

Ukraine's export diversification: the impact of economic integration and disintegration

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Abstract Using the Herfindahl-Hirschman Index (HHI), Gini index and Thiel index, the paper outlines the consequences of the parallel acceleration of the economic integration and disintegration processes of Ukraine with its main trade partners - the EU and Russian Federation (RF) - in 2013-2018 for the country's export diversification. It tests the hypothesis that the enhanced trade barriers under the economic disintegration increase commodity and spatial concentration of exports, mainly due to physical reduction in the trade volumes while the economic integration provides for export diversification: the overall impact of economic integration and disintegration on the export diversification depends on the depth and scope of the trade barriers increased and reduced and exporter's ability to adapt to new terms of trade. Consequently, the results of HHI computation gave evidence of the gradual diversification of the commodity and spatial structure of the Ukrainian exports. It was revealed as a result, that the commodity nomenclature had increased to the largest extent for the following positions: products of chemical and related industries; textiles and products made there of; non-precious metals and products made thereof; machinery, equipment and mechanisms, electrical supplies. The research of the consequences of the parallel processes of trade liberalization (with the EU countries) and imposition of trade barriers (between Ukraine and RF) confirms the author's hypothesis that the commodity and spatial concentration of the Ukrainian exports has decreased given the abovementioned terms of trade. As a result, the research highlights the ability of domestic manufacturers to adapt to new challenges of

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foreign trade and compensate the losses of commodity positions at the markets in RF, whereas the demand in the EU market is determined as a core driver for diversification of the commodity structure of the Ukrainian exports, including the ones to third countries.

Keywords: integration; disintegration; trade liberalization; trade barriers; commodity and spatial diversification.

JEL Classification: F16; F150; F140

1. Introduction

The accelerating processes of economic integration and disintegration determine economic consequences for not only the countries initiating integration and disintegration efforts, but also for third countries, affecting the overall structure of foreign trade, which raises the importance of issues related with spatial and commodity diversification of exports in order to reduce the risks of export concentration. The process of disintegration of Ukraine and the Russian Federation was marked by the aggravating economic and political risks of export concentration, characterized, in the short term, by the increasing volatility and instability in foreign exchange earning which have adverse macroeconomic effects on growth, and by the unpredictable declining terms of trade trends which exacerbate short run effects in the long term. Use of the export diversification potential will enable for adaptation to the new terms of the trade, which will be promoted by taking advantage of the opportunities opened up before Ukraine in the process of its economic integration with EU. The present research outlines the consequences of the parallel acceleration of integration and disintegration processes of Ukraine with its main partners, the EU and RF, in the second half of the second decade of the 21st century.

The objective of the research is to analyze the impact of the economic integration and disintegration processes on diversification of the Ukrainian exports, and to test hypothesis that the enhanced trade barriers under disintegration increase commodity and spatial concentration of exports, mainly due to physical reduction in the trade volumes. Bearing in mind that the scientific literature has not established a causal link between spatial concentration of exports and economic disintegration, e. g. due to insufficiency of empirical data required to make such analysis, the scientific novelty of this research lies in finding out the synchronous impact of the processes involved in the international economic integration and disintegration with main trade partners on diversification of the country's exports.

The optimal diversification of exports is a determinant of the Ukrainian economy's competitiveness, because industry development and creation of new export-oriented production facilities are supposed to promote overall diversification of the domestic exports by inertial diversification criterion (when the overall exports cover goods and services adjusting the existing specialization rather than markedly changing it) as well as by innovation diversification criterion (i. e. further development and

enhancement of the national competitive advantages, creation of new competitive production facilities, improvements in international standardization parameters of a country). The transitional nature of factors underlying the export competitiveness opens up the opportunities for gradual diversification of the commodity structure of exports due to the increasing scopes of goods with a higher value added. The expanding economic integration and the deepening disintegration processes determine economic consequences not only for the countries acting as sources of integrative or disintegrative activity, but for third countries, affecting the overall structure of foreign trade and raising the problems of geographical and commodity diversification of exports in order to reduce the risks of export concentration. The process of Ukraine's disintegration with Russian Federation aggravated economic and political risks of export concentration, which are characterized, in the short term, by the increasing volatility and instability in foreign exchange earnings which have adverse macroeconomic effects on growth, and unpredictable declining terms of trade trends which exacerbate short run effects in the long term (S. Samen, 2010). Use of the export diversification capacities will enable for adjustments to the new terms of trade, which will be promoted by use of the opportunities opened before Ukraine in the process of its economic integration with the EU.

