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IMPACT OF MARITIME LOGISTICS ON STATISTICAL CHARACTERISTICS OF FOREIGN TRADE INDICATORS OF GEORGIA

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Introduction. Most of the cargo in foreign trade is transported by the sea. That is why the development of foreign trade relations without proper sea logistics is impossible. During the period of the pandemic, this was the area that functioned most successfully. In 2021, Georgia has increased the volume of exports, imports, re-exports, local exports by sea transport, while improving the structure of exports and imports.

Aim and tasks. The aim of the paper was revealing the trends of foreign trade by sea transport in Georgia. In the research process, general methods, as well as specific statistical methods were used, such as: observation, aggregation and analysis: mean values, ratios, variation analysis, dynamic sequences, selective observations, etc.

Results. Since 2016, sea transport has consistently held one of the leading positions in trade relations. In 2021 alone, maritime exports increased by 27% compared to the previous year. In period of 2016-2021, foreign trade in maritime transport increased by an average of 8.4% annually. In 2016-2021, Georgia mainly exports copper ores and concentrates, Ferroalloys, passenger cars and nitrogen, mineral or chemical fertilizers. Statistics in the dynamics over the years show that no change has taken place in the export commodity structure and in general, 73.7% of exports are local exports, which is an increase of 12.5 percentage points compared to 2019. The share of exports by sea in local exports was 57.3% in 2021, which is 2.8 percentage points higher than in 2019. During the whole study period, the volume of locally produced products exported by sea increased by an average of 18.1% per year. The average annual growth rate of re-exports by sea transport in Georgia in 2016-2019 was 140.9%, although in 2020 its volume decreased by 22.2% compared to the previous year, and in 2021 increased by 17% compared to 2020.

Conclusions. In conclusion, it can be said that sea transport is used quite actively in foreign trade in Georgia, a large part of foreign trade flows in the country are based on maritime transport. The statistical characteristics of foreign trade in the country have improved. The growth trend was maintained even during the period of severe pandemics and lockdowns, which once again emphasizes the advantages of conducting trade processes by sea and the need to use it for other purposes.

Keywords: shipping, maritime logistics, statistics, analysis, foreign trade.

1. Introduction.

In the conditions of the liberal foreign trade policies, today when the goals of introducing advanced European practices and achieving European Integration represent Georgia's main priorities (Abesadze, 2014), the capacity building of national statistical system in accordance with international standards is especially urgent. This, surely, means the perfection of the activity of the National Statistics Office and its maximum harmonization to the international standards (Panayides, 2006; Daushvili & Abesadze, 2016).

In Georgia today, in parallel with the growth of transport shipments, taking into account its scale, the statistical analysis of maritime logistics is becoming more and more relevant. Its importance has increased even more under the conditions of the pandemic, because foreign trade is an area that, in spite of everything, continued to function at almost the same pace. The logistics of export and import flows were justified even against the background of the problems identified during the pandemic, which was reflected accordingly in the statistics of logistics. That is why it can be said that the improvement of foreign trade statistics unconditionally implies the improvement of logistics statistics and vice versa. Well-managed logistics play an important role in foreign trade relations. The role of maritime transport is increasing. This is not surprising, the geographical location of Georgia provides a good opportunity for this.

Logistics is actively used in almost all areas of economic activity, and its importance is growing as the country's economy undergoes intensive paths of transformation and development. The usefulness of logistics is determined by the magnitude of the avoidance of expected losses that may arise at a particular time and under a particular market conjuncture. One of the main directions of logistics development is the economic direction, which is manifested in the effective management of material and related information and financial flows in the field of production and services. Therefore, it can be said that logistics organizes the processes of effective management of material and information flows.

Logistics is also important in the management of foreign trade flows. It is therefore necessary to organize the movement of these flows, which are carried out by different transports. As the coordination of trade flows is related to the receipt, processing and decision-making of information, it is so necessary to organize a sound database of traffic statistics in foreign trade.

