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Intensification vectors of trade integration of the post-soviet countries

Abstract

The study analyzes the dynamics of the development of integration processes. It is determined that the current stage of development is characterized by a change in the structure of the World Trade in favor of services and innovative products; by dynamic growth of trade in intermediate goods and services within global value chains. Trade integration covers a much broader network of participants, including bilateral, multilateral and interregional initiatives. The regional trade agreements (WTO-extra, WTO-plus) are being deepened and expanded. It is determined that the most common form of integration processes is the establishment of the Free Trade Zones, in particular on the basis of bilateral initiatives. Based on this, the bilateral trade relations between the post-Soviet countries and their trading partners (Poland, Italy, Switzerland, Bulgaria, Turkey, Czech Republic, Great Britain, Finland, Sweden, Netherlands, Germany, Romania, China) were analyzed. The index of trade complementarity was calculated and analyzed in order to identify the compliance of the export structure of the post-Soviet countries with the general structure of imports of these trading partners for high-tech product groups, in particular: machines and apparatuses for soldering and welding (code 8515 according to UKTZED (Ukrainian Commodity Coding System)), transmission shafts and bearing housings (code 8483), machines and mechanisms for harvesting and threshing crops (code 8433), spare parts and aggregates for metalworking equipment (code 8466), pumps for liquids (code 8413), burners for solid fuel or gas (code 8416), equipment for filtering and cleaning liquids and gases (code 8421), woodworking machines (code 8465), spare parts for motor vehicles (code 8708), electrical transformers (code 8504)). The geographical vectors of strengthening bilateral trade in the studied countries are substantiated based on the assessment of the calculated trade complementarity index. It was proposed to use the world experience based on certain key promising areas of international trade development in the context of the COVID-19 pandemic.

1 Statement of the problem

Most economic studies consider the integration processes from the angle of multilateral and interregional initiatives, bypassing the bilateral ones. However, in modern conditions of significant deepening and expansion of regional trade agreements, which significantly go beyond purely

Keywords

post-Soviet countries, intensification of the bilateral trade relations, trade complementarity index, integration processes, dynamics of integration processes development

JEL: F15, F53, F63

regional or interregional relations, and the subject of agreements goes beyond the regulation of purely trade aspects, which leads to new formats of regional integration and even requires a revision of existing agreements regulating international trade within the WTO – consideration of the intensification of bilateral trade agreements becomes relevant as a constant imperative for increasing the social and economic development of the countries.

2 Latest scientific progress and publications review

Many works of both foreign scientists have always been devoted to the study of modern integration processes and globalization: M. Grosso [6], A. Venables, D. Dion, as well as domestic scientists D. Lukyanenko [7], [8] T. Tsygankova [4], T. Gordeeva [5].

Issues of determining the level of complementarity in trade between Ukraine and its strategic partners were dealt with by such domestic scientists as A. Mokiy [9], in particular, when assessing the Ukrainian-Turkish relations. As for the foreign scientists, the complementarity index is highlighted in the works of Pirlman D., Yin D. and Li D. [12]

3 The purpose of research

The purpose of research is to analyze the vectors of intensification of trade integration of the post-Soviet countries in the format of bilateral initiatives based on the trade complementarity index.

4 Results of the research

The growing number of bilateral and multilateral regional trade agreements, since the 90s of the XX century, has become a kind of catalyst for global convergence and, accordingly, an integral part of

integration processes. They allow the participating countries to gain competitive advantages and take stronger positions in the global market, within the framework of national interests, and determine their further social and economic development.