2. Literature Review

Conventional explanations for the reasons of the country's specialization in manufacturing certain categories of goods are confined to the statement that the established structure of domestic exports is by far and large determined by the parameters of the available physical and human capital, human and material resources required for competitive manufacturing of goods and services, and the quality of national institutes. These factors set the level of relative production costs, forming the range of goods which manufacturing proves to be competitive in a given country. It follows that the structure of manufacturing and exports can be essentially modified only by changing somehow these fundamental variables. An alternative explanation of the export specialization is proposed by Hausmann, Hwang & Rodrick (2007) and Hidalgo & Hausmann (2009). They argue that the structure of manufacturing and exports is not merely and solely dependent on the abovementioned "fundamental" factors. One of the central ideas in their approach is that manufacturing of various goods has different impact on the economic development capacities. It implies that a country can improve the perspectives of its economic growth through implementing one of the two alternative strategies: to manufacture and export the increasing amounts of goods with high export productivity or to launch manufacturing / exports of goods with high export productivity, which are new for this country. The authors who analyzed the correlation between export diversification benefits and overall exports for economic growth argue that the desired economic growth can be achieved through diversifying the economies of countries (the increasing diversity in manufacturing and exports of goods) and their investment in innovation rather than due to the existence of comparative advantages, as was commonly accepted in the conventional literature

in economics. The importance of exports diversification as an appropriate tool of comparative advantages receiving as well as the further increase in state's integration aspirations are revealed by Goryanska, (2014), Duginets (2017), Heyets & Ostashko (2016), Panchenko & Nanavov (2018).

Diversification of exports as the process of expanding commodity nomenclatures and geographical structures of foreign economic relations is dealt with in a significant array of economic studies. The problem of systematization and analysis of the factors with impact on export diversification of a country is specifically emphasized in these studies. The continually growing numbers of international integration agreements at the beginning of 21-th century along with the increasing complexity of their contents call for analysis of the economic integration's impact on export diversification. The boosting export activity of enterprises operated in the countries prone to economic integration, mainly through the Free Trade Agreement (FTA) mechanism, is observed. Urata & Ando (2011) give empirical evidence of the impact of FTA between Japan and Mexico on the overall diversification of these countries' exports and confirm the existence of a direct FTA impact on the growing number of countries importing the products of Japanese and Mexican manufacturers. De Rosa (1991), Athukorala (2003), Athukorala & Yamashita (2006), Damuri, Atje, & Gaduh (2006), giving quantitative and qualitative estimates of the increased level of export diversification of countries (mainly South-East Asian and South American ones) that establish FTA or preferential trade areas, reveal their positive impact on the rates of economic growth. The produced results confirm general conclusions of Samen (2010) about a causal link between the degree of export diversification and the stability in export earnings, which enable to enhance growth through many channels. These channels cover improved technological capabilities via broad scientific and technical training as well as learning by doing, facilitation of forward and backward linkages within output of some activities which then become input of some other activities; increased sophistication of markets, scale economies and externalities, and substitution of commodities with positive price trends for those with declining price trends (Samen, 2010). However, very few studies still can be found where diversification is considered as a response on disintegration processes accompanied by losses of markets and withdrawals from regional production networks. Some possible trade effects of Ukraine and Russia disintegration were considered by Shnyrkov, Rogach & Chugaiev (2015).

3. Hypothesis, methodology and data

Given the circumstances of the parallel processes of trade liberalization (with the EU countries) and imposition of new trade barriers (between Ukraine and RF) we examine hypothesis that the commodity and spatial concentration of the Ukrainian exports has decreased as a result of the abovementioned terms of trade and exporter's ability to adapt to these terms and compensate the losses of certain markets.

