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## **The analysis of exports of goods dynamics from Lviv region to the European Union**

*The study analyses the dynamics, structure and state of export operations between Lviv region and the EU by commodity groups during 2011-2015. The article includes analysis of changes in commodity structure of EU-Lviv region export operations and reveals main commodity groups that have the biggest export potential in Lviv region. The research reveals that exports of industrial goods were characterized by a tendency to instability that indicated the instant reaction of region's exports to market changes; determines main positive and negative trends of export operations in Lviv region, as well as proposes measures of better realization of its export potential.*

*Keywords: commodity groups, export, manufacturing, commodity structure, Lviv region.*

Lviv region is an important commercial and transport centre of the country due to its geographical location on the border with the European Union. The EU market was one of the most important markets for Lviv region, as well as for Ukraine over the past three years (2013-2015). The share of exports and imports between Ukraine and the EU since 2013 has annually increased by 3% [1]. In 2015, the share of Lviv region in Ukraine's export to the EU amounted to 6,7%, while the share of exports of Lviv region to the EU countries in total exports of goods of the region amounted to 71,9% and the share of imports – 68,5% respectively.

Various aspects of economic development of Lviv region were presented in the studies of the following economists: V. Borshevsky, V. Geyets, M. Dolishniy, S. Ishchuk, A. Mokiy, D. Oliynyk, O. Shevchenko, V. Shevchuk, I. Shkola etc. A number of Ukrainian researchers analysed the current state of competitiveness of the Western regions of Ukraine (on the example of Lviv region) and identified structural and systemic characteristics, assessed spatial and sectoral competitiveness of the region [2]. Despite the significance of the topic of foreign economic relations between Ukraine and the EU under the terms of free trade agreement, native literature lacks assessment of the dynamics of export operations between Lviv region and the EU that defines the importance of the research.

The object of the analysis is the commodity structure of exports in Lviv region with the EU Member States. The objective of the study is the assessment of the state of export operations in Lviv region by commodity groups taking into account the requirements of the FTA between Ukraine and the EU.

While analysing the dynamics of exports of goods in Lviv region to the EU by the commodity structure during 2012-2015 two groups were outlined: commodity groups with the growing trend of exports and commodity groups with unstable trend in exports (see Table 1).

The group with the growing trend of export includes the following commodity groups: animal products (I) and mineral products (V). In particular, the growth in exports of animal products to the EU increased by 40.4% in comparison with 2014. The positive trend in exports of mineral products (by 371.5% compared with 2014) was caused by the increase of exports of mineral fuel, oil and petroleum products [4]. However, despite this, the industrial commodity groups in question accounted for a very small share (0.2% in 2015, compared with 3,4% in 2011) in exports structure of Lviv region. Therefore, they had an insignificant impact on the export potential of the region.

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Table 1

Dynamics of exports of industrial commodity groups between Lviv region and the EU, in %

Commodity groups	Exports			
	2012	2013	2014	2015
I. Animal products	-51,7	-8,2	13,4	53,8
II. Vegetable products	21,4	57,3	-1,9	34,1
III. Animal or vegetable fats and oils and their cleavage products	280,9	-83,8	149,9	-2
IV. Prepared foodstuff	178,8	218,9	-22,6	-61
V. Mineral products	-99,2	-39,1	-21,4	350,1
VI. Products of chemical industries	-31,2	4,1	63,5	-43,9
VII. Plastics and articles thereof	3,8	-19,8	44,4	-1,1
VIII. Raw hides and skins, leather, furskins and articles thereof	3,8	39,5	-1,5	2,9
IX. Wood and articles of wood	-23,5	-5,9	66,4	-0,9
X. Pulp of wood or of other fibrous cellulosic material	7,2	26,8	-7,3	-28,7
XI. Textiles and textile articles	-18,5	-2,7	9,9	-8,4
XII. Footwear, headgear, umbrellas	-10,9	3,9	-2,8	-34,1
XIII. Articles of stone, plaster, cement	51,5	18,4	-9,3	-2,2
XV. Base metals and articles of base metal	-30,4	29,3	2,6	-6,8
XVI. Machinery and mechanical appliances; electrical equipment	-12,1	21	8,9	-6,6
XVII. Vehicles, aircraft, vessels and associated transport equipment	129,9	-69,8	-46,5	1321,9
XVIII. Optical, photographic, measuring instruments	58	-51,2	-21,7	888,7
XX. Miscellaneous manufactured articles	-1,3	16,9	12,8	10,6
Total	-3,2	16,4	8,7	-8,3

Source: compiled according to the data obtained at [3].

The commodity groups with unstable trend of export may be divided into the following groups: commodity groups with high volatility and commodity groups with moderate volatility (see table 2).

Commodity groups belonging to a group with high volatility are more likely to reduce exports as they are more sensitive to market changes, while product groups with relatively moderate volatility are more likely to respond to the current economic conditions on the markets (domestic and foreign).

