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# Russia and the Outside World: Problems of Economic Adaptation

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## Contents

## Abstract

Today the outside world is interesting to Russia as a source of technology, production factors and necessary goods and services, and as a market. Russia is interesting to the outside world as a source of specific goods (energy at first), as a market and as a source of income from investments. The main risks Russia is bearing in contacts with the outside world are the following: discrimination of Russian goods and Russian business in world markets; limits in access to the world financial market; sharpening competition with foreign business on the Russian inside market; growing dependence of Russia from the world economy; immigration problems.

The analysis of these problems provides the following conclusions. Russia needs to liberalize immigration and foreign investment conditions. It is necessary to support exporters and try to enhance comparative advantages by backing innovations and export diversification. It is worth to abolish artificial limits on import of demanded goods and services.

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# Russia and the Outside World: Problems of Economic Adaptation

Sergey Mitsek

## Introduction

Adaptation to the world economy is a challenge for Russia. A sustainable program for the future development of the Russian economy should answer the following questions:

- In what aspects the outside world is interesting to Russia?
- What the outside world waits from Russia?
- What risks does Russia bear in the interaction with the outside world?

The answers to these questions may be the following. The outside world is interesting to Russia as:

1. A source of production factors, technology at first, and capital and labor also[1].
2. A market for Russian goods and services.
3. A source of goods and services[2].

Russia is interesting to the outside world as:

1. A source of goods and services.
2. A market.
3. A source of income from investment[3].

As to risks Russia bears in the interactions with the outside world, it is worthwhile to indicate the following ones:

1. Discrimination of Russian goods and business on the foreign markets.
2. Insufficient access of Russian business to the world financial market.[4]

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[1] We will analyze only these three factors here since Russia almost did not depend from the import of raw materials end energy. The share in Russian import is less than 4 % (see table 19 and more detailed data in [6]).

[2] We do not touch here a quickly developing process of Russian companies' expansion abroad. It is a new tendency and should be studied more accurately when we have more information. For discussion see Kommersant - DAILY, 2004, No. 186 and 2006, No. 26.

[3] The process of Russian investments abroad is at the very beginning and does not have a serious influence on foreign economies and its share in Russian income is small. When it becomes mature, Russia also would be a source of capital to the outside world, and the latter – a source of investment income for Russia. .

[4] In spite of the rapid growth of borrowing abroad Russian companies is still not a serious factor on the world financial markets. The main obstacles are lack of transparency, backward system of accounting

3. The sharpening competition of Russian business with the foreign one in some sectors of the Russian market.

4. The growing dependence of Russia from the world economy and its "whims".

5. The immigration problem.

Let us discuss all these issues in detail.

# 1. The outside world as a source of production factors

## 1.1 The labor force

The situation with the labor in Russia is characterized by Tables 1 and 1a. The share of young people has declined sharply in recent 10 years, and the demographists tell it will worsen further. The participation ratio has declined too. All these factors limit the future growth of the labor force in Russia.

Besides, econometric estimates[5] show a serious ***disequilibrium in the Russian labor market*** expressed in almost twofold excess of the marginal revenue on labor over average gross wages (see Table 2). Such conclusion is supported by the polls where 60 % of voters worry about low wages and only 1 % about unemployment.[6]

The shortage in the Russian labor market is strengthened by its ***interregional disequilibrium***. The data in Table 3 based on the production function estimated on the panel data for 65 Russian regions[7] show a disparity between the ratio between the marginal revenue on labor and average wages and the level of net migration. The first factor is the largest one in Volga and Ural regions,[8] but the second factor – in the Central federal district, in Moscow City at first.[9] Such disequilibrium is a result, partly, of the restrictions imposed by local authorities and, partly, of high costs of migration and a shortage of housing.

Econometric estimates show that increase of labor growth rates on 1 %[10] provides increase of the Gross Domestic Product (GDP) growth rate by 0.6-0.7 % (see Table 4) and decrease of the inflation rate by 0.2 – 0.5 %. Just these figures show that Russia would need immigrants[11] as labor force, especially in view of the fact that

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in the majority of companies and still negative image of Russia abroad. But this situation may also change in the nearest years. See Section 1.2 for discussion of these problems.

[5] All econometric estimates mentioned without special references are based on econometric models elaborated by the author and published in [10].

[6] See Izvestia, 2006, February 2. In other words, people consider that it is easy to find a job but it is paid inadequately.

[7] In years 2000-2003.

[8] First of all, in such oil production regions as Tumen, Samara, Bashkortostan and Tatarstan.

[9] Of course, the results of Table 2 do not give a complete picture, as well, they do not touch *intraregional* migration, that is, mostly migration from villages and small towns to large cities of the same region.

[10] Such acceleration can seem fantastic as the real rate was 0.77 % per year. But let us note that only in 2005 Russian authorities issued about 550 thousands of job permissions for immigrants and about 3 million of them work illegally. See Kommersant - DAILY, 2006, No. 48.

[11] Internal possibilities in increase of labor force are limited.

The similar processes take place in Spain. The number of foreigners registered there increased from 637 thousands to 3.7 million, or from 1.6 % to 9 % of Spanish population between 1998 and 2005. Immigrants in Spain, as in Russia, are ready to fulfill low-skilled and low paid jobs. The experts

immigrants often fulfill such job that Russian citizens refuse to do and for much lower wages.[12]

## 1.2 Capital

Russia still attracts relatively small amount of foreign investments. At the beginning of 2005 the *accrued amount* of Foreign Direct Investment (FDI) into the Russian economy constituted 6.5 % of GDP.[13] It is five times less than in other European emerging economies.[14] In 2003-2004 the ratio of *annual* FDI was only 5 % to the gross profit in the Russian economy[15] and only 1.5 % to GDP in comparison with 3.5 % in China.[16] The ratio of foreign credits to credits of Russian banks was only 6 %.[17]

The main ***reasons that prevent foreign investments*** in Russia are ranked in Table 5,[18] though Table 6 demonstrates a gradual improvement of the situation with foreign investments. Some "strategic" sectors are still closed for foreigners. Another factor is fear of Russian business to loose control[19] in investment processes.

A growing problem for further capital attraction is ***large debts of Russian companies***.[20] Though the official state debt of the Russian Federation has decreased,[21] the state debt owned by private banks and companies has grown, especially the debt of private banks.[22]

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estimate a crucial input of immigrants into Spanish economic miracle. See Business Week, 2005, May 30, for details.

[12] This fact is important in the situation when the unemployment rate in Russia is rather high. Some estimates show that legalization of migration will bring $1.3 billion annually to the Russian budget. See Kommersant - DAILY, 2006, No. 139. Russian political decision-makers should think how to make the legalization process less painful both to immigrants and to the society.

[13] This is the estimate of the European Bank for Reconstruction & Development (EBRD). See Kommersant - DAILY, 2005, No. 39.

[14] This is the estimate of the Russian Committee for Support of Foreign Investment (CSFI) of the Ministry of Economic Development and Trade of the Russian Federation. See Kommersant - DAILY, 2005, No. 39. But according to estimates of CSFI the situation is becoming better gradually in 2005-2006. See Kommersant - DAILY, 2006, No. 72. The question is this turn has a long-term perspective?

[15] We refer to the author's calculations based on the data from [6] and [1]. Attraction of foreign capital to Russia now is limited by the great capital outflow, but unanimously it demonstrates a large potential for growth when more friendly conditions for foreign investments will be created (see [16] for details).

[16] Business Week, 2005, May 2.

[17] This is the author's calculations based on the data from [6] and [1].

[18] This ranking is compiled in accordance with foreign investors' responds.

