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Development of Russia's Metallurgical Industry under Sanctions Restrictions: Iran's Experience

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ABSTRACT

The relevance of this research topic lies in the crucial role of the metallurgical industry for the Russian economy as a whole. This industry is heavily relied upon by key sectors such as industry, the fuel and energy complex, and construction, which together account for more than half of GDP. The purpose of this article is to analyse the development of the Iranian metallurgical industry, which has been under the long-term impact of sanctions restrictions, in the context of its applicability to the Russian industry. Methods: The study was conducted by analysing official data from the World Steel Association, the Federal Customs Service, and other relevant sources. We used theoretical analysis and systematized information on the impact of sanctions on economic indicators. Scientific novelty: Based on the analysis of the long-term Iranian experience in countering sanctions restrictions and the efforts made by Russian metallurgical companies to operate their enterprises in similar conditions, the author suggests directions for the development of this sector of the economy. The results of the study: The article analyses the experience of Iran's long-term development under the conditions of sanctions restrictions. We have identified and analysed the tools for levelling these restrictions. The author also analyses the measures of support for the metallurgical industry in Russia provided by the Government of the Russian Federation and the Ministry of Industry and Trade. These measures allow this sector of the economy to develop steadily in an unstable geopolitical situation. A comparative analysis of the counteraction to sanctions restrictions applied earlier for many years in the metallurgical industry of Iran and currently applied in Russia is presented. Practical significance: The results and conclusions of this article can be useful for both the scientific community and the heads of enterprises in the metallurgical industry in Russia in formulating medium- and long-term development plans. Keywords: Russian metallurgy; sanctions; metallurgical industry; industry; sanctions against Iran; metallurgical industry of Iran

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INTRODUCTION

In February 2022, Russia experienced a record number of sanctions imposed on its economy, which resulted in large-scale consequences, including:

- notable decline in imports and exports of goods: imports declined by 11.7 per cent, however, exports the domestic situation managed to straighten up during 2022 (total volume in 2022, according to the Federal Customs Service, increased by 19.9 per cent)¹;
- serious restrictions in the banking sector (foreign assets blocked, restriction of transfers, subsequent disconnection from SWIFT);
 - high inflation rates (Fig. 1).

It is currently impossible to make an accurate assessment of sanctions' impact due to limited access or lack of statistical data in certain areas.

Sanctions also affected the Russian metallurgical sector, which led to significant difficulties in the functioning of this segment of the economy: restriction of traditional sales markets, ban on payments, etc., and their ways to overcome seemed quite controversial.

Metallurgy is of strategic importance for the Russian economy: its main sectors (industry,

cal industry has a long history of development, which makes it an interesting object of study.

The impact of sanctions restrictions on Iran

The impact of sanctions restrictions on Iran and conditions of its development were studied in the research works of both foreign [2, 3] and Russian scientists [4–9]. However, the authors did not fully cover the development of the Iranian metallurgical industry in the context of sanctions within the period of 2000 to 2023.

construction, fuel and energy complex) altogeth-

er account for 58 per cent of GDP [1, p. 355]. This

circumstance has determined the metallurgical

industry as the research objective of this article.

long history. Therefore, in order to understand

how to counteract the imposed restrictions, it

is advisable to analyse the existing experience.

sanctions list (Fig. 2). Iranian strong metallurgi-

Iran takes of one the top positions in the

Russia is not the only country affected by sanctions: this type of economic pressure has a

Thus, within the framework of this article, the Iranian experience is compared analytically with the situation in Russia with the aim to develop counter-sanctions mechanisms of activity for functioning of the Russian economy and, in particular, the metallurgical industry in the context of restrictions. It should be noted at this point that it is not a universal experience: it was formed in very special geopolitical conditions



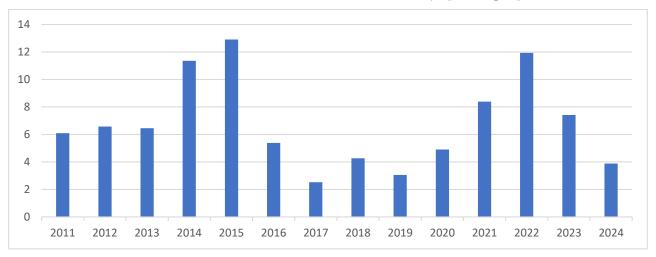


Fig. 1. Inflation rate in Russia (2011-2024, in per cent)

Source: compiled by the author.

for a long time, however, some mechanisms of adaptation activity regarding sanctions restrictions, which turned out to be effective, can be applied by other countries [4, p. 92].

