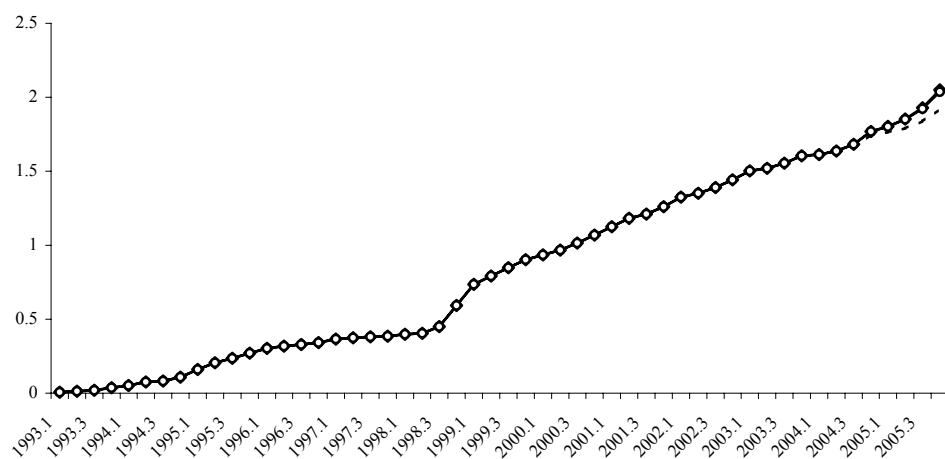


Fig. 11. Deflator for household consumption, by variants:
—◆— first, —○— second; ---- third

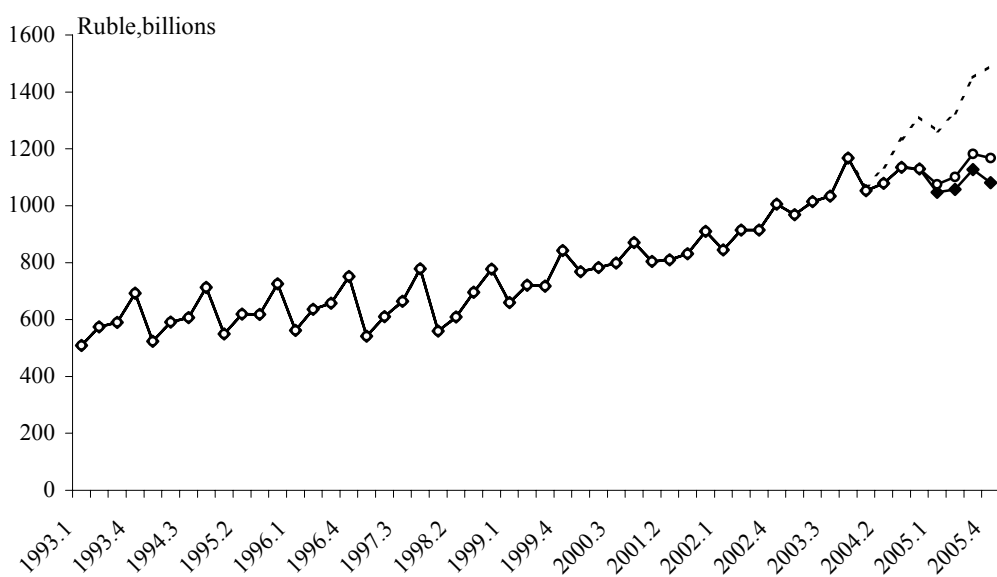


Fig. 12. Exports, by variants:
—◆— first, —○— second; ---- third

Sharp decline in economic growth rates in 2005 under the assumptions of low oil prices of the first variant (fig. 13) is rather likely; however the growth rates of household consumption and capital formation remain high. This is possible mainly as a result of the decreasing export growth rates and still high growth of imports. In the third variant, somewhat higher import volumes that in the first two variants are compensated by significantly higher export volumes.

