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RUSSIA'S FOREIGN TRADE IN RAW MATERIALS AND INDUSTRIAL GOODS: THE IMPACT OF INTEGRATION AGREEMENTS AND SANCTIONS

D. A. Izotov

Economic Research Institute of the Far Eastern Branch
of the Russian Academy of Sciences,
153 Tikhookeanskaya St., Khabarovsk, 680042, Russia

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The aim of this study is to evaluate the impact of integration agreements and sanctions on Russia's foreign trade in raw materials and industrial goods. Using international statistical data for 1995—2024 from UNCTAD, the World Bank, CEIC, UNIDO, CEPII, FAO, WTO, and GSDB, and applying a gravity model that controls for globalization effects, the study assesses the potential for stimulating Russia's foreign trade through WTO membership and participation in trade and cooperation agreements under conditions of sanction constraints. The results of the analysis demonstrate an overall negative impact of sanctions on Russia's trade, with large-scale restrictive measures exerting the most pronounced effect, substantially reducing trade with Western countries that imposed sanctions in 2022—2024. The influence of investment agreements on Russia's foreign trade is found to be invariant. Although advanced (deep) trade agreements, in contrast to shallow ones, have a generally positive long-term effect on trade, they stimulate expansion in industrial goods to a greater extent than in raw materials. The positive impact of both advanced and shallow trade agreements, as well as WTO membership, on Russia's foreign trade, particularly in industrial goods, shows a strengthening trend over time. In addition, the overall growth of international trade in 2022—2024 contributed to the expansion of Russia's trade with WTO member countries, primarily in raw materials. Comparative analysis indicates that the reorientation of trade towards WTO members, together with the recovery of global trade, helped mitigate the negative effects of large-scale sanctions imposed by Western countries, while Russia's advanced and shallow trade agreements played a supplementary stimulatory role in this process. These findings

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demonstrate the necessity of expanding Russia's integration frameworks with 'friendly' countries in the context of intensifying sanctions pressure from Western states.

Keywords:
trade, raw materials, industrial goods, WTO, free trade area, customs union, shallow and advanced integration agreements, bilateral investment agreement, sanctions, international trade, Russia

Introduction

Three decades after the major waves of trade liberalisation, the global economy presents a paradox in which the erosion of some barriers to cross-border exchange coexists with the re-emergence and reinforcement of others [1; 2]. On the one hand, trade and economic barriers remain generally low due to tariff reductions under the WTO's most-favoured-nation regime and the growth of bilateral and multilateral integration [3]. At the sub-global level, integration formats between countries are implemented mainly within free trade areas (FTAs)[1] and customs unions (CUs)[2] [4]. Cooperation agreements between countries that do not focus on reducing tariffs are usually established as bilateral investment treaties [5], which help promote economic interaction between countries, including trade [3]. On the other hand, the global economy is witnessing a rise in protectionism, accompanied by the introduction of bilateral and unilateral trade and economic restrictions. Over the past decade, fragmentation driven by political considerations has intensified as the number of sanctions has grown [6]. For clarity, sanctions are understood here as measures targeting specific economies, individuals, or organisations, imposed by international institutions or sanctioning states [7]. Taken together, sanctions increase risks and, consequently, raise the costs of interactions between economies [8].

In the global economy, trade is primarily conducted in industrial goods,[3] which have higher added value compared to raw materials. The exchange of these goods relies on both monopolistic competition and vertical trade in production cooperation networks. Global trade in industrial goods is stimulated by countries' participation in the WTO [9] as well as by bilateral and multilateral integration agreements [10]. By contrast, trade in raw materials is driven by price-inelastic demand. Nevertheless, the reduction of barriers under integration agreements has expanded trade in raw materials, whereas WTO membership does not appear to have a consistently positive effect [11; 12].

[1] Free trade areas (FTAs) reduce tariffs and non-tariff barriers while allowing members to maintain independent trade regimes with third countries. In the past two decades, advanced FTAs (FTA+) have also liberalized services and capital flows.

[2] In a customs union, members adopt a common external tariff and a unified system for regulating non-tariff measures toward third countries.

[3] The share of industrial goods in global trade averaged 87 % over 1995—2024.

Partly due to the differentiated application of sanctions, their impacts on national economies [13], structural components [14], and trade flows between countries [15] are highly uneven. While sanctions have negatively affected trade in industrial goods [16], globalisation has enabled sanctioned economies to diversify trade toward third countries and intermediary states [17]. Trade in mineral and agricultural products has also been adversely affected in both sanctioning and sanctioned countries [18]. The ability of consumer countries to replace imports depends on global supply and demand conditions, which makes large-scale exports of raw materials difficult under sanctions, as new supply channels must be created, often at a higher cost [19].

A defining feature of Russia's trade with the global market is the dominance of raw materials in its exports.[1] The extensive export of these resources enables Russia to offset domestic consumption of industrial products through imports while accumulating foreign exchange reserves from trade surpluses. As a result, Russia ranks among a small group of countries that are major global suppliers of raw materials, with a relatively high trade-to-GDP ratio, reaching 30 % by 2024.[2]

In the early 2010s, Russia became a full member of the World Trade Organisation (WTO); however, the trade effects of its accession have been assessed differently. Some studies suggest that WTO membership has had little impact on Russia's overall foreign trade [20], while others highlight positive effects on trade in industrial goods and certain raw materials with foreign partners [21; 22]. Despite joining the WTO, Russian authorities have pursued a cautious approach to reducing trade barriers through integration agreements, focusing on advanced trade formats with selected economies, primarily post-Soviet states. Evaluations of Russia's integration agreements, mainly within the Eurasian Economic Union (EAEU) and with Vietnam, highlight both opportunities [23] and limitations [24; 25] for expanding trade and economic interaction. Although Russia has concluded a relatively large number of bilateral investment treaties, their impact on trade remains largely unexplored. It is, therefore, important to examine how Russia's participation in the WTO, alongside its engagement in integration and cooperative arrangements, has influenced its foreign trade. A central aspect of this analysis is the relative impact of global (WTO) versus sub-global (FTAs, advanced FTAs, and CUs) integration formats on Russia's trade in raw materials and industrial goods.

It should be noted that Russia acts both as a sanctioned and a sanctioning country. Over the past decade, it has faced pressure from 'Western' countries, with localised sanctions between 2014 and 2021 and broad-scale sanctions

[1] Russia's exports of raw materials consist primarily of crude oil.