THE STATE OF THE METALLURGICAL INDUSTRY IN IRAN BY LATE 20TH — EARLY 21ST CENTURY AND ITS DEVELOPMENT IN THE CONTEXT OF SANCTIONS

Iran has been under various kinds of sanctions restrictions for over 40 years. Taking into account rather an extensive production of the Iranian metallurgical industry (according to the World Steel Association, in 2023 the country took the 10th position in the world in terms of steel production),² the experience of its development is relevant for Russia.

It is worth pointing out now that despite some similarities, the sanctions restrictions imposed on Iran and Russia have a few key differences, namely:

- Timing. Sanctions against Iran were imposed gradually, which gave the economy more time to get adjusted and test different instruments. From 1995 to 2006, Iran experienced stable economic growth because the sanctions were sectoral in nature, they did not affect oil producing and oil processing sectors of the economy, and they limited only the import of goods, which it moderated by changes territories in importing countries [5, p. 30]. Meanwhile, sanctions restrictions in Russia had a large-scale, compressed timeframe nature, which forced Russia to use other mechanisms [5, p. 37].
- Level of oil prices. Likewise Iran, Russia has a significant share of revenues from energy exports. Thus, during the period of sanc-

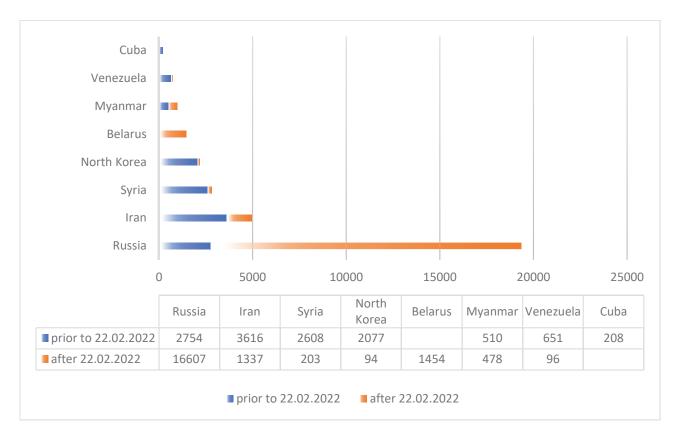


Fig. 2. The most sanctioned countries by the date of 06.19.2024, pcs.

Source: compiled by the author and based on URL: https://tgstat.ru/

² URL: https://worldsteel.org/data/world-steel-in-figures-2024/

tions against Iran (since 2010, according to UN Security Council Resolution No. 1929, the most extensive sanctions have been imposed, affecting almost all sectors of its economy), the decline in oil exports was partially compensated by high oil prices (*Fig. 3*). As for Russia, the situation on the world market was not so optimistic (since the beginning of sanctions restrictions in 2014) [5, p. 26, 37].

Thus in 1979, after the Islamic Revolution, many Iranian metallurgical companies came under the State control, when almost all mines, pits and operating metallurgical plants became owned by the State. However, since 1990, Iran has embarked on a course of economic liberalisation, and by 1995, more than 1000 mining companies were owned by private entrepreneurs or companies [6, p. 5].

By analysing the metallurgical industry of Iran, it is worth noting that the late 20th — early 21st century, it took the priority position in the five-year plans of the national socio-economic development. Thus, the national programme, developed in the early 2000s to increase the output of base metal, envisaged the growth of steel production to 18–20 million tonnes by 2014 [6, p. 6]. The envisaged goal was not achieved, but the volume of smelting has multiplied compared to the year of 2000 (*Fig. 4*), which in 2010, Iran to held [6, p. 9].

The target was not reached, but the smelting volumes increased several times compared to 2000 (*Fig. 4*), so that Iran became the second largest steel producer and succumbed the primacy only to Turkey in the top-list in the Near and Middle East in 2010 [6, p. 9].