Starting in 2020, when pandemic events swept across the globe, foreign trade was an area that was more or less functioning, and moreover, statistical characteristics were even maintained at a certain level. Since the second year of the pandemic, foreign trade figures have increased even more, and according to the data of the current two quarters of 2022, both import and export characteristics of Georgia have significantly increased, although the foreign trade balance is still negative 5 834.7 million. In US dollars and it accounts for 40.9% of total turnover

At the modern stage, under conditions of perfection of maritime transport logistics and active demand for it, the demand for statistical analysis of maritime logistics is increasing.

2. Literature review.

At the modern stage of society development, when in the conditions of the established conjuncture it is necessary to manage the connection between the production and the key market, the correct logistics plays an important role. Among the means of transport available today, maritime transport is relevant and often the most convenient for Georgia. In a market economy, obviously, under the influence of many random and unforeseen factors, it is not easy and easy to manage, correct situational analysis comes to the fore, demand? Managing the main proportion of market conjuncture in the provision market requires relevant market statistics, which can be the basis for making the right decision. This is especially important during extreme situations, pandemics, lockdowns, which are so familiar to today's society.

From today's point of view, logistics is a technology of effective management of goods flows, the better assembled logistics, the more efficient the activities of all business entities (Goldwey, 2022).

Therefore, against the background of market conjunctural changes, trade relations and market statistics themselves were transformed (de Andres Gonzalez et al., 2021). Coordinated action on a global scale is necessary to overcome the economic difficulties caused by the pandemic due to the global nature of the problem. Determining and analyzing the statistical trends of Georgia's foreign trade at different stages of development was the goal of the research of last time. Emphasis was placed on the analysis of foreign trade, import, and export relations, re-import, re-export, and local export according to various classification criteria: geographical structure, groups of countries, commodity groups, flows and others.

In the modern world globalization stiffed competition, thus the battles for the new export markets have become very tough indeed. This problem is common for the former Soviet Republics as well as for the former "Soviet block" member States, who opted for the European vector of development recently. (Gaganidze & Ramishvili, 2018).

The current market situation is such that the vector of meeting the needs of the population in Georgia is focused on imported goods and partly on locally produced products. It is true that the foreign trade balance is slowly declining, exports are growing and the commodity structure is becoming more diverse, but imports still exceed exports 2.4 times. Imported products flow into the country in various ways, among which a large share is attributed to maritime transport. That is why in the current conditions the development of foreign trade relations without proper maritime logistics is unthinkable (Jia, Zhang, 2021).

The existence of correct statistics is of great importance. Correct interpretation of indicators in full compliance with statistical ethics. Within the background of the globalization processes taking place in the world economy, one of the main preconditions for the development of the Georgian economy is the availability of high quality statistical data depicting the integration processes. In-depth changes and rapid development of the socio-economic life have made it necessary to see the theoretical issues of statistics in a new light and develop scientifically proven methodological principles compatible with practice (Abesadze, 2014).

The database was created from the Foreign Trade Portal of the National Statistics Office. Data are available from 2016, so a dynamic row was formed and therefore the study period was determined according to 2016-2021. The calculation of time series analysis was performed by the chain and basic methods, the arithmetic mean and the average geometric formulas were used for the generalized data. All possible hedges were calculated for total foreign trade flows and maritime transport flows.

3. Aim and tasks.

The topic of foreign trade statistics is relevant in Georgia, and many studies have been conducted on this issue. But this article focuses on the role of maritime transport in foreign trade relations. Therefore, the main goal of the paper is to outline the trends in foreign trade under the conditions of sea transport and to determine the main parameters.

Analysis, synthesis, induction, deduction were used in the research process, as well as specific statistical methods: observation, grouping, and analysis. Among the methods of analysis, the mean values, relative values, variation analysis, dynamic sequences, selective observations are worth mentioning. For the purpose of analysis, data were processed and indicators were calculated with computer software SPSS.

4. Results.

At the current stage of globalization, Georgia is actively involved in international integration processes and, consequently, in the world economy through the integration of the national economy. This is also necessary because sustainable economic growth must guarantee the full development of the country and contribute to solving the most acute social problems (Gaganidze, 2019). According to the National Statistics Office of Georgia (see Figure 1.) According to the data of 2021, 45.6% of trade turnover was by road and 37.7% by sea, the share of rail and air transport in the dynamics is unchanged (except for small percentage changes), which is represented by almost equal rates and is 6.3% and 7.7%, respectively (National Statistics Office of Georgia, 2022).