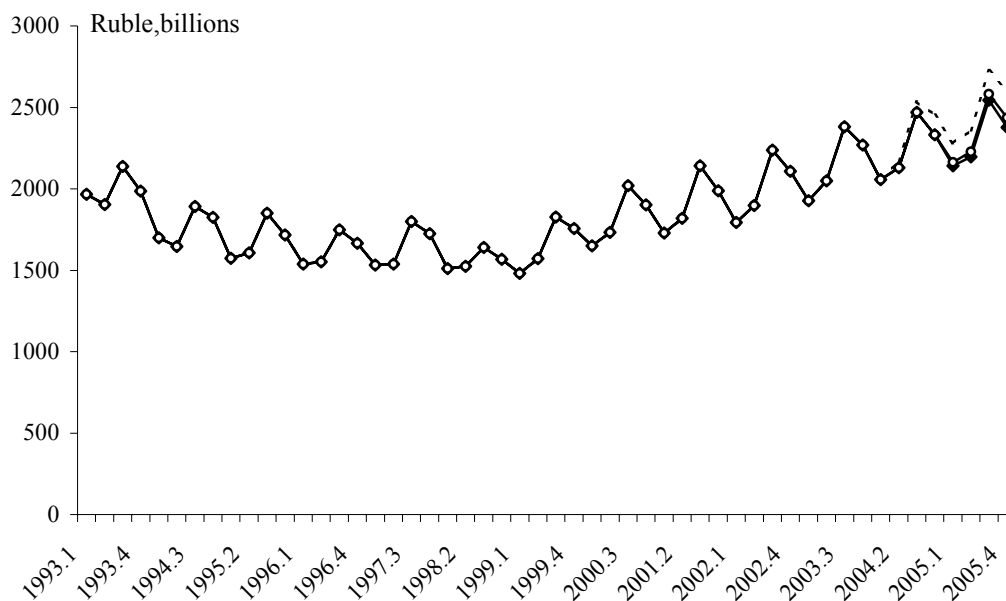


Fig. 13. GDP, by variants
—◆— first, —○— second; ---- third

It is better to use the aggregated tables (Tables 1, 2, 3) to describe the dynamics of economic development and the macroeconomic changes by each variant.

* * *

The results of the scenario forecast correspond with the *a priori* understanding of the character of the economic relationships in the recent years. In particular, a high degree of dependence of the Russian economy on oil prices has been proved. Our calculations demonstrate that in the situation of declining oil prices the economic growth rate may become lower by 2 to 3 percentage points than it is projected by MEDT. It will be possible to maintain the level of growth rates achieved in 2003 only in a situation of the constantly growing oil prices. So, the economic growth in Russia is still based on the exports of raw materials. In spite of a certain increase in the gross capital formation under the assumptions of the third variant, it should be noted that the mechanisms of investment and innovations oriented economic development have still not been formed.

Table 1

Main macroeconomic indicators and their growth rates to the same period of the previous year, %
(variant 1 – lower oil prices and lower Euro/USD exchange rate)

Indicator	2004					2005				
	Q1	Q2	Q3	Q4	year	Q1	Q2	Q3	Q4	year
Gross Domestic Product										
billion rubles	3333,5	3528,6	4220,6	4147,6	15230,3	3812,6	4027,7	4854,3	4787,8	17482,4
%	106,7	103,9	103,7	102,8	104,2	104,1	103,2	103,0	102,0	103,0
Household consumption										
billion rubles	1778,0	1841,5	1979,9	2236,2	7835,6	2150,3	2228,2	2393,9	2697,0	9469,3
%	115,0	110,0	108,0	109,0	110,0	108,0	107,0	105,0	104,0	106,0
Consumption by government										
billion rubles	658,9	674,1	718,2	745,7	2796,8	780,2	786,9	832,7	870,2	3270,0
%	100,0	101,0	100,0	101,0	101,0	104,0	102,0	101,0	101,0	102,0
Capital formation										
billion rubles	523,3	696,5	1223,8	953,6	3397,2	643,6	836,2	1458,5	1141,9	4080,2
%	120,0	110,0	102,0	112,0	109,0	110,0	106,0	104,0	103,0	105,0
Exports										
billion rubles	1127,9	1143,7	1201,9	1178,9	4652,3	1083,7	1117,4	1236,2	1222,5	4659,7
%	109,0	106,0	110,0	97,0	105,0	99,0	98,0	99,0	96,0	98,0
Imports										
billion rubles	772,2	844,9	920,8	984,5	3522,4	862,9	958,7	1084,7	1161,6	4067,8
%	127,0	120,0	117,0	107,0	117,0	106,0	102,0	101,0	97,0	101,0
Revenues of consolidated budget, billion rubles	1191,8	1224,3	1436,71	1455,1	5307,9	1351,3	1388,4	1643,4	1675,2	6058,2
Budget revenues to GDP, %	35,8	34,7	34,0	35,1	34,9	35,4	34,5	33,9	35,0	34,7
GDP deflator (growth index), %	107,0	108,0	108,0	110,0	108,0	112,0	113,0	115,0	116,0	114,0
Ruble/dollar exchange rate	29,390	29,511	29,962	30,944	29,952	31,612	32,902	34,534	36,750	33,949
Changes in real ruble/dollar exchange rate, %	116,0	113,0	110,0	106,0	111,0	104,0	102,0	99,0	98,0	101,0

Table 2

Main macroeconomic indicators and their growth rates to the same period of the previous year, %
(variant 2 – stabilization of oil prices after the end of 2004)