[2] *UNCTADstat Data Centre*, 2025, URL: https://unctadstat.unctad.org/wds/ReportFolders/reportFolders.aspx?sCS_ChosenLang=en (accessed 01.08.2025).

from 2022 onward [26]. These measures have negatively affected Russia's trade in both raw materials [27] and industrial goods [28] with the sanctioning countries. Broad-scale sanctions are now considered one of the main challenges for the Russian economy, disrupting long-established trade flows, triggering sectoral crises [29], and maintaining technological dependence on imports [30]. Consequently, the Russian economy is shifting toward a volatile and costly growth model [31]. Under broad-scale sanctions, revenues from both oil and gas, as well as non-oil sectors, declined, while import restrictions were circumvented by restructuring the import composition and reorganizing production within aggregated product groups [32]. As a major economy and key player in the global raw materials market [33], Russia has been significantly affected by intensified sanctions, which have contributed to rising global prices and redirected trade toward third countries, illustrating the so-called 'large country trap' [34; 35].

There is a perceived lack of research on the relative effects of sanctions and integration agreements on Russia's foreign trade, particularly in raw materials and industrial goods. This raises the following research question: to what extent has Russia's participation in the WTO, along with its involvement in trade and cooperative agreements, influenced its foreign trade in these sectors over the long term (1995—2024), including the period under sanctions, especially broad-scale measures imposed by 'Western' countries?

This study aims to assess the impact of sanctions and integration agreements on Russia's foreign trade in industrial and raw materials. To achieve this aim, the study addresses the following tasks:

This study aims to assess the impact of sanctions and integration agreements on Russia's foreign trade in industrial and raw materials. To achieve this objective, the study pursues the following tasks:

1. to analyse the dynamics of Russia's foreign trade in raw materials and industrial goods, alongside the evolution of sanctions and integration agreements;

2. to select an appropriate methodological framework and construct the dataset and model specifications required to evaluate the factors influencing Russia's foreign trade;

3. to assess the effects of sanctions and integration agreements on Russia's trade in raw materials and industrial goods with foreign countries.

The study covers a long-term period from 1995 to 2024.

Russia's foreign trade in raw materials and industrial goods, sanctions, and integration and cooperation agreements

With the exception of the global economic crises in the late 2000s, mid-2010s, and early 2020s, strong market conditions and rising demand for Russian raw materials fueled the growth of Russia's foreign trade. The share of raw materials in exports steadily increased, from 58 % in 1995 to 69 % in 2024 (Fig. 1).

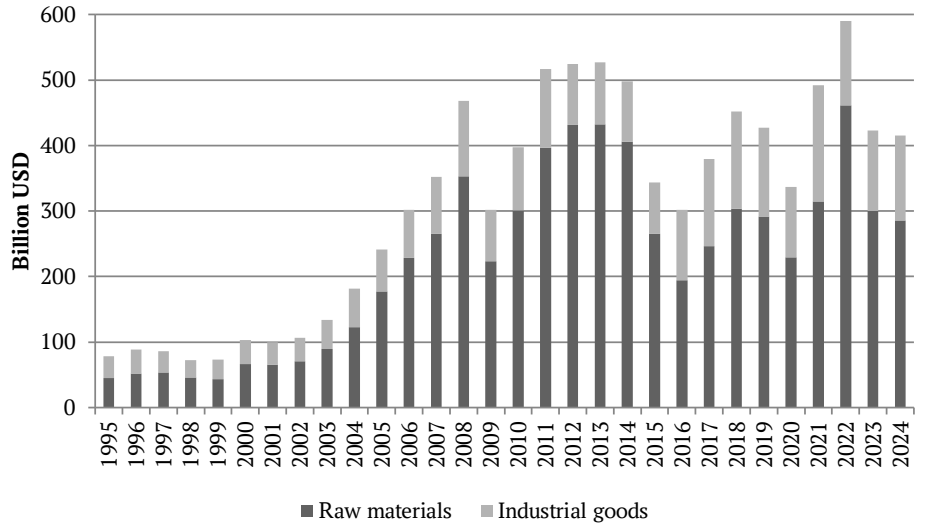

Fig. 1. Exports of raw materials and industrial goods from Russia

Source: Trade Structure, 2025, *UNCTADstat Data Centre*, URL: https://unctadstat.unctad.org/wds/ReportFolders/reportFolders.aspx (accessed 01.08.2025).

Imports to Russia depended on the dynamics of the country's raw-material exports, which enabled the supply of a wide range of consumer and industrial goods to the domestic market. As a result, imports to the Russian market consisted mainly of industrial goods, whose share increased from 74 % in 1995 to 78 % in 2024 (Fig. 2).

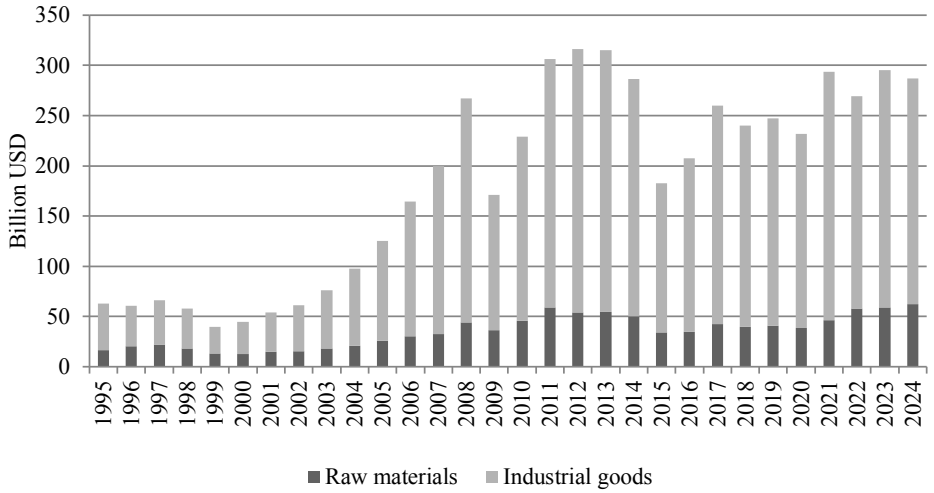

Fig. 2. Imports of raw materials and industrial goods to Russia

Source: Trade Structure, 2025, *UNCTADstat Data Centre,* URL: https://unctadstat.unctad.org/wds/ReportFolders/reportFolders.aspx (accessed 01.08.2025).

