SPATIAL ASPECTS OF TERRITORIAL DEVELOPMENT

Impact of Trade Mega-Formats in the APR on Russian Export

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Abstract. The purpose of the research is a quantitative assessment of indirect effects from the Russian export because Russia does not participate in the APR mega-formats. We show that modern processes of trade and economic cooperation in the APR are manifested in the creation of trade mega-formats: the Regional Comprehensive Economic Partnership and the Comprehensive and Progressive Agreement for Trans-Pacific Partnership were signed, and the expansion of the CPTPP for the USA, as well as the creation of a free trade zone within the APEC, was considered a promising area. The authors prove that the lack of motivation of the Russian side in joining the APR trade mega-formats is caused by a low level of tariffs on Russian commodities from the APR countries, and the risks of Russian goods replacement are not considered. After evaluating indirect effects, it was defined that there might be a slight negative impact on Russian export due to Russia not participating in the APR mega-formats. On the other hand, the competitiveness of Russian products on the market of the sub-global region may decrease in the following product groups: food products, goods of chemical industry, metallurgy, and mechanical engineering. The obtained estimates suggest that the integration processes in the Asia-Pacific Region will indirectly contribute to the weakening of the product diversification of Russian exports on the market of the sub-global region by shifting it toward a single-product raw material specialization. We show in this work that the formation of relationships of the APR mega-formats with third countries, depending on their closed or open configuration, will have a fundamental importance for Russia. The creation of closed trade blocks in the APR might mean an active substitution of Russian products and decline of the amounts of Russia's

exports on the APR market. However, if open trade blocks are created, then the discrimination toward Russian goods would not be that clear.

Key words: export, import, product group, trade diversion effect, import duty, partial equilibrium model, trade mega-format, free trade area, APR, APEC, RCEP, CPTPP, USA, Russia.

Introduction

Within the Asia-Pacific Region, intraregional trade has significantly increased over the previous three decades due to the reduction of various types of barriers. This happened both because of the accession of almost all countries of the sub-global region to the World Trade Organization, and because of the network expansion of bilateral and multilateral free trade areas (FTA)[1] that is the main integration format within the framework of the "new regionalism" model. The massive conclusion of bilateral trade agreements has contributed to the "domino" effect. It means the expansion of bilateral or multilateral trade agreements at the expense of new member countries in order to offset the negative consequences of non-participation in this association. Due to the presence of political, systemic, and institutional constraints in the APR for the development of the "traditional" format of integration processes, which presupposes the desire to create a full economic union on the basis of existing trade agreements, mainly implemented in the FTA form, the processes of "fragmentation" of the economic space in the sub-global region inevitably began manifesting themselves [1].

In the context of a number of restrictions that prevent the creation of more mature integration forms in the APR, the attempts to absorb a large number of bilateral and multilateral FTA into large trade and economic formats or mega-formats have become a logical step for further intensification of trade and economic interactions [2; 3]. As a result, the prerequisite for the formation of trade mega-formats in the APR was a common understanding of the need to give dynamism to integration processes in the sub-global economy by harmonizing signed agreements and developing a common policy to further deepen trade and economic relations and quickly resolve various contradictions.

The dynamic and structural characteristics of trade mega-formats in the APR depend mainly on the interests of the three largest economies in the world: the United States, China and Japan. The increased role of the USA contributed to the signing of the Trans-Pacific Partnership Agreement by twelve APR countries[2] in the integration processes in the sub-global region in 2016. It involved the gradual and significant liberalization of trade and investment, setting standards for the protection of intellectual property rights and employees; compliance with environmental standards, the regime of non-discriminatory access to national markets; stricter rules for determining the origin of goods; restrictions on subsidizing the export of state-owned enterprises [4]. In 2017, the United States suspended participation in the Trans-Pacific Partnership, and the remaining eleven countries in 2018 concluded a trade mega-format Comprehensive and Progressive Agreement of the Trans-Pacific Partnership (CPTPP) in the form of FTA+ with the unconditional leadership of the Japanese economy [5].

The concept statement for the creation of the second APR mega-format, the Comprehensive Regional Economic Partnership (RCEP), is based on the expansion of trade and economic coopera-

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[1] FTA implies significant trade liberalization between participating countries in terms of reducing tariff measures and non-tariff restrictions, as well as the right to determine the trade regime in relation to third countries.

[2] Australia, Brunei, Canada, Chile, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore, Vietnam, and the United States.

tion within the framework of the existing FTA of ASEAN+6, covering sixteen countries[3]. In November 2020, there was signed an agreement on the creation of a trade mega-format between RCEP countries[4], except India. This country has still many issues related to further liberalization of foreign trade regulation, while the conditions for joining RCEP contain fewer requirements in comparison with CPTPP. A possible reason for the conclusion of this format for countries, that are also CPTPP members, is the US withdrawal from the Trans-Pacific Partnership which revealed the need to increase trade with other markets (the largest of them is China).

Another APR mega-format is being negotiated between the participating countries: the FTA creation within the framework of the Asia-Pacific Economic Cooperation (APEC) Forum, covering twenty-one countries/economies of the sub-global region to which Russia belongs[5]. In 2006, APEC countries began developing a common trade agreement. They also approved the directions to be followed when concluding a free trade zone between the countries: creating conditions for the free and open movement of goods and capital, easing non-tariff restrictions and other trade barriers[6].

Since the second half of the 2010s, a number of developed countries have imposed the restrictions and prohibited the import of certain commodity groups to the Russian market. At that time, the policy of import substitution and protectionism

has become widespread in Russia. It can decrease the consumers' well-being and reduce the competitiveness of domestic industries that are more or less integrated with the global economy. At the same time, world experience shows [6] that transformations are necessary to contribute to its greater involvement in the international labor division and increase the intensification of its trade interactions with the global economy. Such transformations increase the growth rate of the national economy mainly due to the introduction of additional production factors and the efficiency of their use.