Analysis of the EU-Ukraine free trade area's impact on diversification of the Ukrainian exports, based on a phased study of the consequences of change in the trade regime with the EU and the manifestations of disintegration processes with RF,

accompanied by losses of markets and withdrawal from regional production networks, was made by the method of constructing main indices, used by experts from WTO and UNCTAD, e. g. The Herfindahl-Hirschman Index (HHI), Gini index and Thiel index. According to the existing methodology, the statistical base is built either by two (three) digits of the commodity nomenclature, the so called "broad" economic categories, or by 12 digits, through selecting only the commodity positions with the export share higher than 10,000 USD. In this study indices were calculated for commodity positions of the Ukrainian exports by 12 digits of commodity nomenclature and, according to the methodology of WTO experts, for the exports value $\geq 10,000$ USD (Table 1). It should also be noted that since 2014 the State Statistics Committee of Ukraine has not provided the data on foreign economic activities of the enterprises located in the Autonomous Republic of Crimea and some areas of Donetsk and Luhansk regions. The Ukrainian Classification of Goods for Foreign Economic Activities (UCGFEA) is built on the basis of the Harmonized Commodity Description and Coding System and the Combined Nomenclature of the EU. UCGFEA matches the Harmonized Commodity Description and Coding Systems (HS) at the six digits level, and the Combined Nomenclature (CN) – at the eight digits level of the commodity code.

4. Results

4.1. Free Trade Area of Ukraine and the EU: the basis for diversification of the Ukrainian exports

The central purpose of creating the deep and comprehensive FTA of Ukraine and the EU is to enhance the technological effectiveness and competitiveness of the Ukrainian products on foreign markets, to increase the welfare of Ukrainian citizens and assure the sustainable development of the Ukrainian economy. These goals can be achieved through practical implementation of the main characteristics of FTA with the EU, which lay the background for diversification of the Ukrainian exports:

- extensiveness: Ukraine must implement more than 400 regulatory acts of the EU in its core economic policies;
- comprehensiveness: the EU rules cover the movement of goods, services, capital, intellectual property (and workforce in a way);
- accuracy: clear terms for implementation of EU rules are set, i. e. during 2–10(15) years;
- binding nature: Ukraine takes on the responsibility to implement the economic regulation of the EU, whereas the EU takes on the responsibility to gradually open its internal market for Ukraine;
- partial delegation: while implementing the EU regulation, Ukraine does not take part in its elaboration and approval;
- resource capacity: Ukraine must spend annually several percent of domestic GDP on restructuring and adaptation of the EU rules and standards;
- integrative nature: once the Association Agreement is fulfilled, Ukraine will become an integral part of the internal EU market without being the EU member,

e. g. first and foremost by incorporation in regional and global international production networks.

The implementation of Association Agreement with respect to foreign trade of Ukraine with the EU has to gradually liberalize the conditions of trade, eliminate and/or reduce barriers for Ukrainian exports, which would have positive effects for its scopes and diversification.

4.2. Change of the trade regime with the EU

We believe that the impact of liberalization of the foreign trade regime on export diversification should be determined considering the change in import duties, tariff quotas, compliance with technical standards and observance of phytosanitary standards, other non-tariff restrictions set by EU:

- simultaneous application of two trade regimes of the EU for Ukraine: the autonomous trade preferences and the regime of deep and comprehensive FTA;
- the import duty for Ukraine is to be reduced to 0 for 89.4 % (White Paper, 2016) tariff lines, the average level of custom protection for the EU is to make 0.84 % (Burakovskiy, 2016);
- tariff quota is to be kept by the EU for 50 positions of the commodity nomenclature of the Ukrainian agricultural exports;
- 5105 national standards (Quality, 2017) were adopted in Ukraine at the beginning of 2019, with 91 % of the respective norms harmonized with the EU norms;
- within the short term of 2016–2017, the number of Ukrainian companies exporting to the EU grew from 13402 to 14136 (MEDTAU, 2018).