Despite Russia's integration into the global economy, the development of integration frameworks within its foreign economic policy remained gradual and cautious, reflecting both strategic uncertainty and institutional constraints in external economic engagement. For instance, Russia concluded bilateral FTAs that reduced trade barriers primarily with CIS countries. In 2006, it established an FTA with Serbia, and in 2025, with Iran. Amid the fragmentation of the former USSR's economic space, Russia began pursuing an advanced integration format in the early 2010s, forming a Customs Union within the EAEU with Kazakhstan and Belarus (2015) and later with Kyrgyzstan and Armenia (2016). As an EAEU member, Russia also established an FTA+ with Vietnam in 2016 (Table 1).

Table 1

Russia's participation in integration agreements

Integration agreement	Period
FTA with Armenia and Kyrgyzstan	1992—2015
FTA with Azerbaijan, Georgia and Turkmenistan	Since 1994
FTA with Belarus and Kazakhstan	1992—2014
FTA with Moldova, Tajikistan and Uzbekistan	Since 1992
FTA with Ukraine	1992—2015
FTA with Serbia	Since 2006
EAEU Customs Union with Kazakhstan and Belarus	Since 2015
EAEU Customs Union with Kyrgyzstan and Armenia, FTA+ with Vietnam	Since 2016

Source: Regional trade agreements notified to the GATT/WTO and in force, 2025, *Regional trade agreements Database,* URL: https://rtais.wto.org/UI/publicPreDefRepByCountry.aspx (accessed 01.08.2025).

In addition, by 2024, Russia had concluded 62 investment agreements with foreign countries, reducing barriers to capital flows (see Appendix, Table A.1). After comparatively lengthy negotiations, Russia also joined the WTO in 2012. As a result, by 2024, Russia was trading with 164 WTO member countries (see Appendix, Table A.2), generally benefiting from the advantages of this global framework (Fig. 3).

Russia is both a target of sanctions and a sanctioning party. Based on information from the Global Sanctions Database (GSDB),[1] we can identify three periods of sanctions affecting the Russian economy: a relatively stable period with only occasional sanctions (1995—2013); a period of 'localised' sanctions (2014—2021); and a period of broad-scale sanctions (from 2022 to the present) (Fig. 4).

[1] *Global Sanctions Data Base*, 2025, URL: https://www.globalsanctionsdatabase.com/ (accessed 01.08.2025).

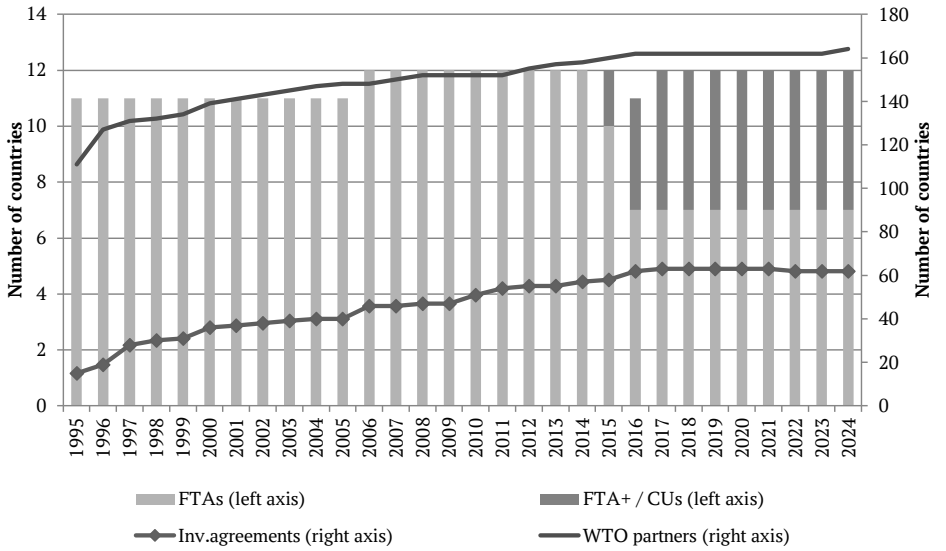

Fig. 3. Number of countries that have concluded investment agreements, FTAs, FTA+, and CUs with Russia, and WTO member countries — Russia's trading partners

Sources: Regional trade agreements notified to the GATT/WTO and in force, 2025, *Regional trade agreements Database,* URL: https://rtais.wto.org/UI/publicPreDefRepByCountry.aspx (accessed 01.08.2025); Members and Observers, 2025, *WTO*, URL: https://www.wto.org/english/thewto_e/whatis_e/tif_e/org6_e.htm; International Investment Agreements Navigator, 2025, *UNCTAD — Palais des Nations*, URL: https://investmentpolicy.unctad.org/international-investment-agreements/by-economy (accessed 01.08.2025).

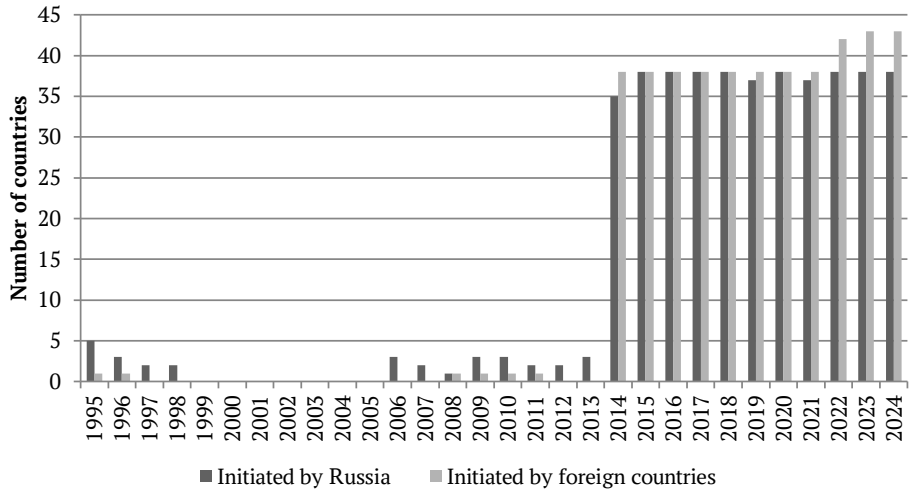

Fig. 4. Sanctions initiated by Russia against foreign countries and by foreign countries against Russia

Source: Global Sanctions Database, 2025, URL: https://www.globalsanctionsdatabase.com/ (accessed 01.08.2025).