For Russia, there is an objective need to overcome various short-term motives that limit trade interactions with the global economy, as well as to diversify foreign trade in favor of countries and associations interested in supplying domestic products and offering goods that meet Russian consumer and investment demand. The traditional largest market for Russian products is the countries of the European Union, the further expansion of exports to which has visible restrictions. In the future, an increase in exports from Russia is possible due to meeting the demand from the APR countries which implies the need to actively promote Russian products in the market of this sub-global region with the creation of conditions for mutually beneficial economic cooperation.

Despite this, the Russian side continues taking a very differentiated and unhurried approach to the geographical expansion of trade liberalization limited only to some countries of the post-Soviet space. Within the APR framework, the Russian side, as a member of the Eurasian Economic Union (EAEU), signed an agreement on the establishment of two FTA with the countries of Southeast Asia: in 2015 it was with Vietnam, in 2019 — with Singapore. At the same time, exports from Russia to the APR countries are mainly focused on the three largest markets in Northeast Asia — China, Japan and the Republic of Korea.

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[3] Brunei, Cambodia, China, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand, Japan, the Republic of Korea, India, New Zealand, and Australia.

[4] See: *Overview: Regional Comprehensive Economic Partnership (RCEP)*. Australian Government, November 15, 2020. Available at: https://www.dfat.gov.au/sites/default/files/rcep-overview.pdf

[5] In addition to Russia, APEC includes: Hong Kong, Taiwan, Papua New Guinea, Indonesia, China, the Republic of Korea, Thailand, the Philippines, Australia, Brunei, Vietnam, Canada, Malaysia, Mexico, New Zealand, Peru, Singapore, the United States, Chile and Japan.

[6] See: *Action Plans of Asia-Pacific Economic Cooperation*. Available at: https://www.apec.org/About-Us/How-APEC-Operates/Action-Plans

The reduction of trade barriers can be characterized by both positive and negative effects which are traditionally assessed on the basis of the reaction of mutual commodity flows to changes in the tariff burden or import duties. Ultimately, this allows determining the comparative effects for the countries involved in this process on the basis of complex models of general and partial equilibrium [7; 8; 9]. While general economic equilibrium models are usually used to obtain long-term aggregate estimates of the economy as a whole, including labor and capital markets, as well as trade by economic sector, partial equilibrium models focus on short- and medium-term effects in the context of specific commodity groups of exports and imports.

Currently, enough arguments have been accumulated about the positive effects for the Russian economy from the reduction of mutual barriers to trade with the APR countries which are classified as trade mega-formats of the sub-global region. Based on the obtained estimates, using the general equilibrium, the long-term increase of Russia's real GDP was determined — up to 1.0% in case of EAEU countries joining RCEP [10] and CPTPP + the United States [11; 12]. As for the effects of creating a FTA between Russia and APEC countries, the country's real GDP may increase to 5.4% [13]. But some studies show more modest results for the Russian economy: in particular, the increase in real exports may amount to 1.3% [14]. Application of the partial equilibrium model [15; 16] in the case of levelling the tariff burden and reducing some non-tariff barriers to assess the effects in the medium prospects, pointed to the overall effectiveness of the FTA creation between Russia and the countries classified as RCEP, CPTPP + USA, and APEC, especially in terms of increasing Russian exports of raw materials.

Despite the different conditions for joining the RCEP and CPTPP formats, more than half of the countries are declared as participants in these two mega-formats at once. In the future, while maintaining the current USA position, it is possible to converge these mega-formats in terms of extending the practices of reducing the institutional barriers of CPTPP to RCEP. It cannot be excluded that, due to a mutual reduction of trade and non-trade barriers in the APR countries, the world's largest trade and economic association can be created, characterized by close technological, institutional, and structural interactions. Reduction of the barriers that hinder cooperation can create conditions for rapid economic growth in a number of the APR countries with their subsequent achievement of the developed economies' level. This measurement will lead to a divergence between countries integrated into trade and economic formats and countries developing in the conditions of peripheral autarky. At the same time, the business of non-aligned countries is likely to experience discrimination in the APR. Currently, Russia belongs to such countries, and it means that there are prerequisites for its further isolation in the markets of goods, capital, and technology. Under unfavorable circumstances, it may face restrictions on the product export to the APR countries due to the substitution of traditional goods for Russian exports.

From this point of view, it is important to obtain indirect estimates for the Russian economy in general and Russian exports in particular from non-participation in the integration processes in the APR. In the framework of the general equilibrium model, on the one hand, the research assumes that, in the long term, Russia's non-participation will practically not affect its economy in the APR integration processes [10; 17]. Probably, insufficient substitution of Russian products by suppliers from other countries, classified as the APR trade mega-formats, is taken into account. On the other hand, estimates indicate a gradual negative impact on the Russian economy from its self-isolation in the APR [18], manifested in a gradual replacement of

Russian products in the market of the APR trade mega-formats which will definitely contribute to a reduction in exports from Russia to the countries of the sub-global region [19].

At the same time, the question remains open about the commodity groups of Russian exports. The groups may be in the most vulnerable position in the event of a close rapprochement of the APR countries within the framework of trade mega-formats. For Russia, the change in exports is a key parameter that affects the possible dynamics of other macroeconomic indicators. On the basis of the general equilibrium model, indirect effects for Russian exports are estimated only in relation to aggregated economic sectors which makes it impossible to obtain an estimate at the level of specific commodity groups of Russian exports to the APR. In this case, the partial equilibrium model can be applied. It provides more detailed estimates of the indirect effects of trade integration for third countries at the level of specific product groups for which exports may change.

Thus, the purpose of the research is to quantify indirect effects on Russian exports at the level of commodity groups due to Russia's non-participation in the APR trade mega-formats. The tasks are: 1) to form a data set and to group them by the APR trade mega-formats, to adapt the partial equilibrium model for assessing indirect effects on the exports of third countries that are not members of trade associations, in the context of commodity groups; 2) to analyze the commodity structure of Russian exports and the tariff burden on goods import from Russia to countries classified as the APR trade mega-formats; 3) to assess changes in Russian exports in the context of commodity groups due to Russia's non-participation in the APR integration processes.