According to the research of N.M. Mamedova, the reasons for such an increase in production were as follows:

- Implementation of large-scale projects for the construction of metallurgical plants of various profiles with involvement of foreign capital. The main investors are Germany, Spain, China, India and Japan. Examples include the first steelworks in Mobarek (the Mobarek Iron and Steel Works, commissioned in 1991, which was one of the most modern plants in the world at the time) and Miyan. This is also confirmed by the fact, that the volume of investment in metallurgy, as a share of total investment, did not fall below 20 per cent in the 2000s and it reached a record level of 33 and 42 per cent in 2005 and 2006 respectively.
- The Tehran Metal Exchange became operational in 2003, contributing to the growth of metal exports.
- The existence of a sufficient raw material base for the development of the metallurgical industry, as well as the potential for further

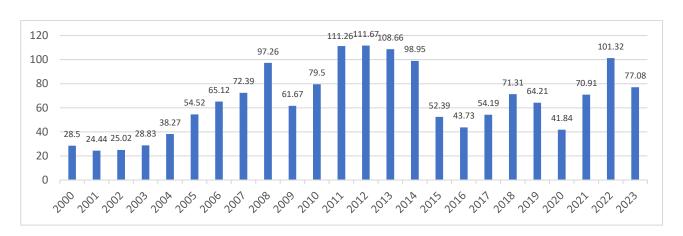


Fig. 3. Brent crude oil price fluctuations in 2000–2023, in USD/barrel

Source: compiled by the author and based on: URL: global-finances.ru.

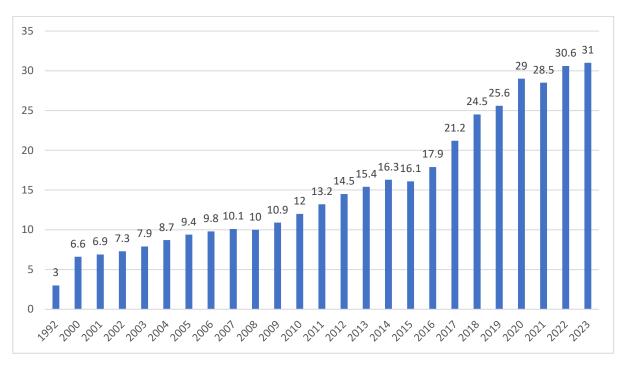


Fig. 4. Steel production in Iran in 1992-1023, million tonnes

Source: compiled by the author.

expansion in the process of geological prospecting.

 High level of domestic consumption, which ensures stable demand regardless of external market conditions.

It is also worth noting, that at the beginning of the 20th century there were no direct sanctionsrelated restrictions on Iran's metallurgical industry. This made it possible to attract impressive investments of foreign capital for large-scale projects to modernise production and build new enterprises.

High rates of development of Iran's metallurgical industry was facilitated by the presence of significant gas reserves and their low price, which was additionally subsidised for industrial enterprises [6, p. 6]. Iran ranks first in the world in terms of exploration of gas reserves, 90% of which goes for domestic consumption [4, p. 86].

Another driver of development, including the metallurgical industry, has become the 'resistance economy', the course for which was proclaimed by Supreme Leader Ayatollah Ali Khamenei in 2010. The strategy was based on the following

ten principles: reducing dependence on imports, increasing the economy's resistance to sanctions restrictions, 'scientific jihad' (a course for the development of scientific achievements, transition to an innovative economy), etc. [4, p. 90].

In 2013, the new government formed a vector of industrial development to reduce dependence on oil sales. By 2016, this export-oriented vector allowed to change the balance of exports towards the non-oil segment for the first time in 60 years [7, p. 34].

The priority sector was still in the steel industry, which was proved by the launch of national steel modernisation programme in 2015, aiming to increase smelting capacity up to 55 million tonnes by 2025 [7, p. 35].