It is worth noting that current trends, in particular the complication of value chains, the dynamization of the Fourth Industrial Revolution, digitalization, which cover more and more countries and regions of the world, are gradually contributing to the transformation of international integration formats. First, the number of regional trade agreements has increased almost 6-fold compared to 1990; second, the agreements cover an increasing range of issues, such as state aid and public procurement, investment measures related to the trade (TRIMs), technical barriers to trade, etc. (WTO+); data protection, protection of consumer rights, environmental protection, innovation policy, terrorism, regional cooperation, etc. (WTO-extra), which go beyond the traditional focus on preferential trade agreements, in particular tariff and non-tariff regulation. And the branching of supply chains makes the process of determining the country of origin so difficult that it leads to the formation of the concept of "Made in the world". Secondly, along with the expansion of the spheres of influence of regional trade agreements, they are deepening (Trans-Pacific Strategic Economic Partnership, Asia-Pacific Economic Cooperation, East Asian Free Trade Agreement), which leads to new formats of regional integration and requires revision of existing agreements regulating the international trade



Figure 1 Dynamics of notified and current RTAs, 1990-2020 Source: constructed by the author on the basis of [10]

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within the WTO.

Currently, 306 regional trade agreements and 496 notified ones are in force (Figure 1).

Since the 1958, the total number of existing regional trade agreements begins to grow gradually, about 1, 2 agreements per year, and from 2000 to 2015, their number is, on average, about 12 RTA for trade in goods and about 7 RTA for trade in services per year, which is evidence of a significant strengthening of integration processes. Thus, the number of agreements on the establishment or accession to the customs union is 30, agreements on the establishment or accession to the Economic Union – 158; agreements on the establishment of a free-trade area - 269; agreements on the establishment of a preferential trade zone - 24 [10]. That is, as we can see, the most common form of integration processes is precisely trade integration, in particular, the establishment of the Free Trade Zones.

Taking into account the results of empirical studies that prove that the growth of bilateral trade contributes to economic growth and reduces economic inequality, in particular within the framework of regional trade agreements on the free and preferential trade zone. Moreover, the social and economic benefits are not limited to the parties of bilateral agreements. In addition, the bilateral trade agreements are actively concluded by the countries participating in intercontinental trade agreements.

The integration processes in the post-Soviet space began in 1991 and continue to this day. However, it is somewhat difficult to call them successful and effective. Taking into account the above, it is relevant and economically expedient to consider the bilateral intensification of trade relations between the post-Soviet countries.

For example, the main trading partners of Ukraine in 2018 continue to be Russia (share – 8.26%), Poland (6.26%) and Italy (5.31%). The share in the structure of domestic exports belongs to products of the plant origin and semi-finished products.

Armenia's main trading partners are Russia (23.2%), Switzerland (17.8%) and Bulgaria (7.5%). A specific share of exports belongs to copper ore, gold and tobacco.

Azerbaijan's main trading partners are Italy (30.1%), Turkey (9.27%) and the Czech Republic (4.79%). The main export items are oil and gas.

The Belarus ' trading partners are Russia (38%), Ukraine – 12.4%; Great Britain – 9.26 %. The largest share of exports belongs to oil and potash fertilizers, trucks.

Georgia's key partners are Azerbaijan (13%), Russia (11.5%) and Bulgaria (8.36%). The main export items are copper ore, ferro-alloys, automobiles, tobacco.

Latvia's partners are Lithuania (14.2%), Estonia (9.2%), and Russia (8.34%). The share of exports is

accounted for by wood, strong alcoholic beverages, medicines, oil, etc.

Lithuania's key trading partners are Russia (13.3%), Latvia (9.28%), and Poland (7.62%). A specific share of exports is accounted for by oil, furniture, tobacco, and medicines.

Estonia's trading partners are Finland (13.2%), Sweden (9.78%), and Russia (8.74%). Main export items: television equipment, oil, automobiles, etc.

Kazakhstan's trading partners are Italy (16%), China (10%) and the Netherlands (9.42%). A significant share of exports is accounted for by copper, oil, gas, ferro-alloys, etc.

The main export destinations for Kyrgyzstan are the United Kingdom (49.2%), Russia (14.4%) and Kazakhstan (13.2%). The share of exports is accounted for by gold, precious metals, copper, oil, etc.

Moldova's trading partners are Romania (27.6%), Italy (10.2%) and Germany (7.83%). The main export items are metal products (wires), wine, etc.

