

Russian regions: foreign trade and economic development

Abstract

Russia is one of the most heterogeneous countries, consisting of more than 80 regions. Among other features, its regions vary by their involvement in international trade and by vulnerability to external shocks. Russian economy is relatively open, but openness of regions varies greatly, depending to the large extent on the endowment by natural resources. The beginning of the second decade of the century was marked by the serious breakthrough in Russia's role in the processes of global and regional integration. Russia, Belarus and Kazakhstan arranged a functioning customs union (CU RBK), and in 2012 Russia fully joined the World trade organization.

The goal of the current study is to examine the diversity of Russian regions and to assess the role of external trade and regional incomes across Russia. We start with the general overview of Russian regional diversity, and then discuss the factors influencing foreign trade patterns of specific regions. Regression analysis is used for explaining regional import per capita and for testing dependence of incomes on export and some other factors, including geographic location. The results are compared with the results of the similar study conducted in 2005. Finally, the consequences of Russia's joining nepy WTO and the Customs union of Russia, Belarus' and Kazakhstan for Russian regions are briefly discussed.

Keywords: Russia, regional diversity, incomes, export and import per capita, openness, WTO, customs union.

1. General overview of Russian regional diversity

Russian Federation currently consists of 83 administrative units of several types: 46 provinces, 21 republics, 4 autonomous districts, 9 krays, 1 autonomous province, and two cities of federal significance, namely Moscow and St. Petersburg. Starting from 2000 Russian regions are integrated into 7 (now – 8) Federal districts (FD) according to geographical location (see Table 1).

FDs have neither own budgets, nor representative authorities. They have been introduced as an intermediate body of administration and control, alleviating interaction between federal center (President of Russian Federation) and dozens of regions with their governors. Each

federal district consists of several administrative units (“subjects of federation”), One can hardly speak about different economic policy or institutional environment at the level of federal districts – their heads have limited power, largely transmitting to regional policymakers the policy of President. Here FDs are just an easy way to present Russian regional variety in a nutshell.

Table 1. **Population and Gross regional product (GRP) by federal district**

Federal district	Population, 2012		GRP ¹ , per cent	
	mln.	<i>per cent</i>	2001	2010
Central	38,5	26,2	32,9	35,7
North-west	13,7	9,6	9,6	10,4
South	13,9	15,9	7,8	6,1
North Caucasian	9,5			2,4
Volga	29,8	21,4	17,9	15,1
Ural	12,1	8,6	15,9	13,6
Siberia	19,3	13,8	11,3	10,9
Far East	6,3	4,6	5,0	5,6
Russian Federation	143,5	100,0	100,0	100,0

Source: *Regions of Russia. Social and economic indicators 2003. Moscow, 2005 and 2012 (in Russian)*.

