O. Bezzubchenko

DEVELOPMENT OF INTERNATIONAL TRADE IN THE CONTEXT OF GLOBAL VALUE CHAINS TRANSFORMATION IN THE COVID-19 PANDEMIC

The article examines current trends in international trade, comparative analysis of the commodity structure of exports of the world, identifies the features of the transformation of global value chains in the growing confrontation of free trade and protectionism in foreign trade and under the influence of the global pandemic.

Key words: global value chains, multinational enterprises, international trade, COVID-19 pandemic.

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In modern conditions of prevalence in the world economy of multinational enterprises, characterized by significant volumes of capital exports in the form of foreign direct investment, there are new factors in the development of international trade. Strengthening the role of capital exports not only does not lead to a reduction in trade in goods, but, on the contrary, contributes to the growth of international trade. The location of TNCs' production facilities in different countries has led to a significant increase in trade in intermediate goods and services. As a result, the share of components in world trade was about 60%. The main activities of TNCs are currently concentrated in the field of high value-added services (Беззубченко та Дарменко, 2018). All parties involved in global value chains benefit, face different risks and challenges, especially in the context of the latest trends in the global pandemic.

The aim of the study is to determine the features of regionalization of international trade in the context of the transformation of global value chains in a pandemic.

Investments of foreign capital in the economies of other countries are carried out, as a rule, in export industries, which increases the degree of specialization of these countries in the world economy, leads to increased supplies of their goods to the world market. The world supply of goods to the world market has a significant regional structure. Economies of North and Central America; Europe; and South, East, and Southeast Asia export mostly manufactured goods. Economies in other regions mainly specialize in commodities, with the exception of Brazil, South Africa, Nigeria and several North African countries. Major fuel exporters are located along the north coast of South America, Central and North Africa, and West and Central Asia.

In Africa, primary commodities accounted for three-quarters of merchandise exports, in developing America for half, and in Asia and Oceania for only a quarter. African exports are dominated by fuel (43%); in developing countries on the American continent (21%) exports are food.

Developing regions show significant differences in their trade with the rest of the world. In 2018, exports of goods to developing countries in the Asia-Pacific region (Asia and Oceania) exceeded the value of imports by 7%. This trade surplus was due to exports and was partially offset by a deficit in other commodity groups. In Africa, the structure of trade was quite different: imports of manufacturing were three times higher than exports. Developing economies on the American continent have smaller trade deficits than countries in the African region, and show relatively high net food exports.

To analyze the comparison of the extra-trade structure of different regions of the world with the participation of countries geographically included in these regions, a coefficient of
similarity of structures was calculated, which indicates that the greater the deviation of structures from each other, the smaller the value he will take. The similarity coefficient is calculated by the formula:

\[ P = 1 - \frac{1}{2} \sum |d_j - d_k| \]  

(1)

The similarity coefficients of international trade commodity structures were calculated for such regions of the world as Africa, America, Europe, Asia and Oceania in 2009 and 2019 (Table 1).

Table 1.