Indicator	2004					2005				
	Q1	Q2	Q3	Q4	year	Q1	Q2	Q3	Q4	year
Gross Domestic Product										
billion rubles	3333,5	3528,6	4220,6	4147,6	15230,3	3870,1	4114,1	4955,0	4948,3	17887,6
%	106,7	103,9	103,7	102,8	104,2	105,2	104,7	104,6	104,5	104,7
Household consumption										
billion rubles	1778,0	1841,5	1979,9	2236,2	7835,6	2149,6	2225,7	2388,4	2686,2	9449,9
%	115,0	110,0	108,0	109,0	110,0	108,0	107,0	106,0	104,0	106,0
Consumption by government										
billion rubles	658,9	674,1	718,2	745,7	2796,8	781,6	790,9	839,7	880,5	3292,8
%	100,0	101,0	100,0	101,0	101,0	104,0	102,0	101,0	102,0	102,0
Capital formation										
billion rubles	523,3	696,5	1223,8	953,6	3397,2	657,7	857,3	1481,2	1179,4	4175,7
%	120,0	110,0	102,0	112,0	109,0	112,0	109,0	106,0	107,0	108,0
Exports										
billion rubles	1127,9	1143,7	1201,9	1178,9	4652,3	1141,3	1203,2	1337,6	1379,4	5061,5
%	109,0	106,0	110,0	97,0	105,0	102,0	102,0	104,0	103,0	103,0
Imports										
billion rubles	772,2	844,9	920,8	984,5	3522,4	877,8	980,8	1109,8	1195,1	4163,4
%	127,0	120,0	117,0	107,0	117,0	108,0	105,0	105,0	104,0	105,0
Revenues of consolidated budget, billion rubles	1191,8	1224,3	1436,7	1455,1	5307,9	1367,9	1422,1	1685,6	1737,1	6212,7
Budget revenues to GDP, %	35,8	34,7	34,0	35,1	34,9	35,3	34,6	34,0	35,1	34,7
GDP deflator (growth index), %	107,0	108,0	108,0	110,0	108,0	112,0	113,0	14,0	115,0	114,0
Ruble/dollar exchange rate	29,390	29,511	29,962	30,944	29,952	31,532	32,643	34,000	35,750	33,481
Changes in real ruble/dollar exchange rate, %	116,0	113,0	110,0	106,0	111,0	104,0	102,0	101,0	100,0	102,0

Table 3

Main macroeconomic indicators and their growth rates to the same period of the previous year, %
(variant 3 – increase in oil prices and Euro/USD exchange rate)

Indicator	2004					2005				
	Q1	Q2	Q3	Q4	year	Q1	Q2	Q3	Q4	year
Gross Domestic Product										
billion rubles	3358,3	3651,9	4428,6	4506,5	15945,3	4226,0	4492,7	5340,8	5356,1	19415,6
%	107,1	105,9	106,5	108,1	106,9	110,5	108,7	107,5	106,0	108,0
Household consumption										
billion rubles	1777,2	1838,6	1971,9	2218,8	7806,6	2121,2	2184,3	2330,5	2607,8	9243,8
%	115,0	110,0	108,0	109,0	110,0	109,0	108,0	108,0	107,0	108,0
Consumption by government										
billion rubles	659,7	678,1	728,3	765,1	2831,1	808,3	821,9	870,3	908,5	3409,0
%	101,0	101,0	101,0	103,0	102,0	107,0	106,0	104,0	103,0	105,0
Capital formation										
billion rubles	528,0	720,5	1259,6	1021,5	3529,5	721,8	918,4	1515,8	1229,7	4385,8
%	121,0	114,0	106,0	122,0	114,0	125,0	116,0	110,0	109,0	113,0
Exports										
billion rubles	1153,2	1267,4	1409,9	1530,3	5360,8	1475,9	1553,7	1706,8	1774,3	6510,7
%	110,0	112,0	120,0	112,0	114,0	119,0	117,0	117,0	114,0	117,0
Imports										
billion rubles	777,4	870,3	958,9	1047,0	3653,5	918,9	1003,4	1100,5	1182,2	4205,1
%	128,0	125,0	125,0	121,0	124,0	124,0	121,0	121,0	118,0	121,0
Revenues of consolidated budget, billion rubles	1199,0	1263,9	1515,3	1589,4	5567,6	1521,9	1581,2	1847,8	1905,5	6856,5
Budget revenues to GDP, %	35,7	34,6	34,2	35,3	34,9	36,0	35,2	34,6	35,6	35,3
GDP deflator (growth index), %	107,0	107,0	108,0	109,0	108,0	109,0	110,0	110,0	110,0	110,0
Ruble/dollar exchange rate	29,301	29,177	29,113	29,219	29,203	28,798	28,647	28,577	28,766	28,697
Changes in real ruble/dollar exchange rate, %	116,0	114,0	112,0	111,0	113,0	111,0	112,0	112,0	112,0	112,0

Note: in 2000 prices