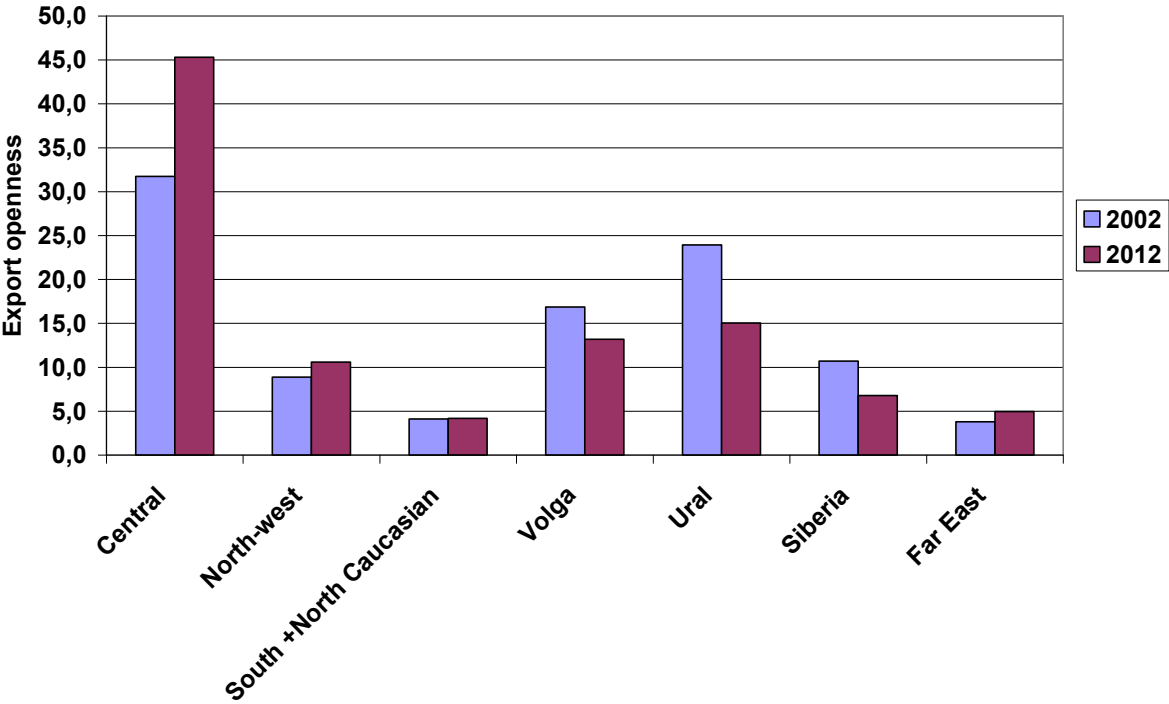
Comparison of FD shares of Russia’s GDP (table 1) illustrates the ongoing process of the bias of economic activity towards European regions of Russia, especially to the Central and North-Western federal districts. The share of Central FD increased from 32,9 per cent in 2001 to 35,7 per cent in 2010. It is worth mentioning, that more than 60 per cent of this figure is captured by Moscow city (8 per cent of Russia’s population), providing 22,5 per cent of Russia’s GDP (in 2001 – 20,7 per cent). At the same time the share of Volga, Ural and Siberia in Russian GDP decreased. The decline of the role of Ural FD is especially shocking, taking into account, that it supplies 70 per cent of Russian oil and 95 per cent of Russian gas, and the period under consideration witnessed unprecedented rise of global oil prices. Slight increase in the share of Far East is attributed to such rise of oil prices and growth of oil and gas extraction in Sakhalin province. But all in all the trend of shifting of production, population

¹ GRP – Gross Regional Product.

and incomes to border regions and regions with large agglomeration is in line with the predictions of Paul Krugman’s new economic geography (Krugman, Fujita, Venables, 1999).

Similar trend is visible when we compare the relative contribution to country export by federal district in 2002 and 2012 (Fig. 1). The role of the Central FD has increased: in 2012 statistics attributed 45 per cent of Russian export to Central FD, main part – to Moscow. The relative role of North-west and Far East also slightly grew, while the shares of continental regions – Volga, Siberia and even Ural FD – dropped. Such a shift has two explanations: first, the effects of globalization, of concentration of production, investments and economically active population in large urban centers and close to sea ports; second, the above mentioned strategy of Russian customs authorities to gradually move customs procedures to the borders.

Fig.1 Distribution of export by federal district in 2002 and 2012
(Export|GRP), per cent (Russia=100)



Calculations based on Regions of Russia. Social and economic indicators 2004 and 2012.

In contrast to federal districts, regions are the real agents of fiscal, structural and social policy. They levy local taxes, invest in local infrastructure, provide subsidies to enterprises, legislate local social transfers, supplement federally mandated transfers, and provide housing and utility subsidies to the households (Sutyurin, Sherov, 2005). Russian regions vary greatly,

sometimes even within the same FD. Table 2 illustrates the variety of Russian regions by main indicators.

**Table 2. Dispersion of Russian regions' indicators
(2011 data)**

Indicator	Minimum	Maximum	Mean	Median	Standard deviation
Territory, th. sq. km	7 (Adygeya rep.)	3103 (Yakutiya - Saha rep.)	232	69.5	460
Population, th.	42 (Nenetsky aut.)	11612 (Moscow city)	1749,3 57	1213,5	1720
Income per capita, USD per month	321 (Kalmykiya rep.)	1919 (Nenetsky aut.)	674,12 6	581,1	277

Calculations based on Regions of Russia. Social and economic indicators 2012. Moscow, 2012.