Assessment method and data

At the level of commodity groups, possible changes in Russian exports are estimated on the basis of the partial equilibrium model in terms of calculating the indirect effects of the conclusion of the APR trade mega-formats for third countries to which Russia belongs. As we have already mentioned, the assessment of indirect effects for Russian exports from the levelling of the tariff burden on trade imports between countries, classified as the APR trade mega-formats, is based on the partial equilibrium model. In this model, the demand function for country j for goods i produced in country k is expressed as follows [20; 21]:

$$M_{ijk} = f(Y_j, P_{ij}, P_{ik}), \qquad (1)$$

where: M_{ijk} — import of goods i to country j from country k; Y_j — national income j; P_{ij} — product price i in country's domestic market j (importing market); P_{ik} — product price i from country k.

In turn, the export offer functions of country k for product i is represented by the following expression:

$$X_{ikj} = f(P_{ikj}). \qquad (2)$$

where: X_{ikj} — export flow of goods i from country k to country j; P_{ikj} — product price i from country k, exported to the market of country j, excluding payment of import duty in country j.

The trade balance between countries j and k is achieved as follows:

$$M_{ijk} = X_{ikj}. \qquad (3)$$

Under the conditions of free exchange of goods which implies a reduction in customs duties on imports, price of goods i on importing market j will be equal to the export price of delivery from country k. In this case, product price i will increase by an amount equivalent to the amount of the import duty, i.e.:

$$P_{ijk} = P_{ikj} \times (1 + t_{ijk}), \qquad (4)$$

where: P_{ijk} — product price i from country k in country's domestic market j; t_{ijk} — the amount of import duty in ad valorem equivalent in country j to product i from country k.

When taking into account the qualitative differences of traded product *i*, the Armington assumption [22] is used in the equilibrium model to simulate the demand behavior for imports of country *j* which assumes imperfect competition between similar products (in terms of the coincidence of their codes within the harmonized system) imported into market *j* from different countries. Accordingly, this circumstance implies the presence of imperfect substitutes elasticity between different suppliers (countries) of product *i* in market *j*:

$$M_{ij} = b_{ij}^{\sigma_i} \times M_i \left(\frac{P_{ij}}{P_i} \right)^{-\sigma_i}, \qquad (5)$$

where: σ_i — substitutes elasticity in product market *i*, imported from different countries to the market of country *j*; b_{ij} — constant; P_{ij} — average price of imported goods *i* on the market of country *j*; P_i — average product price *i* in the market.

As the purpose of the research is to assess the indirect effects on the national economy that is not included in the integration association, the effect of trade creation is not of interest and, accordingly, will not be reflected in this study. The effect involves the reorientation of the national market from a less efficient source of supply of goods to a more efficient import of the country or association of countries with which trade liberalization is carried out. Determining the indirect effects for the national economy (in our case is the Russian one) from the conclusion of a large trade association by third countries is possible when assessing the *trade diversion effect*. It means the national market reorientation (the country that joined the trade association as a full participant) from the purchase of a certain number of goods on the world market to the purchase of products from the country with which the trade agreement is concluded [23]. In contrast to the creating trade effect, the total trade turnover with the outside world does not increase due to the diversion effect for a country that has joined a trade association, as it manifests itself in a

shift in the supply of goods from one country with which a trade liberalization agreement has not been signed (a third country) to another that has signed a trade agreement. In other words, the trade diversion effect increases only the value of the bilateral trade turnover of the countries participating in the trade association with no increasing their total trade turnover with the outside world.

In the framework of the equilibrium model, the trade diversion effect is calculated in the framework of the expression (6):

$$TD_{ijk} = \frac{M_{ijk}}{\sum_k M_{ijk}} \times \frac{\sum_k M_{ijk} \times \sum_K M_{ijK} \times \frac{\Delta(P_{ijk}/P_{ijK})}{P_{ijk}/P_{ijK}} \times \sigma_i}{\sum_k M_{ijk} + \sum_K M_{ijK} + \sum_k M_{ijk} \times \frac{\Delta(P_{ijk}/P_{ijK})}{P_{ijk}/P_{ijK}} \times \sigma_i}, \qquad (6)$$

where: TD_{ijk} — trade diversion effect of product *i*, imported to the market of country *j* from country *k*; *K* — group of other countries exporting product *i* to the market of country *j*; Δ — a change.

Maximization of the countries' welfare that reduce import duties is modeled by two-stage optimization: based on the general price index and the import demand elasticity, the optimal expenditure level on consumption of the aggregated product is selected at the price; the selected expenditure level between different types of aggregated goods is fixed depending on their relative prices.

We consider four configurations of the participating countries that form the trade mega-formats of APR. First, it is the CPTPP format signed by the participating countries. Secondly, it is necessary to proceed from the fact that the new US administration can contribute to the accelerated accession of the US economy to CPTPP[7], therefore, taking into account this circumstance, the study will consider CPTPP + the US format. Third, the RCEP format signed by the fifteen countries will also include India, as the Indian economy cannot

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[7] Thus expanding the CPTPP trade mega-format to the scale of the previously existing Trans-Pacific Partnership.

be excluded from joining this trade mega-format on special terms in the medium prospects. Fourth, the APEC format consists of twenty countries, except Russia. Each configuration of the APR trade mega-formats assumes that there will be a FTA that provides for leveling the mutual tariff burden on imports.

According to the research, for each product group i, expression (6) can be expressed as follows:

$$TD^{FTA} = \frac{M^{FTA} \times M^{ROW} \times [(1+t_{FTA})-1] \times \sigma_M}{M^{FTA}+M^{ROW}+M^{FTA} \times [(1+t_{FTA})-1] \times \sigma_M} \equiv -\Delta X^{ROW}, \quad (7)$$

where: FTA — a group of countries classified as the FTA members under the mega-trade format in the APR (RCEP, CPTPP, CPTPP + USA, APEC); ROW — the rest of the world (which includes Russia); TD^{FTA} — trade diversion effect for FTA countries; M^{FTA} — commodity exchange between FTA countries; M^{ROW} — flow of goods to FTA countries from ROW countries; t_{FTA} — the import duty amount in ad valorem equivalent between FTA countries; σ_M — the substitutes elasticity between the goods involved in the exchange between FTA countries and the goods imported from ROW countries to FTA countries.