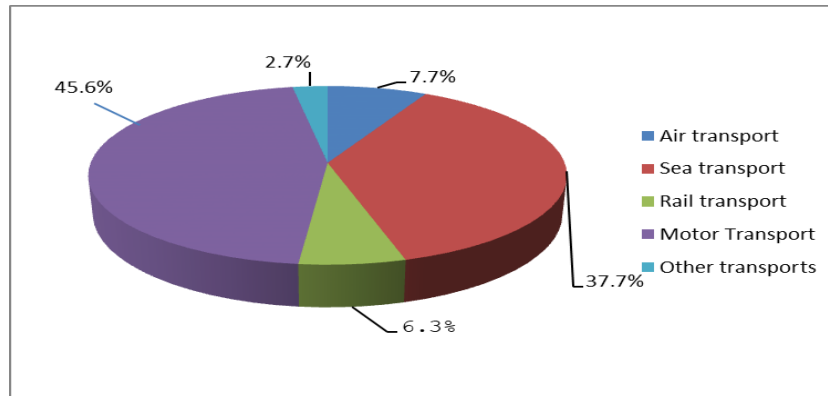


Fig. 1. Dynamics of trade flows by means of vehicles in 2021 in Georgia
 Source (National Statistics Office of Georgia, 2022).

Since 2016, Sea transport has consistently held one of the leading positions in trade relations. In 2021 alone, maritime exports increased by 27% compared to the previous year, and by 34.5% compared to 2019.

The absolute growth trend is on the face of it and it should be noted that according to the quarterly data of 2022, the growth trend is maintained (see Figure 2).

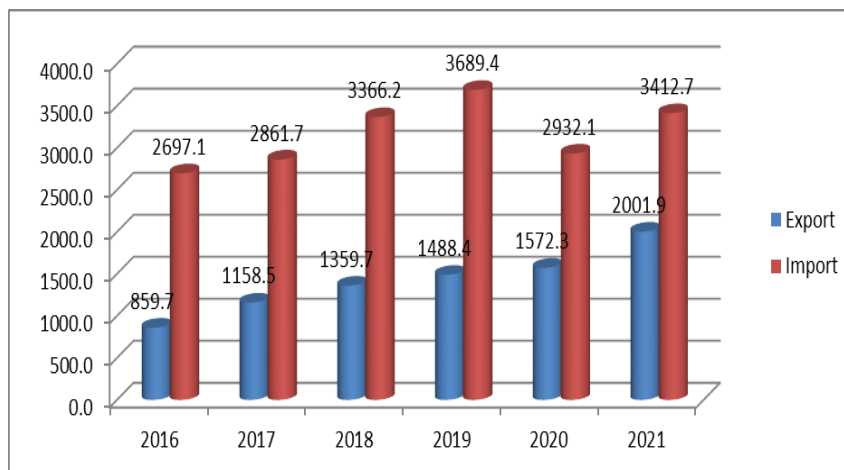


Fig. 2. Export and Import Dynamics by Sea Transport (Million USD)
 Source (National Statistics Office of Georgia, 2022).

Foreign trade in maritime transport increased by an average of 8.4% annually during the entire study period. But in the case of imports a slightly different picture emerged. If there was a 16% increase compared to 2020, a 7.5% decrease compared to 2019, obviously, this was also expected in the light of the economic developments in the world caused by the Covid-19 pandemic.

As the analysis of statistical data in dynamics revealed, the country mainly exports copper ores and concentrates, their share in maritime exports is 40.3%; Ferroalloys, which account for 19.3% of the commodity structure, passenger cars - with a share of 6.3% and nitrogen, mineral or chemical fertilizers, their share in exports by sea - 5.5%. (See Figure 3).