**Structure of commodity exports by regions of the world, 2009**

<table>
<thead>
<tr>
<th>Commodity groups</th>
<th>Africa million US dollars</th>
<th>%</th>
<th>USA million US dollars</th>
<th>%</th>
<th>Europe million US dollars</th>
<th>%</th>
<th>Asia and Oceania million US dollars</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial products</td>
<td>26215772, 91</td>
<td>18</td>
<td>21665456, 7,3</td>
<td>1</td>
<td>31111168, 1,6</td>
<td>1</td>
<td>16959153, 3</td>
<td>8</td>
</tr>
<tr>
<td>Fuel</td>
<td>75574593, 15</td>
<td>53</td>
<td>11451549, 9,5</td>
<td>8</td>
<td>18890612, 4,9</td>
<td>7</td>
<td>28268680, 0,9</td>
<td>13</td>
</tr>
<tr>
<td>Chemical Industry</td>
<td>5430339, 0</td>
<td>4</td>
<td>11145686, 8,9</td>
<td>8</td>
<td>33062812, 1,9</td>
<td>1</td>
<td>12769219, 9,1</td>
<td>6</td>
</tr>
<tr>
<td>Mechanical engineering and transport equipment</td>
<td>7643943, 17</td>
<td>5</td>
<td>647 780, 584</td>
<td>4</td>
<td>10245826, 75</td>
<td>3</td>
<td>93308195, 3,8</td>
<td>44</td>
</tr>
<tr>
<td>Other industrial products</td>
<td>17290432, 86</td>
<td>12</td>
<td>27111954, 8,7</td>
<td>1</td>
<td>64206756, 6,4</td>
<td>2</td>
<td>55568990, 7,6</td>
<td>26</td>
</tr>
<tr>
<td>Other</td>
<td>11071161, 35</td>
<td>8</td>
<td>61334766, 84</td>
<td>4</td>
<td>17561964, 9,5</td>
<td>7</td>
<td>73334613, 17</td>
<td>3</td>
</tr>
</tbody>
</table>

* Calculated by the author based on data (Trade and Development Report, 2020).

The calculated indicators of the structure confirm the assumption made about the influence of regional features on the structure of their merchandise exports. Thus, the commodity structure of American exports is characterized by the dominance of the component "machinery and transport equipment", which accounts for 46% of the region's merchandise exports, other commodity items are much smaller. The component of commodity exports – "machinery and transport equipment" also occupies the largest share in the structures of commodity exports of Asia and Oceania and Europe, in contrast to the African region, where this share is only 5%. On the contrary, the commodity structure of Africa is characterized by a significant dominance of the component "fuel" (Fuels) (53% of commodity exports of the region), the ratio between fuel and machinery and transport equipment here is 10: 1.

Based on the data in table 2, the following values of structure similarity coefficients were obtained.

Table 2.

**Coefficients of similarity of international trade structures by regions of the world in 2009**

<table>
<thead>
<tr>
<th></th>
<th>Africa</th>
<th>USA</th>
<th>Europe</th>
<th>Asia and Oceania</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa</td>
<td>1</td>
<td>0,48786115</td>
<td>0,46477694</td>
<td>0,45738062</td>
</tr>
<tr>
<td>USA</td>
<td>0,48786115</td>
<td>1</td>
<td>0,88237326</td>
<td>0,8796428</td>
</tr>
</tbody>
</table>

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Based on the calculations, it can be concluded that the most similar product groups in the structure of international trade in 2009 are the European and American regions, which differ from each other by 12%. Also very similar to them is the region of Asia and Oceania, which differs from them by only 13%. The commodity structure of exports of the African region differs most from them. If we talk about the commodity structure of Africa's international trade, the closest to it in the structure under consideration is the commodity structure of American exports (52%). In general, the calculated coefficients indicate significant differences between the structures of commodity exports of Africa and other compared regions. To assess the development and changes in the structure of international trade by region of the world, a similar comparative analysis was conducted based on the results of 2019.

The calculation of the coefficients of similarity of commodity structures of exports was carried out for the same regions of the world (Africa, America, Europe, Asia and Oceania) in 2019.

<table>
<thead>
<tr>
<th>Commodity groups</th>
<th>Africa</th>
<th>USA</th>
<th>Europe</th>
<th>Asia and Oceania</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial products</td>
<td>12788990</td>
<td>27</td>
<td>65983668</td>
<td>1</td>
</tr>
<tr>
<td>Fuel</td>
<td>19950521</td>
<td>42</td>
<td>41468472</td>
<td>2</td>
</tr>
<tr>
<td>Chemical Industry</td>
<td>26485024</td>
<td>6</td>
<td>30622478</td>
<td>2</td>
</tr>
<tr>
<td>Mechanical engineering and transport equipment</td>
<td>42926572</td>
<td>9</td>
<td>98408357</td>
<td>0</td>
</tr>
<tr>
<td>Other industrial goods</td>
<td>40495429</td>
<td>8</td>
<td>45454288</td>
<td>5</td>
</tr>
<tr>
<td>Other</td>
<td>39701041</td>
<td>8</td>
<td>33745361</td>
<td>9,3</td>
</tr>
</tbody>
</table>

* Calculated by the author based on data (Trade and Development Report, 2020.)