[19] That is why, Russian companies are typically listing just 10 % to 30 % of their shares (see Business Week, 2005, May 30).

[20] This is a reason why in the recent two years Russian companies rely more on equity financing in world markets.

[21] Only in 2005 the debt decreased from the level of 114 billion to the level of $71 billion. The data is taken from [11], see also Kommersant - DAILY, 2006, No. 66 and No. 96.

[22] The debt of state-owned banks increased to $66.5 billion and the debt of state-owned non-financial companies – to $200 billion at the beginning of 2006. See Kommersant - DAILY, 2006, No. 66; Kommersant - DAILY, 2006, No. 96. In 2005 state banks and non-financial companies borrowed abroad more than 1/3 of the total borrowing of the Russian business. The Russian corporate bond market was worth around $30 billion in the middle of 2005 (see Business Week, 2005, May 30). At the same time, the share of private companies in Eurobond emission by Russia declined from 55 % in 2002 r. to 15 % in 2005, see Kommersant - DAILY, 2006, No. 66. This fact is an illustration of the process of *crowding out* of the Russian private capital by the state-owned capital from the world debt market that raises the question about the efficiency of national borrowing.

Table 7 demonstrates a problem of ***regional disequilibrium in attraction of foreign capital***. There is data about 13 Russian regions that are the highest beneficiaries of foreign capital[23] compared to 13 regions which have the first indicators in the marginal revenue on capital. We see that only 6 regions appear in both lists (7 regions with Moscow City).

In spite of all problems Russia becomes more and more attractive for investments, especially in the field of consumer markets that are growing quickly.[24] Foreign capital is attracted by the large Russian market, high growth rates and rapid maturation of the economy, large volume of the human capital[25] and natural resources.[26] Other factors are development of a thriving business outside the energy industry, improved corporate transparency and a pressing need for cash to maintain high growth rates and acquisitions inside the country and abroad. Russian labor rules are not as rigid as in Western Europe, and profitability of many Russian industries is high **(s**ee below Table 28).[27] The share of the Russian Federation in ***new investment projects*** is about 7 % of the world investment market[28] that is the third place after China and the USA.[29] Since 2003 FDI in Russia grew very quickly[30] and if these rates would double[31] the GDP growth would increase by 0.5-0.6 %, but *inflation* would increase by 1.5-2.0 % (see Table 4).[32]

Foreign capital is important for Russia because of shortage of its ***own savings*** (see Table 8). While in 1989 the gross investment in Property, Plant and Equipment (PP&E) was about 1/3 of GDP it declined to 15 % in 1995 and about to 20 % of GDP in 2004 (see Table 9). Householders' savings also have negative dynamics.

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[23] Together they attract 89 % of all foreign investments in Russia.

[24] It is important to note that many *new* investment projects belong not to the energy sector. This circumstance makes these projects less subjected to fluctuations of world energy prices. For example, "Coca-Cola" plans to take over the "Multon" company based in St. Petersburg that controls about 25 % of Russian juice market. Another example is a successful Initial Public Offering (IPO) of AFK "Sistema", the holding of mobile telephone operator MTS, on the London Stock Exchange (LSE) in 2005. Its $1.56 listing was oversubscribed by 2.6 times (see Business Week, 2005, May 23). In May 2005 one of Russian largest supermarket networks "Pyaterochka" issued $598 million in shares on LSE.

[25] See the answers of investors on CSFI questionnaire with details in Kommersant - DAILY, 2006, No. 72, and in Business Week, 2005, May 2 about first three factors.

[26] Concerning perspectives of investments in the Russian energy sector see estimates of the International Energy Agency (IEA). According to these estimates investments could constitute the amount of $900 billion over the coming 25 years. See Business Week 2005, May 23.

[27] Partly it is a result of cheap labor and energy.

[28] Let us note that the phase II of the "Shell"-led "Sakhalin" project calling for more than $10 billion is thought to be the biggest integrated oil and gas project ever undertaken. See Business Week 2005, May 23.

[29] See [17], P. 63. There are some significant examples of this process. Thus, in April 2005 "Toyota" declared an intend to build $150 million plant to manufacture "Toyota Camry" cars near St. Petersburg. "Ford", "GM" and "Renault" companies already have plants in Russia. "Volkswagen" and "DaimlerChrysler" are also mulling investments in Russia.

[30] For example, in the first half of 2005 eight Russian companies have entered the market with IPOs, half of them – on international stock exchanges, with the total value of $3.1 billion. That is three times bigger than the combined value of all Russian IPOs since 1995; see Business Week, 2005, May 30. The process of foreign investments in Russia is backed by world leading investment banks, such as "Morgan Stanley", "Credit Suisse First Boston" (CSFB) and "Union Bank of Switzerland" (UBS).

[31] This estimate is not fantastic. The recent data shows that in the first half of 2006 the Foreign Direct Investment (FDI) Index increased by 40 %, and foreign credits increased 2.5 times in comparison with the same period of 2005. See Kommersant - DAILY, 2006, No. 49; Izvestia, 2006, August 16.

[32] Of course, if Russian finance authorities do not diminish it by active anti-inflation measures.

In 1989 they were 35 % of incomes[33] but now are only 14-16 %, and only 30 % of them are invested into bank accounts or securities.[34] The Russian underdeveloped bank sector is another reason of such situation.[35]

Foreign capital is of great necessity for such ***strategic Russian industries*** as electric energy, gas and railroads. But to make them attractive to foreign capital the Russian government should abolish the policy of subsidized prices in these sectors and implement measures to support foreign investments.[36]

## 1.3. Technology

The figures demonstrated backwardness of Russia in the field of modern technologies are given in Table 10, and there is no positive dynamics here (see Tables 11 and 12). Annual expenditures on Research and Development (R&D) in Russia are only $4 billion, whereas $16 billion in China and $677 billion in the USA.[37] The share of *private* R&D expenditures is less than 0.5 % of GDP in Russia, whereas almost 2 % in the USA, Germany and Rep. of Korea and 2.5 % in Japan.[38] The share of innovative companies[39] is estimated between 10-20 %.[40]

Russia occupies only 0.3-0.5 % of the world market of high technologies or about $5 billion.[41] In 2004 Russia imported $1 billion of technologies from the OECD countries,[42] but this is not enough for the decisive breakthrough. The World Bank put Russia only on the 11th place among Eastern European and NIS in the level of development of "knowledge economy". The main reason is that country can not process scientific results in profitable products effectively.[43]

The main obstacles to innovations have financial character, particularly, insufficient tax privileges,[44] and lack of competition in different parts of the Russian

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[33] See [13].

[34] See [15], P. 210 and [1]; author's calculations.

[35] It can be illustrated by the following figures. The five largest Russian banks have average assets of $30.5 billion per 1 bank (source [1], and author's calculations) while four largest US banks have average assets of $463 per bank (source [4]); that is, the last figure is 15 times greater than the first one.

[36] Let us have a look on results of the policy of disregard of foreign investments. The first IPO of a Russian company took place in 1996 ("Vimpelcom" – a mobile phone operator) and the second IPO – only in 2000 ("MTS" – also a mobile phone operator). The third IPO was in 2002 ("Wimm-Bill-Dunn" – a food processor). All of them took place on foreign financial markets. The first share issued by a private company on a local stock exchange took place only in 2002 ("RBC" – a media company).

[37] Kommersant – DAILY, 2006, No. 146.

[38] Kommersant – DAILY, 2006, No.165.

[39] The company is considered "innovative" when it spends on R&D more than 5 % of its gross revenue.

[40] Kommersant – DAILY, 2006, No. 146, 165. A special question is an outsourcing of R&D that develops quickly now (see, for example, Business Week, 2005, March 21). That means that we should concentrate not only on the share of R&D expenditures in GDP but on the *efficiency* of R&D, that is, the R&D/GDP ratio.

