S. V. Doroshenko, A. G. Shelomentsev, N. V. Sirotkina, B. D. Khusainov

PARADOXES OF THE «NATURAL RESOURCE CURSE» REGIONAL DEVELOPMENT IN THE POST-SOVIET SPACE[1]

The article presents the results of the study, which purpose was to test the hypotheses reflecting the interaction of the development of the commodity sector with the socio-economic dynamics. The regional comparative studies and concepts reflecting different views on the relationship of the commodity sector and national development were the methodological basis. The 15 former Soviet republics, united among themselves in four regions: countries with rich natural resources; the country is not rich with natural resources; new EU countries and Russia — were the object of the study. In the context of the selected groups, the key macroeconomic indicators, human and institutional developments were analyzed in comparison. In the conclusion, the authors believe that today, countries having a rich natural resource potential, have the problem of the choice of the natural resources rational using model. While the country is in a state of search, it is very difficult to say clearly about the influence of the raw materials sector on economic development.

Keywords: regional comparative studies, the post-Soviet space-government, socio-economic and institutional development, raw material sector

---

[1] © Doroshenko S. V., Shelomentsev A. G., Sirotkina N. V., Khusainov B. D. Text. 2014.

Relevance and methodological features of regional comparative studies of post-soviet countries

The importance and relevance of comparative studies does not decrease over time, since it is the comparative method that is recognized as one of the most effective research techniques allowing not only to analyze a wide and diverse range of data, but also to study phenomena of systemic nature, for example, for evaluation of commodities sector integration into national economies. It's been all the more perceivable in the recent years that natural resources availability in countries and regions is becoming, on the one hand, the most important geopolitical factor of their socio-economic development and positioning in the global competitive environment and, on the other hand, a source of military and political risks and threats.

However, it should be understood that apart from providing additional advantages, the comparative analysis also imposes significant restrictions on the findings, since the correctness of the results obtained from comparison of different objects is determined not so much by their dimensional similarity, but above all, by their institutional development imperatives that are not always taken into account.

Thus, the USSR collapse in the last month of 1991 and the emerging of 15 independent states led in most cases to the fact that these countries were automatically added to the common list of existing states and they are now considered as equivalent to other states for the purposes of today's cross-country comparisons. This quantitative approach also provokes a further mechanical projection on soviet countries of «resource curse» concepts and their inclusion into categories of commodities producing and non- commodities producing.

It is often omitted that most of these countries have never had an independent experience in nation-building and management in the first place. Most of them are in fact new state entities on the world map. The known patterns of institutional development can not be formally projected onto the socio-political and economic processes taking place in the newly emerged post-soviet countries in view of the fact that the formation of their basic institutions is still ongoing. In our opinion, it is incorrect to formally compare the countries currently experiencing different stages of national development, for example, the countries with centuries-old history with those undergoing a state-building process in the last 20 years. Therefore, trends and results of the «young»

post-soviet countries development are quite comparable. Whereas comparisons with other countries of Europe, America, Southeast Asia, in our opinion, require an introduction of «correction coefficients» reflecting their national and cultural features, actual development of public institutions and multidirectional effect of various factors.

Secondly, the fact of acquiring a formal status of independent states by the former USSR regions did not predetermine their choice of institutional development within a 20-year period. In this way, the «choice» made by these countries in the early 1990s essentially boiled down to a sharp rejection of the previously set trajectory, and, in terms of perspectives, to sort of imposed image of the future. As a result, most of these countries are still at a stage of permanent search for their own place, which is often replaced with the «national idea» myth. In such circumstances the role of a developed commodities sector of a country's economy can not be uniquely determined in terms of a «curse» or a «blessing», even if certain facts obtainable in varying periods provide for unambiguous assessments. Finally, in historical terms, the USSR never belonged to the group of commodities-producing countries, as it traditionally maintained a developed manufacturing industry.

Under these circumstances, we assume, it is methodologically correct to compare the post-soviet countries in terms of their development by applying a method of grouping regions according to certain criteria, including the availability of natural resources. Only the results obtained in such a manner should be correlated with the ideas of natural factor's influence; such ideas, in their turn, have undergone significant changes over the recent decades and this circumstance also needs to be considered at comparative studies performance.

Evolution of ideas of natural resources influence

The relationship of national economy sustainable socio-economic development to the natural resources availability in the country continues to be the subject of heated debates in recent decades. Historically, the ideas about the «commodities related growth» nature have undergone significant changes since the beginning of XX century.

The evolution of ideas about the role of natural resources in international development can be conditionally divided into three stages:

— before 1970s ideas of natural resources as a source of national economic growth were dominant;

— 1970–2000, idea of resources as a «national curse» prevailed;

— first half of the 2000s up to the present day, period of «ambiguous assessments» of the role played by natural resources in economies of various countries and regions.

The following is a brief representation of how the ideas of natural factor role evolved throughout each of the abovementioned stages. Until the middle of XX century natural resources were predominantly positively seen as a source of economic growth for national economies. The monograph by G.A. Innis published in 1930 is often referred to as a confirmation to this thesis [26]. Some modern scholars believe that it were commodities resources, coal as an energy source first of all to have become one of the main driving forces behind the industrial revolution [28, 35]. In general, the commodities related theory of growth supporters used the studies of various countries as a basis for arguing that economic growth in less developed regions normally begins with an increase in business activities in natural resources development realm followed by transfer of capitals obtained from the commodities sector into development of local infrastructure, service and manufacturing industries [26, 39, 41].

The oil bonanza in the early 1970s led to numerous studies and publications which described predatory exploitation of natural resources, stratification of society and huge debts as the results of resources abundance. As a result, a change of the dominant paradigm occurred. The process of change was initiated with the studies carried out by order of the Club of Rome in 1971–1990 [10, 12, 16, 33, 34].

In 1982 W. Max Corden and J. Peter Neary proposed the «dutch disease» model [23], according to which the growth in commodities sector is accompanied by a gradual degradation in manufacturing industries, i.e. a «direct deindustrialization» takes place. At the same time, the high incomes of those engaged as workers in the commodities sector foster consumption and hence the demand for non-tradable goods and services, which causes an increase in prices for such goods and services and labor resources flows away from industry into non-tradable sector (services). Industry, in this way, faces the effect of «indirect deindustrialization,» which is further enhanced with the growth of real national currency exchange rate and an increase in the prices of the goods imported into the country due to reduction of its national production.

In general, a large number of publications appeared in the 1980s that analyze the relationship between natural resources availability and economic development of the country. It was during this period that ideas of natural resources being rather a negative factor for the national economy than an advantage began to emerge. As a result, in the 1990s most researchers came to a practically unanimous opinion that a phenomenon, which later became known as «resource curse», did exist. The concept of «resource curse» was first introduced by Richard Auty in 1993 to describe stratification in living standards among populations in rich oil-exporting countries. [20] Over the subsequent years researches were conducted in relation to this idea. Sachs and Warner's «Natural resources abundance and economic growth» [37] is considered to be one of the earliest most influential economic works on natural resources.