Examples below illustrate the variety of Russian administrative units (see Table 2). The territory of Russian regions differs from 7 th.sq.km (small ethnic autonomies in Northern Caucasus – Ingushetiya, Adygeia, Northern Ossetia , not to mention Moscow and St.Petersburg) – up to 3.1 mln.sq.km (Saha – Yakutia): 500 times difference (see the map – Annex 1). Nearly the same is relevant to the difference in population density. Population number also varies greatly. The least populated (and the wealthiest by per capita incomes) oil-rich Nenetsky autonomy is inhabited by 42 th. people only. At the other pole there is the city of Moscow (officially 11.6 mln.). 10 other provinces and city of St. Petersburg have 3-5 mln. inhabitants. The list of the most populated units more or less coincides with the list of the wealthiest ones (Sutyryn, Sherov, 2005)..

Provinces are less differentiated than regions as a whole. They, with few exceptions, are inhabited by 1 - 4 mln. people. Republics, established in Soviet times according to the ethnic principle, show a greater dispersion of indicators. In general, they are smaller by population than the provinces, and their inhabitants have lower per capita income, with important exception of Tatarstan and Bashkortostan. Autonomous districts (AD) which formally belong

to provinces or krays², occupy both opposite ends of Russian regions' scale. Six out of nine AD are the smallest and poorest among administrative units, but other three, namely Khanty-Mansiysky, Yamalo-Nenetsky and Nenetsky autonomous districts, belong to the richest. First two of them extract the main part of Russian oil and natural gas. Nowadays the process of AD integration into their mother-units "subjects of federations" is underway.

Peculiarities of Russian regional statistics of foreign trade

Unlike many other countries, customs clearance in Russian Federation can take place not only at the border, but also in the depth of the country. Customs exist in all Russian regions. Foreign trade statistics is based on customs declarations in Russia. But regional foreign trade is reflected in statistics not according to the place of import or export registration, but according to the place, where the exporting or importing company is registered. It means, in particular, that exports by large companies and, in particular, oil and gas exports, is often reflected in the export statistics of Moscow or ("GazpromNeft") in St. Petersburg. Among the major exceptions - "Surgutneftegaz", registered in the Tyumen region and "Tatneft" - in Tatarstan.

Significant portion of imports, especially the finished product is delivered to wholesalers' warehouses in Moscow and the Moscow region, and later distributed among peyushk partners in Russian regions. Accordingly, the customs clearance of imports is also happening in the Moscow region. To some extent it is also true in the case of St.Petersburg and several other sea ports: Kaliningrad, Murmansk, Vladivostok (Primorsky kray), Novorossiysk (Krasnodar kray). Import attributed to other regions reflects that part of import flows which is registered in local customs. It means that real scale of consumption of imported goods in regions is higher than official foreign trade statistics might suggest. During the last decade a number of large logistics hubs emerged in the landlocked provinces as well, and customs clearance took place nearby. But now this decision of local wholesalers occurs to be a mistake, since Federal Customs Administration adopted a strategy of moving the import customs clearance points closer to the state borders. New customs terminals are being built at the borders and part of the customs offices close in the regions. It affects logistics – and statistics as well.

² Kray initially was introduced as a term for the provinces with ethnic autonomies inside. After the collapse of the USSR autonomies have gotten more legal rights and economic prerogatives, some of them raised their status and are listed separately from krays.

The new problem emerged with the launch of the Customs Union of three countries. Since mid-2011 the customs control on mutual borders was eliminated. After this moment regional foreign trade statistics does not reflect trade flows between Russia and RBK CU partners, Belarus and Kazakhstan. All these features should be taken into account while using Russian regional statistical data on foreign trade.

Export and import openness of Russian regions

Import and export share in GDP is the most common measure of economic *openness* of a country. Similar indicators may be used for measuring regional dependence on foreign trade. We keep in mind natural limitations of such an approach, caused by low quality and above mentioned special features of Russian regional statistics of foreign trade. Nevertheless, we assume that distortions do not affect general picture sufficiently tough to prevent making some general conclusions.