[41] Kommersant - DAILY, 2005, No. 212.

[42] See [15], P.597.

[43] Kommersant – DAILY, 2006, No.165. Without a crucial breakthrough in the field of innovations Russia can loose such advantage for foreign capital as low wages and repeat the way of Spain where GDP growth rates and FDI fell sharply in the period from 2000 to 2004. GDP rates in Spain fell from 4.5 % to 2.8 % and FDI from nearly $40 billion to the level less than $6 billion in 2000-2004. See Business Week 2005, May 30, for details.

[44] This is the answer of about 50 % of respondents from industrial companies. See [15], P. 600; Kommersant – DAILY, 2006, No.165. This is not absolutely correct now since the Russian

economy.[45] The base for optimism can be created by 18 % of companies where investments in innovations are growing with rates more than 10 % a year. Usually they are average-scale[46] companies and attempt to enter the world markets by creating joint ventures with foreign partners or competing directly with foreign producers.[47]

## 2. The outside world as a market for Russian goods and services

Today, ***export*** plays an important role in the Russian economy (see Tables 13 and 14). Russia exports more than 1/2 of its oil and oil products, more than 1/3 of natural gas, practically all non-ferrous metals[48], more than 20 % of ferrous metals, and about 1/2 of mineral fertilizers.

At the same time the outside world becomes more and more one of the serious source of inflation in Russia. In 2003-2004 ***export ruble prices*** for Russian goods grew with the average rate of 9.4 %.[49] The doubling of this rate would increase the GDP growth rate by 0.1-0.2 % but, at the same time, would increase the inflation by 2.8-3.9 % (see Table 4). In the last 10 years the export prices' dynamics contributed to about 25 % of inflation in Russia.[50]

We estimated regressions of ruble export prices index and the volume of export (in 1995 constant prices) on the sum of *real* GDPs of European Community, USA and China, which are the main trade partners of Russia,[51] (see the model equations (1)-(2)).[52] On the basis of them we calculated the ***export prices and the volume of export elasticities*** to the sum of EC, USA and China GDPs (see Table 15). The results show, that:

- Both export prices and the volume of Russian export depend essentially from the largest world economies;
- The estimated elasticities decreased essentially in 1998, but are approximately stable since 2000. This means that the Russian economy became stronger starting from 2000, and its dependence from "whims" of these three giants (EC, USA and China) is a little bit lower than in the crisis of 1998.

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government has implemented tax privileges for innovations in 2006. But the future will show if these tax privileges are sufficient.

[45] About 30-40 % of Russian companies compete neither with national nor with foreign companies. About 30 % of them sell on regional markets and 20 % on very "narrow", "niche" markets that are not interesting to global competitors. See Kommersant – DAILY, 2006, N. 146. The review article in Kommersant – DAILY, 2006, No.165 argues that the crucial point for enhance of innovation is competition at first and not tax privileges. But the data described there relates to developed countries and the Russian situation is quite different.

[46] Companies with 200-500 employees.

[47] Experts estimate that 29 % of such companies are innovative. The share of innovative companies in the group of those who are planning to enter the world market and competing with the import directly is estimated on the level of 9 %. See Kommersant – DAILY, 2006, No.165.

[48] For the data about the export of non-ferrous metals see Izvestiya, 2002, November, 2003, January 24.

[49] Author's calculations on the data basis from [1] and [6]. Let us mention also the leap in the export price index in 1999 (the dummy variable D99 in equation (1)).

[50] See [10], P. 135.

[51] This sum (a regressor) is evaluated in US dollars; the set is taken for ten years (1995-2004).

[52] All results of econometric estimations in this paper are presented in Supplement 2.

The rapid growth of the ***China's*** economy creates a strong potential demand for such Russian goods as energy,[53] metals,[54] construction materials, and lumber. The total Russian export to China increased from $3.5 billion in 1999 to $10.1 billion in 2004.[55]

## 3. The outside world as a source of goods and services for Russia

The share of import in total resources of the Russian economy[56] declines steadily after its splash in 1998-99 (see Table 16). The econometric equations (3) – (5) show:

- a strong dependence of import both in current and in constant ruble prices from *real* GDP and inflation in Russia; the latter demonstrates the positive influence of strengthening ruble on the physical volume of import;
- that import helps to decrease inflation as it increases the volume of total resources; that means that import limitations strengthen the inflation and limit the people's wealth.[57]

In Table 17 ***elasticities of import volume*** are given in constant 1995 ruble prices on real GDP and GDP deflator.[58] One can see that they decline since 1999. In Table 18 the ***elasticity of GDP deflator*** on the volume of total resources is given; it also declines since 1998. All these facts demonstrate decline of the relative role of import in the Russian economy. Its development is more and more determined by *internal factors* and, particularly, by the internal demand.[59]

But, at the same time, in some points the dependence of the Russian economy from import is significant (see Table 19). It concerns both consumer and investment goods. In the latter group it is especially significant for machine-tools since its national production is in crisis.[60] The Russian government recently allowed importing about 700 items unique for the Russian economy in duty-free regime. As a result, a share of equipment in the total Russian import increased up to 45 % in the first half of 2006.[61] The mass modernization of the equipment park in the Russian

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[53] For example, in 2005 the oil consumption in China increased by 2.5 %, while in EC – only by 0.7 %, and in the USA it *decreased* by 0.2 %. See Kommersant – DAILY, 2006, No. 150. The demand in China for energy is exaggerated by its reliance on coal and low efficiency of energy consumption; see Business Week, 2005, April 11. The China's government expects that country's energy consumption would double by 2020 (see Business Week, 2005, June 20).

[54] For example, the "EvrazHolding" – the Russian "Number One" steelmaker, exports 50 % of its output particularly in China and other East Asian markets.

[55] This increase is 2.9 times, whereas the total Russian export has increased only 2.4 times. See [15], P. 700, 702.

[56] Total resources are calculated as GDP, plus import, minus export.

[57] For example, after introducing of meat quotas in 2003 the retail prices for meat increased by 19.5 % in 2004: it is 1.5 times larger than the average retail price index. The prices for sugar whose import is subject to quotas and duties increased 2.16 times in 2000-2004. At the same time, the average retail price index increased only 1.9 times.

[58] Calculations are fulfilled on the basis of equation (4).

[59] To support this fact, let us note that in the first six months of 2006 real disposable incomes of householders grew by 11 %, whereas only they grew by 8.5 % in the same period of 2005. See Kommersant – DAILY, 2006, No. 137.

[60] The share of Russian producers in this market is less than 20 % but the demand for new equipments grows and is estimated in $ 1-1.5 billion. See Kommersant – DAILY, 2006, No. 14; No. 55.

[61] In comparison with 41 % in the same period of 2005.

economy that began in this year[62] increased not only import but national production too.[63]

## 4. Russia as a source of goods and services

The results presented in Table 20 show that Russia is still interesting to the outside world, first of all, as a source of oil and gas, mineral fertilizer, metals and lumber. And the share of oil and products in the total export is growing.[64] With the adequate investments and technologies the ***oil*** extraction in Russia can be trebled. The export of Russian ***natural gas*** constitutes about 20 % of gas consumption of 15 EC countries and about 2/3 of Central European gas consumption.[65] There is a good chance that the role of Russia as a source of world energy will increase in the nearest years (see Table 21).[66]

The world demand for ***electric energy*** will continue to increase in the nearest future[67] mainly because of rapid growth of the China economy. That means that Russia has a good potential for its export. It can boost electric energy production by 50 % up to 2020,[68] but it demands a serious investment both in electric energy and gas industry.[69] Without it Russia will not only be unable to export, but will suffer from its shortage just in the next few years as a result of quick growth of the internal demand.[70] The other crucial condition is an abolishing of price subsidies that now covers about 75 % of the internal energy consumption.[71]

Under global forest destruction Russia preserved its ***forest area*** and ***wood reserves***. But its share in the world ***lumber and paper trade*** is rather small (see Table 22). Russia needs to export *finished goods*, not raw lumber, and growth of the world demand on paper and furniture gives it a good chance in this field.