Several concepts that appeared later prove the negative relationship between mineral resources availability and economic growth. P. Kaznacheev divided these concepts into two groups based on various channels through which resource dependence impedes economic growth [6]. The first group of concepts focuses on economic channels. It includes, in particular, the works of economists who study the effects of «dutch disease» [25, 32, 42]. The second group emerged in 2000s, when a number of authors, while remaining within the concept of economic channels, initiate studies to assess the negative impact of commodities prices volatility on growth and development [21, 30, 43]. But generally during this period opinions regarding the «resource curse» existence remained unanimous.

However, since the early 2000s, the hypothesis of «resource curse» existence began to be questioned. First of all, the time period chosen for studying by Sachs and Warner was criticized, as this period was marked with a significant drop in commodities prices which began in 1980 and lasted for 20 years. The oil prices boom of the 1970s led the governments of exporting countries to provide unreasoned loans for minerals, causing excessive debts to appear which impeded further growth. With these factors taken into account, no «resource curse» is observed [31].

In addition, a number of economists questioned the attempt itself to assess the impact of natural resources on economic development. Some of them set forth an idea, that it was not the natural resources factor to provide an impact, but its relationships to certain parameters of national development. [29] Others studied the data relating to longer periods of time and either did not show observe such a relationship [38], or thought it was barely significant or found it to be a positive one [36].

These studies served to originate an approach that considers institutional flaws to be the main

factor hindering growth in natural resources-rich countries. Two concepts can be found within the institutional approach itself. The first concept is rooted in the «resource curse» hypothesis and then transforms into «institutional curse.» According to its supporters, the natural resources abundance causes degradation of institutions and corruption within the ruling elite, which in turn translates into negative consequences for growth and development. The second concept is also institutions emphasized, but the cause-and-effect relationship is formulated in the opposite way: natural resources-rich countries are not doomed to have institutional flaws, but on the contrary, the very weakness of the institutions serves as a brake to its growth [6].

However, it should be noted that the hypothesis centered on resource abundance impacting growth through the quality of institutions is subject to the same criticism as the hypothesis of the «resource curse». The point is that any arguments, whether in favor or against, are based on a combination of two elements: performance indicators (those most often used are share of exports in GDP, production or reserve of resources) and periods of time to which data about certain indicators refer (in other words, the choice of reference measurement points). Various combinations may lead to fundamentally different results of research.

According to V. Polterovich, V. Popov and A. Tonis, however, «if no significant relationship between resource abundance and quality of institutions is found in linear regressions, it does not mean that such a relationship does not exist at all. Considering examples of many countries, there are grounds to assume that a non-linear relationship does exist, i.e. below a certain threshold of institutional development the resource abundance will degrade the quality of institutions, whereas above that level it will not have a significant effect» [15]. The authors support their findings with calculations results obtained by different researchers within given econometric models.

In general, the relationship between natural resource abundance and poor economic development of a country was analyzed in numerous works written in Russia [2, 4, 5, 9, 13] and abroad [17, 22].

In addition, it should be noted that the view of mineral resources role in national economies is significantly influenced by geopolitical and geo-economic considerations. For example, in the early 1990s the geo-economic ideas to internationalize all kinds of natural resources were spreading in the CIS countries, with such internationalization intended to provide Russia with possibilities to form a world level income on favorable terms [8]. The most important supporters of this idea in Russia are the following researchers: E. G. Kochetov, V. N. Knyaghinin, Y. G. Lipets, I. I. Lukashuk, M. A. Pivovarova, E. V. Sapir, V. V. Sokolov, Y. S. Khromov, Y. V. Shishkov, P. G. Shchedrovitskiy, etc.

In this way, as experience shows, the influence of mineral resources sector on national economy is complex and multidimensional, therefore it can be described by formal relationships or subject to unambiguous estimates in terms of resourse curse [7, 14], dutch desease [18], etc. only conventionally. That is why, despite the large number of publications on various features of commodities economy models, such as income fluctuations due to changes in world raw materials markets, poor industrial diversification, stratification of society in terms of living standards [19], excessive borrowing, corruption [24], etc. a unanimous view on the nature of commodities sector impact on a state's economic development has not yet been articulated. At the same time a conventional belief that extraction of commodities mineral materials is meant for developing countries only is still being reproduced. However, the following six countries: Australia, China, USA, Russia, Canada and South African Republic account for over half (by cost) of the mineral resources extracted in the world. Most of these countries achieved a high level of development by intensifying extraction and refining of their own natural resources [11].

In this article the authors make an attempt at verifying the supposition that the commodities sector influence is determined by mechanisms of its integration into a national economy. The newly emerged post-soviet states were chosen as objects of study to verify the abovementioned supposition.

Methodical suppositions for assessing integration of commodities sector into national economy

The aim of this study is to assess the integration of commodities sector into national economy and its contribution to social development. The authors suggest the following three criteria should be used to carry out such an assessment: commodities sector influence on macroeconomic indicators; social implication of the commodities sector development (contribution to the population's quality of life); influence on the index of public institutions development.

The commodities sector is influence is assessed in terms of absolute, relative and dynamic indicators, as well as by means of ratings com-

Table 1

Indicators of natural resources availability in the former republics of USSR and commodities sector share in national economies[*]

	Commodities exports, share in total exports of goods, %	Gross added value by industries		Natural resources per capita, US dollars (in 2005 fixed prices)
		Agriculture, hunting and forestry, %	Minerals mining and quarrying,%	
Eurasian countries with rich natural resources				
Russia	75.2	4.0	9.9	31 317
Kazakhstan	83.1	62.2	18.1	23 916
Turkmenistan	81.6	—	—	37 866
Azerbaijan	96.6	5.9	48.9	11 684
Uzbekistan	33.4	—	—	7 652
Ukraine	21.5	8.3	6.6	6 899
Eurasian countries without rich natural resources				
Armenia	33.0	18.8	2.8	3 139
Belorussia	22.8	10.2	0.4	5 972
Georgia	57.4	8.3	1.0	3 334
the Kyrgyz Republic	10.2	18.8	0.7	2 992
Moldavia	3.8	14.1	0.4	4 148
Tajikistan	59.2	21.8	0.0	1 762
New EU members				
Latvia	20.8	4.1	0.5	7 346
Lithuania	32.1	4.2	0.4	6 014
Estonia	12.9	3.3	1.4	16 221

[*] 2010-2011 data as published in World Bank's 2014 report [3].

parison. To ensure comparability and objectivity of the results, most of the analyzed indicators are obtained from a single source, World Data Atlas (http://knoema.ru/atlas), which contains data from the World Bank reports, as well as those of various international organizations and rating agencies.

