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Institutional factors of economic development in the steel industry in the Russian Federation

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Abstract

The article analyzes the institutional factors in the development sector of ferrous metallurgy in Russian Federation. The analysis resulted in showing fields of the institutional environment that constrain economic development of the sector of ferrous metallurgy.

Keywords

Institutional environment, institutional change, varieties of capitalism, steel industry, economic growth.

Introduction

Institutional environment shapes the technical, coordinative and allocative efficiency of the economic system. In recent years, the efficiency of formal institutions (rules) receives increasing attention of economists and politicians, as the turbulent change in the economic environment makes the old regulatory techniques inefficient in the industrialized countries. Components of institutional environments differ dramatically between countries, and this is reflected in the different historical paths of development, politics and national culture. Institutional environment determines the format of relations between the major sub-systems of the social-economic system: financial, those of corporate gov-

ernance, labor relations, models of state intervention, etc. In modern economic science there is a proven provision stating that the level of the development specific for institutional environment influences the decisions of individual firms on the distribution of production in the territory of a country and the volumes of production, which directly affects the economic growth and the development of the national economy.

An important task is to develop policies aimed at stimulating economic growth of individual industry branches, taking into account the impact of changes in the institutional environment on the transformation processes taking place in various industries and sectors of economy, as well as to predict the changes in the structure of industries and sectors, with their international integration being considered.

Growth and development of the ferrous metal industry

While studying economic growth and development the ferrous metal industry is of paramount importance. The main function of this industry is to supply materials for industrial production and infrastructure development. Importance of the ferrous metal industry for economy functioning is confirmed by the high level of correlation between the GDP per capita and the steel consumption index.

Thus, the problem of identifying regularities specific for the influence of institutional environment on the economic growth in the steel industry is of particular scientific value and requires the development of new theoretical and methodological approaches to the analysis of the institutional environment and economic growth in the industrial sectors.

To analyze the structure of institutional environment we will use the previously established methodology[1].

Metallurgical industry is one of the branches in international division of labor Russia specializes in. However, despite of adopting metallurgical base to market conditions, its technical and technological level, as well as competitiveness of some metal products cannot be considered satisfactory[2].

1 Ryabov, I.V. (2011),"The influence of national institutional environment for economic growth of the national economy at the industry" ["Vliyanie natsional'noi institutsional'noi sredy na ekonomicheskii rost natsional'noi ekonomiki na urovne otrasli"], *FES*, No. 2, pp. 28-31.

2 "World Steel in Figures 2009", *International Iron and Steel Institute (IISI)*, available at: http://www.yapiv-