4.3. Disintegration with Russian Federation

The exports began to plummet and disintegration processes with RF accelerated after Association Agreement between Ukraine and the EU was signed. We believe that the Russia's hybrid economic war against Ukraine with a direct impact on the commodity and geographic diversification of Ukrainian exports has the following characteristics:

- destruction of enterprises and occupation of Donbass regions as a factor blocking the European integration of Ukraine (more than 13 thousand dead, 1.5 million of temporarily replaced persons, 25 % and 10 % of industrial enterprises stopped and devastated, 20 % of the domestic export capacities lost);
- “forceful de facto economic integration” of Crimea in RF and the Eurasian Economic Community (EAEC);
- trade wars (more than 40 in 2004–2018);
- mutual economic sanctions in 2014–2018;
- withdrawal of RF from the free trade regime with Ukraine at 01.01.2016 and reinstatement of the *most-favored-nation* treatment (MFN) regime, which affected nearly 90 % of the Ukrainian export nomenclature, with tariff rates grown from 0 % to 5–20 % and the average weighted rate increased to 7.7 %;

- inclusion of Ukrainian exporters to the list of risky ones, with the supplementary procedure of custom control launched in 2013;
- embargo on the imports of Ukrainian agricultural products introduced in 2015;
- withdrawal of Ukrainian enterprises from regional production networks with Russian companies;
- ban on the transit of Ukrainian goods across the Russian territory to Middle Asian countries, imposed in 2016;
- ban on the exports of goods with military purposes from Ukraine to Russia, imposed in 2014.

The analysis of indices shown in Table 1 allows us to say that given the computation parameters (2 digits of the commodity nomenclature and the volume in the total exports $\geq 1,000,000$ USD), the commodity structure of the Ukrainian exports is concentrated; new commodity groups were being included at slow rates in the period of 2013–2018, which, we believe, was a consequence of the limited involvement of Ukrainian producers to global and regional production networks with European producers and insignificant amounts of investment from the EU and other countries, high security risks.

Table 1. The assessment of diversification of the commodity structure of the Ukrainian exports in 2013–2018

1. The Herfindahl–Hirschman Index (HHI)		
1.1 By 2 digits of UCGFEA (broad economic categories, 19 key commodity positions) HHI = 3276 in 2013, HHI = 3312 in 2018. High concentration of the commodity structure of exports.		
1.2 By 12 digits of UCGFEA (with the export volume $\geq 1,000,000$ USD)		
EU	RF	Third countries
HHI = 4076 in 2013 HHI = 4013 in 2018 High concentration of the commodity structure of exports. Diversification increased moderately	HHI = 3202 in 2013 HHI = 3289 in 2018 High concentration of the commodity structure of exports	Asian countries HHI = 2702 in 2013; HHI = 1902 in 2018. Increased diversification of exports <hr/> American countries HHI = 1765 in 2013; HHI = 1912 in 2018 High concentration of the commodity structure of exports <hr/> Countries of Africa and Middle East HHI = 1876 in 2013; HHI = 1782 in 2018. High concentration of the commodity structure of exports. Increased diversification of exports

2. Gini index (G) by 2 digits of UCGFEA (broad economic categories). G=0.58 in 2013; G=0.61 in 2018. The commodity structure of exports is concentrated.

EU	RF
G=0.57 in 2013; G=0.59 in 2018. The commodity structure of exports is concentrated	G=0.77 in 2013; G=0.79 in 2018. The commodity structure of exports is concentrated

3. Thiel index (T) by 2 digits of UCGFEA (broad economic categories). T=0.45 in 2013, T=0.48 in 2018. The commodity structure of exports is concentrated.

T=0.47 in 2013, T=0.44 in 2018. The commodity structure of exports is concentrated	T=0.45 in 2013, T=0.44 in 2018 The commodity structure of exports is concentrated
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Source: Compiled by the authors

The computation of the above indices was made by us for the commodity positions of the Ukrainian exports by 12 digits of the commodity nomenclature, and, in conformity with the methodology of WTO experts, with the volume in the total exports $\geq 10,000$ USD (Table 2).