Soil erosion, the obsolescence of water reserves and crop area reduction throughout the world enhance the future ***grain export*** from Russia (see table 23). As a result of agricultural crisis of 1980s – 1990s, now there is has a lot of free land, most under bushes and grasses. The mineral fertilizer consumption per hectare decreased 3.7 times since 1985. That means that if Russia boosts cropland, mineral fertilizer consumption and yields there will be a good potential in grain production and export.[72]

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[62] Due to economic growth and ruble strengthening.
[63] Kommersant – DAILY, 2006, No. 137.
[64] It can be explained partially by measures of foreign governments against the Russian non-energy export and investments of Russian companies abroad.
[65] See [12].
[66] According to the International Energy Agency's forecast of the world energy demand will increase up to 2030, and the share of oil will be about 2/3 of it. That means that the role of Russia as the world supplier of energy will stay high**.** See also [2], [7].
[67] See [7].
[68] Source: [8], [9].
[69] As additional capacity, the electric energy sector is planned to be based on gas consumption. See [12], P. 242-309 about the Russian electric energy industry reform.
[70] See the interview by A. Chubais in Kommersant – DAILY, 2006, No. 163. In the field of attraction of foreign capital into electric energy industry Russia may use an experience of India (see Business Week, 2005, May 23).
[71] Kommersant – DAILY, 2006, No. 165.
[72] In 2003 the Russian grain export attained the level of $1 billion, though in 1982 the USSR was the greatest grain importer in the world.

The growing world demand for ***meat*** could help it also if one takes into account:

- the obsolescence of world pastures;
- the development of feeding technologies based on grain;
- the increase of the share of poultry in the world meat production.

The future grain export from Russia can be limited by the increase of its own meat production while today it is a large meat importer. From Table 23 one can see that the pasture land decreased by 15 %, but the total head of cattle decreased 2.6 times, hogs 2.9 times, sheep and goats 3.6 times since 1985.[73] That is, the pressure of cattle stock on pasture areas decreased sharply. If Russia restores its lost pastures and livestock, and increase the productivity of both grain and livestock production it will be able to fill in not only internal but also some part of the world demand for meat.

The increasing world demand for grain and meat and the reduction of the land productivity in many countries enhances the Russian ***mineral fertilizer export***. But it also has its own limits due to earlier discussed problems of the Russian potential grain and meat production. Besides, some countries limit the mineral fertilizer export from Russia by quotas and duties.

## 5. Russia as a market

The share of Russia in the world import is only 1.1 %. It is much less than the share of developed countries (see Table 24). But, nevertheless, Russia becomes more and more interesting as a buyer. Why it is so?

First of all, let us note that the share of household consumption in the Russian GDP (Average Propensity to Consume, APC) and its Marginal Propensity to Consume (MPC) are still relatively low,[74] (see Table 25 and equation (6)).[75] But quick growth of households' incomes and expenditures (see Tables 26 and 27) provides a good chance for further growth of consumption.[76] The Russian share in the world import, though still low, increased 2.2 times in the period 1999-2004.[77]

Quick progress of consumer credits will also enhance the Russian consumer demand. Now only 23 % of Russians take consumer credits to purchase goods and 93 % never took credits for urgent needs.[78] Only one person per 100

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[73] Such tremendous decrease of the cattle head in the new Russian history took place only in the period of collectivization 1929-1933.

[74] Low MPC can be explained by:

- people's fears about future;
- shortage of cheap and high-quality goods;
- deferred demand estimated in bounds from $40 billion to $80 billion (see [12], P. 329) – that can be a result of two factors mentioned before;
- high share of foreign demand in GDP (see Table 13).

[75] See equation (6) is the consumption function. From this equation one can see that the average ratio increases steadily.

[76] Symbolic example: in 1996 "Vimpelcom", a mobile phone company, had 45000 subscribers; in 2005 it had 33 million of them, 733 times more. See Business Week, 2005, July 4.

[77] And as a particular example, the share of import cars in total cars purchases increased up to 25 % only in 2005. See Kommersant - DAILY, 2006, No. 17. For example, "Hyundai" plans to boost its Russian sales from almost negligible level in 2002 to 100 thousands in 2006. See Business Week, 2005, June 20.

[78] See Izvestiya, 2006, April 21-23.

persons has a credit card in Russia.[79] But, at the same time, consumer credits in Russia are 2 times more profitable than the analogous credits in Western Europe[80] and since January 1999 the sum of these credits increased 121 times in nominal and about 30 times in real terms.[81]

## 6. Russia as a source of investment income

In Table 28 one can find ratios of Foreign Investment to Gross Revenue (**FI/PQ**), and such indicators as Profit Margins (**PM**) and Return on Assets (**ROA**) in different Russian industries. In Table 29 these indices are ranked. The corresponding Spearman rank correlation coefficient between FI/PQ and PM is equal to 0.775 and between FI/PQ and ROA it is estimated on the level of 0.786, both are significant. These estimations mean that:

- foreign investment is directed mainly to the highest profitable industries of the Russian economy;[82]
- there exist some potential sectors for future foreign investment where FI/PQ rank is essentially lower than those of PM and ROA (they are the electric energy sector, first of all, and construction materials production, to some degree).

## 7. Risks of Russia in relations with the outside world

There are different types of structural weakness of Russia in relations with the outside world.

1. The Russian business regularly meets different ***limitations***, anti-dumping quotas and duties levied by foreign governments.[83]

2. Russian export is still ***raw-materials-oriented*** in 80 % (see Table 20). Within industry groups the raw materials also predominate.[84]

3. Russia has very few industries with ***Revealed Comparative Advantages (RCA)*** (see Table 30). At the same time, Russia has serious *disadvantages* in such fields as machinery, cars, consumer electronics, medical & pharmaceutical goods, meat and meat products. And what is much the worse, Russia looses its advantages and, on the contrary, its disadvantages are strengthening, except of oil and its products (see Table 31).

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[79] In comparison with 2.5 cards per person in the USA. See Business Week, 2004, October 4, P.56.
[80] See Business Week, 2003, September 1.
[81] This is the author's calculations based on the data from [1].
[82] Let us note that top four sectors in the foreign investment rank - ferrous and non-ferrous metallurgy, fuel industry and communications - have PM of more than 30 % and ROA of 12-15 % (the latter index is above 30 % in ferrous metallurgy).
[83] So, at the beginning of 2004 there were 93 quotas and 57 of them were antidumping quotas. Around 60 % of them related to steel production, 25 % – to chemicals (see [12], P. 165). As a measure to overcome this limits, the Russian business actively invests abroad in the last period of time, only in 2005 these investments are estimated on the level of $13.3 billion. They try to "lock the chain" and buy selling companies in developed countries, raw material suppliers and Local Distribution Companies (LDCs).
[84] For example, in the group "lumber and paper" the share of non-processed lumber is 60 %. As a result of such structure, the value of the Russian export in this group is equal to $7 billion, whereas in Finland it is $11 billion due to more favorable structure. See Kommersant – DAILY, 2006, No. 137 and [15], P. 704. Besides, Russia looses about 20-30 % of the value of this export group only because many Russian lumber companies have no ecological certification by the Forest Care Council.