Until 2014, Russia was rarely subject to sanctions, with restrictions imposed only by Ukraine and Georgia. At the same time, Russia applied short-term sanctions on some post-Soviet countries and supported UN Security Council resolutions against certain states. Between 2014 and 2022, the sanctions environment worsened for the Russian economy. From 2022 onward, amid political confrontation with 'Western' countries, Russia faced some of the world's toughest sanctions, which in turn prompted counter-sanctions by Russia.

The sanctions imposed on the Russian economy between 2014 and 2021, often described as 'localised,' were primarily targeted at the financing of major state banks and companies, as well as trade in defence products, dual-use goods, equipment and technologies, and oil exploration and extraction services [36]. In response, Russia implemented counter-sanctions, banning imports of food products from most Western countries[1] (see Appendix, Table A.3).

From 2022 to the present, broad-scale sanctions have been imposed on the Russian economy by Western countries deemed 'unfriendly,' which, in addition to those previously mentioned (see Appendix, Table A.3), include the Bahamas, Iceland, Liechtenstein, the Republic of Korea, North Macedonia, Singapore, Taiwan, and Switzerland. The current regime of broad-scale sanctions affects nearly all sectors of the Russian economy. Amid limited ruble convertibility and heightened economic risks, including the threat of secondary sanctions from 'unfriendly' countries, some foreign companies have suspended or fully ceased operations in Russia, resulting in an outflow of foreign direct investment from key sectors of the national economy.

Methodology and data

Methodology. Over the past twenty years, gravity models have advanced significantly in analysing how factors such as sanctions and integration or cooperation agreements affect international trade and economic interactions between countries. Empirical findings from these models have led to several recommendations for quantitative analysis [37]. The model should include fixed effects for exporting and importing countries over time to account for multilateral resistance,[2] as well as for all country pairs to capture time-invariant bilateral costs. The dependent variable should be specified multiplicatively to accommodate zero values and avoid errors from an incorrect functional form. Domestic trade flows should also be included to control for trade diversion toward internal markets and to mitigate distortions from global factors.

It is also important to note that a proper estimation of the trade effects of WTO membership requires accounting for both unilateral (indirect) and reciprocal (direct) effects associated with countries' participation in this global framework

[1] The USA, EU-28 countries, Australia, Norway, Canada, Iceland, Albania, Montenegro, Ukraine, New Zealand, Japan, Georgia, and Moldova

[2] All bilateral variable costs faced by the exporting and importing countries, respectively.

[38]. In line with the research objectives, the set of dummy variables captures factors that reduce trade barriers, including unilateral and reciprocal participation in the WTO, trade agreements such as FTAs, customs unions, and FTA+, and bilateral investment agreements, as well as sanctions that increase barriers, whether imposed by Russia or by foreign countries. Consequently, the estimated relationship takes the following form [38]:

$$X_{ij,t} = exp\left[\text{p}_{i,t} + \chi_{j,t} + \text{м}_{ij} + \beta_0 + \beta_1 WTOexp_{ij,t} + \beta_2 WTOboth_{ij,t} + \beta_3 FTA_{ij,t} + \beta_4 FTA(+)_{ij,t} + \beta_5 BIT_{ij,t} + \beta_6 SANCru_{ij,t} + \beta_7 SANCz_{ij,t} + \sum_{T=1}^{T=n} \beta_T INTL(T)_{ij} + \varepsilon_{ij,t}\right], \quad (1)$$

where X_{ij} is the export from country i to country j. This also includes X_{ii} — Russia's domestic trade.

In Model (1), the parameter X_{ij} is estimated for Russia's trade with foreign countries: total trade, trade in raw materials, and trade in industrial goods. The fixed effects included in the model are: π_i — for the exporting country, accounting for the year; χ_j — for the importing country, accounting for the year; and μ_{ij} — for the pair of trading countries. The independent variables were dummy variables: $WTOexp_{ij}$ equals one if country i is a WTO member and zero otherwise; $WTOboth_{ij}$ equals one if both countries i and j are WTO members and zero otherwise; FTA_{ij} equals one if there is an FTA between Russia and the foreign country and zero otherwise; $FTA(+)_{ij}$ equals one if there is an advanced trade agreement (FTA+ or CU) between Russia and the foreign country and zero otherwise; BIT_{ij} equals one if there is a bilateral investment treaty between Russia and the foreign country and zero otherwise; $SANCru_{ij}$ equals one if sanctions were imposed by Russia on the foreign country and zero otherwise; $SANCz_{ij}$ equals one if sanctions were imposed on Russia by the foreign country and zero otherwise; $INTL(T)_{ij}$ equals one for Russia's trade with foreign countries in a given year T and zero for trade within the Russian market, reflecting the border effect (overall barriers in Russia's trade with foreign countries); β_0 is the constant; and t represents time.

In the calculations, the total effect of the WTO (*WTOexpboth*) is estimated, which includes the impact of unilateral (*WTOexp*) and bilateral (*WTOboth*) participation of countries in this global framework on trade between them. To obtain accurate trade effects of integration agreements and the 'WTO factor,' the inclusion of the parameter *INTL* in Model (1) is justified by the need to control for the overall trend in international trade growth, or the 'globalisation effects' [39; 40]. Therefore, by excluding the dummy variable *INTL* from Model (1), we can assess the impact of the overall trend in international trade growth on the dependent variables, a trend that is partly determined by global economic conditions.

$$X_{ij,t} = exp\left[\text{p}_{i,t} + \chi_{j,t} + \text{м}_{ij} + \beta_0 + \beta_1 WTOexp_{ij,t} + \beta_2 WTOboth_{ij,t} + \beta_3 FTA_{ij,t} + \beta_4 FTA(+)_{ij,t} + \beta_5 BIT_{ij,t} + \beta_6 SANCru_{ij,t} + \beta_7 SANCz_{ij,t} + \varepsilon_{ij,t}\right]. \quad (2)$$

The difference between effects in (1) and (2) reflects a quantitative estimate of the impact of the overall growth trend in international trade on the total trade turnover and on Russia's trade in raw materials and industrial goods with foreign countries. Estimates are calculated both for the entire period (1995—2024) and separately for the periods of episodic sanctions (1995—2013), 'localised' sanctions (2014—2021), and broad-scale sanctions (2022—2024).