The timeframe for economic analysis was the period since 2000, which is described by a number of researchers as a period of «post-communist formation completion» [1]. In addition, this period of time is of particular interest due to stabilization of socio-economic processes taking place in in 2000–2014 in the former Soviet Union countries. It can be described as an «endurance test» for the institutions created in the 1990s, since there was a certain change in the previously chosen course in many countries.

The study is based on three hypotheses that resemble the relationships between the commodities sector and the socio-economic dynamics of the country: the positive socio-economic dynamics characterized by macroeconomic indicators of the countries is due to the commodities sector significant contribution; commodities sector of the former Soviet Union countries creates the conditions for maintaining the quality of life of the population; the dominant resource sector hinders the development of public institutions.

The method of regions grouping is applied for analysis purposes and includes the following basic points.

According to a World Bank's study, the former soviet republics are divided into three groups based on natural resources availability and membership in the EU [3]: Eurasian countries rich in natural resources (Azerbaijan, Kazakhstan, the Russian Federation, Turkmenistan, Ukraine, Uzbekistan); Eurasian countries that do not have rich natural resources (Armenia, Belorussia, Georgia, tje Kyrgyz Republic, Moldova, Tajikistan); new EU member states, including Lithuania, Latvia, Estonia.

The data referring to natural resources availability in these countries and the commodities sector role in respective national economies are presented in Table 1.

According to the table, Latvia, Lithuania and Estonia are countries that do not have rich natural resources. At the same time, we believe that Russia can be singled out from the common list of countries with abundant natural resources for the purpose of subsequent comparison of its development trends with other groups of countries.

Thus, further analysis was carried out based on four groups of post-soviet countries: natural resources-rich countries (hereinafter referred to as the «commodities-producing countries»); countries that do not have rich natural resources («non
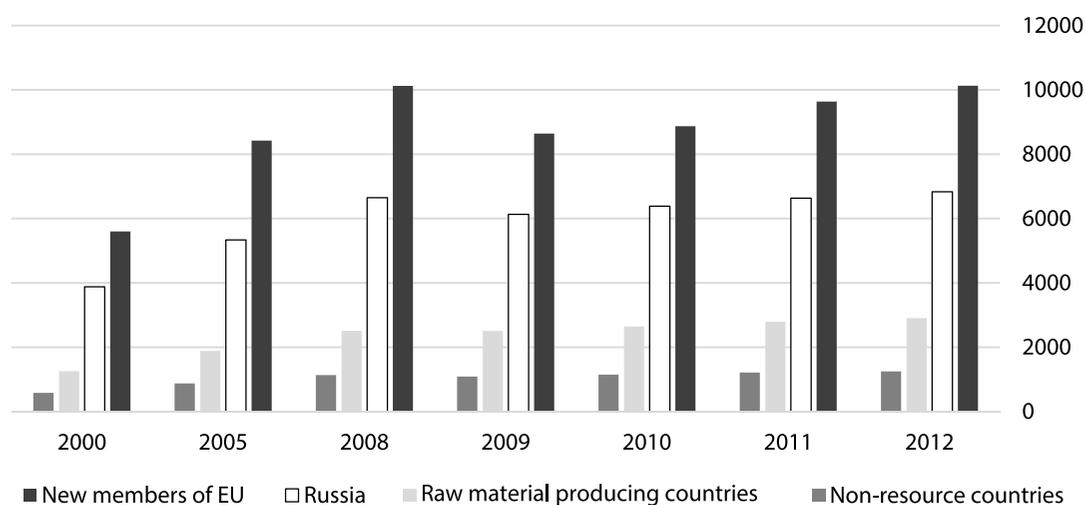
Fig. 1. *Average GDP per capita dynamics (in 2005 fixed prices, US dollars) in post-soviet countries*

commodities-producing countries»); the new EU member countries and Russia.

Analysis of macroeconomic indicators of development

The relationships between general trends development of the four selected groups of post-soviet countries and their commodities sector dimensions have been identified based on analyzing five macroeconomic indicators: GDP, national debt, direct foreign investments, unemployment level, gross added value.

In 2012 the average GDP per capita (in 2005 fixed prices, US dollars) in commodities-producing countries was more than 2.3 higher than that of non commodities-producing countries, but 2.4 lower than in Russia and 2.9 times lower than in the new EU member countries (Fig. 1).

This indicator significantly increased in all countries in 2000–2012, but the largest increase, 2.3 times, was observed in commodities-producing group of countries, compared to 2.1 for non commodities-producing group, 1.8 for new EU member countries and 1.76 for Russia.

The global financial crisis of 2008 influenced the dynamics of this indicator in many ways. Its least effect was on commodities-producing countries, where the average GDP for the group in 2009 remained almost the same as in 2008. The largest decline, by 15 %, occurred in the new EU member countries and in Russia, by 8 %.

Thus, the overall gap in average GDP per capita for the period of 2000–2012 between commodities-producing CIS countries and new EU member states had a steady trend of gradual reduction from 4.5 to 3.5. Whereas the gap to non commodities-producing countries was gradually increasing from 2.1 to 2.3. This trend is also seen in the average annual growth of GDP per capita. In the

studied period the indicator equals 5.8 % for the group of commodities-producing countries, compared to 2.6 % of the new EU member states, 3.7 % for Russia and 4.0 % for non commodities-producing countries.

Data on national debt share in GDP obtained from the World Bank cover 2000–2013. In 2013 the average value of national debt in commodities-producing countries amounted to 19.5 % of GDP, which is 1.8 times lower than in non commodities-producing countries and 1.4 times lower than in the new EU member countries. Russia's 13.4 % was the lowest of all (Fig.2).

In general, 2000–2013 were marked by a significant reduction in national debt share in GDP of averagely 37 % in commodities-producing countries up to 78 % in Russia. The only exception was the new EU member countries where this indicator doubled.

The global financial crisis of 2008 led to 1.4-1.8 increase in this indicator in 2009 compared to 2008 in all groups of countries. The new EU member countries showed maximum growth.

In general, trends of opposing nature were observed in this indicator during the studied period, with that of the new EU member countries being very different from those of the other groups. It should be noted that the post-crisis dynamics in Russia and commodities-producing countries was characterized by a slight but steady increase in this indicator. At the same the new EU member countries and non commodities-producing countries showed a generally decreasing trend with slight annual fluctuations.