Expression (7) is used to obtain separate results for the rest of the world's exporting countries which include Russia. As the trade diversion effect is reflected in the shift of goods supplies from ROW countries to FTA countries, the total values of TD^{FTA} are equivalent in modulus to the change (reduction) in the export flow from ROW countries to FTA countries − ΔX^{ROW}. In addition, the results can be summarized for one group and further distributed among the members of the alternative group of supplier countries according to their previous share of imports from this group. Accordingly, at the level of commodity markets, the change in supplies from the ROW countries to the FTA countries is adjusted by a proportional reduction in the share of goods from the ROW countries in the markets of the FTA countries.

The impact magnitude on the consumption of different types of goods, depending on the relative price, is expressed in terms of the imperfect substitutes elasticity between the consumption of goods from different countries. The imperfect substitutes elasticity (σ_M) can be estimated or specified exogenously. In addition to the tariff barriers that import duties present, as a result of the conclusion of a trade agreement, the parties can also level various non-tariff barriers. Their size can be estimated in ad valorem equivalent and included in the equilibrium model as a "surcharge" to the tariff load. However, for a wide range of trading partner countries, obtaining these estimates is quite laborious, and the impact assessment of the trade diversion effect can be significantly simplified by changing the replacement elasticity values ($\sigma_M > 0$) setting them exogenously. We have selected two parameters σ_M to reflect the range of the trade diversion effect values for countries participating in a trade agreement on third-country exports: 1.5 and 5. The parameter 1.5 is close to the singular substitutes elasticity and, from this point of view, reflects the conservative consumers' behavior on changes in the product price which means their restrained preference in choosing products from countries that have concluded a trade agreement, compared with goods from third countries. On the contrary, for the parameter $\sigma_M = 5$, consumer preferences are shifted in favor of the goods of the concluded trade association. In accordance with the previous studies [24], in terms of the obtained values of the overall trade effect, the authors have found that the introduction of an exogenous substitutes elasticity parameter equal to 5 is equivalent to the case of evaluating a model that took into account non-tariff barriers for each product in ad valorem equivalent.

Along with the exogenous values of the σ_M parameter, in order to obtain less abstract estimates in trade between the economies belonging to CPTPP, CPTPP + USA, CREP and APEC, the

study selectively estimates the substitutes elasticity values between traded goods for the commodity groups that form the basis of Russian exports to these groups of countries in 2018 in relation to 2017 using the expression [20; 25]:

$$\sigma_M = \frac{\Delta(\sum M_{ijFTA}/\sum M_{ijROW})/(\sum M_{ijFTA}/\sum M_{ijROW})}{\Delta(\sum P_{ijFTA}/\sum P_{ijROW})/(\sum P_{ijFTA}/\sum P_{ijROW})}, \ (8)$$

where: j — mega-format member country; M_{ijFTA} — import of product i to country j from a country classified as a trade mega-format; M_{ijROW} — import of product i to country j from a third country (country not included in the trade mega-format);

P_{ijFTA} — product price i from a country classified as a trade mega-format to the market of country j; P_{ijROW} — product price i from a third country in the market of country j. Due to the limited array of the used statistical data, the estimation of substitutes elasticity for a number of product groups is carried out only for the macro level [26].

The assessment basis is the statistics of the tariff burden, cost and physical indicators of mutual import flows for 267 countries and economic territories. Their array was formed from specialized databases of the World Bank, WTO, Mac Map, CEIC and UN UNCTAD. Due to the lack of statistical data on the dynamics of the wholesale prices for imported goods in the markets of countries classified as the APR trade mega-formats, the price parameter, used in the data set, includes only the export price taking into account transport and insurance costs, i.e. it is reflected in CIF price excluding VAT and consumption taxes.

As a result, all other things being equal, this model describes the change in Russian exports to countries that are a part of the APR trade mega-formats by leveling the import tariff burden (import duties) between them, reduced to the ad valorem equivalent. The conversion of specific and combined import duties to the ad valorem equivalent was carried out on the basis of the algorithms of the

WTO and the World Bank [27; 28]. The leveling of export restrictions, which is practiced by some APR countries, is not considered in this model statement. We assume that the countries participating in the trade agreement can fully increase supplies, import duties for which will be reduced, i.e. the elasticity of supply at the price is close to perfect values. The base year for model calculations was 2018. The World Bank model is a computational complex for obtaining estimates within the partial equilibrium framework [29].

Trade interactions between countries and economic territories are represented in the framework of the harmonized system[8] by a six-digit code, and subsequently reduced to a two-digit code to decrease the original array dimension. Further, for the clarity of the obtained estimates, the paper enlarges the product groups of Russian exports according to the following codes of the harmonized system: 01–24 — food products and raw materials; 25–26 — mineral products; 27 — fuel and energy products; 28–40 — chemical industry products, raw rubber; 41–43 — leather raw materials, furs and products; 44–49 — wood and pulp and paper products; 50–67 — textiles, textile goods and footwear; 68–71 — precious, semi-precious stones, metals, and glass; 72–83 — metals and products made from them; 84–90 — engineering products; 91–97 — other goods.

Assessment results

Before proceeding to the obtained estimates, it is necessary to analyze the commodity structure of Russian exports to the APR trade mega-formats, and the tariff burden level on Russia's goods, imported to the market of the countries classified as corresponding mega-formats. Such an analysis will help to explain to some extent the lack of visible actions on trade liberalization with the APR on the Russian side.