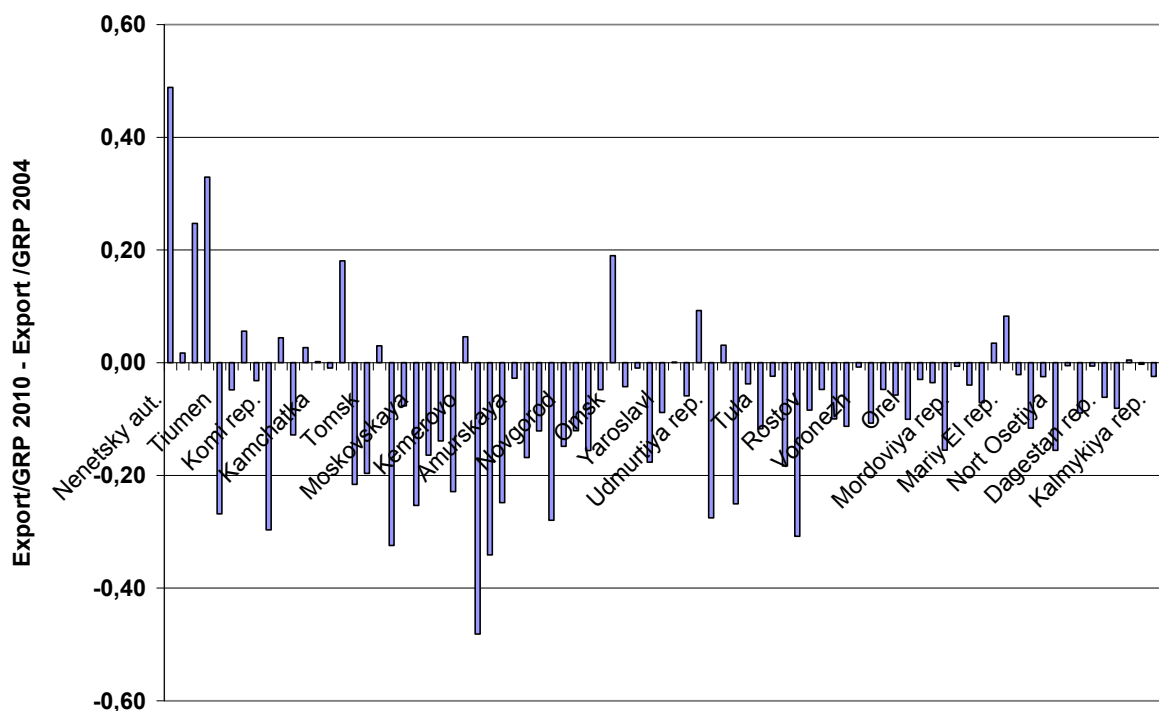
Before discussing the role of foreign trade for the economic development of Russian regions, let us make a few notions regarding the role of foreign trade for Russian economy as a whole. It is a common place to say that Russia is a country, depending on the export of fuel. And it is true, but the degree of export dependence is not stable. It is quite interesting to note, that the ratio of export to GDP decreased from 0,41 in 2002 to 0,32 in 2010 – despite the impressing growth of oil prices in the same period. Unlike many countries, Russian economy grew faster, than Russian export. It means that the domestic market was becoming more mature, It contrasted with the period of market transition of early 90-es, when Russian economy has been artificially opened, and export grew, while production declined.

Naturally, the similar trend is visible in Russian regions (fig.2). Out of 83 regions, less than 20 indicated increasing openness in the first decade of the 21 century – mostly emerging oil and coal exporters: Sakhalin is an outstanding example thanks to Sakhalin-2 production sharing agreement successful development.

The OECD Economic Survey in 1995 described two kinds of economic orientations among the *regions: extrovert and introvert*. Extrovert regions, according to the Survey authors include resource-rich regions in sparsely populated northern regions of European Russia and Siberia, and major commercial centers and major points of entry (Moscow, St. Petersburg, Arkhangelsk, Astrakhan, Kaliningrad, Khabarovsk, Murmansk, Nakhodka, Rostov, and

Vladivostok). Introvert regions include those that are dominated by the military-industrial complex (parts of central European Russia and the Urals) and agro-industrial regions, which have both an industrial base and self-sufficiency in food production (parts of central European Russia and southern Siberia) (OECD, 1995, pp. 52-54). This grouping is still adequate 18 years after.