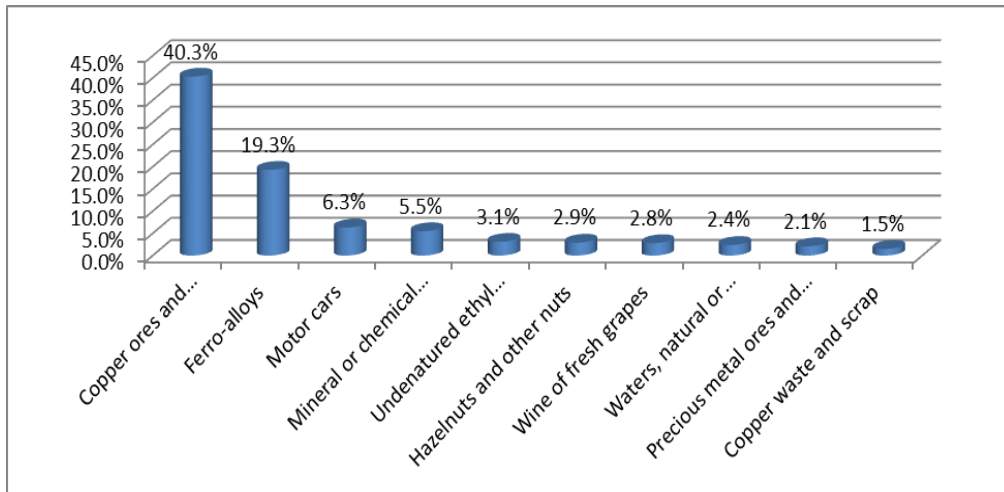


Fig. 3. Commodity structure of maritime transport exports, in 2021, %
 Source (National Statistics Office of Georgia, 2022).

Statistics in the dynamics over the years show that no significant change has taken place in the export commodity structure and the commodity is represented by dozens of unchanged structures. As for the commodity structure of imports, the import goods imported by sea also include three high-specific goods,

namely cars, oil and petroleum products, copper ores and concentrates, respectively 21.4%. With a share of 12.5% and 10.8%. Who have been firmly in the lead in dynamics since 2016. Thus, no changes in the commodity structure have been detected in recent years either (see Figure 4.).

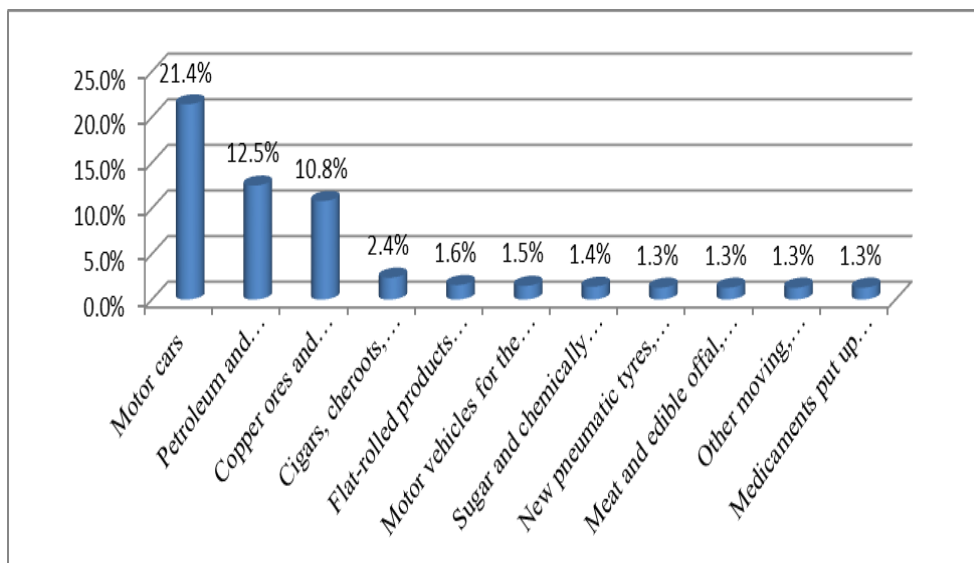


Fig. 4. Commodity structure of maritime imports in 2021, %
 Source (National Statistics Office of Georgia, 2022).