Table 2. The values of the Herfindahl–Hirschman Index for the Ukrainian exports to RF, the EU and third countries in 2013–2018

2013			2014			2015		
RF	EU	Third countries	RF	EU	Third countries	RF	EU	Third countries
1987	2224	2112	1965	2172	2043	1957	1989	2002
2016			2017			2018		
RF	EU	Third countries	RF	EU	Third countries	RF	EU	Third countries
1942	1874	1978	1949	1881	1968	1944	1882	1979

Source: Elaborated by the authors using the data (State Statistics Service of Ukraine, 2019)

The analysis allows us to say that the increased commodity diversification is demonstrated by the indices on all three destinations of the Ukrainian exports, with the index of exports to the EU reaching the marginal value in 2016, characterizing the nomenclature of Ukrainian exports to the EU as diversified one. The shown tendency obviously needs to be confirmed by the number of commodity positions (Table 3) exported by Ukraine (by 12 digits with the volume $\geq 10,000$ USD).

Table 3. The number of commodity positions of the Ukrainian exports to the EU, RF and third countries in 2013–2018

2013				2014			
RF	EU	Third countries	Total	RF	EU	Third countries	Total
1668	1648	376	3692	1585	1799	395	3779

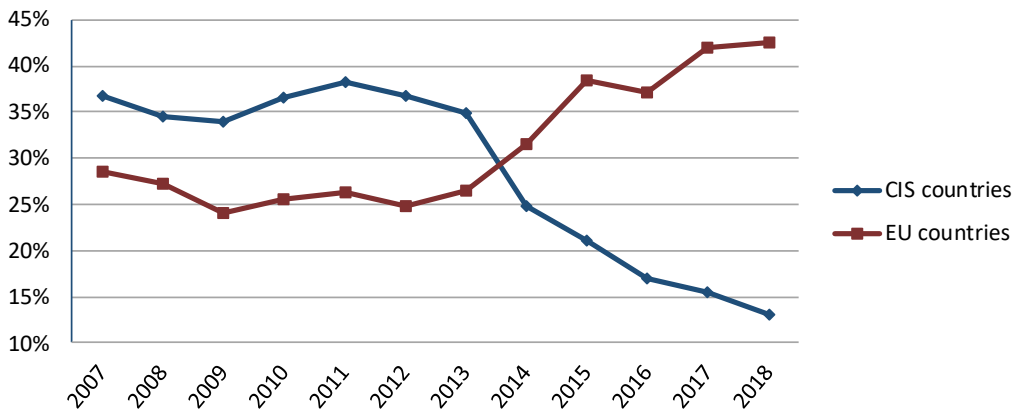
2015				2016			
RF	EU	Third countries	Total	RF	EU	Third countries	Total
1701	1925	414	4040	1487	2187	432	4106
2017				2018			
RF	EU	Third countries	Total	RF	EU	Third countries	Total
1501	2207	428	4136	1512	2198	416	4126

Source: Elaborated by the authors using the data (State Statistics Service of Ukraine, 2019)

The analysis of data (Table 3) confirms the conclusions made from the computation of The *Herfindahl–Hirschman Index (HHI)*, i. e. the commodity structure of the Ukrainian exports has been gradually diversifying, with including new commodity positions. The nomenclature extended most essentially in the following positions: products of chemical and related industries, textiles and products made thereof, non-precious metals and products made thereof, machinery, equipment and mechanisms, electrical equipment. In 2013–2018, the overall number of commodity positions in the total Ukrainian exports increased by 12 %; by export destination, in the Ukrainian exports to RF it fell by 10 %, in the exports to the EU and third countries it increased by 33 % and 11 %, respectively. This demonstrates that the demand in the internal EU market has already become an essential factor for differentiation of the Ukrainian exports, whereas the contribution of the Russian market in this process has declined. However, the nomenclature of commodity positions of the Ukrainian exports to third countries has so far remained too limited.