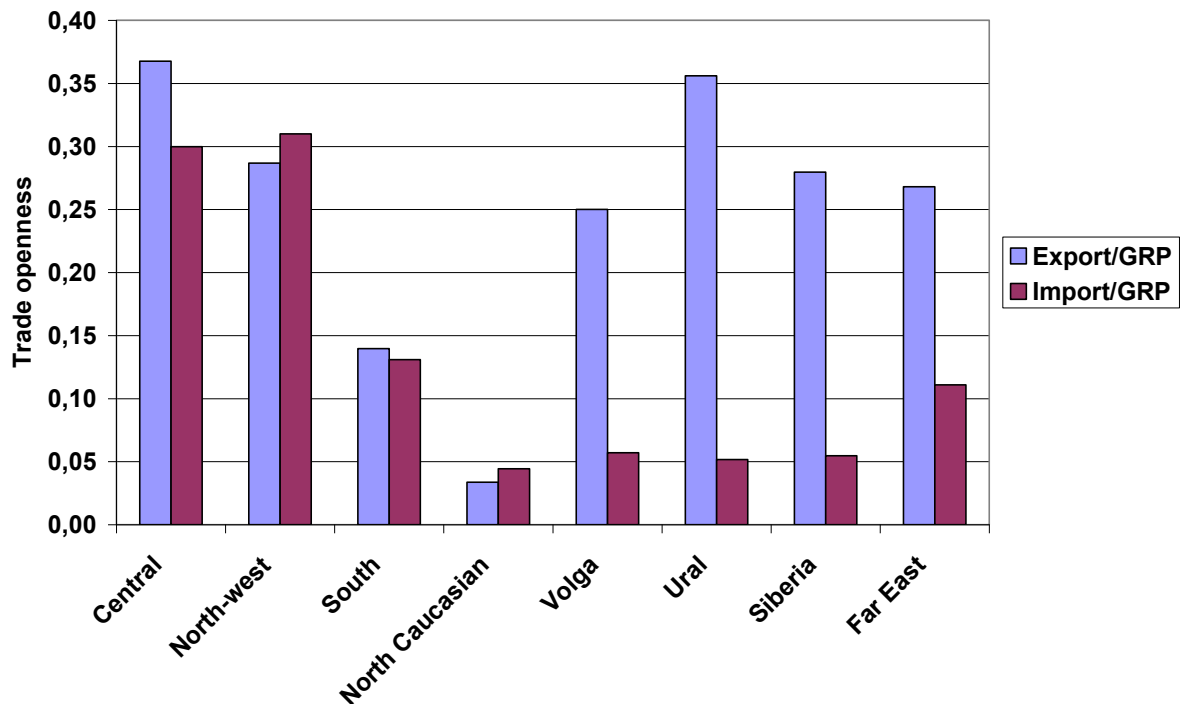
Fig. 2. Change of export openness of Russian regions, 2004-2010



Calculations based on Regions of Russia. Social and economic indicators 2012. Moscow, 2012.

The export openness (export/GRP ratio) is close to zero in North Caucasian ethnic autonomies and in Tyva rep., but reaches 73 per cent in Sakhalin province). import openness (import/GRP ratio) varies from 0,1 per cent (Ingushetiya rep.) to 151 per cent (Kaliningrad). Correlation between these two indicators is close to zero. On the level of federal districts we can say, that it is necessary to distinguish export openness and import openness. Ural is the most export oriented district (57 per cent of GRP), South – the least one (20 per cent). Import openness varies from 5-7 per cent of GRP (Volga, Ural, and Siberia) to 32 per cent (North-West) (Fig.3).

Fig. 3. Openness of Russian regions, by federal district, 2010



Calculations based on data from Regions of Russia. Social and economic indicators 2012.

Determinants of foreign trade and income disparities by region

We have carried out a regression analysis to identify factors, which exert highest influence on regional per capita import. Following factors were used (all data – in USD per year):

GRPperCap – gross regional product per capita, USD;
 INCOMEPC – incomes per capita, USD;
 EXPORTPC – regional export per capita, USD;
 CBASK- consumer basket cost, USD.