4. Russia crucially needs to diversify its ***country structure*** of export (see Table 32). For example, 100 % of Russian energy is exported to Europe.[85] This is explainable since the cost of transportation to Europe is the lowest one and the prices are higher than, for example, in China. Experts forecast that even Russia will realize all its investment projects of construction oil and gas pipelines in Asian-Pacific region it will export there only 20 % of its oil and 15 % of its gas up to year 2015.[86]

5. A serious threat to the development of Russia is high ***energy intensity*** of its GDP.[87] Production of metals and mineral fertilizer in Russia is even more energy intensive than the average GDP energy intensity and that damages its positions in the world markets of these products. [88]

6. Another danger comes from ***substitutes*** of the Russian export which develop quickly in the outside world. For energy it is wind, solar and hydrogen sources,[89] for metals it is metal scrap, and for lumber, paper and plywood – waste paper.

7. A growing part of Russian companies suffer from ***strengthening competition*** both on foreign and national levels (see Table 33). The most serious competition is in such markets as products of chemicals and petrochemicals, machine building, lumber and paper, construction materials, light, food & beverages industry.[90] And if we consider ***the share of wages in gross revenue*** as an indicator of competitive strength we can conclude that it worsens for majority of Russian industries (see Table 34).[91]

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[85] See Kommersant – DAILY, 2006, No. 165.

[86] See Kommersant – DAILY, 2006, No. 165.

[87] It is 2-3 times greater than those in developed countries.

[88] Just the same is inherent to the quickly growing China economy. In the past, China was a moderate exporter of oil. Now it is one of the largest importers.

[89] Worldwide, the average annual growth of wind power capacity was 28 % in 1999-2004 and amounted 48000 megawatts. Near 3/4 of it is in Europe (now the single consumer of the Russian energy export) where governments have considered investments into renewable energy sources as a priority. Europe gets 2.5 % of its electricity from wind power sources, which is more than twice the corresponding proportion in the USA. But in Europe the wind power still costs $0.07-S0.1 per kwh compared with $0.04 from gas-fired or nuclear power plants. Nevertheless, the cost of the wind energy has been falling 3-5 % a year since 1980s. Spain supplies 6 % of its overall power supply from wind sources (Business Week, 2005, July 11).

The cost of the wind energy in the USA now is $0.03-$0.05 per kwh making it competitive with conventional sources. It declined 3 times since 1990. The solar energy is still 3-5 times as costly as conventional sources though its cost also declined about 3 times since 1990. Anyway, the American Wind Energy Association estimates that the US wind power capacity increased by 37 % and the solar power capacity by 30 % in 2005 (see Business Week, 2005, July 4).

[90] Some industries diminish their production under the pressure of foreign competition**.** See, for example, Kommersant – DAILY, No. 137, concerning the slump in consumer electronics in Russia.

[91] Here the electric energy, coal, oil processing and ferrous metallurgy are the exceptions.

## 8. Conclusions

To adapt to the quickly changing outside world Russia should take several steps.

1. To liberalize the **labor migration** conditions, to legitimate the existing migrants and to help the internal migrants.
2. To soften the **limits for foreign investments**, to provide them more effective interregional and inter-industry distribution, to provide real support to foreign investors.
3. To attract national and foreign capital in such advanced and important fields as electric energy, gas, railroads, lumber and paper, and agriculture**.**[92]
4. To promote further support of import of **unique investment goods**.
5. To give adequate privileges to **national innovative companies**.
6. To protect **national exporters,** mostly, those of non-raw materials.
7. To change the structure of **comparative advantage,** to remodel the product and the country **export structure** by means of government and private investment in innovations, and to support those exporters who find new markets.
8. To decrease the **energy intensity** of the economy by support of investment in energy-saving technologies.
9. To abolish the most inflation-producing, wealth-decreasing and excessive **import limitations**.

[92] These investments should be based on ecologically sustainable technologies.

## SUPPLEMENT 1

**Table 1. Labor force dynamics in Russia, 1995 – 2005, mln. people.** [93]

| Indicator | 1995 | 2000 | 2005 |
|---|---|---|---|
| People younger than workable age | 34,3 | 29,6 | 24,1 |
| People in workable age | 84,3 | 87,2 | 90,2 |
| People older than workable age | 29,9 | 30,1 | 29,2 |
| Economically active population | 70,9 | 71,5 | 73,4 |
| Employed | 64,1 | 64,5 | 67,2 |
| Unemployed | 6,8 | 7,0 | 6,2 |

**Table 1a. The structure of the Russian labor force dynamics, 1995 – 2005,%.** [94]

| Indicator | 1995 | 2000 | 2005 |
|---|---|---|---|
| People younger than workable age as a share of total population | 23,1% | 20,1% | 16,8% |
| People in workable age as a share of total population | 56,8% | 59,4% | 62,9% |
| People older than workable age as a share of total population | 20,1% | 20,5% | 20,3% |
| Economically active population as a share of people in workable age | 84,1% | 82,0% | 81,4% |
| Employed as a share of economically active population | 90,4% | 90,2% | 91,6% |
| Unemployed as a share of economically active population | 9,6% | 9,8% | 8,4% |

[93] Source: [15], P.81, 139.
[94] Source: Table 1.

**Table 2. Marginal Revenue of Labor (MRL) and Average Gross Per Employee (W), in the 4th quarter, in a year scale.[95]**

| Year | MRL thousands rubles, current prices, year scale | Gross nominal average wages per employee, thousands rubles, annual scale (W)[96] |
|---|---|---|
| 1995 | 24,1 | 13,3 |
| 1996 | 30,9 | 18,3 |
| 1997 | 35,7 | 21,3 |
| 1998 | 44,9 | 22,1 |
| 1999 | 79,9 | 37,3 |
| 2000 | 111,9 | 53,7 |
| 2001 | 133,8 | 69,1 |
| 2002 | 162,8 | 86,9 |
| 2003 | 193,6 | 104,7 |
| 2004 | 250,5 | 127,2 |

**Table 3. Ratio MRL/W and net migration in Russian federal districts.[97]**

| Federal district | MRL/W, 2003. | Net migration, thousands 2004 |
|---|---|---|
| Central | 1,40 | 83 |
| North – Western | 1,39 | 6 |
| Southern | 1,45 | -13 |
| Volga | 1,51 | -24 |
| Urals | 1,56 | -3 |
| Siberia | 1,37 | -26 |
| Far Eastern | 1,17 | -22 |
| Russia average | 1,41 | 0 |

**Table 4. Model imitation results.**

| Parameter | Change | GDP annual growth rate reaction | The inflation annual rate reaction |
|---|---|---|---|
| Labor | Increase of growth rate by 1 % annually | Increase by 0.6-0.7 % | Decrease on 0.2-0.5 % |
| Foreign direct investment | Growth rate doubling | Increase by 0.5-0.6 % | Increase by 1.5-2.0 % |
| Export prices | Growth rate doubling | Increase by 0.1-0.2 % | Increase by 2.8-3.9 % |

[95] See [10], P. 125.
[96] The data for wages here are taken from the National accounts statistics.
[97] The production function and MRL are estimated on the panel data for 65 regions of Russia for 2000-2003. Moscow and St. Petersburg and some other regions are excluded from the sample. Net migration is calculated by the author on the basis of the data from [15], P. 133.