Turkmenistan's main trading partners are China (80.2%), Afghanistan (3.5%) and Turkey (2.8%). The share of exports is accounted for by petroleum gas, oil, and cotton.

Tajikistan's main trading partners are Kazakhstan (26.5%), Switzerland (18.3%), and Turkey (16.9%). Gold, aluminum, zinc, lead and copper ores account for a significant share of exports.

Uzbekistan's trading partners are China (21.3%), Switzerland (23.6%) and Russia (15.6%). The share in the structure of exports is occupied by gold, petroleum gas, and copper.

Russia's key export partners are China (12.9%), the Netherlands (9.59%) and Germany (5.45%). The main export items are oil, petroleum products, coal, and wheat.

As you can see, the main export items in most post-Soviet countries are mainly products with low added value. In the era of the Fourth Industrial Revolution, the trend of which is the production of high-tech goods using cyber systems and artificial intelligence, the trade in raw materials will only deepen the economic gap between developing and highly developed countries.

Therefore, we propose to analyze the intensification of trade relations between the post-Soviet countries and their main trading partners in high-value-added product groups. These include in particular [3]: Electric (including electrically heated gas) (Harmonized Tariff System Codes 8515), Transmission shafts (including cam shafts and crank shafts) and cranks (code 8483), Harvesting or threshing machinery, including straw or fodder balers(code 8433), Parts and accessories suitable for use solely or principally with the machines (code 8466), Pumps for liquids, whether or not fitted with a measuring device (code 8413), Furnace burners for liquid fuel, for pulverised solid fuel or for gas (code 8416), Centrifuges, including centrifugal dryers (code 8421), Machine tools

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(including machines for nailing, stapling, glueing or otherwise assembling) for working wood, cork, bone, hard rubber, hard plastics or similar hard materials (code 8465), Parts and accessories of the motor vehicles of headings 8701 to 8705 (code 8708), Electrical transformers, static converters (for example, rectifiers) and inductors (code 8504)).

To determine how much the export structure of the post-Soviet countries corresponds to the overall import structure of their key trading partners and a number of other states, the trade complementarity index was used [2]:

$$TCI = 100(1 - \sum_{k=1}^{M} \frac{|M_{ik} - X_{ij}|}{2})$$
(1)

where: TCI — trade complementarity index; X_{ij} — share of exports of the i-th product of the country *j*;

 M_{ik} — share of the *i*-th goods in the total import of the country *k*.

If the index value is close to 100, it means that the export structure of one country corresponds to the import structure of another country. In other words, trade between such countries can be quite intensive. If the index value approaches to 0, this indicates a low correspondence of the structure of supply and demand of the studied countries and, accordingly, low trade volumes between them.

The table 1 include the results obtained (Table 1).

TABLE 1 Identification of the promising partner countries of the post-Soviet countries in order to intensify trade relations