It is obvious that the occurrence of diversification at 12 digits and 10,000 USD cannot be regarded as a solid proof of a sustained overall tendency towards expansion of the nomenclature. This relatively insignificant value in the total exports may be an indication of a high volatility of export supplies, and it may be heavily dependent on logistics and fluctuations of exchange rate. But we believe that the revealed tendency demonstrates that Ukrainian producers are really able to adjust their business when the traditional markets of RF (and some market segments in other members of the Commonwealth of Independent States (CIS)) were actually closed: small consignments exported to countries of Europe, Asia, Africa or America can at first be intended to test local consumer likes and after that can be essentially increased in monetary terms and displace products of the manufacturers who used to dominate these markets.

Entries of Ukrainian enterprises to markets of Europe and third countries should increase the geographic diversification of the domestic exports, at least theoretically. The data of 2013–2018 signal the overall tendency to re-orientation of the Ukrainian exports from RF to markets of the EU and third countries, the shrinking share of RF in the Ukrainian exports (from 15.1 % до 7.7 %), and the growing share of EU (from 35.5 % to 42.6 %). The role of the EU and CIS in the structure of the Ukrainian exports has changed significantly (Figure 1).

Figure 1. The shares of CIS and EU in the Ukrainian exports in 2007–2018

Source: Elaborated by the authors using the data of (State Statistics Service of Ukraine, 2019)

It should be noted, however, that Ukraine lags far behind other European countries by the EU share in the total exports: while for the EU members it makes 60 % or more, for some Balkan countries it reaches 73 % and for some EFTA members – 81 %. The share of CIS was declining in parallel with the opening of the EU markets and ones of Asian countries: the share of latest in the Ukrainian exports grew from 24 % in 2012 to 36 % in 2016 and 31 % in 2018. The most rapid rates of growth in 2013–2018 were recorded for the exports of Ukrainian agricultural goods to this group of countries, with the average annual rate of growth ranging from 48 % to 55 %. While the traditional commodity positions (sunflower, corn and wheat) featured changed shares in the exports (decomposition), for the positions like honey, milk, meat and eggs the nomenclature actually extended: with the exports continually grown in 2013–2018, these positions could constitute a stable part in the Ukrainian exports to Asian countries, which had not been the case in previous periods. The remarkable growth in exports to India and China was attributable to the inclusion of new commodity positions: the traditional oil and corn were added by wire made of carbon steel, shaped and special profiles, flat steel made of carbon steel of various sizes, alloyed chemical elements, engines and pumps. The main importer in the Asian region still remains to be Turkey, with basic metals and oil seeds making the lion share of its imports from Ukraine. But the nomenclature of Turkey's imports was extending by including ferrous alloys and some chemical products, first of all ammonia, carbon (soot) and hydrogen. Therefore, the Ukrainian exports to Asian countries featured commodity diversification along with geographic concentration.

As regards African countries, a commodity diversification did not occur, with more than 70 % of the Ukrainian exports accounted for metals and crops. The increased share of Africa in the Ukrainian exports (12 % in 2016 and 11.7 % in 2018) can be explained by nearly total geographic concentration on Egypt (which share in the Ukrainian exports to this group of countries grew from 32 % in 2014 to 60 % in 2016 and 57 % in

2018). At the same time, export supplies to another trade partner of Ukraine, Algeria, actually ceased when the latter started to import metals and foods from the EU.

The trade with American countries was marked by decreasing exports in all the commodity groups, except for foods. This was caused by the decreasing export supplies of fertilizers and oil refinery products due to the fallen domestic output. The major share of commodity exports to America used to be products of metallurgy, but 2013–2018 were marked by the increasing supplies of crops (mainly to Ecuador) and inclusion of new commodity positions, first and foremost milk and dairy products (mainly to Canada and the U.S.).

Concentration of exports on certain countries of regions was the key tendency in the geographic structure of the Ukrainian exports: in 2013–2018 main trade partners in Asia and Africa could actually keep their positions in the list of top ten importers (Table 4).