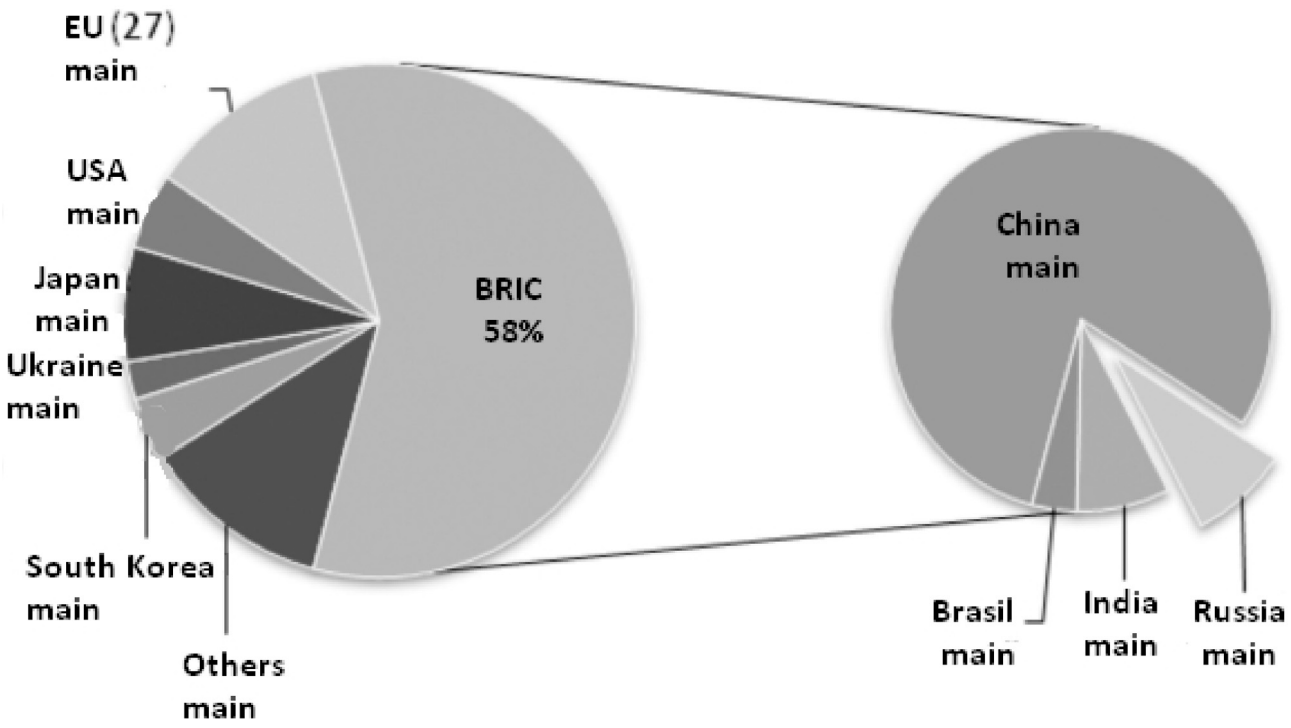

Fig. 1. Regional structure of steel production in 2010

Russian ferrous metal industry has been historically developing in the course of combining different process stages on the basis of rich natural mineral resources. By early 80ies of the last century, these advantages were mostly lost for various reasons, and the collapse of the Soviet Union as well as the subsequent restructuring of the industry further exacerbated the problems of raw material supply due to the lack of some important ore (e.g., manganese), remote deposits, complicated mining and geological conditions of occurrence, low mineral content etc. Russian metallurgical industry has always been very resource-intensive because of the technological gap. Thus, as the share of material costs in the cost price of ferrous metal products in Russia averagely approaches to 74 %, in the United States, Japan, Germany the figure is 55-60%. As negative points one should note the lack of favorable treatment in the sphere of subsoil management with a sharp, more than three times, decline in the amount of geo-exploration works in recent years[3].

Nowadays, Russia takes the first place in terms of explored iron ore reserves in the world (about 26 billion

eri.com/VImages/2009/Arastirmalar/worldsteel_08.09.pdf

3 Sedykh, A.M., Yuzov, O.V., Afonin, S.Z. (2003), *Russia's steel industry amid the global market* [*Chernaya metallurgiya Rossii na fone mirovogo rynka*], Moscow, 256 p.

tons), and it is completely self-sufficient. Today's import of iron ore (the share of domestic consumption does not exceed 10%) is mainly due to the lower cost of imports from neighboring countries for some large metallurgical enterprises[4].

Compared with manufacturers from Europe, Japan and China, Russian metallurgists' having its own sources of raw materials is an important competitive advantage. Taking into account that a large part of Russian steel products is exported, holding positions in the foreign market is the key requirement domestic metallurgists have to meet in order to successfully overcome the crisis.

Technological state of industry in Russia is directly related to the amount of investment made to upgrade the equipment. Although a share of open-hearth production is reduced, since 2003 it has stabilized at around 22%. Nowadays the technological gap between Russia and developed countries slows the growth of export for upstream operations products due to insufficient quality of raw steel[5].

Share of continuous casting of steel in Russia is only 54%, while in Germany, Brazil and other countries, this figure reaches 99.7%.

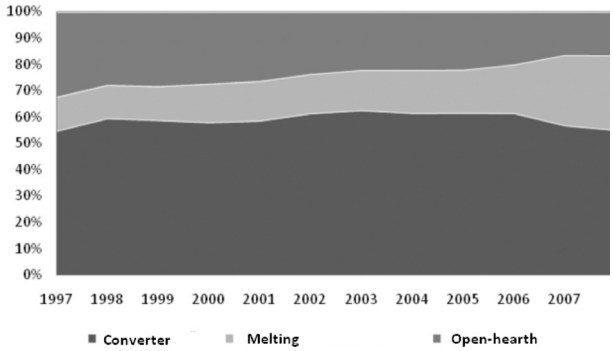

Fig. 2. Structure of steel production in terms of technological processes in Russian Federation[6]

Despite the active implementation of different projects on modernization in recent years, wear level of the equipment is still quite high. Share of inefficient open-hearth steel production reduced doubled in ten years , but it is still more than 20 % (about 3 % in the world), and the risen specific weight of continuous casting from 23 to 69% is still significantly below the world average index – 90 %[7]. In this regard, the share of competitive products meeting the requirements of international standards does not exceed 25 %, according to the Ministry of Economic Development.