In 2012 the share of average net flow of foreign direct investments in GDP was 6.2 % for commodities-producing countries, that is 1.5 times higher than for the new EU member countries and 1.6 times higher than for non commodities-produc-
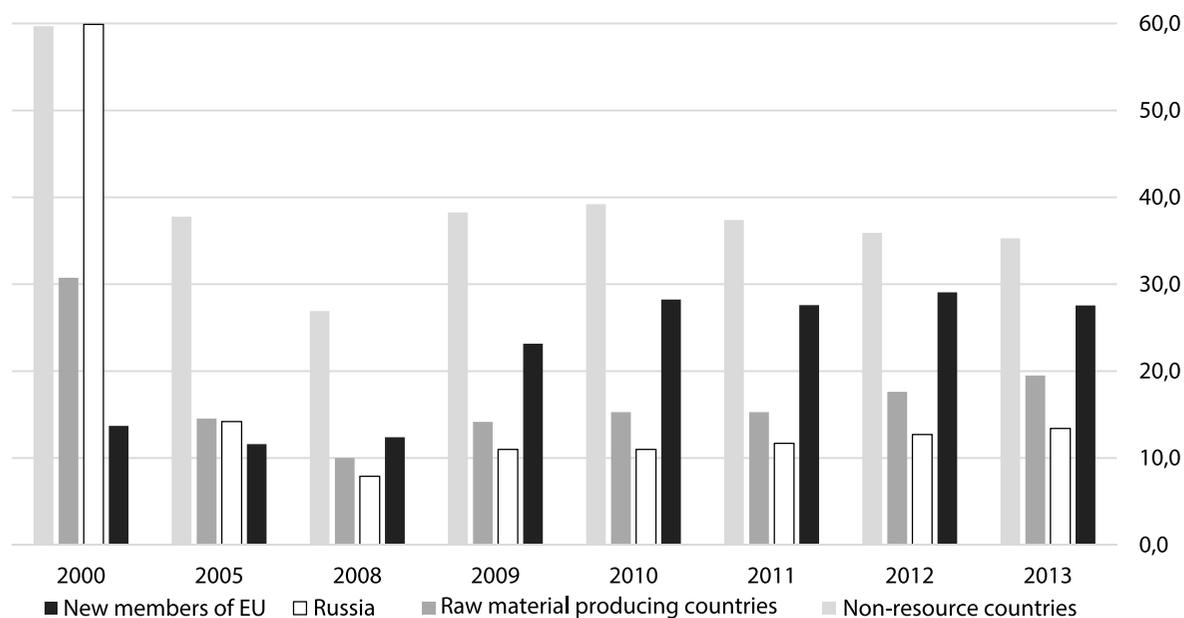
Fig. 2. *Dynamics of national debt share in GDP in post-soviet countries, %*
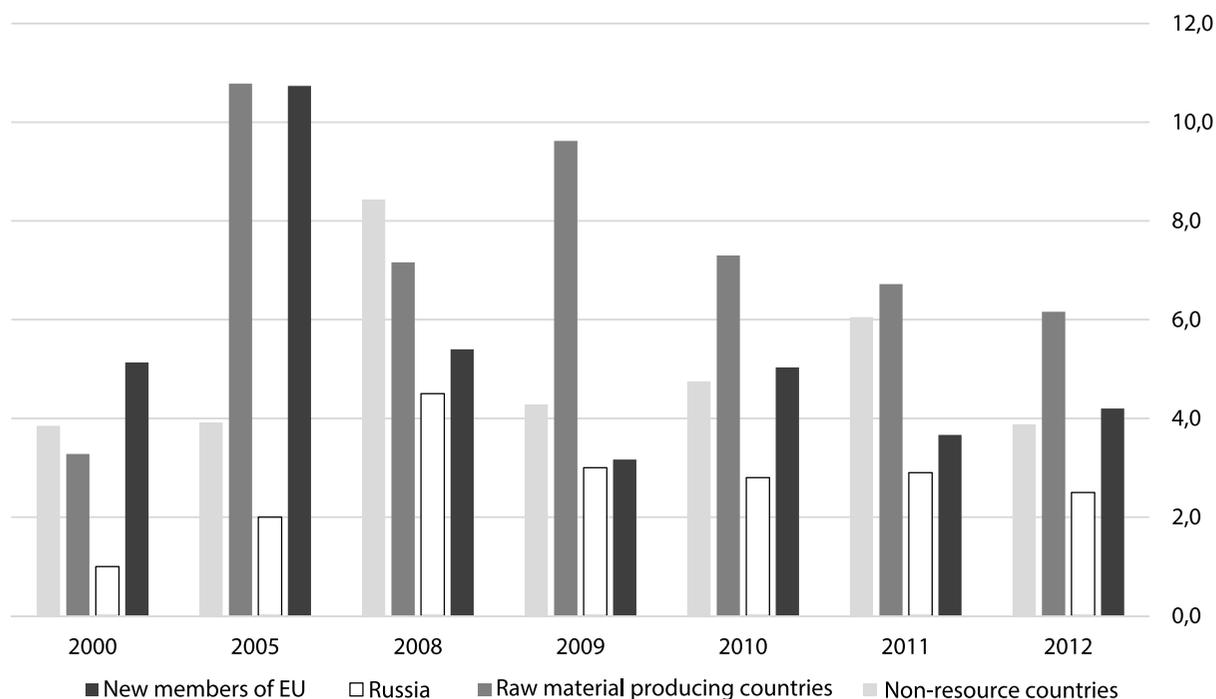

Fig. 3. *Net flow of foreign direct investments in post-soviet countries, % share in GDP*

ing countries. Russia's 2.5 % was the lowest of all (Fig. 3).

In 2012, as compared to 2000, there was 1.9–2.5 times increase in the share of net flow of foreign direct investments in GDP in Russia and commodities-producing countries, whereas the new EU member countries demonstrated a decline of nearly 20 %, the indicator in non commodities-producing countries remained the same.

The global financial crisis largely affected the flow of foreign investments to the new EU member countries and non commodities-producing countries causing a 1.8–1.9 times drop. At the same time the indicator for commodities-producing countries did not decrease that much, it either remained at the same level or increased significantly (e.g. in Turkmenistan).

However, the 2.5–3 times fluctuations of the index for all groups of countries during the studied period should be noted, which indicates there is no direct relationship with the commodities sector dimensions. In our opinion, the volatility of this indicator is largely affected by political factors.