Data. Statistical data for 1995—2024 on Russia's trade with 211 countries and economic territories, broken down by aggregated commodity groups,[1] were sourced from international databases: UNCTAD,[2] the World Bank,[3] and CEIC.[4] Domestic trade statistics for industrial and raw materials in Russia were calculated as the difference between the value of these goods produced in the national economy and their exports [39]. Following recommendations for constructing domestic trade datasets [37], the value of raw materials and industrial goods produced in Russia was obtained from specialised statistical databases: UNIDO,[5] CEPII,[6] and FAO.[7] In some cases, trade and production statistics for raw materials in the databases (CEPII, FAO, CEIC, UNCTAD) were available only in physical volumes; these were converted to value terms using average prices for raw materials in global and Russian markets. Trade flows, both domestic and international, were divided into raw materials and industrial goods according to the ISIC classification (see Appendix, Table A.4).

The study evaluated dummy variables reflecting countries' participation in the WTO and in integration and cooperation agreements. According to the WTO database,[8] all current and past bilateral free trade agreements between Russia and CIS countries, plus Serbia, were categorised as shallow integration agreements (*FTA*) that apply solely to trade in goods (see Table 1). Advanced integration agreements (*FTA+*) included the CU with the EAEU's countries and the FTA+ with Vietnam (see Table 1). Bilateral investment treaties (*BITs*) between Russia

[1] Export statistics by country, reported in the Standard International Trade Classification (SITC), were converted to the ISIC classification using the corresponding concordance tables.

[2] *UNCTADstat Data Centre*, *2025,* URL: https://unctadstat.unctad.org/wds/ReportFolders/reportFolders.aspx?sCS_ChosenLang=en (accessed 01.08.2025).

[3] World Integrated Solution, 2025, *World Integrated Trade Solution (WITS)*, URL: https://wits.worldbank.org/ (accessed 01.08.2025).

[4] *CEIC Data Global Database*, 2025, URL: https://info.ceicdata.com/en-products-global-database-ad (accessed 01.08.2025).

[5] UNIDO Statistics. URL: https://stat.unido.org/ (accessed 01.08.2025).

[6] *CEPII Database*, 2025, URL: http://www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp (accessed 01.08.2025).

[7] *FAOSTAT*, 2025, URL: https://www.fao.org/statistics/en/ (accessed 01.08.2025).

[8] Regional trade agreements notified to the GATT/WTO and in force, 2025, WTO *Regional Trade Agreements Database*, URL: https://rtais.wto.org/UI/publicPreDefRepByCountry.aspx (accessed 01.08.2025).

and foreign countries were identified using UN data[1] (see Appendix, Table A.1). According to the WTO database,[2] for the variables *WTOexp* and *WTOboth*, Russia's WTO membership was counted from 2013, while for Russian trade partners (164 WTO member countries) it was counted from the year they joined the organization (see Appendix, Table A.2). If, during the period 1995—2024, a country joined the WTO or a trade agreement with Russia (or signed by Russia with a foreign country) entered into force in the first half of the year, the country's (or Russia's) participation in the relevant format was recorded for that year; if it came into effect in the second half of the year, it was recorded from the following year.

The study assesses the impact of two types of sanctions on Russia's foreign trade (see Appendix, Table A.3): 1) sanctions imposed by Russia on foreign countries (*SANCru*); and 2) sanctions imposed by foreign countries on the Russian economy (*SANCz*). The source of information on these sanctions was the GSDB. The dummy variables *SANCru* and *SANCz* captured any sanction measures imposed by Russia on foreign countries and vice versa,[3] following the approach described in similar studies [18]. It should be noted that the vast majority of these measures were trade sanctions. Exceptions include Russia's financial sanctions against Kyrgyzstan in 2020 and travel restrictions against New Zealand from 2022; other sanctions imposed by Georgia on Russia in 2008—2011; and New Zealand's financial sanctions in 2014—2021. Descriptive statistics of the dataset are presented in Table 2.

Table 2

Descriptive statistics of the dataset

Variable	Mean	Standard deviation	Min	Max
X (trade, total), USD	2,72E + 09	3,78E + 10	0	1,27E + 12
X (trade in raw materials), USD	1,16E + 09	1,39E + 10	0	4,99E + 11
X (trade in industrial goods), USD	1,56E + 09	2,44E + 10	0	7,68E + 11
WTOexp	0.555	0.497	0	1
WTOboth	0.306	0.461	0	1
FTA(+)	0.007	0.085	0	1
FTA	0.048	0.213	0	1
BIT	0.229	0.420	0	1

[1] International Investment Agreements Navigator, 2025, *UNCTAD*, URL: https://investmentpolicy.unctad.org/international-investment-agreements/by-economy (accessed 01.08.2025).

[2] Members and Observers, 2025, *WTO*, URL: https://www.wto.org/english/thewto_e/whatis_e/tif_e/org6_e.htm (accessed 01.08.2025).

[3] The GSDB distinguishes six types of sanctions: trade sanctions; financial sanctions; travel bans; arms embargoes; military assistance restrictions; and other sanctions.

The end of Table 2

Variable	Mean	Standard deviation	Min	Max
SANCru	0.070	0.255	0	1
SANCz	0.071	0.256	0	1
INTL	0.998	0.049	0	1

Results

Calculations (1) and (2) showed the presence of asymptotically unbiased estimates for total Russian foreign trade, as well as for raw materials and industrial goods, both for the entire period (Table 3) and for specific subperiods (1995—2013; 2014—2021; 2022—2024) (see Appendix, Table A.5).