It is worth noting that such product groups as chemical products (VI), wood and articles of wood (IX), and textiles and textile articles (XI) had demonstrated growing trends up to 2014 (for example, exports of chemical products in 2014 increased by 59.4% compared with 2013). However, changes on the domestic market in 2015 had a negative effect on these commodity groups. The decline in exports of products of chemical or allied industries (including proteins that increased by 2394% compared with 2014) in 2015 took place due to a decrease in the volumes of industrial production in the chemical industry.

Table 2

Commodity groups with unstable trend of export	
Commodity groups with high volatility	Commodity groups with moderate volatility
III. Animal or vegetable fats and oils and their cleavage products; IV. Prepared foodstuff; VI. Products of the chemical or allied industries; IX. Wood and articles of wood; XVII. Vehicles, aircraft, vessels and associated transport equipment; XVIII. Optical, photographic, cinematographic, measuring instruments.	II. Vegetable products; VII. Plastics and articles thereof; VIII. Raw hides and skins, leather, furskins and articles thereof; X. Pulp of wood or of other fibrous cellulosic material; XI. Textiles and textile articles; XII. Footwear, headgear, umbrellas; XIII. Articles of stone, plaster, cement; XV. Base metals and articles of base metal; XVI. Machinery and mechanical appliances; electrical equipment; XX. Miscellaneous manufactured articles.

The reduction in the exports of wood was caused by the fact that the prices on Ukrainian raw materials rose to the level of the European's ones. This, in its turn, caused a decline in demand for wood. Another factor causing the export reduction of wood was the introduction of a moratorium on exports of rough timber and wood (since November 1, 2015) [5]. As for the exports of prepared foodstuff, a significant decline of its level during 2014-2015 was probably caused by the introduction of import quotas on some Ukrainian products by the EU (including juices and prepared tomatoes that belong to preparations of vegetables subgroup). Another reason for exports decline of prepared foodstuff was the congestion on the commodity market of the EU.

The dominant subgroups within the commodity groups with significant variations of export level were animal or vegetable fats and oils (group III),

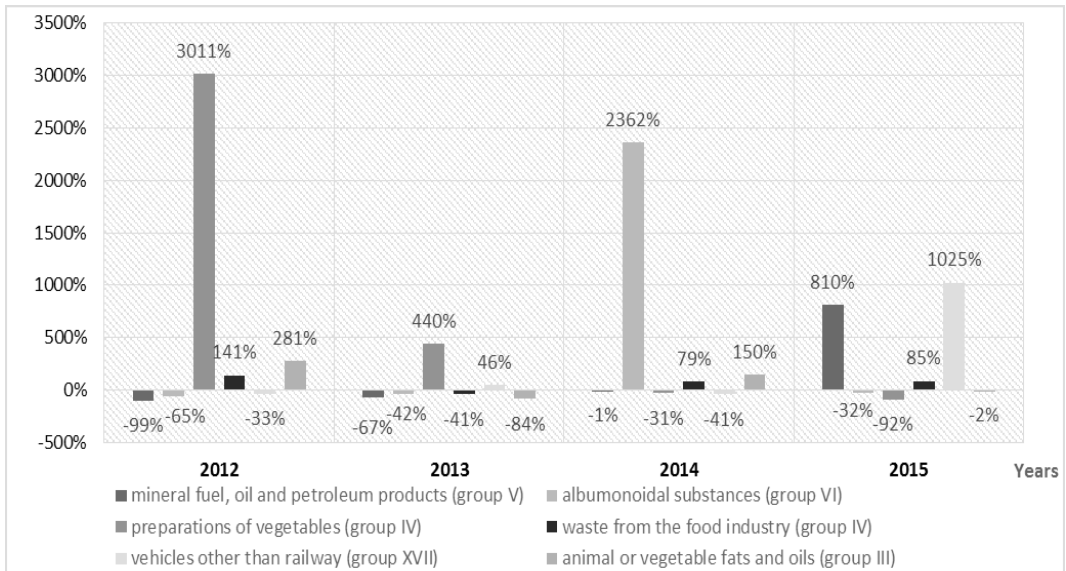


Fig. 1. Dynamics of the commodity subgroups with unstable trend of export

Source: compiled according to the data obtained at [3].

preparations of vegetables and residues and waste from the food industry (group IV), albumonoidal substances (group VI) and vehicles other than railway (group XVII) (see Fig. 1).

The structure of Lviv region's exports to the EU Member States in 2011-2015 was quite similar to the structure of total Ukraine's exports to the EU Member States, but it was less diversified (see Fig. 2). The main industrial export products from Lviv region to the EU were machinery and mechanical appliances (group XVI) as well as electrical equipment (its annual average share amounted to 34.4% during 2011-2015). The main representative of this group was electrical machinery (the average value of its share in the group was 93.5% in 2011-2015).