4 "World Steel in Figures 2007", *International Iron and Steel Institute (IISI)*, available at: http://www.yapiveri.com/VImages/2007/Arastirmalar/iron-steel.pdf

5 Ibid; Shtanskii, V.A. (2008),"The strategy of the investment policy of steel companies" ["Strategiya investitsionnoi politiki metallurgicheskikh kompanii"], *Metallurg*, No. 11, pp. 4-9.

6 Ibid.

7 Rozin, S.E. (2007), "Open-hearth furnaces in steel production" ["Martenovskie pechi v staleplavil'nom proizvodstve"], *Cherniye metally*, No. 3, pp. 5-12.

Technological lag of Russian enterprises determines the low production efficiency and increased cost of basic resources. For example, the average unit cost of steel needed to produce 1 ton mill products in Russia is about 1,200 kg, in the U.S. and major EU countries – about 1130 kg, in Japan – less than 1100 kg. Average annual workforce productivity (t/person) on the leading Russian steel mills – Magnitogorsk, Novolipetsk, Cherepovets ("Severstal") – is 2-3 times lower than in similar enterprises in Japan, Korea, Taiwan and 3 times lower than in the U.S. (excluding differences in product mix). With the current technical level the competitiveness of Russian metallurgy largely depends on external factors such as the ratio of exchange rates, the level of world prices, regulation of prices and tariffs on products and services of natural monopolies, the level of taxation, customs, and state of enterprises' social spheres. Ferrous metals retain a certain factor of price competitiveness solely due to lower prices for all types of resources: iron ore, natural gas, and electricity. Cost of 1 man-hour on the largest mills in Russia is 6-10 times lower than on the similar foreign enterprises[8].

During the period from 2001 to 2008 the availability of external financing increased due to government resources, foreign reserves of the Central Bank, the Pension Fund, resources of commercial banks and large companies, and non-circulating cash of the population[9].

In addition, Russian metallurgical industry preserves the trend of business diversification, with the large vertically – and horizontally – integrated structures with product suppliers and consumers being established[10]. In order to maximize the added value, increase a raw materials independency and expand markets, major steel companies continue to buy coal and ore assets, production and marketing

8 Sadyrin, A., Sedelnikov, S., Dvorkin, B. (2009), "The energy reserve" ["Energeticheskii rezerv"], *Metallosnabzhenie i sbyt*, No. 3, pp. 82-86; Valavina, A., Archbold, P., Safonov, D. (2007),"Russian steel industry – the modernization of today to remain competitive in the future" ["Rossiiskaya staleliteinaya otrasl' – modernizatsiya segodnya dlya sokhraneniya konkurentosposobnosti v budushchem"], *Natsionalnaya Metallurgiya*, No. 5, pp. 12-19.

9 Kachaeva, M. (2009), "Russian steel sector in 2009: trends and key challenges" ["Rossiiskii metallurgicheskii sektor v 2009 godu: tendentsii razvitiya i osnovnye vyzovy"], *Natsionalnaya Metallurgiya*, No. 1, pp. 45-49; Okuneva, O. (2008), "Russian steel sector" ["Rossiiskii metallurgicheskii sektor"], *Natsionalnaya Metallurgiya*, No. 2, pp. 12-17.

10 Solomin, D. (2009),"Review of the characteristics of M & A transactions in the sector of metallurgy in 2008 and trends for 2009" ["Obzor kharakteristik sdelok M&A v sektore metallurgii v 2008 godu i tendentsii na 2009 god"], *Natsionalnaya Metallurgiya*, No. 1, pp. 29-33.

assets, develop their own logistics and production with a high degree of processing. Favorable situation on the world commodity markets for the last ten years has allowed Russian metallurgists to establish financial capacity, modernize some Russian plants and acquire assets abroad (mainly in the key consuming regions – U.S., Europe). However, the opposite trend is developing – in some cases even large structures "get rid" of inefficient industrial units which require significant modernization funds. In addition, due to the high energy intensity of metal production the trend of metallurgical companies' acquiring energy assets develops and strengthens.