tries	Partner countries																			
Post-Soviet countries	Ukraine	Russia	Poland	Italy	Switzerland	Bulgaria	Turkey	Czech Republic	United Kingdom	Azerbaijan	Latvia	Lithuania	Estonia	Finland	Sweden	Netherlands	Germany	Romania	Kazakhstan	China
Ukraine	x	74.7	72.6	79.1	71.5	79.1	57.1	72.6	74.4	79.6	72.5	70.6	66.0	75.3	78.1	74.4	72.2	75.4	83.0	73.6
Armenia	70.1	79.5	78.3	77.5	73.9	73.6	64.8	75.2	80.9	86.3	72.1	73.7	61.5	69.5	81.2	73.7	78.4	74.5	84.0	68.8
Azerbaijan	54.1	55.0	52.4	55.9	57.6	61.3	47.0	55.8	57.8	x	55.5	51.3	64.2	59.3	61.2	71.7	56.5	53.7	63.9	68.3
Belarus	71.5	80.7	81.5	81.8	74.3	75.6	65.2	81.3	82.3	67.0	73.5	69.9	75.4	84.7	79.5	89.3	82.5	85.0	78.4	86.4
Georgia	46.4	49.6	48.5	43.7	46.3	43.8	44.3	42.4	46.1	56.7	45.1	49.7	37.2	43.1	44.6	43.1	46.3	43.2	50.7	40.2
Latvia	72.1	70.7	68.9	62.4	67.0	71.2	55.9	59.6	65.7	78.8	х	74.1	66.3	62.3	65.4	62.2	65.9	65.1	70.1	58.7
Lithuania	79.2	83.2	78.4	72.8	71.9	82.4	64.3	72.2	75.4	78.8	78.8	x	63.9	66.2	74.5	69.3	73.0	78.7	79.5	64.8
Estonia	55.6	55.6	55.9	52.5	62.7	57.4	46.9	48.9	55.0	53.9	62.5	56.3	72.1	58.7	55.9	66.5	57.3	49.6	53.5	65.3
Kazakhstan	55.5		59.1	58.9	60.0	57.9	53.2	58.4	58.4	54.6	59.3	51.6	67.5	67.1	59.5	75.5	60.9	57.7	60.8	75.5
Kyrgyzstan	48.9	58.8	59.2	60.2	47.7	47.1	77.7	66.9	59.8	42.7	46.4	47.1	46.5	62.5	50.0	56.9	57.7	62.1	52.0	53.7
Uzbekistan	41.6	32.7	32.4	30.8	37.7	45.4	24.3	30.7	31.7	36.9	46.6	38.8	53.2	38.9	34.8	47.0	33.3	34.3	38.7	45.9
Russia	72.3	x	82.5	83.9	67.7	71.8	67.2	80.8	84.7	80.8	66.3	68.2	60.1	78.8	84.2	76.3	82.1	81.0	86.1	75.5
Moldova	45.8	45.8	48.3	48	57	53.3	36.4	46.5	46.7	47.1	54.7	47.1	60.8	51.5	49.7	60.8	49.5	48.8	47.5	61.4

*Tajikistan, Turkmenistan — no data available. Source: calculated by the author based on [11]

The table shows that, for example, despite the fact that the main trading partners of Ukraine in key export items are Russia, Poland, Italy, it is also possible to develop the bilateral trade relations for product groups with high added value with Bulgaria (TCI = 79.1), Azerbaijan (TCI = 79.9), and Kazakhstan (TCI = 83).

According to the data obtained, it would be advisable for Armenia to develop trade relations with Kazakhstan (TCI =84), Sweden (TCI =81.2), and it would be economically feasible to trade the high-value-added products with Azerbaijan (TCI =86), if not for the military conflict of 09/27/2020 in Nagorno-Karabakh.

According to the obtained trade complementarity indices, it is more expedient for Azerbaijan to intensify trade relations with the Netherlands (TCI=71.7) and China (TCI=68.3).

Belarus can increase exports of high-valueadded goods to the Netherlands (TCI=89.3), China (TCI=86.4), Romania (TCI=85), Finland (TCI=84.5) and a number of other countries shown in the table.

Georgia and Uzbekistan have the lowest complementarity indices for the product categories studied. The maximum complementarity index for Georgia is TCI=56.7 (trade with Azerbaijan); for Uzbekistan TCI= 53.2 (trade with Estonia). One of the factors of this situation may be a low share in the structure of exports of goods with high added value. For example, Georgia's exports under Electric (including electrically heated gas) (Harmonized Tariff System Codes 8515) amounted to 753.9 thousand USD in 2018, while the import for this item amounted to 3.69 million USD. However, this

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issue requires a deeper empirical analysis.

Latvia can intensify trade relations, among other things, also with Ukraine (TCI=72.1), Azerbaijan (TCI=78.8) and Bulgaria (TCI=71.2); Lithuania with Ukraine (TCI=79.2), Bulgaria (TCI=82.4), Azerbaijan (TCI=78.8); Estonia with the Netherlands (TCI=66.5).

It is advisable for Kazakhstan to increase the volume of exports to China not only of raw materials, but also of high-tech products, as evidenced by TCI=75.5. Kyrgyzstan should pay attention to the development of bilateral trade, for the studied group of goods, with Turkey TCI=77.7.