**Table 5. Main reasons impeding foreign investment in Russia. Ranked in the CSFI questionnaire of foreign investors.[98]**

| Rank | Reason |
|---|---|
| 1 | Corruption |
| 2 | Administrative restrictions |
| 3 | "Selective" legal practice |
| 4 | Inadequate laws |
| 5 | Problems with visas and job permissions |
| 6 | Shortcomings in corporate governance and companies' transparency |

**Table 6. Answers of 102 actual foreign investors on the CSFI questionnaire about their plans in Russia.[99]**

| | 2005 | 2006 |
|---|---|---|
| Plan to extend operations in Russia | 78 % | 94 % |
| Plan to increase the volume of investment | 71 % | 91 % |

**Table 7. Russian regions with the greatest level of foreign investment and marginal revenue on capital (MRK).[100]**

| Region | Foreign investment attracted, 2004, $million | Rank | Region | MRK | Rank |
|---|---|---|---|---|---|
| Moscow City | 15357 | 1 | Moscow City | Abolished from the sample | |
| Tumen | 5833 | 2 | Bashkortostan | 0,233 | 1 |
| Sakhalin | 3927 | 3 | Krasnoyarsk | 0,230 | 2 |
| Moscow oblast | 1829 | 4 | Omsk | 0,227 | 3 |
| Krasnoyarsk | 1621 | 5 | Sakhalin | 0,226 | 4 |
| Vologda | 1108 | 6 | Nizhnii Novgorod | 0,224 | 5 |
| Lipetsk | 1102 | 7 | Orel | 0,219 | 6 |
| Samara | 1098 | 8 | Lipetsk | 0,214 | 7 |
| Omsk | 1086 | 9 | Tomsk | 0,210 | 8 |
| St. Petersburg City | 985 | 10 | Tatarstan | 0,206 | 9 |
| Sakha | 834 | 11 | Kaliningrad | 0,206 | 10 |
| Chelyabinsk | 683 | 12 | Vologda | 0,204 | 11 |
| Tatarstan | 596 | 13 | Krasnodar | 0,202 | 12 |

[98] The Russian Committee for Support of Foreign Investment (CSFI). Source: Kommersant – DAILY, 2005, No. 39.

[99] The Russian Committee for Support of Foreign Investment (CSFI). Source: Kommersant – DAILY, 2006, No. 72.

[100] The data about foreign investment are taken from [15], P. 671-672; the Marginal Revenue on Capital (MRK) calculated by the author from the production function estimated on the panel data on Russian regions for 2000-2003.

**Table 8. Ratio of investment into property, plant & equipment to GDP in different countries, 2003, %. The OECD calculations.[101]**

| Country | Parameter |
|---|---|
| Russia | 18 |
| OECD average | 21 |
| Mexico | 19 |
| Rep. of Korea | 27 |
| China | 42 |
| Malaysia | 23 |
| Thailand | 23 |

**Table 9. The ratio of investment in property, plant & equipment to the level of property, plant & equipment (I/K) and to GDP in current prices (I/PQ) 1995-2004 (on the 4th quarter).[102]**

| Year | I/K | I/PQ |
|---|---|---|
| 1995 | 0,008 | 0,149 |
| 1996 | 0,007 | 0,166 |
| 1997 | 0,007 | 0,159 |
| 1998 | 0,007 | 0,127 |
| 1999 | 0,016 | 0,178 |
| 2000 | 0,023 | 0,212 |
| 2001 | 0,023 | 0,218 |
| 2002 | 0,022 | 0,206 |
| 2003 | 0,022 | 0,212 |
| 2004 | 0,025 | 0,206 |

**Table 10. Innovations in Russia and other countries.[103]**

| Parameter | Russia | European Community | USA | Japan |
|---|---|---|---|---|
| The utilization of innovation ideas and projects, %. | 8-10 | | 62 | 95 |
| The percent of R&D fulfilled by companies, %. | 6 | 65 | 75 | 71 |

**Table 11. The amount of new production technologies created in Russia.[104]**

| Year | Parameter |
|---|---|
| 1997 | 996 |
| 2000 | 688 |
| 2003 | 821 |
| 2004 | 676 |

[101] Organisation of Economic Co-operation and Development (OECD). Source: [12], P. 105.

[102] Source: [15], P. 336 [1], and authors calculations.

[103] Source: Kommersant – DAILY, 2005, No. 212.

[104] Source: [15], P. 594-595, 599.

**Table 12. The share of expenditure on technological innovations in the gross industrial revenues, in %.**[105]

| Year | Parameter |
|---|---|
| 2000 | 1,0 |
| 2001 | 1,1 |
| 2002 | 1,3 |
| 2003 | 1,3 |
| 2004 | 1,1 |

**Table 13. Export, import, and net export as a share of Russian GDP, in %.**[106]

| Year | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 |
|---|---|---|---|---|---|---|
| Net export | 20,0% | 12,7% | 10,8% | 11,3% | 12,3% | 13,6% |
| Export | 44,1% | 36,9% | 35,3% | 35,2% | 34,5% | 35,1% |
| Import | 24,0% | 24,2% | 24,5% | 23,8% | 22,2% | 21,6% |

[105]Source: [14], P. 20, 425, and author's calculations.
[106] Source [6], and author's calculations.

**Table 14. Export as a share of production of several products in Russia, 2004, in %.[107]**

| Product | Export as a share of production |
|---|---|
| Fish | 38% |
| Wheat | 10% |
| Iron core | 18% |
| Crude oil | 58% |
| Oil products | 55% |
| Natural gas | 34% |
| Ammonia | 27% |
| Nitrogenous mineral fertilizer | 28% |
| Potassium mineral fertilizer | 49% |
| Mixed mineral fertilizer | 54% |
| Tires | 36% |
| Plywood | 64% |
| Cellulose | 32% |
| Paper | 66% |
| Cotton fabric | 19% |
| Pig iron | 11% |
| Steel rolled metal | 20% |
| Iron rolled metal | 22% |
| Metal pipes | 27% |
| Excavators | 31% |
| Bulldozers | 33% |
| Autoloader | 54% |
| Cargo wagons | 21% |
| Tractors | 90% |
| Buses | 14% |

**Table 15. Export prices and volume of export elasticities to the sum of EC, USA and China real GDPs.[108]**

| Year | Export prices elasticity | Export volume elasticity |
|---|---|---|
| 1998 | 4,34 | 0,61 |
| 1999 | 2,71 | 0,46 |
| 2000 | 2,47 | 0,45 |
| 2001 | 2,64 | 0,47 |
| 2002 | 2,31 | 0,40 |
| 2003 | 2,54 | 0,49 |
| 2004 | 2,39 | 0,45 |

[107] Source: [15], P. 707-709, 396-431, and author's calculations.
[108] Source: equations (1)-(2).

**Table 16. Import as a share of total resources (GDP, plus import, minus export) in the Russian economy, in %.[109]**

| Year | A share of import in total sources |
|---|---|
| 1998 | 33,4% |
| 1999 | 33,0% |
| 2000 | 29,0% |
| 2001 | 27,3% |
| 2002 | 28,4% |
| 2003 | 27,1% |
| 2004 | 25,6% |

**Table 17. Elasticity of import volume in constant 1995 prices to real GDP and GDP deflator.[110]**

| Year | Elasticity on GDP | Elasticity on GDP deflator |
|---|---|---|
| 1998 | 1,487 | 0,823 |
| 1999 | 1,437 | 1,145 |
| 2000 | 1,122 | 1,078 |
| 2001 | 1,025 | 1,066 |
| 2002 | 0,929 | 1,058 |
| 2003 | 0,844 | 1,002 |
| 2004 | 0,721 | 0,970 |

**Table 18. Elasticity of GDP deflator to the volume of total resources.[111]**

| Year | Elasticity |
|---|---|
| 1998 | -0,155 |
| 1999 | -0,110 |
| 2000 | -0,099 |
| 2001 | -0,094 |
| 2002 | -0,087 |
| 2003 | -0,085 |
| 2004 | -0,077 |

[109] Sources [6], [1], and author's calculations. Calculations are fulfilled in current prices.
[110] Source: equation (4).
[111] Source: equation (5).