The calculated indicators of the structure confirm the trends that were characteristic of international trade in these regions 10 years ago on the fact that the most different from other commodity structure of international trade in the African region. However, there have been some changes: in the African region, the share of fuel exports in the structure of merchandise exports decreased by almost 10%, and the share of exports of industrial goods and machinery and transport equipment increased by 9% and 4%, respectively. Thus, in the commodity structures of exports of America, Europe, Asia and Oceania, the share of the group "machinery and transport equipment" decreased in favor of increasing the groups "industrial goods" and "chemical industry". However, the component of merchandise exports - "machinery and transport equipment" also occupies the largest share in the structure of merchandise exports of America, Europe, Asia and Oceania, while in Asia and Oceania it is much larger than others.
Based on the data in table 3, the following values of the similarity coefficients of the structures were obtained (Table 4).

| Coefficients of similarity of international trade structures by regions of the world in 2019 |
|-----------------------------------------------|----------------|----------------|----------------|
| Africa                                       | USA            | Europe         | Asia and Oceania |
| Africa                                       | 1              | 65,4021933     | 50,7855981      | 49,2991527 |
| USA                                          | 65,4021933     | 1              | 83,0167707      | 80,3921492 |
| Europe                                       | 50,7855981     | 83,0167707     | 1              | 86,3378415 |
| Asia and Oceania                             | 49,2991527     | 80,3921492     | 86,3378415      | 1          |

* Calculated by the author based on data (Trade and Development Report, 2020).

Based on the calculations, we can conclude that in 10 years there have been some changes: now, the most similar product groups in the structure of international trade are the European region and the region of Asia and Oceania, differing from each other by 14%, remains very similar to them The American region differs from the European region by 17%, from the Asian region by 20%.

The most different of all is also the commodity structure of exports of the African region, but the gap has narrowed. If we talk about the commodity structure of Africa's exports, the closest to it, of the regions under consideration, is the commodity structure of American exports (35%). In general, the calculated coefficients indicate the persistence of differences between the structures of commodity exports of Africa and other regions, which were compared, but with significant reductions in differences.


According to SeaNews, a decline in trade is expected in 2020 in almost all regions, with exports from North America and Asia suffering the most. Exports from the CIS countries are projected to suffer less, as they are mainly energy sources, the demand for which is more or less stable, according to the WTO. The most significant decline in turnover is expected in segments with complex value chains, primarily such as electronics and the automotive industry. Exports of services will also be affected by restrictions imposed on coronavirus to transport and move people.

Trade is expected to resume in 2021, but it will all depend on the duration of the epidemic and the effectiveness of the measures taken.

For the last forty years, production processes around the world have been organized into so-called global value chains (GVCs), which provide a large number of supplier countries, which are many components of which raw materials and intermediate products come to the assembly and production of goods, after which the finished product is sent to the address of end users, also located in different countries (Булатова, 2018).

One of the central links in the global value chain is China, which acts as a major producer of various industrial goods and components and at the same time - as the largest consumer of raw materials. China also has many manufacturing and assembly plants. Today, China, along with Japan, the United States and the European Union, forms the core of the global production network, being primarily the largest manufacturer of parts and components for global electronics brands such as Apple, Intel, Sony and others.