According to the data obtained, Russia can intensify trade in high-tech products with Italy (TCI=83.9), Great Britain (TCI=84.7), Kazakhstan (TCI=86.1). Among the countries studied, Moldova can increase the volume of exports to China (TCI=61.4).

Thus, according to the results obtained, promising trading partner countries were

identified, with which the bilateral trade relations can hypothetically be intensified. However, it is worth noting that the trade complementarity index shows only the correspondence of the structure of supply and demand between the studied countries, but does not take into account equally important other factors of an economic and non-economic nature that can directly or indirectly affect the deepening of trade between the studied countries, in particular:

- distance between the countries,
- the level of the overhead costs for crossborder trade;
- the level of trade protection, the presence or absence of regional trade agreements on the establishment of a free-trade area, preferential trade, customs union, strategic partnership agreement, etc.;
- political tensions between the countries, economic (for example, embargoes, sanctions) or military conflicts, etc.

TABLE 1 Identification of the promising partner countries of the post-Soviet countries in order to intensify trade relations

Country	Existing regional trade agreements						
Ukraine	Armenia, Canada, Joint Economic Zone, European Free Trade Area, EU, Georgia, GUAM, Kyrgyzstan, CIS, Azerbaijan, Belarus, Kazakhstan, Moldova, Montenegro, North Macedonia, Tajikistan, Uzbekistan, Turkmenist						
Armenia	Kazakhstan, Moldova, Turkmenistan, Ukraine, EU, Eurasian Economic Union, Georgia, Kyrgyzstan, free-trade area within the CIS						
Azerbaijan	CIS, Georgia, Ukraine, GUAM, Russia						
Belarus	Joint Economic Zone, Eurasian Economic Union, Customs Union Russia-Belarus-Kazakhstan; free-trade area within the CIS; Ukraine						
Georgia	China, CIS, EU, Armenia, Azerbaijan, Kazakhstan, Russia, Turkmenistan, Ukraine, GUAM, China, Turkey						
Latvia, Lithuania, Estonia	Within the EU: Albania, Algeria, Andorra, Armenia, Bosnia and Herzegovina, Cameroon, Canada, CARIFORUM, Central America, Chile, Colombia and Peru, Ivory Coast, Eastern and Southern African countries, Egypt, Faroe Islands, Georgia, Ghana, Iceland, Israel, Japan, Jordan, Republic of Korea, Lebanon, Mexico, Moldova, Russia, Montenegro, Morocco, North Macedonia, Norway, Palestine, Switzerland - Liechtenstein, etc.						
Kazakhstan	Armenia, Joint Economic Zone, Eurasian Economic Zone, Georgia, Kyrgyzstan, Customs Union Russia-Belarus - Kazakhstan; Ukraine, CIS						
Kyrgyzstan	Eurasian Economic Union, Armenia, Kazakhstan, Moldova. Ukraine, Uzbekistan, CIS						
Uzbekistan	CIS, Kyrgyzstan, Russia, Ukraine						
Russia	Joint Economic Zone, Eurasian Union, Georgia, Azerbaijan, Customs Union Russia - Belarus-Kazakhstan, Serbia, Turkmenistan, Uzbekistan, CIS						
Moldova	Central European Free Trade Association, Armenia, EU, GUAM, Kyrgyzstan, CIS, Turkey. Ukraine						
Turkmenistan	Armenia, CIS, Georgia, Russia, Ukraine						
Tajikistan	CIS, Ukraine						

Source: constructed by the author on the basis of [10]

As for the analysis of the directions of intensification of trade relations between the post-Soviet countries with their main trading partners and other represented countries, the vast majority of them have concluded RTA (Table 2).

In general, if we take into account the current changes that occur under the influence of the COVID-19 pandemic, which affected absolutely all areas of activity, then it is worth focusing not only on the use of innovations in the production and manufacture of high – tech products, but on the production of services with high added value, in particular, which relate to other commercial services (telecommunications, computer and information services) — this is one of the few sectors that showed growth of 3.3% in the context of the COVID-19 pandemic. Also, it is worth paying attention to the even more rapid development of e-commerce. The implementation of world experience will allow the post-Soviet countries to increase the level of social and economic development.