Table 3

Estimation results for models (1) and (2)

Variable	Total, $\hat{\beta}$		Raw materials, $\hat{\beta}$		Industrial goods, $\hat{\beta}$	
	(2)	(1)	(2)	(1)	(2)	(1)
FTA+	0.89** (0.36)	0.79** (0.31)	0.87* (0.51)	0.70* (0.41)	0.94*** (0.31)	0.91*** (0.31)
FTA	0.90** (0.36)	0.95** (0.37)	0.99** (0.49)	1.08** (0.54)	0.84*** (0.31)	0.89*** (0.34)
BIT	−0.24 (0.23)	−0.33 (0.30)	−0.30 (0.27)	−0.42 (0.37)	−0.19 (0.21)	−0.26 (0.28)
WTOexp	0.13* (0.08)	0.09* (0.05)	0.32** (0.13)	0.16** (0.07)	0.07* (0.03)	0.07* (0.03)
WTOboth	0.67*** (0.12)	0.42*** (0.08)	0.94*** (0.15)	0.57*** (0.09)	0.40** (0.15)	0.27** (0.10)
WTOexpboth	0.79*** (0.15)	0.51*** (0.08)	1.26*** (0.20)	0.73*** (0.08)	0.45*** (0.15)	0.34** (0.14)
SANCru	−0.36** (0.18)	−0.37** (0.18)	−0.41*** (0.12)	−0.42** (0.13)	−0.30 (0.22)	−0.32 (0.24)
SANCz	−0.99*** (0.19)	−0.99*** (0.19)	−1.22*** (0.24)	−1.23*** (0.24)	−0.81*** (0.24)	−0.77*** (0.23)
$INTL_{1996}$	—	−0.54*** (0.14)	—	−0.93*** (0.25)	—	−0.26*** (0.04)
$INTL_{2000}$	—	−0.72*** (0.04)	—	−0.95*** (0.17)	—	−0.89*** (0.17)
$INTL_{2004}$	—	−0.17*** (0.05)	—	−0.56*** (0.15)	—	−0.14*** (0.06)
$INTL_{2008}$	—	−0.25** (0.11)	—	−0.53** (0.24)	—	−0.003 (0.01)
$INTL_{2012}$	—	−0.38** (0.17)	—	−0.57** (0.26)	—	−0.25*** (0.08)

The end of Table 3

Variable	Total, $\hat{\beta}$		Raw materials, $\hat{\beta}$		Industrial goods, $\hat{\beta}$	
	(2)	(1)	(2)	(1)	(2)	(1)
$INTL_{2016}$	—	−0.16 (0.14)	—	−0.06 (0.05)	—	−0.25*** (0.04)
$INTL_{2020}$	—	−0.06 (0.10)	—	−0.04 (0.07)	—	−0.02 (0.14)
Constant	18.10*** (0.49)	7.23*** (0.36)	3.59** (1.36)	8.36*** (0.25)	8.72*** (0.82)	23.3*** (0.70)
Pseudo log-likelihood	−5.2e+11	−5.1e+11	−3.7e+11	−3.6e+11	−2.8e+11	−2.5e+11
Pseudo R^2	0.99	0.99	0.99	0.99	0.99	0.99
RESET-test	0.01	0.03	0.01	0.02	0.01	0.06
Number of observations	3272		3104		3208	

Note: *** — $p < 0.01$; ** — $p < 0.05$; * — $p < 0.10$. Standard errors are shown in parentheses; to correct for autocorrelation using the Newey—West procedure, standard errors were clustered by interacting country pairs. *INTL* represents trade barrier values, with 2024 as the base year. For simplicity in obtaining estimates, panel data were aggregated into five-year intervals.

Compared to 2024, trade barriers (*INTL*) between Russia and foreign countries declined until the first half of the 2010s, primarily due to a reduction in barriers in raw materials trade. The apparent statistical insignificance of trade barriers may result from increases in barriers with certain countries being offset by decreases with others.

Using the semi-elasticities of the independent variables, average changes and tariff equivalents were calculated for both the specified time periods and the aggregated product groups (Table 4).

Table 4

Average changes and tariff equivalents of the variables in (1) and (2)

Variable	Total			Raw materials			Industrial goods		
	(2) Δ/T.E.	(1) Δ/T.E.	Δ(2) − (1)	(2) Δ/T.E.	(1) Δ/T.E.	Δ(2) − (1)	(2) Δ/T.E.	(1) Δ/T.E.	Δ(2) − (1)
$FTA+_{1995—2024}$	143/ −36	120/ −33	23	138/ −35	101/ −29	37	156/ −38	149/ −37	7
$FTA+_{2014—2021}$	63/ −22	45/ −17	18	—	—	—	74/ −24	83/ −26	−9
$FTA+_{2022—2024}$	164/ −38	145/ −36	19	174/ −40	103/ −30	71	172/ −39	224/ −44	−52
$FTA_{1995—2024}$	145/ −36	158/ −38	−13	170/ −39	193/ −41	−23	131/ −34	144/ −36	−13

The end of Table 4

Variable	Total			Raw materials			Industrial goods		
	(2) Δ/T.E.	(1) Δ/T.E.	Δ(2) – (1)	(2) Δ/T.E.	(1) Δ/T.E.	Δ(2) – (1)	(2) Δ/T.E.	(1) Δ/T.E.	Δ(2) – (1)
$FTA_{1995–2013}$	82/ – 26	86/ – 27	– 3	75/ – 24	83/ – 26	– 9	89/ – 28	86/ – 27	3
$FTA_{2014–2021}$	146/ – 36	157/ – 38	– 11	232/ – 45	151/ – 37	81	81/ – 26	161/ – 38	– 80
$FTA_{2022–2024}$	152/ – 37	172/ – 39	– 19	147/ – 36	200/ – 42	– 53	132/ – 34	171/ – 39	– 39
$WTOexp_{1995–2024}$	13/ – 6	9/ – 4	4	37/ – 15	17/ – 8	20	7/ – 3	7/ – 3	0
$WTOexp_{1995–2013}$	14/ – 6	15/ – 7	– 1	62/ – 22	59/ – 21	2	2/ – 1	—	2
$WTOexp_{2014–2021}$	—	—	—	—	—	—	—	—	—
$WTOexp_{2022–2024}$	—	—	—	—	—	—	—	52/ – 19	– 52
$WTOboth_{1995–2024}$	95/ – 28	52/ – 19	43	156/ – 38	77/ – 25	79	49/ – 18	31/ – 13	18
$WTOboth_{2014–2021}$	54/ – 19	40/ – 16	14	154/ – 37	49/ – 18	106	11/ – 5	—	11
$WTOboth_{2022–2024}$	254/ – 47	227/ – 45	27	477/ – 58	338/ – 52	139	123/ – 33	152/ – 37	– 28
$WTOexp\text{-}both_{1995–2024}$	121/ – 33	67/ – 23	54	252/ – 47	107/ – 30	145	57/ – 20	41/ – 16	16
$WTOexp\text{-}both_{2014–2021}$	72/ – 24	20/ – 9	52	132/ – 34	—	132	—	35/ – 21	– 35
$WTOexp\text{-}both_{2022–2024}$	293/ – 50	160/ – 38	133	350/ – 53	84/ – 26	266	283/ – 49	181/ – 40	102
$SANCru_{1995–2024}$	– 30/ 20	– 31/ 20	1	– 33/ 23	– 34/ 23	1	—	—	—
$SANCru_{1995–2013}$	—	—	—	—	—	—	—	—	—
$SANCru_{2014–2021}$	—	—	—	—	—	—	—	—	—
$SANCru_{2022–2024}$	– 75/ 98	– 75/ 100	0	– 73/ 93	– 74/ 96	1	– 77/ 108	– 75/ 101	– 2
$SANCz_{1995–2024}$	– 63/ 64	– 63/ 64	0	– 71/ 84	– 71/ 84	0	– 55/ 50	– 54/ 47	– 1
$SANCz_{1995–2013}$	106/ – 30	96/ – 28	11	197/ – 42	176/ – 40	21	46/ – 17	37/ – 15	9
$SANCz_{2014–2021}$	– 47/ 38	– 50/ 42	3	– 48/ 39	– 48/ 39	0	– 51/ 43	– 51/ 43	0
$SANCz_{2022–2024}$	– 83/ 141	– 83/ 139	0	– 89/ 201	– 88/ 194	– 1	– 74/ 96	– 76/ 102	2