An outbreak of coronavirus infection in Hubei Province in December 2019 forced Chinese authorities to impose tough measures to curb the spread of the virus, expressed in restricting the movement and interaction of people, which in turn led to the closure of production sites. As a result of measures to curb the epidemic in January - February 2020, there
was a serious decline in Chinese industrial production – in the first two months of 2020, Chinese production decreased by 13.5% compared to the same period last year. This decline in industrial production in China is unprecedented – neither the outbreak of SARS in 2002-2003, nor the financial crisis of 2008-2009 did not cause such a sharp decline in production (Эффективные стратегии на потребительском рынке Китая, 2019).

The decline in China's production activity will inevitably affect the supply of raw materials and components that play an important role in the functioning of HLSV. The unprecedented decline in production in China has also caused a significant reduction in international trade. Thus, according to the Main Customs Administration of China, the reduction in imports and exports of China in January – February 2020 compared to the same period last year was 4% and 17%, respectively. At the same time, among the goods that showed the largest decline in exports and imports in general, are primarily products such as equipment for automatic data processing, processors and other components for electronics, as well as textiles.

The decline in China's manufacturing activity and declining exports will inevitably affect other countries that are consumers of Chinese products and are the next links in global value chains. The largest decline in Chinese exports in January - February 2020 compared to the same period last year is primarily in countries such as the United States (-27%), Germany (-24%), Italy (-18%), Spain (-15 %) and France (-15%).

The current situation is characterized by a significant degree of dependence of the production cycle on imported components. Thus, according to the Federal Statistical Office of Germany, about a quarter of raw materials are imported, with 10% of all imported materials coming from China. Germany's greatest dependence on imported raw materials is observed in the production of electronics and computers and in the textile industry.

However, the current trade relations of some major players in the global production process, which are characterized by a certain degree of tension, given the spread of the pandemic and its economic consequences continue to deteriorate, which can not but affect the GVCs as a whole. Thus, the latest monthly US trade data show a sharp decline in imports of US computer and telecommunications equipment, car bodies and trailers, as well as textiles and other products involved in global value chains (Глобальный экономический порядок. Смена парадигмы?, 2019).

Negative impact on the investment market of closure of industrial enterprises and a decrease in consumer demand (first, the enterprises themselves are closed, then there is a decrease in demand from consumers, who are on the following levels of numerous GVCs). If other global centers of supply chains face a similar trend, the cumulative effect of bottlenecks and declining consumer demand could significantly increase the risk of global production entering a recession and cross-border supply chain disruptions.

According to the International Monetary Fund, there is currently the largest outflow of capital from developing countries, estimated at $ 83 billion USA (World economic outlook reports, 2020). Although foreign direct investment (FDI) is usually less volatile, experts say COVID-19 will have a significant impact on the investment market. Thus, the UNCTAD forecast for 2020-2021 allows for a reduction in global FDI of 30-40%.

Thus, the collapse of demand and production in developed countries and the outflow of capital from emerging markets are expected to have far more long-term negative effects than temporary supply disruptions caused by the COVID-19 pandemic.

Nationalization or regionalization of world production processes as one of the ways to eliminate the effects of the economic crisis can reduce the degree of diversification of suppliers and limit opportunities for countries with developing economies.

According to the United Nations (UN) and other multilateral political institutions, the most appropriate way out of the crisis is to adopt a coordinated global strategy.
COVID-19 has demonstrated that existing production outsourcing models, based solely on cost minimization, inventory reduction, and asset utilization, are inefficient in the current environment.

At the same time, the high degree of nationalization or regionalization of supply chains is associated with the risk of further declining diversification of suppliers in the global economy, as well as reduced opportunities for developing countries in terms of integration into GVCs to access international trade, human capital and research. knowledge. This development will cause significant damage to the industrialization of developing economies and will hinder the socio-economic progress of these regions, which has been achieved in recent years.