Table 4. Geographical structure of the Ukrainian exports in 2013–2018

	2013	Share %	2016	Share, %	2017	Share, %	2018	Share, %
1	Russia	23,80	Russia	9,88	Russia	9,10	Russia	7,71
2	Turkey	6,01	Egypt	6,23	Poland	6,30	Poland	6,88
3	China	4,31	Poland	6,05	Turkey	5,82	Italy	5,55
4	Egypt	4,30	Turkey	5,63	Italy	5,71	Turkey	4,96
5	Poland	4,02	Italy	5,31	India	5,10	Germany	4,66
6	Italy	3,72	India	5,23	China	4,71	China	4,64
7	Kazakhstan	3,35	China	5,04	Egypt	4,23	India	4,59
8	Belarus	3,13	Germany	3,92	Germany	4,05	Hungary	3,47
9	India	3,12	Hungary	2,90	Netherlands	3,87	Netherlands	3,38
10	Germany	2,53	Spain	2,76	Hungary	3,07	Egypt	3,28
11	Hungary	2,46	Netherlands	2,74	Spain	2,91	Spain	2,89
12	Netherlands	1,64	Belarus	2,48	Belarus	2,64	Belarus	2,75
13	Spain	1,56	Romania	1,97	Romania	1,95	U.S.	2,34
14	Moldova	1,43	Iran	1,94	U.S.	1,91	Romania	1,97
15	U.S.	1,40	Saudi Arabia	1,63	Czech	1,65	Czech	1,85
16	Azerbaijan	1,37	Czech	1,54	Moldova	1,64	Slovakia	1,82
17	Czech	1,30	Israel	1,34	Slovakia	1,52	Moldova	1,66
18	Iran	1,25	Moldova	1,32	Israel	1,40	Saudi Arabia	1,58
19	Saudi Arabia	1,24	Slovakia	1,30	Iran	1,28	Iraq	1,36
20	Iraq	1,21	France	1,25	Austria	1,24	Indonesia	1,30
21	Slovakia	1,19	the U.S.A	1,17	Algeria	1,24	Belgium	1,27
22	Israel	1,11	Bulgaria	1,15	Saudi Arabia	1,20	U.K.	1,23
23	France	1,09	Korea	1,14	U.K.	1,11	Israel	1,22

2013	Share %	2016	Share, %	2017	Share, %	2018	Share, %
24		Thailand	1,14	Iraq	1,11	Austria	1,16
25		Kazakhstan	1,10	Belgium	1,05	France	1,13
26		Georgia	1,07			Bulgaria	1,08
27		Iraq	1,03			UAE	1,02
28		Belgium	1,01			Georgia	1,01

Notes: the country share is >1 %

Source: Compiled by the authors

In 2018, the share of the Ukrainian exports to Asia was 1.39 times higher than to CIS. The largest relative growth in the Ukrainian exports in 2016–2018 was recorded for Asian countries, i. e. Singapore (+255 %), and African countries, i. e. Congo (+360 %). The geographical structure of importers of Ukrainian products could also be extended by including Asian countries: Thailand and Indonesia. It should be noted that RF remained to be the main importer of Ukrainian products in 2013–2018, but economic disintegration of the two countries led to the essential decline in the Russia's share in the export structure of Ukraine (from 23.8 % to 7.7 %), and in the first quarter of 2019 it was Poland that went out on top of the importers of Ukrainian products.

The above given analysis of change in the geographical structure of the Ukrainian exports in the period under study demonstrates that the list of importer countries became longer, which is confirmed by the respective indices (Table 5). Yet, such extension concerned a limited number of commodity positions in the Ukrainian exports.