**Table 19. The structure of the Russian import, 2004, in %.**[112]

| | |
|---|---|
| Food and agricultural products | 18,3% |
| Mineral products | 4,0% |
| Chemical products | 15,8% |
| Among them: | |
| Medicine | 3,4% |
| Plastic, etc. | 3,4% |
| Lumber and paper | 3,8% |
| Textile, footwear | 4,3% |
| Metals | 8,0% |
| Among them: | |
| Ferrous metals and their products | 5,8% |
| Equipment and means of transport | 41,2% |
| Among them: | |
| Cars | 6,8% |

**Table 20. The main export goods of Russia as a share of total export, 2004, in %.**[113]

| | |
|---|---|
| Mineral products | 57,8% |
| Among them: | |
| Crude oil | 32,1% |
| Oil products | 10,6% |
| Natural gas | 12,0% |
| Chemical products | 6,6 % |
| Lumber and paper | 3,9% |
| Metals and metal products | 20,2% |
| Among them: | |
| Ferrous metals | 9,3% |
| Nickel | 1,7% |
| Aluminium | 2,3% |
| Equipment, tools and cars | 7,8% |

**Table 21. Russia as a source of world energy resources.**[114]

| | | |
|---|---|---|
| Oil reserves | > 200 billion barrels | 13-17 % of world investigated reserves |
| Oil production | 7.7 million barrels per day | 10 % of world production |
| Oil export | 4 million barrels per day | 13 % of world export |
| Natural gas reserves | 47 trillion of cubic meters | 27 % of world investigated Reserves |
| Natural gas production | 633 billion of cubic meters | 22 % of world production |
| Natural gas export | 200 billion of cubic meters | 30 % of world export |

[112] Source: [15], P.705, 707-709; and author's calculations.
[113] See [15], P.704, 707-709; and author's calculations.
[114] Sources: [7]; [12], P. 210-221; Business Week, 2004, 22 November; 2005, February 28; [15], P. 399, 708.

**Table 22. Russia as a source of world wood resources.[115]**

| Parameter | Value | Share of global, % |
|---|---|---|
| Forest area, million hectares | 809 | 20 |
| Wood reserves, billion of cubic meters | 80 | 16 |
| Lumber and paper export, $billion | 7 | 5 |

**Table 23. Russian agricultural potential.[116]**

| Indicator | 1985 | 2004 |
|---|---|---|
| Agricultural land ha per person | 1.5 | 1.3 |
| The same in the worlds, average | | 0.8 |
| Arable land, million hectare | 131 | 117 |
| Share of global | | 8.3 % |
| Pastures, million hectares, 2004 | 83 | 71 |
| Share of global: | | 2.1 % |
| Grain yield, metric ton per ha | 1.30 | 1.88 |
| Ratio to Canada grain yield: | | 70 % |
| Mineral fertilizer kg per ha of arable land | 85 | 23 |
| In % to world average | | 23 % |
| Cattle, million heads | 59.6 | 23.0 |
| Hogs, million heads | 39.0 | 13.4 |
| Sheep and goats | 63.4 | 17.8 |
| Gain in total factor productivity, 1981-2000, in % per year[117] | | 3.3 |

**Table 24. The share of Russia in the world import, 2004, in %.[118]**

| | |
|---|---|
| Russia | 1,1 |
| Belgium | 4,0 |
| England | 6,3 |
| Germany | 10,0 |
| Canada | 3,8 |
| Netherlands | 3,9 |
| Korea | 3,1 |
| China | 5,7 |
| Italy | 4,1 |
| USA | 21,2 |
| France | 6,2 |
| Japan | 6,3 |

**Table 25. The share of household consumption in GDP: Russia, USA and Germany, 2004, in %.[119]**

| | |
|---|---|
| Russia | 48 |
| Germany | 59 |
| USA | 70 |

[115] See [15], P. 66; 704; [3]; and author's calculations.
[116] Sources: [15], P. 437; 458, 793; [3]; and author's calculations.
[117] Estimated in [3]: "The State of Food and Agriculture", 2005, Table A8.
[118] Sources: [15], P. 807; and author's calculations.
[119] Sources: [18]; [5]; [6].

**Table 26. Average incomes per capita and purchases of durables in Russia (thousands), 1999 and 2004.[120]**

| | 1999 | 2004 | Increase, times |
|---|---|---|---|
| Average income per capita, $ per year | 737 | 2760 | 3,7 |
| Purchases of: | | | |
| TV | 2205 | 5311 | 2,4 |
| Among them: colored | 1756 | 4858 | 2,8 |
| Tape recorders | 875 | 1637 | 1,9 |
| Fridges | 1951 | 3368 | 1,7 |
| Washing machines | 1200 | 2885 | 2,4 |
| Vacuum cleaners | 1309 | 3039 | 2,3 |
| Cars | 1025 | 1311 | 1,3 |

**Table 27. Purchases of goods in Russia, the Business Week data.[121]**

| Indicator | March 2000 | March 2004 | Increase, times |
|---|---|---|---|
| Cellular phones, million | 1.4 | 36.2 | 25,9 |
| Cinema tickets, $million | 10 | 140 | 14,0 |
| Consumer credits outstanding, $billion | 1.02 | 10.98 | 10,8 |
| Notebooks | 41700 | 312000 | 7,5 |
| Imported cars | 43000 | 203000 | 4,7 |
| Credit cards outstanding, millions | 5 | 21 | 4,2 |
| Retail trade turnover, $billion | 69 | 135 | 2,0 |
| Middle class, % of answers | 22 % | 36 % | 1,6 |

[120] Sources: [15], P. 187, 545; and author's calculations.
[121] Business Week, 2004, May 31, P. 55.

**Table 28. The ratio of foreign investment to gross revenue (FI/PQ), profit margin (PM) and return on assets (ROA) in the Russian economy, 2004, in %.**[122]

| Industry | FI/PQ | PM | ROA |
|---|---|---|---|
| Total | 3,2 | 13,2 | 8,5 |
| Among them: | | | |
| Industry | 4,9 | 17,9 | 10,5 |
| Among them: | | | |
| Electric energy | 0,2 | 9,8 | 3,6 |
| Fuel industry[123] | 10,7 | 30,7 | 13,5 |
| Ferrous metallurgy[124] | 7,3 | 36,2 | 34,3 |
| Non-ferrous metallurgy | 12,6 | 36,2 | 15,5 |
| Chemical | 4,6 | 12,2 | 8,6 |
| Machine-building and metal-working | 2,4 | 7,0 | 3,4 |
| Lumber and paper | 7,3 | 7,1 | 3,6 |
| Construction materials | 1,7 | 10,1 | 7,7 |
| Light industry | 1,2 | 3,4 | 0,6 |
| Food & beverages | 2,2 | 8,1 | 6,7 |
| Construction | 0,8 | 5,0 | 3,0 |
| Communications | 7,8 | 32,9 | 12,1 |
| Trade & restaurants | 6,4 | 12,7 | 12,1 |

**Table 29. Ranks of ratio of foreign investment to gross revenue (FI/PQ), profit margin (PM) and return on assets (ROA) in the Russian economy, and Spearman rank correlation coefficient.**[125]

| Industry | FI/PQ | PM | ROA |
|---|---|---|---|
| Electric energy | 13 | 8 | 9 |
| Fuel industry | 2 | 4 | 3 |
| Ferrous metallurgy | 4 | 2 | 1 |
| Non-ferrous metallurgy | 1 | 1 | 2 |
| Chemical | 7 | 6 | 6 |
| Machine-building and metal-working | 8 | 11 | 11 |
| Lumber and paper | 5 | 10 | 10 |
| Construction materials | 10 | 7 | 7 |
| Light industry | 11 | 13 | 13 |
| Food & beverages | 9 | 9 | 8 |
| Construction | 12 | 12 | 12 |
| Communications | 3 | 3 | 4 |
| Trade & restaurants | 6 | 5 | 5 |
| Spearman rank correlation coefficient of FI/PQ with PM and ROA | | 0,775 | 0,786 |

[122] Sources: [15], P. 323, 474, 510, 535, 641, 671; [14], P. 26-29, 375, 395, and author's calculations. The calculations include total volume of foreign investment, not only direct, but also portfolio and "other" investment.