The results, using just those variables were insufficient. To capture the biasing effect of companies' registration and of customs procedures concentration in several regions, the following dummy variables were introduced:

KALININ - (=1 for Kaliningrad, =0 for other regions);
 NONCIS - NonCIS border dummy (=1 for regions, bordering non-CIS countries, =0 for other regions);
 CIS - CIS border dummy (=1 for regions, bordering CIS countries, =0 for other regions);
 CAPIT- CAPITALS dummy (=1 for Moscow city and St. Petersburg, =0 for other regions)
 PORT – seaport dummy (=1 for regions with sea ports, =0 for other regions).

Import affecting factors

An attempt to test factors, affecting regional import per capita, brings astonishing result: dummy variables for two capitals (Moscow and St. Petersburg) and for Kaliningrad exclave which has its legal status of free economic zone, providing miscellaneous privileges to locally

registered companies and which is heavily dependent on the trade with EU member countries -Poland, Germany and Lithuania, have the strongest explaining force; regional income per capita also helps a little.

The regression equation is as follows:

$$\text{ImportPC} = 192,216 + 0,09\text{IncomePC} + 7916\text{Capitals} + 12008\text{Kalin}$$

t-st (2,0).....(8,6).....(9,8)

n=83; R squared =0,71; F = 64

Export and incomes

Let us now try to find the degree of causality between regional export and regional incomes and to compare the corresponding situation in 2002 and 2012.

To find out which of factors, related to international integration, are affecting incomes, we used a regression analysis using the same set of variables, as in the case of explaining import per capita. Multiple regression analysis shows that the influence of import per capita and of dummy variables (except one for Moscow) on per capita incomes is not statistically significant. Significant factors, explaining per capita incomes, are:

- CBASK (consumer basket cost, USD),
- EXPORTPC (export per capita, USD) and
- MOSC (dummy, equal to 1 for Moscow city and equal to zero for other regions).

Importance of consumer basket cost is explained by influence of transportation cost on the cost of living. Nominal income values depend on remoteness of particular regions: due to higher prices budget salaries and pensions as well as market-induced salaries are higher in northern and eastern parts of Russia. Correlation coefficient between per capita incomes and consumer basket cost is equal to 0,82. To eliminate influence of price differentiation due to remoteness, regional nominal incomes can be divided by relative levels of consumer basket cost:

$$\text{INCOMEPC adj} = \text{INCOMEPC}/(\text{CBASKreg}/\text{CBASKRus}), \text{ where}$$

INCOMEPC adj – per capita income, adjusted by price level;
 CBASKreg and CBASKRus – consumer basket cost by region and in Russia on average, correspondingly.

The same approach has been adopted in similar earlier study and gave similar explaining parameters (Sutyurin, Sherov; 2005). The previous study revealed quite strong link between these two parameters, with one more additional dummy parameter for Moscow. Determination coefficient for the regression reached 0,75. Contemporary study shows much weaker causality, with R square only 0,30 (table 3).

Table 3. Dependence of regional incomes per capita (price adjusted) on regional export per capita and the factor of the capital city

Year	Regression equation
2002	$\text{INCOMEPC adj} = 1086 + 0,32\text{EXPORTPC} + 1805\text{MOSC}$ <p><i>t-stat.</i> (37,8) (9,1) (7,8)</p> <p>$n=78^3$, $R^2=0,75$, $F=94$,</p>
2012	$\text{INCOMEPC adj} = 8260 + 0,17 \text{EXPORTPC} + 1742\text{MOSC}$ <p><i>t-stat.</i> (38,4) (5,3) (1,3)</p> <p>$n=83$, $R^2=0,30$, $F=17$</p>