Table 5. Assessment of the diversification of geographic structure of Ukrainian exports in 2013–2018

1. The Herfindahl–Hirschman Index		
1.1 By 2 digits of UCGFEA (broad economic categories): 745.35 in 2013; 368.1 in 2018. The diversified geographic structure of exports. The geographic structure extended.		
1.2 By 12 digits of UCGFEA for all the positions of the commodity nomenclature (>1,000,000 USD)		
EU	RF	Third countries
HHI = 1108 in 2013; HHI = 593 in 2018. The diversified geographic structure of exports. The geographic structure extended.	Not computed	Asian countries HHI = 947 in 2013; HHI = 1601 in 2018. The geographic concentration increased (China, India and Turkey)
		American countries HHI = 2011 in 2013; HHI = 1999 in 2018. High concentration of the commodity structure of exports
		Countries of Africa and Middle East HHI = 778 in 2013; HHI = 1033 in 2018. The geographic concentration increased (Egypt)

Source: Compiled by the authors

5. Conclusions

The purpose of the article is to analyze the impact of economic integration and disintegration processes on Ukraine's export diversification and test the author's assumption that the enhanced trade barriers under the economic disintegration increase commodity and spatial concentration of exports, mainly due to physical reduction in the trade volumes while the economic integration provides for export diversification: the overall impact of economic integration and disintegration on the export diversification depends on the depth and scope of the trade barriers reduced and increased and exporter's ability to adapt to new terms of trade.

It should be noted that the correlation between geographic concentration of exports and economic disintegration has not been established in the scientific literature. An even more complex problem is investigating the synchronic impact of the processes concerned with international economic integration and disintegration with main trade partners on diversification of country commodity exports. Because only few occurrences of this situation can be found in international trade, the article's objective is to explore the consequences of simultaneous processes of trade liberalization and disintegration of Ukraine with its main partners, i. e. the EU and RF.

Given the parallel involvement of the domestic economy in the processes of international economic integration with the EU and disintegration with RF in 2013–2018, the commodity structure of the Ukrainian exports was extending and gradually diversifying. It indicates that domestic manufacturers were able to adjust to new challenges of foreign trade. But this process was going on too slowly. Our analysis confirmed the research hypotheses, as indices in all the three destinations of the Ukrainian exports (EU countries, the Russian Federation and third countries) showed the increased commodity diversification. It is found that the index of exports to the EU actually reached the boundary value in 2016, which characterizes the nomenclature of the Ukrainian exports to EU as diversified one. Consequently, the results of HHI computation gave evidence of the gradual diversification of the commodity structure of the Ukrainian exports. It was revealed as a result, that the commodity nomenclature had increased to the largest extent for the following positions: products of chemical and related industries; textiles and products made there of; non-precious metals and products made thereof; machinery, equipment and mechanisms, electrical supplies. Moreover, the performed analysis of change in the spatial structure of the Ukrainian exports in the latest years gives evidence of the increased number of importing countries, which is confirmed by the respective indices. However, it is demonstrated that such increase in the Ukrainian exports covers a limited number of commodity positions.

The main driver for diversification of the commodity structure of the Ukrainian exports under the economic integration with the EU and disintegration with RF was the internal market demand in EU and third countries. The diversification of exports to the EU and, partially, to third countries enabled to compensate significantly the narrowing range of commodity positions of the Ukrainian exports to RF. The inclusion

of new commodity groups in the Ukrainian exports is recorded for chemicals, textiles and mechanical engineering, which is an evidence of the growing share of value added in these industries' exports. Yet, the commodity nomenclature of the Ukrainian exports is still dominated by commodities with low value added. This high commodity concentration of the Ukrainian exports is found in all the trade destinations, giving evidence of the slow pace of Ukrainian manufacturers' inclusion in global and regional production networks on the basis of developed forms of production fragmentation. The geographical structure of the Ukrainian exports is quite diversified, with the overall tendency to balancing the shares of all the trading partners. The heavy decline in the share of RF and CIS in the total Ukrainian exports in 2013–2018 was compensated by the increased role of markets of the EU and third countries. However, the reduced value of the Ukrainian exports to RF (as well as to CIS in overall), resulting from the economic disintegration of the two economies, was not fully compensated by the increasing access to markets of the EU and third countries. When seeking for new markets in third countries, Ukrainian exporters should not overlook large and structured EU markets. EU markets, given the size and structure of their demand, are expected to be catalysts of structural change in the Ukrainian economy, and to become an important factor for geographical and commodity diversification of the domestic exports, including ones to third countries.

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