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[8] *Harmonized System Codes (HS Code).* Available at: https://www.foreign-trade.com/reference/hscode.htm

The results of the commodity structure analysis of Russia's exports to the countries, classified as the APR trade mega-formats, indicate the dominance of raw materials, as of 2018. Among them, fuel and energy products stand out which accounted for more than half of Russian supplies to the countries of the sub-global region. Also notable commodity groups of Russian exports were metals and products made from them; chemical industry products; food products and raw materials (represented mainly by fish, seafood and agricultural crops); precious, semi-precious stones, metals and glass (mainly products of the diamonds factory and precious metals; *Tab. 1*).

Import duties on some commodities, used in the food industry, remain high in a number of the APR countries. In particular, the import duty on food products and raw materials, imported from Russia, is characterized by high values in China, India, and some developing countries of Southeast Asia. Several CPTPP countries, in particular the Republic of Korea and Japan, practice prohibitive duties on imports from abroad of certain agricultural products, as well as non-tariff restrictions on the import of processed fish products.

The total tariff burden on exports from Russia to these groups of countries is also not characterized by high values, especially for the countries of CPTPP + USA and CPTPP. It happens as the main commodity group of Russian exports is fuel and energy products, and the average weighted import duty of the APR countries on these products is low. Of the APR countries, only China, Russia's largest trading partner, levies import duties on fuel and energy products, mainly imported crude oil, low-grade refined petroleum products, and certain types of coal. In this regard, when China is assigned to RCEP and APEC, the total tariff burden increases on Russian goods import into these trade mega-formats.

Russian low-value-added goods are practically not exported to resource-surplus and remote APR countries. At the same time, some resource-deficient APR countries (Taiwan, a number of ASEAN countries, Japan, and partly the Republic of Korea) practically do not impose import duties on most low-value-added goods from Russia: fuel and energy goods (crude oil, liquefied natural gas, coal); wood with a minor degree of processing; fish and seafood; ferrous and non-ferrous metal ores;

Table 1. Commodity structure of Russian exports to APR mega-formats and average weighted import duty on Russian products, 2018, %

Enlarged export product group	RCEP		CPTPP		CPTPP + USA		APEC	
	I	II	I	II	I	II	I	II
Total	100.0	3.27	100.0	1.41	100.0	1.23	100.0	2.48
Food products and raw materials	6.07	13.60	7.19	6.26	6.12	5.48	6.76	11.60
Mineral products	2.67	0.47	0.64	0.35	0.95	0.43	2.09	0.44
Fuel and energy products	67.21	2.39	65.25	0.58	47.97	0.52	58.98	1.84
Chemical industry products, raw rubber	5.34	3.74	6.41	0.90	11.19	0.89	7.50	2.24
Leather raw materials, furs and products	0.04	6.88	0.00	3.12	0.01	2.19	0.03	3.00
Wood and pulp and paper products	3.02	0.86	1.46	0.00	1.12	0.01	2.34	0.13
Textiles, textile goods and footwear	0.06	6.43	0.06	6.12	0.07	8.14	0.05	7.70
Precious, semi-precious stones, metals and glass	5.51	4.79	4.52	1.88	8.22	1.85	4.49	2.68
Metals and products made from them	8.19	4.53	12.47	2.99	20.18	2.36	14.62	2.73
Engineering products	1.83	4.14	1.92	1.82	3.11	1.38	2.64	2.54
Other goods	0.08	5.80	0.09	2.95	1.06	1.21	0.50	3.13

Note: I – commodity structure of Russian exports to the APR mega-formats; II – average weighted import duty on Russian goods levied by countries that are classified as the APR mega-format.
Source: own calculations based on data of the World Bank and WTO.

ferrous and non-ferrous metal scrap. In turn, in Russia, export duties are levied on these goods, as well as quotas and, in some cases, prohibitive measures for their export abroad are practiced.

To some extent, these circumstances explain the reluctance of the Russian side to level the mutual barriers of trade interactions with the APR countries, as the tariff burden on Russian raw materials in the sub-global region is not significant. In other words, the reduction of duties on Russian products will not lead to a significant increase in exports from Russia to the APR countries. From this point of view, the reluctance of the Russian side to integrate closely with the APR seems quite reasonable at first glance, if we do not take into account the risks of gradual replacement of goods from Russia within the framework of the signed and promising APR trade mega-formats.

Calculations within the framework of the partial equilibrium model prove that, for Russian exports, indirect effects of levelling import duties between countries classified as the APR trade mega-formats will generally be negative and comparable with some obtained estimates on the basis of the general equilibrium model, if the effects obtained accumulate over the long term *(Tab. 2, 3)*.

Small negative impact is expected from the trade diversion effect in favor of the countries of a particular APR trade mega-format: no more than 1.0% of the value of Russian exports to countries that have concluded or intend to conclude broad-based trade agreements. According to estimates, levelling the tariff burden within the framework of the APR trade mega-formats can lead to a reduction in Russian exports: up to 0.04 billion dollars for CPTPP, up to 0.12 − for CPTPP + USA, up to 0.43 − for APEC and up to 0.87 billion dollars for APEC. At the same time, the creation of prerequisites for leveling tariff barriers between APEC countries can only be considered in the long prospects. Based on this, the negative indirect effects of the trade and economic rapprochement of the APR with each other are not critical at first glance for Russian exports in the medium prospects. However, at the level of individual commodity groups of Russian exports to the APR, the situation may significantly differ from the cumulative indirect trade diversion effect.