UNCTAD is also studying the impact of the pandemic on global value chains, and according to its analytical forecasts, global value chains (GVCs) have also been hit hard by the COVID-19 crisis. Several articles recently published in VoxEU warned of the danger of retreating from globalization in the economy and of the radical reduction of the existing transnational production apparatus. But COVID-19 is not the only factor in these radical changes. The crisis caused by the pandemic is superimposed on the previous serious challenges faced by the transnational production system in connection with the new industrial revolution, the expansion of economic nationalism and the need to balance development.

The UNCTAD World Investment Report (WIR20) not only summarizes the impact of COVID-19 on foreign direct investment (FDI), but also looks to the future in terms of the potential evolution of the international manufacturing system over the decade 2021-2030. The authors of the report try to offer a comprehensive analytical framework to identify possible ways of development and solutions in the field of economic policy (World Investment Report, 2020).

UNCTAD has been analyzing foreign direct investment and the activities of multinational corporations for 30 years. During this time, international production has experienced twenty years of dynamic growth, and then ten years of stagnation. Cross-border flows of investment in tangible production assets stopped growing in the second decade of the XXI century, the dynamics of trade weakened, and exchange within the global value chains (GVCs) even decreased (Trading for Development in the Age of Global Value Chains, 2020). The decade that ends in 2030 could be a decade of change in international production.

Trends in trade and investment have three main aspects: the degree of fragmentation and length of the supply chain (short to long), the geographical distribution of value added (concentrated or dispersed) and the decisions of multinational corporations in the field of control that determine trade with independent counterparties or implementation direct investment.

Depending on the initial configuration of international production - it will approach one of the four trajectories.

Diversification will lead to a greater spread of economic activity. First of all, it will concern the sphere of services and production with a high share of production in GVCs. Regionalization will limit the physical length, but not the fragmentation of supply chains. The geographical spread of value added will increase. This trajectory will be followed by regional processing industries, some industries with a high share of GVCs and even the primary sector.

The effect of replication will be to reduce the value chain and change the configuration of the production stages. This will lead to an increase in the geographical spread of activities, and to a greater concentration of value added. Thus, according to experts, the following changes in the activities of GVCs can be identified:
- reduction of value chains and reduction of their fragmentation;
- higher concentration of value added;
- supply chain management, based more on platforms, with small assets;
- abandonment of global - in favor of regional - and even functioning at a lower level - supply chains;
- pressure to reduce global foreign investment, aimed at improving efficiency, in favor of regional investment, market-oriented;
- in some industries, the abandonment of large-scale investment in favor of distributed production on a smaller scale;
- further development and fragmentation of value chains in the service sector;
- increasing the role of economic stability and national security in the diversification of GVCs;
- the transition from investments in GVCs to cross-border investments in infrastructure, national services, as well as the "green" and "blue" economy (environmental, including the seas), due to the need for balanced development. (Trading for Development in the Age of Global Value Chains, 2020).

The potential benefits of transforming GVCs include the ability to attract investors interested in diversifying sources of supply, as well as the need to build backup capacity and economic sustainability. The volume of regional investments focused on the market will increase. Reducing value chains will lead to increased investment in mass production and production of finished goods, which will be accompanied by an increase in industrial potential on a large geographical scale and the creation of clusters. But digital infrastructure and platforms will enable the development of new applications and services, as well as facilitate upward access to GVCs.

To meet these challenges and seize the opportunity, it is necessary to change the trajectory of investment development. The focus should shift from export-oriented and cost-effective investments in highly specialized GVCs areas to a broader export-oriented strategy that spans regional markets and regional industrial clusters.

In addition, there is a need to shift the focus from value-for-money competition to differentiated investments that are flexible and resilient. The favoritism of large industrial investors with "large infrastructure" in favor of smaller manufacturing enterprises and services with "small infrastructure" may be less.

Thus, the processes of regionalization of international trade, which take place in a growing confrontation between the principles of free trade and protectionism in foreign trade, leadership in foreign trade of multinational enterprises, and the global pandemic will significantly affect the transformation of global value chains.