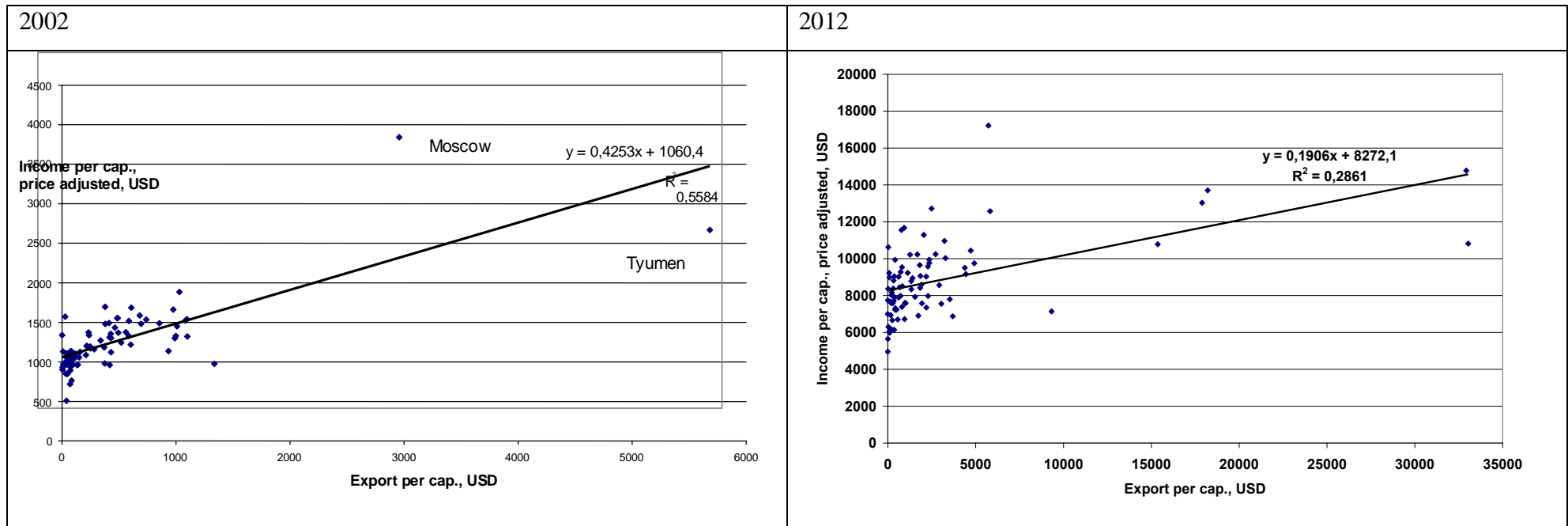
Source: authors calculations, also from S.Sutyurin, V.Sherov. *Russian Regions and their Foreign Trade. ETLA Discussion paper №995 . Helsinki, 2005.*

The difference is also visible at the charts (fig. 4). Comparison of two diagrams sheds the light on several aspects of changes in regional economies, which happened during ten years. *First*, incomes (price adjusted) grew in US dollars in all Russian regions, and quite rapidly: from 500-3800 USD/year per capita in 2002 to 5000-17 000 USD/year per capita in 2012. It happened thanks to dynamic economic growth, and due to real appreciation of Russian Ruble. Both were the consequences of the booming oil prices in 2002-2008 and after the crisis of 2008-2009 as well. *Second*, the income gap between Moscow and a couple of richest oil-exporting regions on one side, and the rest of the country on another side, narrowed, but the dispersion of per capita incomes among Russian regions increased, *Third*, regional incomes have become less dependent on regional export. This fact has at least two explanations. On one hand, regional markets have become more mature. Inflow of petrodollars induces

³ The number of regions, covered by two studies, differs. The previous study did not cover Chechnya (no statistical data was available) and 4 autonomous regions (AR), but the data on AR has been captured by administrative units of higher level, to which they did belong). Regression based on 78 regions with 2012-data gives even weaker results.

multiplicative effect: additional demand stimulates the growth of manufacturing production and services. Government also adds to the effect, using budget receipts for increasing government procurement, in the military sphere among others. On the other hand, there is quite simple institutional explanation of weaker link between export and incomes: the change of the place of registration of huge companies from the extracting regions to the capitals. The most tangible example of such a move gives “Gazprom-neft” (former Sibneft“) company which moved in 2006 its HQ from Omsk to St. Petersburg,, to become an important taxpayer in the Northern capital of Russia – only in 2011 it payed Rub. 22 billion (\$700 mln.) to the local budget The new law about consolidated groups of taxpayers, adopted in 2011, somehow improves the situation with taxes of giant holdings, redistributing them proportionally to production assets of such companies. But it does not affect export statistics.