Data on unemployment levels obtained from the World Bank cover 2000–2013. In 2013 the
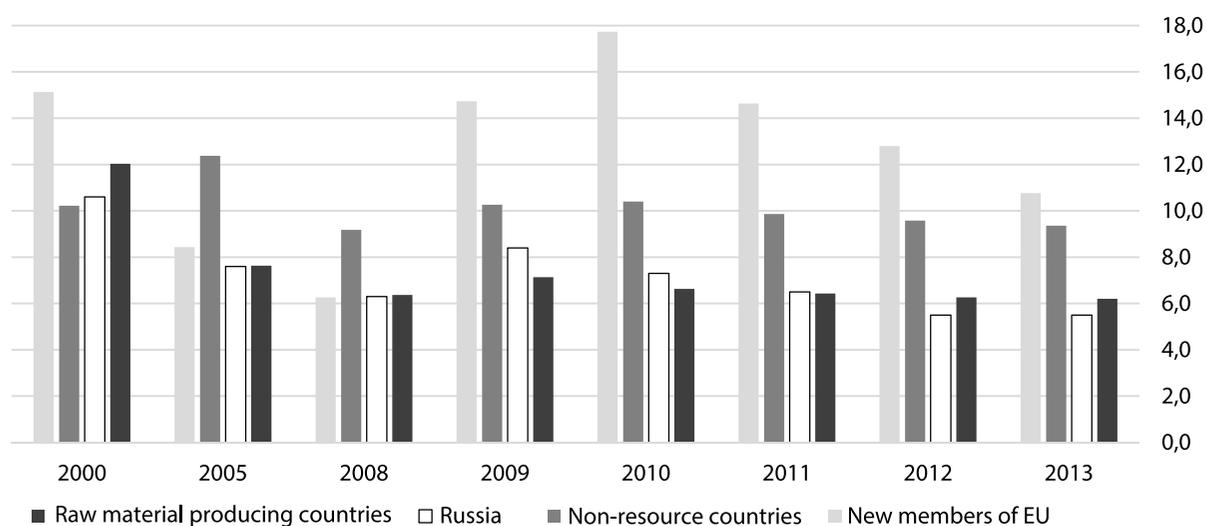
■ Raw material producing countries   □ Russia   ■ Non-resource countries   ■ New members of EU

Fig. 4. *Unemployment level dynamics in post-soviet countries, %*

■ New members of EU   □ Russia   ■ Raw material producing countries   ■ Non-resource countries
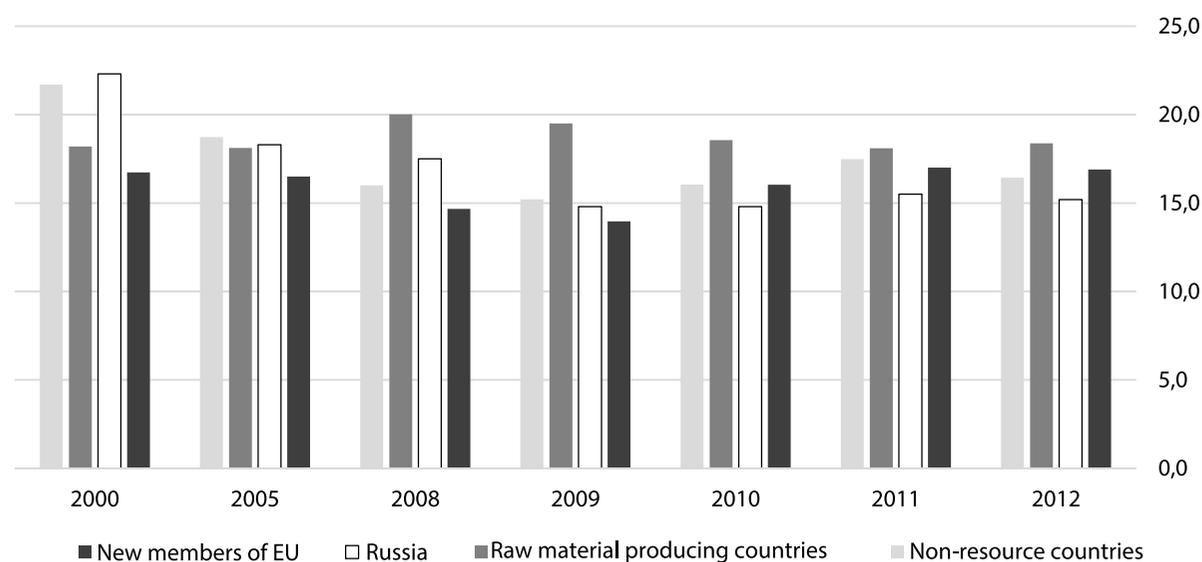
Fig. 5. *Share of manufacturing in gross added value, %*

highest unemployment rates 10.8 % and 9.4 % were observed in the new EU member countries and non commodities-producing groups of countries respectively, while in Russia and the non commodities-producing countries it remained at approximately the same level 5.5–6.2 % (Fig. 4).

All in all, a general downward trend in the average unemployment rate was observed for all groups in 2000–2013 which amounted to 10 % in non commodities-producing countries and up to 50 % in Russia and commodities-producing countries.

It should be noted that during the studied period the new EU member countries and non commodities-producing countries were characterized by almost twice higher unemployment level than that of non commodities-producing countries.

The global financial crisis of 2008 led to an increase in this indicator in all groups of countries; its value in 2009 as compared to 2008 grew most in the new EU member countries (2.3 times), while the other groups of countries demonstrated a 10–30 % increase.

The study also analyzes the relationship between the commodities sector dimensions, on the one hand, and the sectoral structure of national economies and their dynamics, on the other hand. The structure and gross added value growth rates in manufacturing industry were chosen as indicators for the purposes of analysis.

In 2012 the average share of manufacturing in the structure of commodities-producing countries' economies amounted to 18.4 %. The new EU member countries and non commodities-producing countries had almost identical indicators 16.4–16.9 %. In the studied period the share of manufacturing in the new EU member countries and commodities-producing countries remained unchanged, while non commodities-producing countries and Russia showed a significant reduction by 25 % and 32 % respectively (Fig. 5).
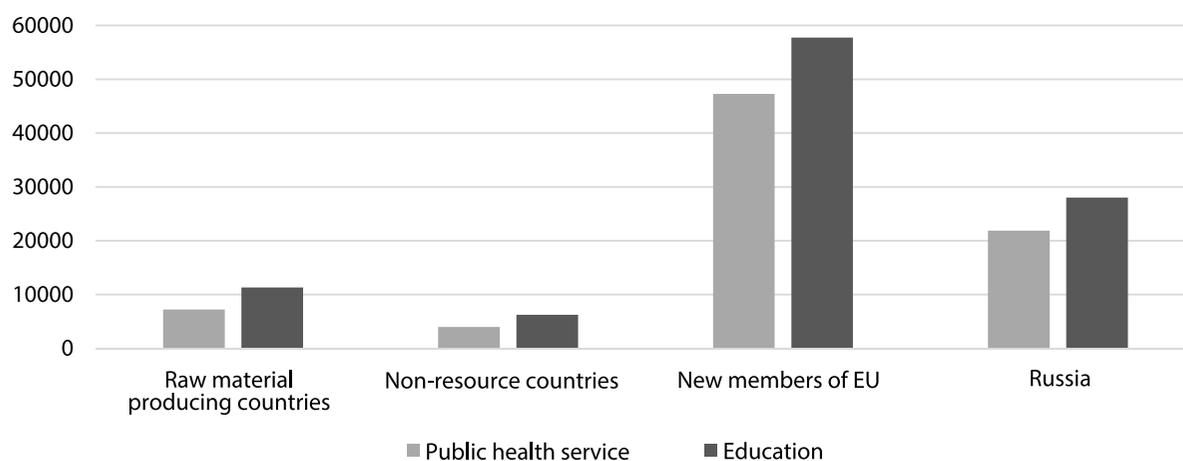
Fig. 6. *Health care and education expenditures per capita in GDP in 2012*