According to the World Steel Association, the aforementioned factors enabled Iran to ascend to the 10th position in the global steel ranking list by 2018 (in 2008, Iran was ranked 19th), with steel production reaching 24.5 million tonnes (a 245 per cent increase).³

³ URL: https://worldsteel.org/data/world-steel-in-figures/

On May 8, 2018, the US unilaterally withdrew from the Iran nuclear agreement, leading to the unfreezing of previously imposed restrictions dated August 7, 2018, including those partly affected companies in the metallurgical sector of Iranian economy.⁴ This decision seriously affected the economy of Iran: oil export revenues dropped by \$ 10 billion in annual terms, inevitably resulting in a negative impact on the rate of economic growth [8, c. 95].

On 8 May 2019, the United States imposed direct sanctions on the metals sector of Iran's economy, which constituted the largest source of non-oil export revenues. The restrictions imposed affected both legal entities and individuals operating in the metallurgy sector. These restrictions included the prohibition of the transfer and supply of significant goods and services to Iran, as well as the purchase of iron, aluminium, steel and steel products from Iran.⁵

The new US sanctions on 10 January 2020 targeted companies that violated the 2019 decree, as well as Iran's leading steel, copper and aluminium companies (Esfahan Mobarakeh Steel Company, Iran Aluminum Company, National Iranian Copper Industries, etc.). While these restrictions did not result in a substantial impact on the production and export of Iranian steel, they did lead to alterations in market dynamics and sales channels, as it was evidenced by the data on the dynamics of non-oil revenues.

In 2019–2020, the Iran's GDP (excluding oil revenues) indicated the growth of 0.9 per cent compared to decline of 2.1 per cent registered in 2018–2019, which signified a robust adaptability of the non-oil sector of the economy [8, p. 95].

Metallurgical sector demonstrated a similar trend (*Fig. 4*): the volume of steel production, although not demonstrating the rapid growth observed in previous time, continued to show positive dynamics. According to experts, this

indicates that recent sanctions restrictions do not have a significant impact on the Iranian metallurgical sector, but rather result in a real-location of sales.⁷

It is noteworthy, that Iran has historically developed reaction mechanisms against sanctions restrictions, which, not completely eliminate their negative effects, however, they manage to mitigate their impact on the economy as a whole.

Still, experts diverge in their assessments of the impact of sanctions on the Iranian economy. While some experts point out detrimental consequences of sanctions on Iran's economy, others find out, that sanctions can serve as a catalyst for socio-economic development, a galvaniser of progress for structural reforms and for the growth of new sectors in the Iranian economy [9, p. 5].

RUSSIAN IRON AND STEEL MARKET: SANCTIONS' IMPACT AND STATE SUPPORT MEASURES

The steel market in Russia predominantly includes private, vertically integrated companies. For example, the share of the six largest steel holdings (Severstal, NLMK, MMK, Evraz, Metalloinvest Management Company and TMK) accounts for more than 90% of steel production, while entities of the public sector accounts for only 0.2% [1, p. 355].

As mentioned above, the sanctions imposed in February 2022 had a significant impact on the Russian economy, especially on the spheres of exports and imports. Thus, exports in ferrous metallurgy decreased by 15.24 per cent,⁸ and according to the results of 2022, due to export restrictions, the total losses of Russian exporters of metal products, amounted to nearly 3.3 billion euros.⁹

⁴ URL: https://tass.ru/info/5754936?ysclid=lxvh8mqp9y343231695

⁵ URL: https://tass.ru/mezhdunarodnaya-panorama/6415056?yscli d=lxvhejwj6o287218468

⁶ URL: https://www.kommersant.ru/doc/4219033

⁷ URL: https://www.kommersant.ru/doc/4219033?ysclid=lwp62w0 dld665818663

⁸ URL: 24.07.2024 https://statexim.ru/news/update2022part/?yscli d=lxvqid8t40886531252

⁹ URL: https://ec.europa.eu/commission/presscorner/detail/en/ ip_22_1761

This circumstance could not but affect the economy of some regions, as more than 79% of Russian metallurgical enterprises operate in the towns [1, p. 362].

In view of a high level of uncertainty about the further dynamics of consumption of domestic steel, in April 2022, the World Steel Association predicted 20–35 per cent decline of consumption. However, according to Rosstat estimates, it was slightly over 5 per cent [1, p. 362].