The average annual growth rate of foreign trade turnover by sea transport in the period 2016-2021 was 108.4%. However, before the pandemic, the average annual growth rate was much higher - 113%.

In 2020 alone, the foreign trade turnover of maritime transport in the first year of the pandemic decreased by 13% compared to the previous year, 2019 (see Figure 5). Relatively 5% was observed.

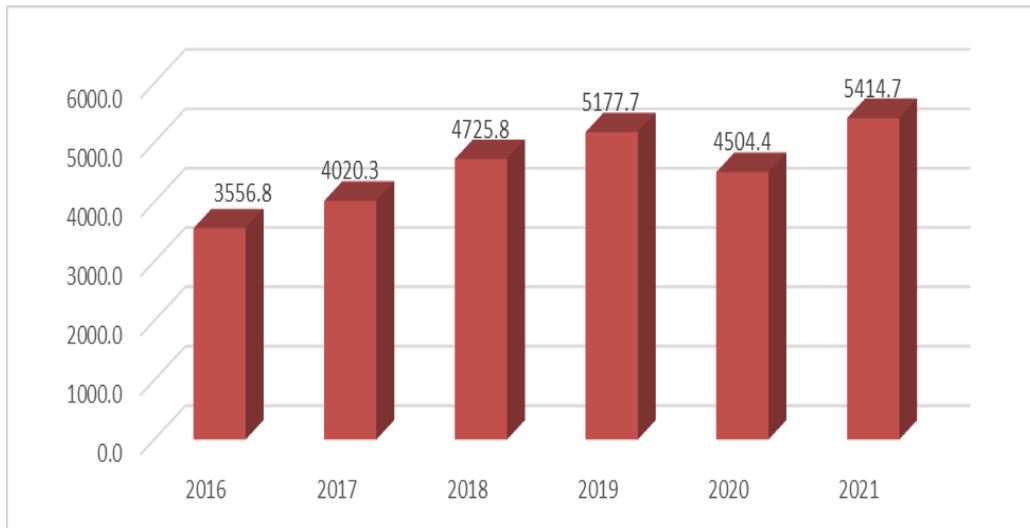


Fig. 5. Dynamics of foreign trade turnover by sea (million USD)

Source (National Statistics Office of Georgia, 2022).

In general, 73.7% of exports are local exports, which is an increase of 12.5 percentage points compared to 2019. This is very good, because the production of local and, moreover, competitive high-quality products is a solid guarantee for the growth of exports and the establishment of Georgian products on the world market. Interesting and noteworthy is the

fact that a large proportion of local exports go through maritime transport outside the country. So it was before the pandemic, during the pandemic period, and so it is now. Suffice it to say that the share of exports by sea in local exports was 57.3% in 2021, which is 2.8 percentage points higher than in 2019 (see Figure 6.).

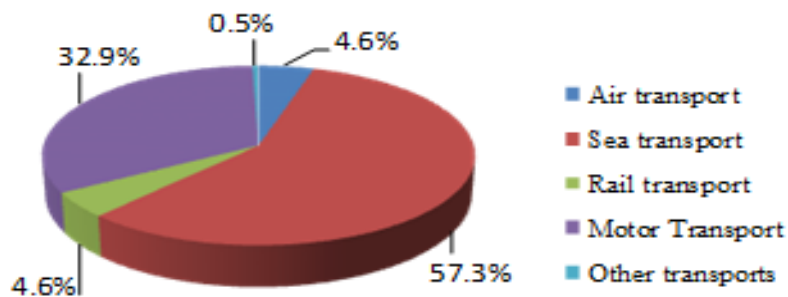


Fig. 6. Volume of local exports in 2021 by means of transport, %

Source (National Statistics Office of Georgia, 2022).

The predominant use of maritime transport for the export of local products produced in the country, leads to an absolute tendency of export growth in this way (Palmieri et al., 2019). This is confirmed by statistical data.

Suffice it to say that during the whole study period, the volume of locally produced products exported by sea increased by an average of 18.1% per year (the average annual growth rate was 118.1%).