The financial crisis of 2008 had the greatest impact on this indicator in Russia, reducing it by 3 %, while in the other groups of countries the average drop amounted to 0.5–0.8 %. It should be noted that by 2012 the non commodities-producing countries and the new EU member countries reached and exceeded the pre-crisis level in their indicators, whereas anything similar has not yet been observed in Russia and in the group of commodities-producing countries.

The analysis shows there is a decrease in the average annual growth rates of manufacturing industry in all groups of countries, but this process in Russia and the commodities-producing countries is much slower.

As innovative quality of national industry development can be characterized by such an indicator as export of high-tech products, the share of high-tech products in total exports of industrial goods was chosen for analysis. Due to unavailability of data, Kazakhstan, Ukraine and Azerbaijan were included into the group of commodities-producing countries and showed the maximum growth of this indicator 4.5 % to 14.5 % in 2000–2012. The non commodities-producing countries demonstrated a more than 2 times reduction in the indicator in the same period. Among the new EU member countries, Latvia's and Lithuania's indicators doubled, while Estonia showed a 3 times drop.

Analysis of human development indexes

The following indicators were obtained from the reports of the World Bank and the UN and used to analyze the relationship between the commodities sector development in post-soviet countries and the population's quality of life: human development index, education index, total spending on health care. These indexes characterize various aspects of human development.

In 2012 the highest human development indexes belonged to the new EU member states

group and Russia, 0.83 and 0.79 respectively. The non commodities-producing and commodities-producing countries had similar values 0.70–0.71. In 2000–2012 a steady increase in all groups of countries was observed, that of the non commodities-producing countries group and Russia being the highest. In addition, it can be noted that the gap between the average values showed by groups of countries tends to reduce.

In 2012 the highest education index of 8.32 was traditionally observed in the new EU member countries that are not global leaders in any industry, and the lowest 5.79 in the non commodities-producing group of countries. This situation has been persisting over the recent decade.

The data published by the World Bank in 2012 [38] on the share of education expenditure in GDP for the period of 2006–2010 partly contradict the average values of education index among groups of countries: the highest index 5.7 % was observed in the new EU member countries and the lowest 3,9–4,1 % in the commodities-producing countries and Russia. The situation in health care is similar (Fig. 6).

However, it should be noted that, considering the substantial differences in GDP per capita in groups of the studied countries the comparative assessments change. The new EU member countries retained the leading position, Russia moved from third to second and non commodities-producing countries became the third.

Institutional development analysis

The institutional development was assessed by the authors based on the 2013-2014 World Bank indexes of corruption perceptions, business environment, innovation development and economic freedom (Table 2).

In our opinion, the corruption perception in a given country has to do with its national and cultural features rather than the dimensions of the

Table 2

Ratings showing institutional development of post-soviet countries

Country	Rating of corruption perception, 2013	Rating of business environment, 2014	Innovations index, 2012	Economic freedom index, 2014
Commodities-producing countries				
Turkmenistan	168	No data available	No data available	42.2
Uzbekistan	168	146	3.13	46.5
Kazakhstan	140	50	3.97	63.7
Azerbaijan	127	70	4.01	61.3
Ukraine	144	112	5.76	49.3
Russian Federation	127	92	6.93	51.9
Non commodities-producing countries				
Armenia	94	37	4.21	68.9
Georgia	55	8	5.15	72.6
Tajikistan	154	143	2.18	52.0
Belorussia	123	63	5.70	50.1
Moldavia	102	78	4.16	57.3
the Kyrgyz Republic	150	68	3.12	61.1
New EU member countries				
Lithuania	43	17	6.82	73.0
Estonia	28	22	7.75	75.9
Latvia	49	24	6.56	68.7

commodities sector. In 2013 the worst indicators were observed in four countries of Central Asia (Tajikistan, Turkmenistan, Kyrgyzstan, Uzbekistan) and the best indicators in seven European countries (Lithuania, Estonia, Latvia, Georgia, Armenia, Belorussia, Moldova). The indicators of Russia, Ukraine, Kazakhstan, Azerbaijan were in the middle of the list.

Analysis of business environment in 2014 showed that three of the new EU member countries, Kazakhstan and non commodities-producing countries Georgia and Armenia are among the top 50 countries. Azerbaijan, Russia and three countries from the non commodities-producing group of countries (Belorussia, Moldova and Kyrgyzstan) are among positions 51 through 100. The countries considered to have the most difficult business environment are Tajikistan and two commodities-producing countries (Uzbekistan, Ukraine).

Innovation development analysis shows that the countries differ rather in terms of geographical location than in commodities production. Thus, in 2012 the highest indexes (the top six) were shown by the European countries, followed by countries of the Caucasus and Transcaucasia, and the countries of Central and Central Asia were to close the list.

The highest positions in the Economic Freedom Index in 2014 are traditionally held by the new EU member countries, as well as Georgia and Armenia; countries of the commodities-producing group Ukraine, Uzbekistan and Turkmenistan close the list.

Thus, the analysis shows there hardly is a direct relationship between the commodities sector dimensions and institutional development of a country. Moreover, in our opinion, it is the national and cultural features and the general socio-economic development of a given country to be the dominant factor.

Conclusions

As the performed study showed, the traditional (institutional) approaches describing relationships between availability and dimensions of the commodities sector, on the one hand, and economic development of those countries where public institutions are still being formed, on the other hand, can hardly be applied without appropriate restrictions. In this way, there are no evident relationships between institutions development and rates at which macroeconomic indicators change. In addition, a well-developed commodities sector does not restrict innovation implementation and manufacturing industry development. Moreover, if there are several commodities industries available, the State is able to allocate extensive funding for health care and education.

Analysis revealed the following relationships between the commodities sector and economic development of the studied post-soviet countries, which can be assessed in terms of level, rates and quality of changes.