The volume of steel production decreased by about the same amount: slightly more than 7.1 per cent¹⁰ (up to 71.5 million tonnes), which was in line with the global trend of 4.2 per cent.

There were several reasons for such statistics:

- prompt emergency measures of state support (various programmes, subsidies);
- growing domestic demand (mainly in construction sector and automotive industry) and again, partly due to state support measures (mortgages with discount rates, construction of social and commercial housing, etc.).
- export routs reoriented towards the Asian market.

Within the framework of Federal Law No. 488-FZ dated December 31, 2014 "On Industrial Policy in the Russian Federation", a whole range of programmes and subprogrammes was carried out. The framework of the fourth subprogramme "Production development of traditional and new materials" included metallurgy as a key resource for manufacturing industries in Russia, and the Government allocated 4 billion Rubles as financing support for the years of 2020–2023.¹¹

The Ministry of Industry and Trade also supported Russian metallurgy sector by restricting the import of metal products, stimulating exports, protecting Russian exporters in foreign markets and reducing dependence on imported raw materials [1, p. 358].

It is estimated, that Russian steel industry will need about eight years to adapt to restrictive sanctions. According to the strategy developed, it is necessary to increase domestic consumption (including by means of possible foundation of a reserve for ferrous metallurgy) and boost exports to emerging markets in Asia, Africa and Latin America. These measures are similar to the mechanisms used in Iran to counteract sanctions restrictions (*see the Table*).

It is worth noting that increasing domestic consumption is more attractive than increasing exports, which is currently unprofitable, while the domestic market shows profitability of over 30 per cent [10, p. 119].

The Government support is not limited to direct financing on the metallurgical sector of the economy. The steel industry was always backed up significantly by support measures of related sectors of the economy, which take a significant share in the cost of production (subsidising the pricing of electricity, natural gas and railway transport).

According to the World Steel Association, energy carriers (coal, electricity, or natural gas) constitute from 20 to 40 per cent of the cost of steel production [1, p. 366].

The state support of metallurgy is also provided by means of regulation of electricity and natural gas prices according to the Federal Law No. 35-FZ dated March 26, 2003 "On Electricity". Thus, retail electricity prices for the mining and manufacturing industry are approximately 25 per cent lower than for agriculture and other segments of the economy.

The construction sector indicates a fastgrowing domestic consumption of metal products due to the following aspects:

• implementation of preferential mortgage lending programmes in the primary real estate market¹³;

 $^{^{\}rm 10}$ URL: https://worldsteel.org/steel-topics/statistics/world-steel-in-figures-2023

¹¹ URL: https://ach.gov.ru/upload/iblock/007/00722c93cbd60321d 51ac5f23dc156a0.pdf

¹² URL: https://www.rbc.ru/business/08.03.2022/62e912a79a79474 4d2ec40fc

¹³ URL: https://www.cbr.ru/Content/Document/File/140482/ Consultation_Paper_12102022.pdf

• financing by the Russian Government large-scale metal-intensive infrastructure projects in Russia and abroad. For example, in 2015–2021, the Russian-Kyrgyz Development Fund (RKDF) supported more than 2.270 projects in metal-intensive industries by subsidizing nearly \$ 500 million 14 allocated by the Russian Federation. In 2021, the Russian Government also allocated over 200 billion Rubles to support six projects in the Arctic zone, most of which deal with infrastructure development to stimulate demand for metal products. 15

The Russian government also supports car manufacturers through preferential car loans, tax deferrals and State guarantees [11, 12]. 16

However, all the measures mentioned above seem to be more likely aimed to protect the metallurgical industry from recession, than to create conditions for further progressive development.

Stock market turbulence and unstable output dynamics lead to the freezing of investment projects and the search for new other areas of activity. Thus, Public Joint-Stock Company 'Severstal' reduced the amount of financing for investment activities in 2021 by 14.42 per cent (\$ 193 million), as a result of recessionary expectations in the global market of steel and raw materials, as well as costs of foreign materials for renewal and reconstruction of fixed production assets [13, p. 23].

Implementation of companies' investment policy is hindered by a limited access to foreign capital markets, which was practically banned due to sanctions. Besides, this situation triggered a more rigid policy of spending the entities' own funds.