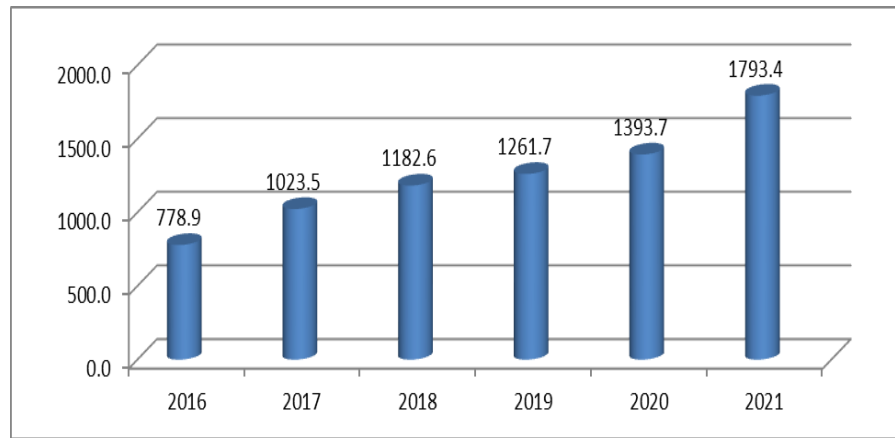


Fig. 7. Dynamics of local exports by sea in 2016-2021 (million USD)

Source (National Statistics Office of Georgia, 2022).

What is the commodity structure of local exports? Ores and concentrates predominate in local exports, accounting for 45% of total local exports, followed by ferroalloys with 11.2%, natural grape wines - 5.6%, mineral or chemical fertilizers, nitrogen - 2.8%, nuts - 2.7%, etc. Since 71.7% of local exports go by sea, where 90% of exports are local exports, the commodity structure is also virtually unchanged. In the first five, nuts and walnuts were promoted, and in one position the wines of the natural curd were pushed back, for the rest the commodity structure did not change.

Prior to the pandemic, the volume of re-exports by sea was also growing at a fairly rapid pace. For some time, the growth of re-exports was considered as one of the main directions of growth of export potential. It should be noted that re-exports are considered by small states as one of the main levers to eliminate the trade deficit (Gaganidze, 2018).

The average annual growth rate of re-exports by sea transport in Georgia in 2016-2019 was 140.9%, although in 2020 its volume decreased by 22.2% compared to the previous year, and in 2021 increased by 17% compared to 2020 (see Figure 8).

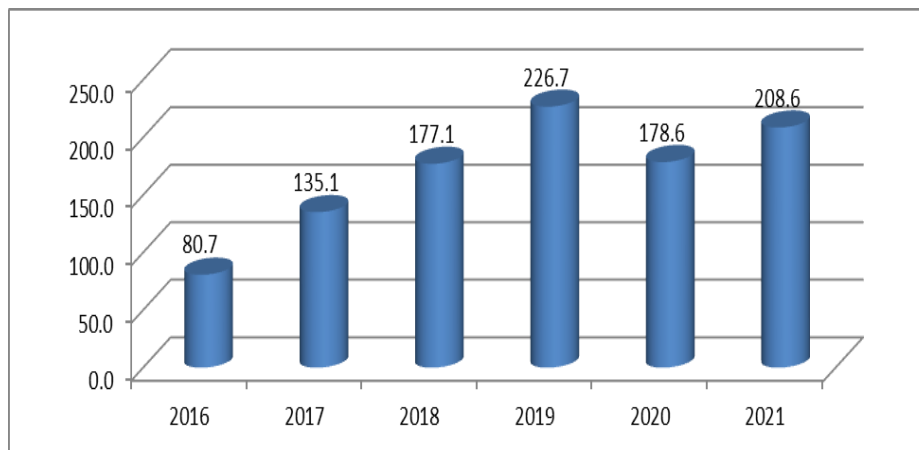


Fig. 8. Dynamics of re-exports by sea transport in 2016-2021 (million US dollars)

Source (National Statistics Office of Georgia, 2022).