Economic development level and rates are largely determined, on the one hand, by the industrial potential available in these countries at the time of their emergence with the rate of its subse-

quent degradation, and, on the other hand, by the rates of commodities sector compensating development (if there was any). The quality of changes consisting of manufacturing sector growth, innovation implementation and amounts of funding allocated to health care and education is determined by available sources, mainly natural resources for the commodities-producing group of countries or government borrowings for the new EU member countries.

Countries with immature public institutions are subject to high risks which largely limit their access to financial resources through borrowings thus constraining their further growth. Initial conditions, such as national and cultural features, geopolitical position and level of economic development determine the rates and nature of institutional changes to a much greater extent than the availability of natural resources does.

Rates of economic development (macroeconomic indicators) are largely determined by financial sources, obtainable through either the natural resources development observed in commodities-producing countries or borrowing as in the case of the new EU member countries. A deficit of such sources leads to a «slowdown» in socio-economic development. Unavailability of proper sources of development and subsequent extended borrowings increase volatility of socio-economic development indicators.

Interestingly, comparing the dynamics (rates) of development of non commodities-producing and the new EU member countries allows to observe the convergence effect. Differences between these groups of countries are largely determined by their access to borrowed funds; this is illustrated by their national debt amounts which are typically high for the new EU member countries. The gap emerged in the 1990s is being gradually reduced; as the public institutions continue to develop and investment attractiveness of non commodities-producing countries keeps increasing, the convergence process might speed up.

The 2008 crisis affected the macroeconomic dynamics of the studied countries in different ways. In this context the natural resources simultaneously perform both stabilizing and constraining functions: on the one hand, countries with a more developed commodities sector demonstrated a slighter decrease; on the other hand, the rates of their economic recovery were relatively slower than those of non commodities-producing countries, especially of the new EU member countries.

In conclusion we would like to note that the distinctive feature of this study is its object represented by the countries generally characterized by an early stage of public institutions formation which involves searching for an appropriate way to effectively involve natural resources in their economic activity. Today the countries having rich natural resources face, first of all, the problem of choosing an appropriate model for rational use of such natural resources. The options vary from applying an exact copy of a model used by other highly developed countries up to developing a model of their own based on economic, national, cultural and other features of a given country. While a country is in its quest for a solution, it is very difficult to draw a univocal conclusion about how the commodities sector influences economic development.

In addition, it should be noted that the evolution of ideas about the role of natural resources in economies of countries is still ongoing. As experience shows, the role of natural resources in a given country is determined by a wide range of factors including the following: stage of a country's economic development, development of the institute of rights for mining and the mined product, principles of allocation of financial funds obtained from natural resources usage, the ratio of domestic consumption of raw materials to those extracted for export, as well as degrees of their processing, the degree of a country's commodities sector and national economy participation in the global integration processes, etc.

References

1. Gavrilishin, O (2014). *Pyatnadtsat let preobrazovaniy v postkommunisticheskikh stranakh [Fifteen years of transformation in post-Communist countries].* Available at: http://r-e-e-d.com/15-years-of-reforms (date of access: 21.07.2014).

2. Guriev, S., Plekhanov, A. & Sonin, K. (2010). Ekonomicheskiy mekhanizm syryevoy modeli razvitiya [Economic mechanism raw models of development]. *Voprosy ekonomiki [Questions of Economy],* 3, 4-23.

3. *Doklad «Diversifitsirovannoye razvitie: optimalnoye ispolzovanie prirodnykh resursov v regione Evrazii». Vsemirnyy bank [Report of «Diversified development: Optimal use of natural resources in the Eurasia region.» The World Bank].* (2014) Available at: www.worldbank.org.

4. Zabelina, O. (2004). «Rossiyskaya spetsifika «gollandskoy bolezni» [«Russian specifics «Dutch disease»]. *Voprosy ekonomiki [Questions of Economy],* 11, 37-54.

5. Illarionov, A. (2002). Realnyy valyutnyy kurs i ekonomicheskiy rost [«Real exchange rate and economic growth]. *Voprosy ekonomiki [Questions of Economy],* 2, 19-48.

6. Kaznacheyev, P. (2013). *Prirodnaya renta i ekonomicheskiy rost [The Natural rent and economic growth].* Moscow, Rossiyskaya akademiya narodnogo khozyaystva i gosudarstvennoy sluzhby [Russian Academy of national economy and public services], 101.

7. Kozhumov, K. (2014). *Proklyatie resursov [The resource curse].* Available at: http://articlekz.com/node/3791 (date of access: 21.07.2014).

8. Kochetov, E. G. (2014). *Kosmologizatsiya: Novyy etap mirovogo razvitiya v kontekste gumanitarnoy kosmologii [Cosmological: a New stage of world development in the context of humanitarian cosmology].* Nauchnaya monografiya [Scientific monograph]. Obshchestv. akad. nauk geoekonomiki i globalistiki [Societies. Acad. of Sciences of geo-Economics and global studies]. Moscow, Mezhdunar. Otnosheniya [International relations], 912.

9. Kuznetsov, A. V. *Tempy ekonomicheskogo rosta — «gollandskayabolezn» [«Economic growth — «Dutch disease»].* Available at: http://www.finansy.ru/publ/pmacro/004.htm (date of access: 21.07.2014).

10. Pestel, E. (1988). *Za predelami rosta: per. s angl. [Beyond growth: translated from English].* Obsch. red. i vstup. st. D.M. Gvishiani [General ed. and introductory article senior D.M. Guinea-siani]. Moscow, Progress, 272.

11. Petrov, O. V. (2010). Ob effektivnom ispolzovanii mineralno-syrevogo potentsiala nedr Rossii [On the effective use of the mineral resource sweaty capacity of bowels of Russia]. *Vestnik Chelyabinskogo gosudarstvennogo universiteta [Bulletin of the Chelyabinsk State University],* 2 (183), 23, 20-28 (Economics).

12. Peccei, A. (1980). *Chelovecheskie kachestva [Human qualities].* Moscow, Progress, 302.

13. Peshkov, A. A. & Matsko, N. A. (2008). Sistemnyy analiz problemy ekonomicheskogo rosta na osnove razvitiya mineral-no-syrevogo sektora (Chast 1) [System analysis of problems of economic growth based on the development of the mineral re-source sector (Part 1)]. *Regionalnaya ekonomika i upravlenie: elektr. nauch. zhurn. [Regional Economics and management: electronic scientific journal],* 3(15), № reg. article 0049/1. Available at: http://region.mcnip.ru.

14. Polterovich, V. M., Popov, V. V. & Tonis, A. S. (2007). Mekhanizmy «resursnogo proklyatiya» i ekonomicheskaya politika [Mechanisms of resource curse and economic policy]. *Voprosy ekonomiki [Questions of Economy],* 6, 4-27.