Table 2. Commodity structure changes of Russian exports to the signed APR trade mega-formats

Enlarged commodity group of Russian exports	RCEP				CPTPP			
	$\sigma_M = 1{,}5$		$\sigma_M = 5$		$\sigma_M = 1{,}5$		$\sigma_M = 5$	
	bil. dol.	%	bil. dol.	%	bil. dol.	%	bil. dol.	%
Total	-143.3	-0.18	-427.1	-0.56	-18.0	-0.07	-41.6	-0.17
Food products and raw materials	-31.7	-0.67	-83.6	**-1.74**	-10.7	-0.58	-14.9	-0.84
Mineral products	-0.3	-0.01	-1.0	-0.05	0.0	0.00	0.0	0.00
Fuel and energy products	-14.8	-0.03	-46.3	-0.09	-1.6	-0.01	-5.4	-0.03
Chemical industry products, raw rubber	-38.5	-0.93	-122.3	**-3.06**	-1.0	-0.06	-3.2	-0.18
Leather raw materials, furs, and products	-0.5	**-1.42**	-1.4	**-4.89**	0.0	-0.54	0.0	-0.29
Wood and pulp, and paper products	-8.4	-0.36	-26.5	**-1.15**	-0.3	-0.09	-0.5	-0.15
Textiles, textile goods, and footwear	-1.8	**-4.21**	-5.8	**-14.98**	0.0	-0.13	-0.1	-0.39
Precious, semi-precious stones, metals, and glass	-9.1	-0.21	-15.7	-0.64	0.0	0.00	0.0	0.00
Metals and products made from them	-20.1	-0.31	-67.5	**-1.07**	-0.2	-0.01	-0.6	-0.02
Engineering products	-18.0	**-1.27**	-56.4	**-4.37**	-4.1	-0.84	-16.7	**-3.34**
Other goods	-0.2	-0.32	-0.6	**-1.08**	-0.1	-0.25	-0.2	-0.76

Note: Hereinafter, the calculations are based on the countries' trade interactions in 2018. In the table, a negative sign indicates a decrease in the value of Russian exports (mil. dol.), as well as a relative decrease in supplies from Russia to countries classified as the APR trade mega-formats including within the enlarged export product groups (%).
Source: own calculations.

Table 3. Commodity structure changes of Russian exports to promising APR trade mega-formats

Enlarged commodity group of Russian exports	CPTPP + USA				APEC			
	$\sigma_M = 1{,}5$		$\sigma_M = 5$		$\sigma_M = 1{,}5$		$\sigma_M = 5$	
	bil. dol.	%	bil. dol.	%	bil. dol.	%	bil. dol.	%
Total	-36.9	-0.10	-117.0	-0.35	-294.8	-0.34	-864.7	-1.00
Food products and raw materials	-17.3	-0.80	-55.2	**-2.39**	-135.5	**-2.30**	-401.4	**-6.82**
Mineral products	0.0	0.00	0.0	0.00	-0.3	-0.02	-0.8	-0.05
Fuel and energy products	-0.6	0.00	-2.1	-0.01	-17.5	-0.03	-51.6	-0.10
Chemical industry products, raw rubber	-2.8	-0.07	-8.1	-0.20	-54.3	-0.83	-152.1	**-2.33**
Leather raw materials, furs, and products	0.0	-0.08	0.0	-0.60	-0.4	**-1.56**	-1.2	**-4.18**
Wood and pulp, and paper products	-0.5	-0.13	-1.9	-0.48	-11.1	-0.54	-31.9	**-1.56**
Textiles, textile goods, and footwear	-0.1	-0.38	-0.4	**-1.36**	-1.5	**-3.89**	-4.5	**-11.30**
Precious, semi-precious stones, metals and glass	-0.1	0.00	-0.2	-0.01	-5.2	-0.13	-14.9	-0.38
Metals and products made from them	-11.4	-0.16	-32.2	-0.59	-44.8	-0.35	-133.9	**-1.05**
Engineering products	-4.3	-0.37	-16.9	**-1.75**	-22.8	-0.99	-68.2	**-2.97**
Other goods	-0.1	-0.02	-0.2	-0.15	-1.3	-0.30	-4.1	-0.95
Source: own calculations.								

In case of leveling the tariff load within the CPTPP framework (see Tab. 2) in the context of the enlarged commodity groups of Russian exports, there may be a slight reduction in the value volumes of deliveries from Russia of engineering products (land transport vehicles) which are mainly focused on the Vietnamese market, as well as food products and raw materials (cereals). The relative decline in Russian exports to CPTPP countries within the product groups may be greatest for engineering products which will be replaced by supplies from developed countries of this large trade association. All other things being equal, for the remaining commodity groups of Russian exports, there may be either invariance or a slight reduction in their value volumes, as the developed CPTPP countries practically do not impose import duties on raw materials and import from Russia insignificant value volumes of goods with high added value.

When expanding the CPTPP format at the expense of the American economy (CPTPP + USA), i.e. giving it a form of the originally created Trans-Pacific Partnership (see Tab. 3), when levelling import duties between the countries that are members of this prospective association, we can expect mainly an additional decrease in the value of Russian exports of food products and raw materials (fish, crustaceans and shellfish), as well as metals and products made from them (other base metals, mainly titanium and products made from it).

In case of the conclusion of a FTA between APEC countries except Russia (see Tab. 3), the largest reduction in the value of Russian exports (almost half of the decline) can be recorded for food products (fish, crustaceans, and shellfish; cereals; soybeans; meat and food by-products of poultry; animal and vegetable fats; tobacco products). A visible reduction in Russian exports to the APEC countries may also occur at the expense of chemical industry products (organic and inorganic chemistry products; fertilizers; plastics, raw rubber, rubber and products made of them), metals and products made of them (ferrous metals; aluminum and products made of it; nickel and products made of it; other base metals; other products made of base metals) and engineering products (steam boilers; turbines; electric machines and equipment; tools; land transport vehicles). The largest relative decline in exports of Russian products to APEC countries may occur for the supply of light and leather industries, as well as food products and raw materials.

Conclusion

The integration processes in the global and sub-global economy significantly helped to expand trade relations between the APR countries. Modern processes of trade and economic cooperation in the APR are manifested in the creation of large integration forms: trade mega-formats generated by the interests of the three largest world's economies: the United States, China and Japan. Currently, two mega-formats have been signed in the APR: RCEP and CPTPP. In the future, we can expect the CPTPP expansion at the expense of the United States, as well as the creation of a FTA between the APEC countries.