In addition to the foregoing, the task of attracting borrowed funds is complicated by the growth of the key rate (*Fig. 5*), which may affect the cost of loans for industrial enterprises.

Thus, various subsidy programmes and support measures, restrictions on imports of steel products from abroad and assistance in import substitution of unavailable raw materials made it possible to mitigate to minimum the impact of sanctions restrictions and safeguard Russian steel industry from recession.

However, turbulence in the stock markets along with unstable output dynamics prevent the all-round implementation of investment

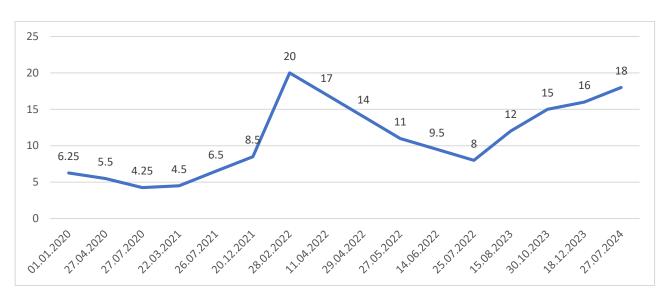


Fig. 5. Russian Central Bank key rates in 2020-2024, in per cent per annum

Source: compiled by the author.

¹⁴ URL: https://www.rkdf.org/godovye-otchety/

¹⁵ URL: https://www.cbr.ru/Content/Document/File/140482/ Consultation_Paper_12102022.pdf

¹⁶ URL: http://government.ru/support measures/measure/109/

programmes to modernise and upgrade the main production assets of metallurgical enterprises. The situation is complicated by growing costs of imported components and equipment, almost complete inaccessibility of foreign capital markets and tightening monetary and credit policy in Russia.

COMPARISON OF THE IMPACT OF SANCTIONS RESTRICTIONS ON THE METALLURGICAL INDUSTRIES IN IRAN AND RUSSIA (PROSPECTS FOR THE DEVELOPMENT OF RUSSIAN METALLURGY IN THE CONTEXT OF IRAN'S EXPERIENCE)

After liberalisation of the industry in Iran in 1990, the majority of steel enterprises became a part of private ownership. This is similar to the situation in Russia: as a result of privatisation in 1992–1996, a significant part of such enterprises also came under private ownership.

At the same time, the state of the main production assets differs. In view of the fact, that the main metallurgical plants in Iran were built later, than in Russia (its main facilities were built during the Soviet era), the need for investment resources for their renewal is much lower in Iran. In the 2010s, Russian large-scale modernisation of metallurgy was carried out and it partially mitigates the current situation [14, p. 134], however, the progress of modernization was significantly delayed by sanctions restrictions, as well as foreign means of production and foreign capital subsequently were not accessible.

Export dependences on the Iranian and Russian metallurgy markets are also different: domestic consumption initially prevailed in Iran and only a small proportion of exported production reached foreign markets. This circumstance subsequently mitigated the impact of sanctions on the export of Iranian steel products. As to Russia, up to 40 per cent of steel and steel products were exported (the share of export sales was up to 50% of the total volume [15,

p. 180]). Thus, the restrictions imposed in 2022 led to significant complications, which were not possible to overcome completely so far.

Both countries consider this segment of the economy as strategic for development of related industries and the economy as a whole, as evidenced by implementation of state support programs through various methods and mechanisms, including subsidies by means of low tariffs for energy carriers.

According to the author's point of view, in the context of the analyses of Iranian experience and the efforts of Russian metallurgical companies aimed to operate sustainably their enterprises under the sanctions restrictions, there are the following ways to develop this sector of economy:

- Reorientation to the Asian, Latin American and African markets, which is the most obvious in the context of restrictions aimed to curb operations in the European, American and other pro-sanctions markets.
- However, this involves so many obstacles, and the most crucial one is the level of prices for its products. They are significantly affected by the insufficiently high level of technological development of production, which in its turn is limited, among other things, by the shutdown of access to foreign technologies. The other obstacles involve high transportation and logistics costs, as well as problems with international accounting activities, which in their turn are constantly aggravated by new follow-up restrictions and still tightening control over the previously adopted limitations.
- Possible expansion of the B 2C market (business-to-consumer the business model, when a company sells goods to the end consumer or a private person), which will strengthen its position in the domestic market (especially in the regions where companies operate), increase of the added value by eliminating the markup of intermediaries, and pursue a more flexible pricing policy in relation to