Note. The average change of the indicator in % was calculated as $\Delta = \left[e^{\hat{\beta}/(1-\theta)} - 1\right] \cdot 100$, and the change in the tariff equivalent of the indicator in percentage points as T.E. = $\left[e^{\hat{\beta}} - 1\right] \cdot 100\%$, where the elasticity of substitution between domestic and foreign goods (θ) is equal to three [41]. Δ(2) – (1) represents the difference between the effects obtained in models (1) and (2), reflecting a quantitative estimate of the impact of the overall trend

in international trade. '–' means that it was not possible to estimate the average change or tariff equivalent of the independent variables due to their statistical insignificance. Calculations of Δ and T.E. were based on the estimates presented in Tables 3 and A.5. The variable *BIT* is not reported due to its statistical insignificance.

Estimates of the impact of sanctions on trade for 1995—2024 showed, first, that the restraining effect of sanctions initiated by Russia on its foreign trade was significantly smaller compared to sanctions imposed by foreign countries on the Russian economy; and second, that the overall trend of growth in international trade had a generally invariant effect on the negative impact of sanctions, as the semi—elasticity values of these factors were largely similar to the corresponding values in (2).

As a result, sanctions initiated by Russia reduced trade with targeted foreign countries by 31 % over 1995—2024, with the effect concentrated in raw materials trade (34 %). Statistically significant negative effects of these restrictions were observed in periods of broad-scale sanctions, which reduced Russia's trade with sanctioned countries by 75 % (raw materials — 74 %; industrial goods — 75 %), equivalent to an increase in trade barriers of 100, 96, and 101 percentage points, respectively.

In turn, sanctions imposed by foreign countries on Russia reduced their trade with the Russian economy by 63 % over 1995—2024 (raw materials — 71 %; industrial goods — 54 %). The estimates indicated no negative impact from episodic sanctions (1995—2013) imposed by countries such as Georgia and Ukraine on Russia's trade with them, reflecting the largely symbolic nature of these measures. However, subsequent sanctions imposed by Western countries had statistically significant negative effects on Russian trade. 'Localised' sanctions (2014—2021) reduced Russia's trade with sanctioning countries by 50 % (raw materials — 48 %; industrial goods — 51 %). The strongest negative impact came from broad-scale sanctions (2022—2024) imposed by Western countries, which reduced Russia's trade with them by 83 % (raw materials — 88 %; industrial goods — 76 %), corresponding to tariff-equivalent increases of 139, 194, and 102 percentage points, respectively, reflecting the severity of these restrictions in creating prohibitive trade barriers.

In light of the above, it is important to assess whether Russia's participation in integration frameworks has contributed to an expansion of its foreign trade, particularly in the context of Western sanctions.[1] Investment agreements (*BITs*) concluded by Russia did not have a statistically significant impact on its foreign trade, unlike in the global economy [3], probably due to the high risks for FDI

[1] The goal here is not to fully counter the negative effects of sanctions from Russia's main Western trading partners, but to sustain Russian foreign trade under challenging geopolitical conditions.

inflows. Meanwhile, in 1995—2024, trade agreements (*FTA* and *FTA+*) and Russia's and its partners' participation in the WTO (*WTOexpboth*) did stimulate Russian foreign trade.

From 1995 to 2024, advanced trade agreements (*FTA+*) led to stronger growth in industrial goods trade than in raw materials trade, in contrast to the more limited *FTAs* involving Russia. It should be noted that under advanced trade agreements (*FTA+*), barriers between Russia, EAEU countries, and Vietnam were reduced, improving access to capital and, partially, labour markets. As a result, industrial goods trade increased at a level comparable to that seen under shallow *FTAs*. Meanwhile, over 1995—2024, the effect of superficial trade agreements on raw materials trade was nearly twice as large as that of advanced agreements.

However, an important point is that under broad-scale sanctions (2022—2024), Russia's participation in advanced trade agreements with EAEU countries and Vietnam further boosted its trade with these partners compared to trade with other economies, particularly in manufactured goods (overall +145 %; raw materials +103 %; industrial goods +224 %). At the same time, shallow trade agreements (*FTAs*) in the same period increased Russia's trade with countries within this integration framework by 172 % (raw materials +171 %; industrial goods +200 %). These figures point to the fact that, under broad-scale sanctions, Russian foreign trade shifted in favour of the established integration frameworks.[1]

From 1995 to 2024, Russia's and its trading partners' participation in the WTO (*WTOexpboth*) led to a 67 % increase in mutual trade (raw materials +107 %; industrial goods +41 %). This means that the impact of the WTO was relatively smaller than that of bilateral trade agreements. However, Russia primarily traded with countries that were WTO members, even though no formal trade agreements had been concluded with them. For this reason, in the context of integration processes, Russia's participation in the WTO was a key driver of trade expansion, particularly under broad-scale sanctions, boosting trade by 160 % (raw materials +84 %; industrial goods +181 %).