**Fig.4. INCOMES, PRICE ADJUSTED, DEPENDENCE ON EXPORT in 2002 and 2012,
USD billion per cap.,**



Consequences of Russia's joining WTO and the Customs Union of Russia, Belarus' and Kazakhstan for Russian regions

Global and regional integration have a lot of common, meaning alleviation of trade across borders, intensification of investment flows, stronger economic ties among countries. Russia intensified its participation in both processes, having joined two important organizations. Besides similar or parallel consequences, however, these two moves have some different consequences as well.

Agglomerations and sea ports benefit from global trade liberalization more, than landlocked regions and small towns (World Development Report, 2009). Two capitals, Moscow and St. Petersburg, some industrial agglomerations with huge metallurgic plants and major sea ports (especially Kaliningrad) enjoy the main benefits of the WTO accession of Russia. Studies conducted by the World Bank have revealed that three regions will gain considerably more than the national average as a percent of GDP: the Northwest (6.2 per cent), St. Petersburg (5.7 per cent) and the Far East (5.2 per cent) (Rutherford, Tarr, 2008; Tochitskaya, 2012). Oil- and gas-rich regions do not expect serious effect. On the other hand, regions specialized on manufacturing and agriculture and located in the middle of the country are subject to tangible negative impacts of the WTO accession (Yudaeva, 2003). In Russian Federation additional positive effect of regional integration is of special importance due to the fact, that many of Russian regions with low per capita incomes and low degree of engagement in foreign trade are located in the middle of the country, close to the border with Kazakhstan. Deeper integration with Kazakhstan gives a chance to "Introvert" regions, their manufacturing enterprises becoming able to expand to the neighbor market easier than before. This is especially important for the regions alongside the Kazakhstan border: Volgograd, Saratov, Ulianovsk, Samara, Chelyabinsk, Kurgan, Omsk, Novosibirsk provinces, Altay kray and Altay republic. It is important to stress the fact, that such effects emerge not thanks to tariffs elimination (free trade regime existed before the CU creation as well), but due to the elimination of the border customs control on the internal; borders of the CU RBK.

Conclusion

Analysis of the dispersion of Russian regions by economic indicators revealed two facts, which seem to be mutually contradicting. On the one hand, production and incomes tend to shift from the continentally-located regions in the middle of Russia towards European regions, especially to Moscow. On the other hand, the gap between richest and poorest regions decreased during the

first decade of the 21st century. Export dependence of the country and of most of the regions also lowered, and export has partly lost its explanatory power for per capita incomes. Import tends to concentrate. The best explanatory power for import intensity in Russian regions is given by the set of dummy variables, capturing the role of two capitals and the unique position of Kaliningrad, and by per capita incomes.

Russia's WTO accession in 2012 is expected to aggravate the problem of regional disparities in the country. In such conditions, the customs union formation gives a chance to alleviate such negative development, providing easier access to the neighbor markets thanks to trade diversion and trade creation effects of regional integration.

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Annex

Federal subjects of Russia



Oblasts		Republics		Autonomous Okrugs
1 - Astrakhan	13 - Penza	1 - Adygeya	13 - Tartastan	
2 - Chelyabinsk	14 - Ryazan	2 - Bashkortostan	14 - Udmurtia	Krajs
3 - Ivanovo	15 - Samara	3 - Chechnya		1 - Stavropol
4 - Kaluga	16 - Sverdlovsk	4 - Chuvashia		Federal Cities
5 - Kemerovo	17 - Tambov	5 - Ingushetia		1 - Moscow
6 - Kostroma	18 - Tula	6 - Kabardino-Balkaria		Jewish Autonom. Oblast
7 - Leningrad	19 - Ulianovsk	7 - Khakassia		
8 - Lipetsk	20 - Vladmi	8 - Kalmykia		
9 - Moscow	21 - Volgograd	9 - Karachay-Cherkessia		
10 - Nizhny Novgorod	22 - Voronezh	10 - Mari El		
11 - Novgorod	23 - Yaroslavl	11 - Mordovia		
12 - Oryol		12 - North Ossetia-Alania		