Russia is slowly approaching the geographical expansion of trade liberalization in APR, and Russian exports are mainly raw materials to the sub-global region. The analysis pointed to low values of the tariff burden on Russian commodities on the part of the APR countries. It explains the lack of motivation for the Russian side to reduce mutual barriers to trade interactions with the countries of the sub-global region. However, this circumstance does not take into account the risks of gradual replacement of goods from Russia within the emerging APR trade mega-formats.

In the framework of the partial equilibrium model, the assessment of the trade diversion effect for third countries shows that, in the medium prospects, there may be a relatively small negative impact on exports from Russia directed to the emerging trade mega-formats of the sub-global region, in case of Russian non-participation: the least negative impact is expected from the leveling of restrictions within the CPTPP framework, the greatest impact is expected when creating a FTA between the APEC countries, with the exception of the Russian economy. Despite a small negative impact on Russian exports in case of Russia's non-participation in the APR mega-formats, the competitiveness of Russian products in the sub-global region market may decrease within

the following product groups: food products, chemical products, metallurgy, and mechanical engineering. In fact, this circumstance indicates that the integration processes in the APR will indirectly contribute to the weakening of the product diversification of exports from Russia to the market of the sub-global region, shifting it toward the supply of fuel and energy goods.

Despite a relatively small possible reduction of exports from Russia to the APR countries in the medium prospects within the framework of the considered configurations of trade mega-formats of the sub-global region, in the long term, risks for the promotion of Russian products in the APR market in the context of the presented product groups may accumulate. In this regard, the further development of relations between the APR trade mega-formats with third countries including Russia will be of fundamental importance. For third countries, long-term consequences depend on the nature of concluded trade mega-formats in the APR in terms of their classification as closed or open types of trade blocks [30].

When creating closed trade blocs in the APR, the member countries will liberalize trade and economic interactions only among themselves and increase barriers to third countries. Based on this, at the level of some product groups, a visible reduction in the value of Russian exports may occur in the medium prospects in case of leveling the tariff burden on imports within the APR mega-formats and shifting consumer preferences in favor of goods distributed within the designated formats. The prerequisites for the development of such events are the policy of reducing various barriers to the promotion of commodity exports to the APR by the United States, Canada, Australia, New Zealand, Chile, and some countries of Southeast Asia which are members of CPTPP and RCEP. In fact, this circumstance may mean a subsequent replacement of Russian products with goods from these countries in the Asia-Pacific market within the framework

of the considered trade mega-formats. In such conditions, with a natural advantage associated with territorial proximity to the resource-deficient states of Northeast Asia, Russia will continue focusing its products on the Chinese market without diversifying supplies to other APR countries, facing negative monopsony effects from being tied to the Chinese economy.

In case of the creation of open trade blocs in the APR, it is likely that barriers between the participating countries will be leveled and restrictions on interaction with third countries will be reduced to a certain extent, based on the WTO mechanisms [31]. They presuppose the absence of discrimination, application of the most-favored-nation regime, and connectedness of the tariff burden[9]. In this scenario, discrimination against Russian goods in the APR will not be expressed explicitly. However, even in this case, it cannot be excluded that, as a result of the continuation of the current trends of declining prices for traditional Russian exports due to the slowdown in the global economy, as well as the sanctions restrictions practiced since 2014, the Russian economy risks to face discrimination in the promotion of its products in the European and APR markets in the medium prospects. It will be difficult to overcome it through the WTO mechanisms.

References

1. Baldwin R. *A Domino Theory of Regionalism*. NBER Working Paper 4465, September 1993. Available at: http://www.nber.org/papers/w4465.pdf (accessed: 20.12.2020).

2. Baldwin R. The world trade organization and the future of multilateralism. *Journal of Economic Perspectives*, 2016, vol. 30, pp. 95–116. DOI: 10.1257/jep.30.1.95

3. Rodrik D. What do trade agreements really do? *Journal of Economic Perspectives*, 2018, vol. 32, pp. 73–90. DOI: 10.1257/jep.32.2.73

4. Fergusson I.F., McMinimy M.A., Williams B.R. *The Trans-Pacific Partnership (TPP): In Brief*. Congressional research service, 2016, February. Available at: https://www.fas.org/sgp/crs/row/R44278.pdf (accessed: 20.12.2020).

5. Kuwayama M. *TPP11 (CPTPP): Its Implications for Japan - Latin America Trade Relations in Times of Uncertainty*. Research Institute for economics and business (RIEB) of Kobe University, DP2019-05, 2019, March 25. Available at: https://www.rieb.kobe-u.ac.jp/academic/ra/dp/English/DP2019-05.pdf (accessed: 20.12.2020).

6. Kadochnikov P., Knobel A., Sinelnikov-Murylev S. Openness of the Russian economy as a source of economic growth. *Voprosy ekonomiki=Voprosy Ekonomiki*, 2016, no. 12, pp. 26–42. DOI: 10.32609/0042-8736-2016-12-26-42 (in Russian).

7. Nilsson L. Reflections on the economic modelling of free trade agreements. *Journal of Global Economic Analysis*, 2018, vol. 3, pp. 156–186. DOI: 10.21642/JGEA.030104AF

8. Chemingui M., Surry Y., Thabet C. *Tools for Ex Ante Trade Impact Analysis*. Economic and social commission for Western Asia (ESCWA), United Nations, Beirut, 2018. Available at: https://www.unescwa.org/file/85059/download?token=QDIA4INk (accessed: 20.12.2020).

9. Cheong D. *Methods for Ex Ante Economic Evaluation of Free Trade Agreements*. Asian development bank. Working Paper, 2010, no. 52, June. Available at: https://www.adb.org/sites/default/files/publication/28526/wp52-ex-ante-economic-evaluation.pdf (accessed: 20.12.2020).

10. Knobel A., Sedalishchev V. Risks and benefits for EAEU from various integration scenarios in Asia-Pacific region. *Ekonomicheskaya politika=Economic Policy*, 2017, vol. 12, no. 2, pp. 72–85. DOI: 10.18288/1994-5124-2017-2-03 (in Russian).

