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## Industry-specific factors under the conditions of the Russian economy recession

**Abstract.** In the context of the Russian economy's crisis in 2014-2015, there is an urgent need to enhance the role of exporters in restoring economic growth. Currently, traditional hubs have almost outlived their usefulness and it is necessary to reveal new production resources that will work for the export potential of the Russian Federation. In this regard, the Russian Government must pay attention to the activity of certain regions of Central Russia which constitute the part of the Central Federal District. The Open Joint Stock Company «Mikhailovsky GOK» has been a historically leading exporter of Kursk region. It produces metallurgical ore that has been mainly delivered to the People's Republic of China. However, the model created by the authors of the present paper allows us to identify the latent factors that determine the Gross Regional Product correlation with the leading exporter of the region.

**Keywords:** Export Potential, Russian Exporters; Behavioural Model; Correlation Dependence Between GRP and Export

**JEL Classification:** F17; F40

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**Сировинні фактори в умовах рецесії російської економіки**

**Анотація.** Кризові тенденції в економіці Російської Федерації призвели до необхідності її диверсифікації та зниження сировинної залежності. У цих умовах на перше місце виходить дослідження діяльності російських експортерів як у сировинних, так і в несировинних секторах. Виявлення рушійних факторів, які дозволять збільшити обсяг експорту в наступних періодах вимагає застосування статистичного апарату. Девальвація рубля знизила внутрішні витрати експортерів, однак не завжди це дозволяє компаніям виходити на зовнішні ринки. У роботі проводиться дослідження поведінки експортерів у галузевому розрізі, виявляються основні регіональні фактори, що впливають на зміни в обсязі та структурі валового регіонального продукту (ВРП).

**Ключові слова:** експортний потенціал; експортери; кореляційна залежність між ВРП та експортом.

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**Отраслевые факторы в условиях рецессии российской экономики**

**Аннотация.** Кризисные тенденции в экономике Российской Федерации привели к необходимости ее диверсификации и снижению сырьевой зависимости. В этих условиях на первое место выходит исследование вопросов деятельности российских экспортеров как в сырьевых, так и в несырьевых секторах. Выявление движущих факторов, которые позволят увеличить объем экспорта в последующие периоды времени, требует применить статистический аппарат. Девальвация рубля снизила внутренние издержки экспортеров, однако не всегда это позволяет компаниям выходить на внешние рынки. В работе проводится исследование поведения экспортеров в отраслевом разрезе, выявляются основные региональные факторы, которые влияют на изменения в объеме и структуре валового регионального продукта (ВРП).

**Ключевые слова:** экспортный потенциал; экспортеры; корреляционная зависимость между ВРП и экспортом.

**1. Introduction.** The Russian economy is export-oriented and resource-based. In January-August 2014, fuel, mineral raw materials and crude oil accounted for 71.1% of Russia's total export. The attempts to diversify the economy structure have not achieved any significant results so far. In this context, for major exporting companies the managers' capability of rational thinking has been given great prominence, since it emerges as the determinant of sustainable Russian economy development [1-3].

In the 2010s, the shale revolution in the USA has totally reshaped global oil and gas market which led to more than 50% fall in oil prices in 2014. Oil and gas producing companies all over the world as well as in Russia found themselves in challenging conditions of constraint on current resources to ensure further business development, i.e. increasing oil production rates, retirement of debts, exploration for new fields, etc. [4-8; 10]. At that, devaluation of national currency gave rise to a number of positive aspects and enabled reducing unit costs for fuel and energy resource extraction [9].

**2. Statement of the Research Problem.** Export potential is the basic element, which can facilitate economic growth of the country. This is especially important amid the crisis of the Russian Federation economy in 2014-2015. Normal operation of labour market, employment boosting, and growth of purchasing power of the population are impossible without export. Regions can be divided into two categories with this regard: 1) regions, which try to increase exports; 2) regions, which try to reduce exports by means of manufacturing similar goods and services in the domestic regional market (import substitution).

In order to study the key clusters of the economic development of Kursk region, statistical data for the regional exports of goods and services for the period from 1997 to 2014 are used. The data have been provided by the Kursk office of Rosstat (Federal Service of State Statistics). The objective of the study is to find the most efficient industries for the regional economy in terms of their impact on the aggregate economic potential. For this purpose we have employed methods of parametric

statistics, found existence of correlation dependence between the regional GRP and export to CIS countries and non-CIS countries for certain industries.