Russian ferrous metallurgy in modern conditions is a set of vertically integrated companies. Each of them includes assets of two sub-sectors within its structure. Typically, this is a raw material (resource) sector and a steel sector. However, as part of the holdings there may also be some assets representing consumers of steel products , and in addition, metallurgical divisions themselves may be part of larger establishments, which also include financial institutions and enterprises from other industries.

In recent years a trend of growing capacity of the ferrous metals domestic market was observed (Fig. 3).

Growing domestic consumption of ferrous metals has been associated mainly with the development of machine-building enterprises, which account for over 40 % of ferrous metals domestic consumption, the creation of new, modern, progressive types of products (vehicles, railway locomotives, wagons and other rolling stock, agricultural machinery). Consumption growth is contributed by the product differentiation and the development of new products thanks to metallurgical enterprises' taking measures to improve the technical and technological level of production. The ferrous metals consumption has been increasing substantially in building.

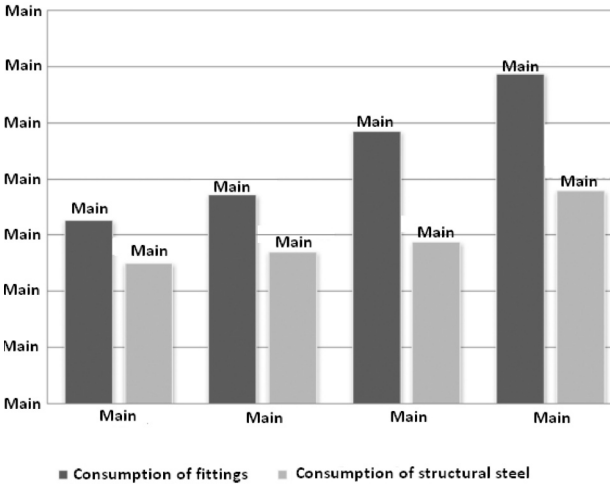

Fig. 3. Consumption of fittings and structural steel on the Russian domestic market, thousands of tons[11]

11 "World Steel in Figures 2007", *International Iron and Steel Institute (IISI)*, available at: http://www.yapiveri.com/VImages/2007/Arastirmalar/iron-steel.pdf

Figure 4 shows the volume of steel consumed by the main metal-intensive industries – building, automotive and infrastructure sectors of economy, consumer goods as well as the oil and gas sector[12].

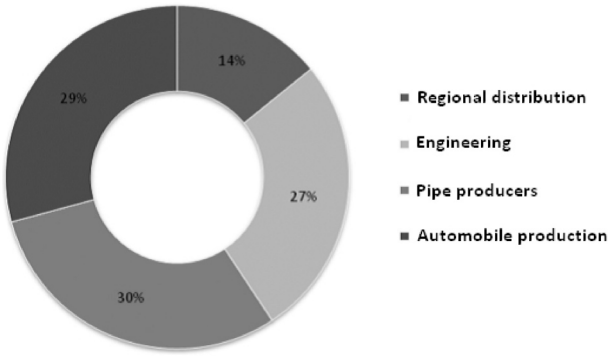

Fig. 4. Branch-wise structure of supplies specific for Russian enterprises[13]

Market capacity of steel products used for automobile production amounted to 2.3 million tons in 2008. Industry remains a concentrated market for limited number of customers, three of which (AvtoVAZ, GAZ, KAMAZ) provide more than 50 % of the steel procurement. In the recent years, the market share of domestic cars has been reducing. Russian automakers lose their competitiveness, giving their share to foreign producers. Import of finished parts and components, spare parts for foreign cars continues to grow faster than the rate of growth specific for total consumption in metal industry. Localization of facilities owned by foreign auto manufacturers suffers slow progress in terms of Russian metal consumption. Further prospects for the industry are related primarily to the growth of automobile production on the joint ventures and increasing level of localization of their facilities.

Another dangerous trend is the increase in import of high-quality metal products in industry and organization of production by the world's leading engineering companies (Greif, Caterpillar, Merloni, Siemens, Denso, etc.).

The industry's development priorities are the building industry and infrastructure projects, which are currently far behind the developed countries in terms of consumption. That is why by importing building technologies the consumption can significantly rise[14]. The capacity of building

12 Ryabov, I.V. (2011),"The influence of national institutional environment for economic growth of the national economy at the industry" ["Vliyanie natsional'noi institutsional'noi sredy na ekonomicheskii rost natsional'noi ekonomiki na urovne otrasli"], *FES*, No. 2, pp. 28-31; Shchelokov, Y. (2008), "Consumption of metals in the world and in Russia" ["Potreblenie metallov v mire i Rossii"], *Natsionalnaya Metallurgiya*, No. 2, pp. 76-81.