Drawing on the obtained estimates, the overall effect of the WTO on Russia's trade can be decomposed into two parts: the effect of bilateral (or mutual) participation and the effect of unilateral participation of Russia and its trading partners in this global integration framework. The bilateral participation effect in the WTO (*WTOboth* — direct effect) captures the immediate impact of Russia's membership on its trade with other member countries. From 1995 to 2024, this

[1] We cannot exclude the possibility that the increase in industrial goods supplied to the Russian market from these countries is related to the expansion of 'parallel' imports of manufactured products.

direct effect was positive, increasing Russia's trade turnover by 52 % overall (77 % for raw materials and 31 % for industrial goods). Under broad sanctions in 2022—2024, the direct effect became even more pronounced, stimulating trade growth from WTO membership by 227 % (338 % for raw materials and 152 % for industrial goods).

The unilateral participation effect (*WTOexp* — indirect effect) reflects the indirect influence of the WTO in creating a relatively barrier–free environment for trade among member countries. Over 1995—2024, this indirect effect contributed to a 9 % increase in Russia's trade (17 % for raw materials and 7 % for industrial goods). Under broad sanctions, the WTO's indirect effect stimulated growth in Russia's trade only in industrial goods by 52 %.

Compared with the direct effect, the indirect influence of the WTO on Russian foreign trade in 1995—2024 was almost six times smaller, highlighting the greater importance of Russia's accession to this international organisation for promoting trade with foreign countries, since the effect would not have been as noticeable otherwise. The combined estimate of the indirect and direct effects of the WTO (*WTOexpboth*) on Russia's foreign trade in 1995—2024 indicated an additional positive trade effect. This effect is consistent with estimates for the global economy [38], which, however, did not manifest under broad sanctions.

Between 1995 and 2024, the overall growth trend in international trade, including the growth driven by global economic conditions, contributed to the positive impact of integration agreements on Russia's foreign trade in the case of *FTA+* and WTO membership (by 23 and 54 p., respectively) and suppressed it in the case of *FTA* alone (by 13 p.). Russia's foreign trade with WTO member states in 1995—2024 was sustained by the overall expansion of international trade, which increased the turnover of raw materials by 145 percentage points. Under large—scale sanctions, the overall upward trend in international trade increased Russia's foreign trade in the *FTA+* scenario by 19 percentage points for raw materials, whereas in the *FTA* scenario trade declined by 19 percentage points. In 2022—2024, the overall growth trend in international trade boosted Russia's trade with WTO countries by 133 percentage points, by 266 percentage points for raw materials and by 102 percentage points for industrial goods.

Conclusion

Russia's economy has largely depended on exporting raw materials while fulfilling much of its investment and consumer demand through imported industrial goods, which makes foreign trade highly important in the long term. Between 1995 and 2024, Russia followed a relatively cautious approach to international integration. Nevertheless, it joined the WTO, created several

integration formats — limited ones with several post — Soviet states and Serbia, and more advanced ones with the EAEU countries and Vietnam — and signed bilateral investment agreements with foreign partners. Over the past decade, rising foreign policy tensions with Western states have subjected Russia to some of the world's strictest sanctions, sharply curtailing its external trade.

The study demonstrates that sanctions had an overall negative effect on Russia's trade, as broad restrictions in 2022 — 2024 caused a sharp decline in trade with sanctioning Western countries, particularly in raw materials exports. Sanctions introduced by foreign states against Russia, especially the broad restrictions, had a stronger restraining influence on its external trade than Russia's own countermeasures against the sanctioning countries, both for raw materials and industrial goods. These findings indicate that Russia could not respond with equivalent counter — sanctions, largely because its economy heavily depends on hydrocarbon exports. Under sanctions, some countries increased their restrictions on trade with Russia, while others, on the contrary, eased their trade barriers. Moreover, the overall growth trend in global trade did not compensate for the negative effect of sanctions on Russia's trade with foreign countries.

The analysis shows that bilateral investment agreements had an invariant effect on Russia's foreign trade. Trade agreements and WTO membership supported Russia's external trade over the long term, and their impact became especially noticeable under broad sanctions. Advanced trade agreements had a lasting positive effect, promoting a greater expansion of trade in industrial goods than in raw materials, unlike shallow agreements. Under broad sanctions, Russia's trade increasingly shifted toward countries within its integration formats, and the positive effects of both advanced and superficial agreements, along with WTO membership, became stronger, particularly for industrial goods. Over the long term and during the period of broad sanctions, the general growth trend in international trade strengthened the positive influence of advanced trade agreements and WTO membership on Russia's foreign trade, while suppressing the effect of shallow agreements. At the same time, the growth trend in global trade between 2022 and 2024 stimulated Russia's trade with WTO member countries, mostly in raw materials.

A comparative analysis showed that shifting trade toward WTO member countries and overall growth in global trade[1] helped partly offset the negative effects of broad Western sanctions, while Russia's integration formats played only a supplementary role in this process. In this period, the WTO created a general climate that encouraged the reduction of trade barriers, supporting

[1] Here it refers to a price trend in the global raw materials market that is favourable for the Russian economy.

Russia's external trade and maintaining its focus on raw material exports. However, under large—scale sanctions, Russia's trade shifted toward other WTO member countries, as the main area of growth was industrial goods, which were predominantly imports. Additionally, during the period of broad sanctions, the growth trend in international trade helped somewhat alleviate the negative impact of the restrictions on Russia's external trade, primarily due to Russia's export of raw materials.

At the same time, Russia's foreign economic policy was not centred on expanding advanced integration agreements with foreign countries, neither over the long term nor during periods of large—scale sanctions. This policy was evidently influenced by Russia's dominant role in commodity markets and by relatively strict controls on imports to the domestic market, including steps taken to preserve a positive trade balance. The study's findings show that Russia needs to expand its integration formats with 'friendly' countries as a way to increase exports and diversify the risks associated with growing sanctions pressure from Western states, especially if the positive impact of WTO membership and global commodity price conditions on Russia's foreign trade diminishes or is exhausted.

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The author

Dr **Dmitrii A. Izotov**, Leading Research Fellow, Economic Research Institute of the Far Eastern Branch of the Russian Academy of Sciences, Russia.

https://orcid.org/0000-0001-9199-6226

E-mail: izotov@ecrin.ru