**3. Review of Recent Research and Scientific Papers.**

The issues of correlation between economic growth, investments, economy openness and export dynamics through the example of 10 East European countries were studied by R. Simut, I. Mester (2014) [13]. The authors employed the cointegration test in order to identify the existence of a long-run relationship between these variables for the period from 2000 to 2013. Riad Sultan (2012) [14], applying the Johansen Cointegration test and the Granger causality test revealed the impact of a certain industry on export potential of the country and its economic growth. Hajirasouliha, Zanganeh, Golafshani (2014) [15] in their model gave special consideration to direct foreign investments as a determinant of the economic growth in regard to flows of exports. Their empirical study revealed some key factors which form the investment potential of a region and eventually, its export dynamics. Rashid, Ullah, Bedi-uz-Zaman (2012) [16] arrived at the conclusion that the most important policy implications for the developing economies under study are in the fact that they should diversify their exports horizontally and liberalize their foreign exchange markets and capital accounts to control the instability in exports. They applied the Johansen Cointegration and the Augmented Dickey Fuller tests. Shujaat Abbas (2012) [17] used a 35-year period to determine the relationship between the GRP and exports. He came to the conclusion that there is a close long-run and short-run relationship. It is the product export, in his opinion, that should encourage region development. We have employed quantitative procedures of statistical analysis in order to find out which industries in Kursk region are more significant for the development of the regional economic potential and GRP growth. The initial data to be analyzed are: aggregated export of Kursk region, in thousands, USD; food - food products and agricultural raw materials (except for textile raw material), in thousands, USD; fuel - energy products, in thousands, USD; mineral\_other - mineral and other products, in thousands, USD; petrochem - petrochemical products, rubber, in thousands, USD; hides - hides, furs and leather and fur products, in thousands, USD; wood - wood and paper products, in thousands, USD clothes - textiles, textile products and footwear, in thousands, USD; metals - metals, precious gems and jewellery, in thousands, USD; engineering - machines, equipment and vehicles, in thousands, USD; grpsusd - GRP of Kursk region, in thousands of USD.

**4. The Target of the Article.** The article aims to apply a behaviour model of economy for the analysis of activities of Russian exporters in conditions of external and internal shocks. Currently, the Russian economy faces serious challenges in the form of external shocks, structural problems, and recession in 2014-2015. In order to overcome these symptoms of crisis, it is necessary to implement an efficient state policy to support export-oriented industries. This economic policy should be implemented both at Federal and regional levels.

**5. The Key Findings of the Study.** Kursk region GRP is presented in USD, so that exports data can be comparable in terms of currency. USD rate is taken as of the end of the year. Export flows are divided into two parts according to the Kurskstat classification: non- CIS countries (Table 1) and the CIS countries (Table 2).

The coefficient of correlation between the GRP of Kursk region and exports of machinery, equipment and vehicles is -0.22. For two industries (petrochemical industry and rubber, and hides, furs and leather and fur products) the correlation coefficient for export and GRP is next to zero. It should be mentioned that nearly all the exports of Kursk region to non-CIS countries are determined by the dynamics of mineral materials and other products. The correlation coefficient for this group of export is 0.96 due to one of the largest enterprises of Kursk region JSC «Mikhailovsky GOK», one of the leaders of iron ore mining and processing companies. The primary consumer of iron ore is China which makes the region dependent of the conjuncture of the Chinese economy. The high correlation is between GRP and hides, furs and leather and fur products; the correlation coefficient is 0.45, which is mostly due to the leading enterprise «Kurskaya kozha». Therefore, mineral raw materials and hides are the main export products to non-CIS countries impacting the GRP of Kursk region. The more these enterprises increase their export, the higher the GRP is. This refers to raw material export.

According to the accepted in economics classification based on the responsiveness to conjuncture cycles, industries are divided into: pro-cyclical, counter-cyclical and a-cyclical industries. Pro-cycle industries grow rapidly during economy revival, they decrease during the decline in economy. Counter-cyclical industries are those which grow during the decline of economy, and decrease during economy growth. A-cyclical industries, which are export-oriented and do not correlate with economy conjuncture, belong to the third category.

The next stage is the creation of correlation matrix of GRP and export to the CIS countries (Table 2). The highest correlation between GRP of Kursk region and export to the CIS countries is observed for the following kinds of products: wood and paper products (0.66); machinery, equipment and vehicles (0.44); petrochemical products, rubber (0.42). On the whole, the coefficient of correlation between exports to the CIS countries and GRP is slightly higher than that between exports to non-CIS countries and GRP (0.42 and 0.38). However, the difference between them is minor which indicates equivalence for the region of both export flows.

The dynamics of export of wood and paper products to the CIS countries has the greatest impact on Kursk region GRP. A one thousand US\$ growth of export of these products leads to US\$ 550 growth of GRP. As for the export of hides to non-CIS countries, this value is lower - US\$ 143. Probably, this is due to the restrictions our manufacturers face when coming to the EU market. The CIS markets are more open for them. Multiple R-squared in regression is 0.4759, and p-value is 0.0185, which indicates the importance of the multiple regression model.