Comparative analysis of counteraction against sanctions and restrictions imposed on metallurgical sectors of Iranian and Russian economies

Type of sanctions	Means of circumventing restrictions in Iran	Means of circumventing restrictions in Russia
Prohibition on transfer of significant goods and services to metallurgical enterprises, as well as on the purchase of the results of their activities	1. Changing export import policy (replacing Western partner countries in the export structure with Eastern and Asian partnership) [5, p. 30]	Change of export-import policy (replacement of Western partner countries in the export structure with Eastern and Asian partnership)
	2. Active state support for domestic production and consumption	2. Active state support for domestic production and consumption
	3. Supply of sanctioned goods through the third countries	3. Supply of sanctioned goods through the third countries
	4. Import substitution (with rather ambiguous results) [5, p. 34].	4. Import substitution (with active participation of the Ministry of Industry and Trade of the Russian Federation)
	5. "Economy of resistance"	5. This strategy was not used

Source: compiled by the author.

end consumers. All this will ultimately lead to an increase in domestic sales.

- A solution to the problem of capital availability may become attraction of investment from Asia: this is not only a market for trading, but also an important financial center, where participants are searching for investment in large production enterprises.
- To ensure a stable production output dynamics, that help implementing long-term programmes for production re-equipment, it is also a promising way to cooperate more closely with the State in terms of implementing multi-year large-scale infrastructure projects. This direction in conjunction with the Government programs to support the industry will create a basis for long-range production planning, for balancing the influence of favourable situation for Russian and foreign trade market conditions.

Sanctions against both Russia and Iran have lead not merely to negative consequences. They

also served as a stimulus to kick-start qualitative changes and to implement decisive measures, which previously would have never been based on such serious ground.

This all is not only merely related to traditional areas of cost reduction, improvement of technological processes, etc. For example, Russian metallurgical industry is actively developing within the framework of the digital transformation of the economy, which was announced one of the main priorities at the St. Petersburg Economic Forum 2022. The conducted research shows that the largest metallurgical enterprises not only master the latest upgradings in this area, but also strive to create digital ecosystems to solve complex problems of production development [14, p. 141].

Thus, despite the similarity of sanctions pressure measures imposed on Russia and Iran, the degree of their impact is not the same, due to the differences in the export component in the revenue of metallurgical enterprises, different

duration of sanctions, restrictions regime and other economic and geopolitical peculiarities. At the same time, many Iranian mechanisms to counteract sanctions restrictions are applicable to Russian metallurgical enterprises (see *Table*).

CONCLUSIONS

The paper analyses the impact of sanctions restrictions on the Iranian steel industry. Taking into account a long period of restrictions and a rather domestically oriented sales structure of economy, it can be summarized that the Iranian metallurgical industry has managed to adapt itself, so that the degree of impact of those sanctions has become not significant.

At the same time, it is worth pointing out that, according to various experts, the impact of the restrictions is quite ambiguous. Some of the experts believe that just the sanctions that caused structural changes, which in its turn, had a positive impact on the economy and made it more adaptable to the new restrictions.

Despite its similarities with the Iranian experience, Russian metallurgical industry turned out to have more ramifications from the impact of sanctions. This was due to the significant

export orientation of the product sales market. Besides, sanctions were imposed with a flurry of additional restrictions and due to this fact they affected several segments of the economy at the same time (particularly, sanctions were aimed to hit the financial sector and imports of key raw materials).

However, thanks to the implementation of Government programmes to support both metallurgy and related industries that influence prices, as well as thanks to other support instruments, the industry has not fallen into recession. On the contrary, it is in the process of developing mechanisms to recapture its previous growth rates.

In the author's opinion, the main areas of development that can lead to the growth of this segment of the economy include the following venues:

- reorientation towards the markets in Asia,
 Latin America and Africa;
 - expansion of the B 2C market;
 - attracting investments from Asia;
- closer cooperation with the State to implement large-scale, multi-year infrastructure projects.

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