15. Polterovich, V., Popov, V. & Tonis, A. (2007). *Ekonomicheskaya politika, kachestvo institutov i mekhanizmy «resursnogo proklyatiya» [Economic policy, as in the institutions and mechanisms of resource curse»].* Moscow, HSE Publishing House, 101.

16. Gvishiani, D. M. (Ed.) (1997). *Rimskiy klub. Istoriya sozdaniya, izbrannyye doklady i vystupleniya, ofitsialnyye materialy [The club of Rome. The history of creation, selected papers and speeches, official materials].* Moscow, URSS, 384.

17. Stiglits, J. (2004). Proklyatie resurtsov [The resource curse]. *Den [Day],* №143, 13.08.2004. Available at: http://www.day.kiev.ua/78284 (date of access: 21.07.2014).

18. Fetisov, G. (2006). «Gollandskaya bolezn» v Rossii. Makroekonomicheskie i strukturnyye aspekty [The «Dutch disease» in Russia: macroeconomic and structural aspects.]. *Voprosy ekonomiki [Questions of Economy],* 12, 38-53.

19. Etikind, A. Petromacho ili mekhanizmy demodernizatsii v resursnom gosudarstve [Petronack, or Mechanisms of demod-ernization in the resource state-carstve]. *Neprikosnovennyy zapas [Reserve stock],* 88 (20.20). Available at: http://magazines.russ.ru/nz/2013/2/ (date of access: 21.07.2014).

20. Auty Richard M. (1993). *Sustaining Development in Mineral Economies: The Resource Curse Thesis.* London, Routledge, 288.

21. Cavalcanti, T. V. de V., Mohaddes, K., & Raissi, M. (2011). *Commodity Price Volatility and the Sources of Growth.* Faculty of Economics, University of Cambridge, 45.

22. Collier P. (2003). *Natural Resources, Development and Conflict: Channels of causation and Policy Interventions.* World Bank, April 28, 2003. Available at: www.worldbank.org

23. Corden, W. M. & Neary, J. P. (1982). Booming Sector and De-Industrialisation in a Small Open Economy. *The Economic Journal,* 92 (December), 825–848.

24. Damania, R., & Bulte, E. (2003). *Resources for Sale: Corruption, Democracy and the Natural Resource Curse.* Univ. of Adelaide, 45.

25. Gylfason, T. (2001). Natural Resources, Education, and Economic Development. *European Economic Review,* 45, 847—859.

26. Holden, S. (August 2013). *Avoiding the Resource Curse. The Case Norway.* Department of Economics University of Oslo. Available at: http://folk.uio.no/sholden/wp/resource-curse-norway-13.pdf (date of access: 21.07.2014).

27. Innis, H. A. (1999). *The Fur trade in Canada: An introduction to Canadian Economic History.* Toronto; Buffalo : University of Toronto Press, 386-392.

28. Kronenberg, T. (2004). The curse of natural resources in the transition economies. *Economics of Transition,* 12 (3), 399-426.

29. Lederman, D. & Maloney, W. F. (2008). In Search of the Missing Resource Curse. World Bank, 2008. *Policy Research Working Paper,* 4766, 41.

30. Leong, W., & Mohaddes, K. (2011). Institutions and the Volatility Curse. *CWPE,* 1145, 18.

31. Manzano, O. & Rigobon, R. (2001). Resource Curse or Debt Overhang? NBER *Working Paper,* No. w8390, 37.

32. McKinnon, R. (1976). International Transfers and Non-traded Commodities: The Adjustment Problem, Leipziger, D. M. (ed.), *The International Monetary System and the Developing Nations,* Washington, D. C.: Agency for International Development, 98.

33. Meadows D. L. et al. (1972). *The Limits to Growth: A Report for the Club of Rome's Project on the Predicament of Mankind.* New York: Universe Books, 211.

34. Mesarovic, M. & Pestel, E. (1974). *Mankind at the Turning Point: The Second Report to the Club of Rome.* New-York: E. P. Dutton and Co. Inc., 224.

35. Mikesell, R. F. (1997). Explaining the resource curse, with special reference to mineral exporting countries. *Resources Policy,* 23, 4, 191-199.

36. Nunn, N. (2008). The Long-Term Effects of Africa's Slave Trades. *The Quarterly Journal of Economics.* MIT Press, 123(1), 139-176.

37. Sachs, J. D. & Warner, A. M. (1999). The Big Rush, Natural Resource Booms And Growth. *Journal of Development Economics,* 59 (1, Jun.), 43-76.

38. Stijns, J.-P. C. (2005). Natural resource abundance and economic growth revisited. *Resources Policy,* 30, 107–130.

39. Arezki, R., Pattillo, C., Quintyn M., & Zhu M. (International Monetary Fund) (Eds.) (2012). *The Natural Resource Curse: A Survey of Diagnoses and Some Prescriptions, in Commodity Price Volatility and Inclusive Growth in Low — Income Countries,* 233.

40. The World Bank. *World Development Indicators.* Available at: http://data.worldbank.org/data-catalog/world-development-indicators (date of access: 21.07.2014).

41. Watkins, M. H. (1963). A Staple Theory of Economic Growth. *Canadian Journal of Economics and Political Science,* 29(2), 141-158.

42. Van Wijnbergen, S. (1984). The 'Dutch Disease': A Disease After All? *Economic Journal,* 94 (373), 41-55.

43. Van der Ploeg, F. & Venables, T. (2009). Symposium on Resource Rich Economies Introduction. *Oxford Economic Papers,* 61(4), 625-627.

Information about the authors

Doroshenko Svetlana Viktorovna (Yekaterinburg, Russia) — Doctor of Economics, Associate Professor, Leading Researcher, Institute of Economics, the Ural Branch of the Russian Academy of Sciences (29, Moskovskaya st., Yekaterinburg, 620014, Russia, e-mail: doroshenkos@mail.ru).

Shelomentsev Andrey Gennadyevich (Yekaterinburg, Russia) — Doctor of Economics, Professor, Head of the Department, Institute of Economics, the Ural Branch of the Russian Academy of Sciences, Professor at the Vladivostok State University of Economics and Service (29, Moskovskaya st., Yekaterinburg, 620014, Russia, e-mail: chel61@mail.ru).

Sirotkina Natalya Valeryevna (Voronezh, Russia) — Doctor of Economics, Professor at the Chair for Economy and Production Organization, Voronezh State University (1, Universitetskaya pl., Voronezh, 394006, Russia).

Khusainov Bulat Doskalievich (Almaty, Kazakhstan) — Doctor of Economics, Professor, Principal Research Investigator, Institute of Economy of the Ministry of Education and Science (29, Kurmangazy st., Almaty, Republic of Kazakhstan, 050010, e-mail: bkhusainov@gmail.com).