13 Shtanskii, V.A. (2008), "Competitiveness of the metallurgical complex of Russia in the long run" ["Konkurentosposobnost' metallurgicheskogo kompleksa Rossii v dolgosrochnoi perspektive"], *Metallurg*, No. 10, pp. 3-7.

14 "Annual Report 2007", *EUROFER*, available at: http://www.ilvataranto.com/pdf/rapporto_eurofer.pdf

segment is estimated at 18 million tons. The market of mill products develops under the influence of the following factors: the availability of long-term financing for developers; the availability of mortgages for buyers; demand and dynamics of real estate prices; implementation of national projects on providing citizens with housing.

Pipe industry can be divided into two segments – Producers of pipes for FEC (fuel and energy companies) and producers of pipes for utilities. In general, the market capacity is about 6 million tons. The main tendencies of the pipe market include:

– high level of consolidation by FEC consumers.

– significant pent-up demand due to the high level of depreciation for housing and communal infrastructure.

– high degree of seasonality for enterprises producing pipes for utilities , low degree for FEC sector.

– growth of import from China and Ukraine;

– increasing use of alternative materials (plastics, ceramics), which replace traditional ones (steel, cast iron);

– decline in demand of building companies due to the closing of the financial markets.

Market capacity for engineering steel is 6.7 million tons. There has been a steady growth in consumption of steel by rail companies, handling and agricultural engineering companies in recent years. There is a large number of small and medium-sized producers in the sector. The volume of purchases by large service companies is increasing.

The measures of government support will allow the Russian ferrous metallurgy to maintain its position in world markets, complete the implemented investment projects aimed at import substitution, improving the quality and competitiveness of steel, reducing the harmful impact on the environment[15]:

– providing Russian government guarantees on loans for mining and metallurgical companies on the implementation of investment projects;

– developing measures to support Russian producers on foreign markets;

– developing proposals to protect the domestic market of raw materials and metal;

15 "On the status and measures for the development of Russian ferrous metallurgy. Abstracts of minister of industry and trade minister Viktor Khristenko to retreat from prime minister of Russian Federation in the city of Magnitogorsk" ["O sostoyanii i merakh po razvitiyu rossiiskoi chernoi metallurgii. Tezisy doklada Ministra promyshlennosti i torgovli Rossiiskoi Federatsii Viktora Khristenko na vyezdnom soveshchanii u Predsedatelya Pravitel'stva Rossiiskoi Federatsii v g. Magnitogorske"], available at: http://www.minprom.gov.ru/activity/metal/appearance/10/print

– expanding the type list of technological equipment, which is not subject to VAT;

– expanding the list of products, whose exporters have their interest rates on loans subsided, with these loans being received from Russian credit institutions.

In addition, a complex of import-substituting decisions on the development of metallurgy industry is recorded in Metallurgy Development Strategy up to 2015, as a general vector of state and large companies' interests. However, the implementation of such decisions is strongly inhibited by the collapse of the research base. Currently, 95% of the equipment for ferrous steel is imported from Germany and other countries in which research programs continue to develop.

Conclusion

Due to the abovementioned, the main systemic problem of metallurgists' branch is the mismatch of technical and technological level of production, consumer qualities of metal being currently sold – future requirements of its customers, aims and objectives to effectively develop the industry and the state economy as a whole. These problems are of systemic nature and their certain aspects pose a threat to economic growth, social programs and projects at the federal and regional level.

General economic competitive advantages of Russian metallurgical companies will consistently decline. Today to ensure economic competitiveness of Russian metal products on world markets the following main factors of the Russian economy are of paramount importance: lower average wages in industry, substantially lower cost of energy sources, lower depreciation, lower environmental taxes. These factors determine the price competitive advantages for Russian steel companies compared with companies in industrialized countries.

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Институциональные факторы экономического развития отрасли черной металлургии в Российской Федерации

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Аннотация

В статье проведен анализ институциональных факторов развития отрасли черной металлургии в Российской Федерации. В результате анализа выявлены области институциональной среды, сдерживающие экономическое развитие отрасли черной металлургии.

Ключевые слова

Институциональная среда; институциональные изменения; формы капитала; черная металлургия, экономический рост.

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