The analysis brings us to the conclusion that regional authorities should concentrate resources to support the stronger industries, which contribute more to the dynamics of Gross Regional Product; wood and paper production is among them. Apparently, it is possible under the auspices of Kursk regional authorities for companies involved in this cluster of the economy to come to the markets of non-CIS countries. Eventually, this will lead to the multiplication effect and development of the whole region. Regional exporters need assistance in promotion of products and their introduction into foreign markets; a relevant infrastructure should be organized in the region for

Tab. 1: Correlation matrix of export of Kursk region to non CIS countries

	grp	all	food	fuel	petrochem	hides	wood	clothes	metals	engineering	mineral_other
grp	1	0.38	0.27	NA	-0.05	0.45	0.06	NA	NA	-0.22	0.39
all	0.38	1	0.11	NA	0.02	0.35	0.16	NA	NA	-0.18	0.96
food	0.27	0.11	1	NA	-0.04	-0.11	-0.07	NA	NA	0.4	-0.04
fuel	NA	NA	NA	1	NA	NA	NA	NA	NA	NA	NA
petrochem	-0.05	0.02	-0.04	NA	1	0.04	0.49	NA	NA	-0.34	-0.01
hides	0.45	0.35	-0.11	NA	0.04	1	0.12	NA	NA	-0.42	0.4
wood	0.06	0.16	-0.07	NA	0.49	0.12	1	NA	NA	-0.60	0.29
clothes	NA	NA	NA	NA	NA	NA	NA	1	NA	NA	NA
metals	NA	NA	NA	NA	NA	NA	NA	NA	1	NA	NA
engineering	-0.22	-0.18	0.40	NA	-0.34	-0.42	-0.60	NA	NA	1	-0.36
mineral_other	0.39	0.97	-0.04	NA	-0.01	0.40	0.29	NA	NA	-0.36	1

Source: Authors' own research based at Kurskstat data

Tab. 2: Correlation matrix of export of Kursk region to CIS countries

	grp	all	food	fuel	petrochem	hides	wood	clothes	metals	engineering	mineral_other
grp	1	0.42	0.20	NA	0.42	NA	0.66	NA	0.11	0.44	0.16
all	0.42	1	0.68	NA	0.61	NA	0.68	NA	0.40	0.76	0.74
food	0.20	0.68	1	NA	0.37	NA	0.42	NA	0.23	0.54	0.23
fuel	NA	NA	NA	1	NA	NA	NA	NA	NA	NA	NA
petrochem	0.42	0.61	0.37	NA	1	NA	0.30	NA	0.19	0.38	0.42
hides	NA	NA	NA	NA	NA	1	NA	NA	NA	NA	NA
wood	0.66	0.68	0.42	NA	0.30	NA	1	NA	0.32	0.47	0.43
clothes	NA	NA	NA	NA	NA	NA	NA	1	NA	NA	NA
metals	0.11	0.40	0.23	NA	0.19	NA	0.32	NA	1	0.27	0.16
engineering	0.44	0.76	0.54	NA	0.38	NA	0.47	NA	0.27	1	0.42
mineral_other	0.16	0.74	0.23	NA	0.42	NA	0.43	NA	0.16	0.42	1

Source: Authors' own research based at Kurskstat data

that purpose and federal executive authorities should be involved. In our opinion, in order to support exporters, departments or divisions should be organized to provide information about foreign markets; special brokers should search for particular contacts, agents, distributors; organizations assisting in holding of industry exhibitions where foreign partners can be invited; organizational and advisory support of exporters in holding of seminars and training; financing of export supplies are required [11; 12].

Region image advertising plays a special part in promotion of goods of Kursk regional exporters. As is well known, foreign market consumers can be hypercritical about places of origin of commodities. Therefore, it should be taken into consideration that economies of developed countries are competitive and it is very difficult to come into their markets. However, in the markets of developing countries (for example, West European countries) consumers' preferences can be not completely formed, and Kursk commodities can be suitable for consumption in these countries.

**6. Conclusion.** Encouragement of export is an important development strategy for any industry. To implement this policy Kursk region authorities need global thinking and strategic marketing to distinguish a region (population, an enterprise) against other territories in Russia and in competition with foreign manufacturers. Kursk region can achieve a success if it becomes internationally recognized as the area where high-quality goods and services are produced; raw hides, furs and leather and fur goods (for export to non-CIS countries), wood, paper products, machinery, equipment and vehicles, petro-

chemical products, rubber (for export to the CIS countries) are considered to be the most promising industries.

Nowadays, Kursk region has not achieved the quality standards of consumption which are used in EU countries and the USA, that is why we can compete only in the raw material sector. This is confirmed by positive correlation between machinery export to the CIS countries and GRP and negative correlation between export to non-CIS countries and GRP. That is, Kursk engineering products are not of such demand as they are in the CIS countries. Eventually, this impacts Gross Regional Product of the Kursk region.

The focal point for the implementation of the strategic potential of the economy of Kursk region should be the adoption of a comprehensive program of development of key industries of the region. The keynote of this document should be an industrial park, which, attracting cornerstone investors, can multiply creation of innovation clusters where small and medium businesses will be of great importance. For this purpose state support in registration, financing, business packaging is required. It is necessary to encourage attraction of investors from other regions of the Russian Federation to Kursk region. The example of such effective cooperation of the state and business is a successful automobile cluster in Kaluga region.

To develop the export potential in the Russian Federation it is necessary to intensify the work of export-import agencies, authorities dealing with economic issues. It is important to pay more attention to counter-cyclical industries including service industries at the end of raw cycle.

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