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РОЗВИТОК МІЖНАРОДНОЇ ТОРГІВЛІ В КОНТЕКСТІ ТРАНСФОРМАЦІЇ ГЛОБАЛЬНИХ ЛАНЦЮГОВ СТВОРЕННЯ ВАРТОСТІ В УМОВАХ ПАНДЕМІЇ COVID-19.

У статті досліджено особливості регіоналізації міжнародної торгівлі в контексті трансформації глобальних ланцюгів створення вартості в умовах пандемії. Обґрунтовано, що розміщення виробничих потужностей ТНК у різних країнах призвело до суттєвого зростання торгівлі проміжними товарами та послугами. В результаті частка комплектуючих у світовій торгівлі склала близько 60%. Доведено, що події, які відбуваються останнім часом в світовій економіці (неопротекціоністські заходи розвинених країн, торгівельні війни, світова пандемія) впливають на трансформацію регіональної зовнішньоторговельної співпраці.

Обґрунтовано, що падіння обсягів світової торгівлі на 13-32% у 2020 році обумовлене вперше за все епідемію коронавірусу, при цьому найбільші постраждали експорт з Північної Америки і Азії. Встановлено, що найбільш істотне зниження товарообігу очікується в сегментах зі складними ланцюгами доданої вартості, в першу чергу таких як електроніка і автомобільна промисловість; щодо експорту послуг, то зниження обсягів відбувається через введені в рамках боротьби з коронавірусом обмеження на перевезення і пересування людей. Доведено, що падіння виробничої активності Китаю вплинуло на поставки сировини і компонентів, що грають важливу роль у функціонуванні ГЛСВ. Безпереченнее падіння обсягів виробництва в Китаї викликало також значне скорочення потоків виробництва в інших країнах, як США (-27%), Німеччина (-24%), Італія (-18%), Іспанія (-15%) і Франція (-15%).

Визначено, що потенційна користь, яка випливає з трансформації ГЛСВ, включає можливість залучати інвесторів, зацікавлених в диверсифікації джерел постачання, а також необхідність створення резервного потенціалу та економічної стійкості. Збільшиться обсяг регіональних інвестицій, орієнтованих на ринок. Скорочення ланцюгів вартості призведе до збільшення інвестицій в масове виробництво і виробництво кінцевих товарів, що буде супроводжуватися нарощенням промислового потенціалу в широкому географічному масштабі і створенням кластерів. А ось цифрова інфраструктура і платформи нададуть можливість розвитку нових застосунків і послуг, а також спростять висхідний доступ до ГЛСВ. Ось інвестиції інфраструктура і платформи нададуть можливість розвитку нових застосунків і послуг, а також спростять висхідний доступ до ГЛСВ. Щоб протистояти цим викликам і скористатись існуючими можливостями, необхідно змінити траєкторію розвитку інвестицій. Центр висвічений розвиток регіональних кластерів. Але це цифрова інфраструктура і платформи нададуть можливість розвитку нових застосунків і послуг, а також спростять висхідний доступ до ГЛСВ. Щоб протистояти цим викликам і скористатись існуючими можливостями, необхідно змінити траєкторію розвитку інвестицій.

Обґрунтовано, що доцільно переносити увагу з конкуренції за вартістю на конкуренцію за диференційовані інвестиції, які характеризуються гнучкістю і стійкістю. Доведено, що процеси регіоналізації міжнародної торгівлі, що відбуваються в умовах зростаючого протистояння принципів вільної торгівлі та протекціонізму у зовнішньоторговій діяльності країн, лідируючи у сфері зовнішньоторгової діяльності багатонаціональних підприємств, та світова пандемія значно вплинула на архітектуру глобальних ланцюгів створення вартості.

Ключові слова: глобальні ланцюжки створення вартості, міжнародна торгівля, багатонаціональні підприємства, пандемія COVID-19.