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[9] Most-favored-nation treatment is a maximum level of tariff burden a WTO member country can apply to imports from other WTO member countries. The coherence of the tariff burden represents the obligations of the WTO member countries.

11. Knobel A.Yu. Eurasian Economic union: Prospects and challenges for development. *Voprosy ekonomiki=Voprosy Ekonomiki*, 2015, no. 3, pp. 87–108. DOI: 10.32609/0042-8736-2015-3-87-108 (in Russian).

12. Petri P.A., Plummer M.G. *The Economic Effects of the Trans-Pacific Partnership: New Estimates*. Peterson institute for international economics working paper, no. 16-2, East-West Center Workshop on Mega-Regionalism – New Challenges for Trade and Innovation, 2016. DOI: 10.2139/ssrn.2723413

13. Kawasaki K. The relative significance of EPAs in Asia-Pacific. *Journal of Asian Economics*, 2015, vol. 39, pp. 19–30. DOI: 10.1016/j.asieco.2015.05.001.

14. Malokostov A., Turdyeva N. *Impacts of Trade 'Meta-Agreements' on Russia. The Impact of Mega-Agreements on BRICS*. 5th BRICS Trade and economic research network (TERN) Meeting, 2014. pp. 50–62. Available at: https://ccgi.fgv.br/sites/ccgi.fgv.br/files/file/Publicacoes/5th%20BRICS-TERN%20ebook.pdf (accessed: 20.12.2020).

15. Izotov D. Russia and the Pacific Rim: Prospects for trade liberalization. *Russian Politics and Law*, 2017, vol. 55, pp. 457–479. DOI: 10.1080/10611940.2017.1574502

16. Izotov D.A. Liberalization of Russia's trade with the European Union, BRICS, and Trans-Pacific partnership countries. *Studies on Russian Economic Development*, 2017, vol. 28, pp. 338–345. DOI: 10.1134/S1075700717030078

17. Li Ch., Lin X., Whalley J. *Comparing Alternative China and US Arrangements with CPTPP*. NBER Working Paper 26877. 2020, March. Available at: http://www.nber.org/papers/w26877 (accessed: 20.12.2020).

18. Petri P.A., Plummer M.G., Zhai F. *The TPP, China and the FTAAP: The Case for Convergence. New Directions in Asia-Pacific Economic Integration*. Ed. by G. Tang, P.A. Petri. Honolulu: East-West Center, 2014, pp. 78–89. DOI: 10.2139/ssrn.2438725

19. Ferrantino M.J., Maliszewska M., Taran S. *Actual and Potential Trade Agreements in the Asia-Pacific: Estimated Effects*. World Bank, Washington, DC, 2019. Available at: https://openknowledge.worldbank.org/handle/10986/33549 (accessed: 20.12.2020).

20. Laird S., Yeats A. *The UNCTAD Trade Policy Simulation Model. A Note on the Methodology, Data and Uses*. United Nations conference on trade and development, Geneva, 1986, October. Available at: https://wits.worldbank.org/data/public/SMARTMethodology.pdf (accessed: 20.12.2020).

21. Francois J., Hall K.H. *Partial Equilibrium Modeling. Applied Methods for Trade Policy Analysis: A Handbook*. Ed. by J.F. Francois, K.A. Reinert. Cambridge University Press, 1997, pp. 122–155. DOI: 10.1017/CBO9781139174824.007

22. Armington P. A Theory of demand for products distinguished by place of production. *Internationally Monetary Fund Staff Paper*, 1969, vol. 16, pp. 159–176. DOI: 10.2307/3866403

23. Viner J. *The Customs Union Issue*. Oxford University Press, 2014. 256 p.

24. Izotov D.A. *Ekonomicheskaya integratsiya Rossii so stranami ATR: problemy i perspektivy* [Economic Integration of Russia with the APR Countries: Problems and Prospects]. Ed. by P.A. Minakir. Institute of Far Eastern Studies of the Russian Academy of Sciences. Khabarovsk: IFES RAS, 2020. 368 p.

25. Francois J., Hall K.H. *Global Simulation Analysis of Industry-Level Trade Policy: the GSIM model*. IIDE Discussion Papers 20090803, institute for international and development economics, 2009. Available at: http://www.i4ide.org/content/wpaper/dp20090803.zip (accessed: 20.12.2020).

26. Feenstra R.C., Luck P.A., Obstfeld M., Russ K.N. *In Search of the Armington Elasticity*. National bureau of economic research, working paper series 20063. April 2014. Available at: http://www.nber.org/papers/w20063 (accessed: 20.12.2020).

27. Stawowy W. *Calculation of Ad Valorem Equivalents of Non-Ad Valorem Tariffs. Methodology Notes*. UNCTAD, 2001, October. Available at: http://wits.worldbank.org/witsweb/download/docs/AVEmeth.doc. (accessed: 20.12.2020).

28. *Incidence of Non-Ad Valorem Tariffs in Members' Tariff Schedules and Possible Approaches to the Estimation of Ad Valorem Equivalents*. World Trade Organization, negotiating group on market access, 2003, May. Available at: http://wits.worldbank.org/wits/docs/wto_s10.doc. (accessed: 20.12.2020).

29. Jammes O., Olarrega M. *Explaining SMART and GSIM*. The World Bank, 2005, April. Available at: http://wits. worldbank.org/witsweb/download/ docs/explaining_smart_and_gsim.pdf (accessed: 20.12.2020).

30. Wei S., Frankel J.A. Open versus closed trade blocs. In: *Regionalism versus Multilateral Trade Arrangements*, 1997. Pp. 119–140. Available at: http://www.nber.org/chapters/c859 (accessed: 20.12.2020).

31. Bagwell K., Staiger R.W. *The Design of Trade Agreements.* National bureau of economic research working paper 22087, 2016, March. Available at: http://www.nber.org/papers/w22087 (accessed: 20.12.2020).

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