The commodity structure of re-exports, which passes through the country by sea, is interesting. As can be seen from the diagram, the top ten of re-export commodities are led by exports of passenger cars, which account for

61% of shipping by sea, followed by ethyl alcohol with a concentration of non-denatured alcohol - 12%, and rubber pneumatic coils and tires (new) - 5.2% (See Figure 9).

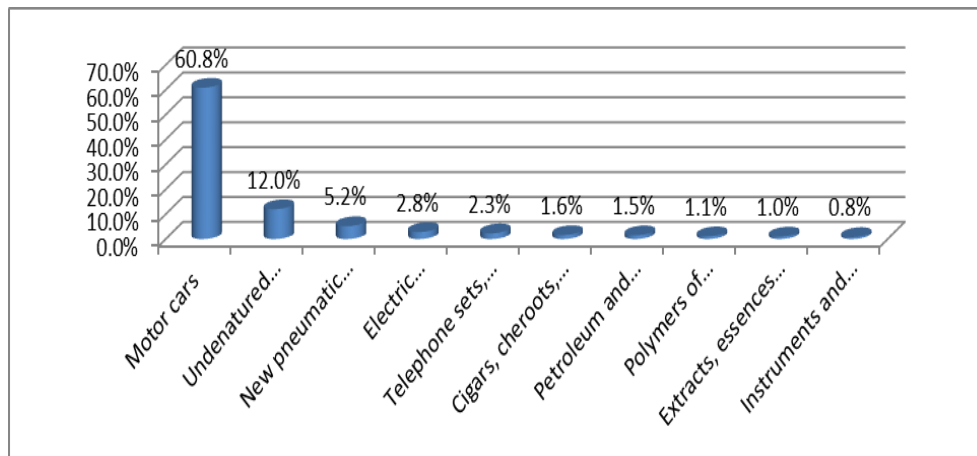


Fig. 9. Maritime structure of re-export secured by maritime transport in 2021
Source (National Statistics Office of Georgia, 2022).

Given the country's European integration course, it is interesting to see what the maritime shipping statistics are in terms of export and import relations. In the context of reduced trade relations with the EU during the pandemic, the volume of export maritime flows in 2021 was reduced by 2% compared to the previous year and by 17% compared to 2019, although in 2020 export shipments will still slightly exceed the level of 2018. As for imports, in the same 2020 increased by 29% compared to the previous year, and compared to 2019 decreased by 4%. Almost the same trends were observed in the analysis of re-exports, turnover, balance, commodity classifications and local export trade flows.

4. Conclusion

In conclusion, it seems, that maritime transport has a growing trend in foreign trade in Georgia in parallel with the growth of key indicators of foreign trade, the indicators of exports by sea, domestic exports, imports, re-exports and trade turnover are growing systematically: Since 2016, sea transport has consistently held one of the leading positions in trade relations. In the period of 2016-2021, foreign trade in maritime transport increased by an average of 8.4% annually. In 2016-2021, Georgia mainly exports copper ores and concentrates, ferroalloys, passenger cars and nitrogen, mineral or chemical fertilizers.

Statistics in the dynamics over the years show that no change has taken place in the export commodity structure. In general, 73.7% of exports are local exports, which is an increase of 12.5 percentage points compared to 2019.

The share of exports by sea in local exports was 57.3% in 2021, which is 2.8 percentage points higher than in 2019; During the whole study period, the volume of locally produced products exported by sea increased by an average of 18.1% per year (the average annual growth rate was 118.1%).

The average annual growth rate of re-exports by sea transport in Georgia in 2016-2019 was 140.9%, although in 2020 its volume decreased by 22.2% compared to the previous year, and in 2021 increased by 17% compared to 2020, etc.

It is true that the Covid-19 pandemic negatively affected the parameters of foreign trade, but it was an area of activity that was still intense in the current economic uncertainty. Therefore, maritime transport was also active and cargo transportation was carried out intensely by sea, which once again underscores the advantages and importance of trade processes by maritime transport and the need to apply it to other areas of activity. Proper and efficient maritime logistics is a prerequisite for further increase in the use of maritime transport in trade relations in the future and its share.

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