[123] Figures Include oil extraction, oil processing, gas and coal extraction. About 99 % of foreign investment in fuel industry goes to oil extraction.

[124] One of the reasons of high profitability of metal sector is its intensive consolidation.

[125] Source: Table 27.

**Table 30. Coefficients of Revealed Comparative Advantages (RCA) and Disadvantages.[126]**

| Item | 1997 | 2003 |
|---|---|---|
| Advantages | | |
| Oil and oil products | 23.8 | 38.9 |
| Gas natural and synthetic | 18.3 | 13.7 |
| Non-ferrous metals | 8.3 | 5.2 |
| Iron and steel | 5.7 | 3.0 |
| Lumber | 2.0 | 2.4 |
| Disadvantages | | |
| Transport cars | -2.5 | -6.6 |
| General industrial equipment | -4.5 | -5.9 |
| Electric equipment | -2.2 | -5.3 |
| Special equipment | -3.4 | -4.8 |
| Medical & pharmaceutical products | -2.5 | -4.4 |
| Meat & meat products | -4.1 | -4.1 |
| Fruits & vegetables | -2.7 | -3.4 |
| Paper, plywood | -0.6 | -2.0 |
| Perfume, washing materials, etc. | -1.1 | -2.0 |

**Table 31. The greatest increases and decreases of RCAs in the Russian economy.[127]**

| Item | RCA | | Increase or decrease |
|---|---|---|---|
| | 1997 | 2003 | |
| Oil and oil products | 23.8 | 38.9 | 15.1 |
| Gas natural and synthetic | 18.3 | 13.7 | -4.6 |
| Transport cars | -2.5 | -6.6 | -4.1 |
| Electric equipment | -2.2 | -5.3 | -3.1 |
| Non-ferrous metals | 8.3 | 5.2 | -3.1 |
| Iron and steel | 5.7 | 3.0 | -2.7 |

**Table 32. Country structure of the Russian export, 1995-2004, in %.[128]**

| Country | 1995 | 2004 |
|---|---|---|
| CIS | 18,6 | 16,1 |
| Other than CIS | 81,4 | 83,8 |
| Among them | | |
| EC-25 | 43,3 | 50,3 |
| China | 4,3 | 5,6 |
| USA | 5,5 | 3,6 |

[126] Source: [12], P. 188-189. $RCA_i = (X_i/\Sigma X_k - M_i/\Sigma M_k)*100$, where $X_i$ and $M_i$ are export and import of good i, respectively.

[127] Revealed Comparative Advantages (RCAs). See [12], P. 204.

[128] Sources: [15], P. 702-703, and author's calculations.

**Table 33. Factors strengthening the competition on the Russian market of industrial goods (the frequency of answers on questionnaires, in % of total answers), 1996-2003.[129]**

| Factor | 1996 | 2003 |
|---|---|---|
| Growing volume of import goods | 31 | 30 |
| Better quality of import goods | 7 | 20 |
| Low prices of import goods | 17 | 24 |
| Price restrains by Russian competitors | 14 | 31 |
| Appearance of new Russian competitors | 18 | 42 |

**Table 34. The share of wages in gross revenue, 1999-2004.[130]**

| Industry | 1999 | 2004 | Increase (+) or decrease (-) |
|---|---|---|---|
| Industry total | 9,2% | 10,1% | 0,90% |
| Electric energy | 11,6% | 10,7% | -0,90% |
| Fuel | 8,1% | 7,6% | -0,50% |
| Among them: | | | |
| Oil extraction | 5,5% | 5,9% | 0,40% |
| Oil processing | 7,1% | 5,8% | -1,30% |
| Gas | 10,4% | 12,8% | 2,40% |
| Coal | 25,9% | 19,5% | -6,40% |
| Ferrous metallurgy | 8,1% | 6,6% | -1,50% |
| Non-ferrous metallurgy | 8,8% | 12,1% | 3,30% |
| Chemical and petrochemical | 9,5% | 12,1% | 2,60% |
| Machine building and metal cutting | 15,4% | 18,6% | 3,20% |
| Lumber and paper | 13,7% | 15,5% | 1,80% |
| Construction materials | 16,2% | 16,2% | 0,00% |
| Light | 18,9% | 22,0% | 3,10% |
| Food and beverages | 7,9% | 8,9% | 1,00% |

[129] See [12], P. 41;
[130] Sources: [15], P. 377-422, and author's calculations.

## SUPPLEMENT 2

### List of Variables

PEXP – index of ruble prices on Russian export goods (1995 = 1.00);

RUSEXPCON – the volume of Russian export in fixed 1995 ruble prices.

WCON – the sum of GDPs of EC, USA and China in the fixed US 1995-dollar prices;

D99 – dummy variable: it equals to 0 for the period 1995-98 and equals to 1 for the period 1999-2004;

IMCUR – Russian import in current ruble prices;

IM – Russian import in constant 1995 ruble prices;

Q – GDP of Russia in constant 1995 prices;

P – GDP deflator in Russia (1995 = 1.00);

RRES = total resources = GDP of Russia, plus import, minus export (all variables are given in constant 1995 ruble prices);

CONS – the total consumer expenditures in Russia in current ruble prices;

T – time trend;

$R^2$ – determination coefficient;

DW – Durbin-Watson coefficient;

F – Fischer's statistics.

Student's t-statistics are given in brackets.

### 1) *Export prices equation for Russia*

$$\mathbf{PEXP = -3.958 + 4.81E\text{-}8(WCON)^2 + 1.426D99}$$
$$\mathbf{(6.245) \qquad (6.401)}$$

$\mathbf{R^2 = 0.927}$

**DW = 1.827**

**F = 228.8**

### 2) *Real export equation for Russia*

$$\mathbf{RUSEXPCON = 758.7 + 0.0586WCON - 0.191WCON_{-1} + 6.63E\text{-}06(WCON)^2}$$
$$\mathbf{(4.006) \qquad (-6.976) \qquad (6.323)}$$

**$R^2$ = 0.935**
**DW = 1.996**
**F = 166.8**

### 3-4) *Import equations for Russia*

**IMCUR = -403.2 + 1.111Q + 65.884P**
**(6.723) (24.124)**

**$R^2$ = 0.988**
**DW = 1.910**
**F = 1554.2**

**IM = -26.4 + 0.286Q + 15.292P – 52.3D99 – 2.066T**
**(4.029) (3.936) (-6.122) (-1.987)**

**$R^2$ = 0.868**
**DW = 2.203**
**F = 57.7**

### 5) *Inflation equation for Russia*

**$P = 0.727+1.052P_{-1} – 0.002RRES$**
**(68.17) (-2.355)**

**$R^2$ = 0.996**
**DW = 1.896**
**F = 4558.3**

### 6) *Consumption function for the Russian economy*

**CONS = 0.412PQ + 7.196T**
**(19.364) (3.522)**

**$R^2$ = 0.993**
**DW = 1.467**

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