5 Conclusions

Despite the global strengthening of protectionist measures, in the context of the COVID-19 pandemic, international trade continues to be one of the imperatives of economic development. Accordingly, the intensification of trade relations is the key to improving the social and economic situations of the countries. According to empirical research, it is the strengthening of bilateral trade that can contribute to these results.

Therefore, the study analyzed the directions of geographical intensification of trade for the post-Soviet countries with their main trading partners and some other countries by product groups with high added value based on the trade complementarity index. It is determined that, for example, it is advisable for Ukraine to develop the bilateral trade relations with Bulgaria (TCI = 79.1), Azerbaijan (TCI = 79.9), and Kazakhstan (TCI = 83)

within these countries. Armenia with Kazakhstan (TCI =84), Sweden (TCI =81.2); Azerbaijan with the Netherlands (TCI=71.7) and China (TCI=68.3), Belarus with the Netherlands (TCI=89.3), China (TCI=86.4), Romania (TCI=85) and Finland (TCI=84.5); Georgia with Azerbaijan (TCI=56.7); Uzbekistan with Estonia TCI= 53.2; Latvia can intensify trade relations, among other things, also with Ukraine (TCI=72.1), Azerbaijan (TCI=78.8) and Bulgaria (TCI=71.2); Lithuania with Ukraine (TCI=79.2), Bulgaria (TCI=82.4), Azerbaijan (TCI=78.8). Estonia with the Netherlands (TCI=66.5); Kazakhstan with China (TCI=75.5). Kyrgyzstan with Turkey (TCI=77.7); Russia with Italy (TCI=83.9), Great Britain (TCI=84.7), Kazakhstan (TCI=86.1); Moldova with China (TCI=61.4).

Also the transformations in the trade structure of the post-Soviet countries should take place taking into account current global trends and include not only the manufacture of high-tech products with high added value, but also the production of telecommunications, computer and information services.

References

- [1] Bulatova O V 2012 Spatial shifts in the world economy in the context of global regionalization growth *Bulletin of Mariupol State University*. *Economics series* **4** 48–59 (*in Ukrainian*)
- [2] CHAPTER 1: Analyzing trade flows UNCTAD E-source: https://vi.unctad.org/tpa/web/docs/vol1/ ch1.pdf
- [3] Combined Nomenclature The Taric Support E-ource: https://www.taricsupport.com/nomenclatuur
- [4] Tsygankova T M, Olefir A O Global trade system: development of WTO institutes, rules, instruments (*in Ukrainian*)
- [5] Gordeeva T Intensity of international trade as an indicator of the degree of international trade integration *Scientific Bulletin of the International Humanities University* 27-32 (*in Ukrainian*)
- [6] Grosso M G 2001 Regional Integration: Observed Trade and Other Economic Effects Organisation for Economic Co-operation and Development (OECD) **E-source:** http://www.oecd.org/trade/]
- [7] Lukyanenko D G 2008 *Global economic integration* Monograph 220 p (*in Ukrainian*)
- [8] Lukyanenko D G, Lieutenant A M, Antonyuk L L, etc. 2006 Management of international competitiveness in the context of globalization of economic development Monograph in 2(2) for general ed. D.G. Lukyanenko, A.M. Lieutenant, KNEU, p 40–79 (in Ukrainian)
- [9] Mokiy A I Conceptual strategic partnership between Ukraine and the Republic of Turkey E-source: http://194.44.242.244/portal/soc_gum/pips/2010_1/2010_1/019.pdf
- [10] Regional trade agreements Database E-source: https://rtais.wto.org/UI/PublicMaintainRTAHome. aspx
- [11] UN COMTRADE Database E-source: https://comtrade.un.org/data
- [12] Yin J Explosion of Trade Disputes? E-source: www.wto.org/wto/dispute/dsu.htm