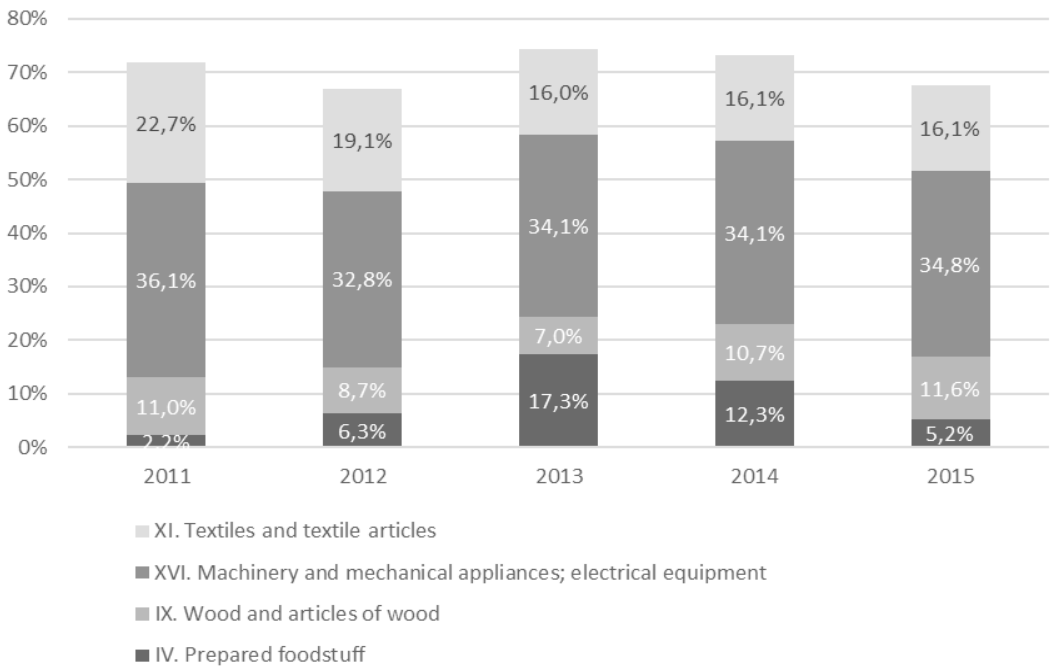


Fig. 2. Shares of the main commodity groups in the structure of exports of industrial goods of Lviv region to the EU Member States

Source: compiled according to the data obtained at [8].

The second biggest type of export products was textile products (XI), but their share decreased by 6.6% in 2011-2013 (from 22.7% in 2011 to 16% in 2013). This group was mainly represented by articles of apparel and closing accessories, knitted or crocheted ones. Other commodity groups that held significant shares in Lviv region export structure (goods) were wood and wood products (annual average of 9.8% during 2011-2015) and miscellaneous manufactured articles that were represented mainly by furniture (7.7%).

When analysing the trends in the commodity structure of exports of industrial goods of Lviv region the biggest positive change marked the exports of vegetable products (their share increased from 2.8% in 2011 to 6.3% in 2015). The dominant subgroup of this group was represented by seeds and oleaginous fruits that do not require special permits on exports from the EU.

Significant variations could be observed in the exports of prepared foodstuff during the analysed period. There was an increase of its share in 2012-2013 by 11% (to 17.3% in 2013), and a sharp decline on average by 6% in 2014-2015 years (to 5.2% in 2015). It should be noted that within the analysed period there were also internal changes in this commodity group. It concerns the domination of exports of two subgroups in different periods: residues and waste from the food industry (in 2011 their share in the group was 33% and in 2015 – 58%) and preparations of vegetables or fruit (78% in 2014). A significant reduction in the share of exports of sugar and sugar confectionery could also be observed within the period (in 2011 its share amounted to 14% in group total, while in 2015 it decreased to 11.6%). The reduction of the share of prepared foodstuff was caused not only by the introduction of quotas (especially for juices, processed tomatoes and sugar), but also by the trend of falling prices on the European market.

Totally, the share of the aforementioned product categories in the total exports of industrial goods tended to increase by 5.3% (from 80% in 2011 to 85.3% in 2015). The commodity structure of Ukraine's exports to the EU Member States, in addition to the above listed commodity groups was represented by fats and oils of animal or vegetable origin, mineral products and chemical products.

In order to conduct a comprehensive evaluation of the export commodity groups priority in Lviv region, ABC-analysis was held. ABC-analysis is used to determine the most profitable product lines for effective investment. The above mentioned method is based on the so-called The Pareto principle (20/80), under which roughly 80% of the effects come from 20% of the causes (analysis results can vary – 30/70 or 10/90) [6, p. 258]. ABC analysis divides the inventory into three categories – «A items» with very tight control and accurate records, «B items» with less tightly controlled and good records, and «C items» with the simplest controls possible and minimal records. ABC-analysis is conducted in three stages:

- 1) Calculating total annual exports by commodity groups;
- 2) Arranging the items in descending order of the usage value calculated above and making a cumulative total of the number of items and the usage value;
- 3) Dividing groups into three segments: A (accumulative total do not exceed 80%), B (accumulative total do not exceed 95% (80% + 15%)) and C (accumulative total exceed 95%).

According to the methodology of ABC-analysis, the driving force (category A) of Lviv region exports is represented by the following commodity groups: machinery and mechanical appliances (XVI), textile and textile articles (XI), wood and wood products (IX) and miscellaneous manufactured articles (XX) (see Fig. 3). In 2015, the group of vegetable products (II) joined category A.

Category B in 2011 was represented by the following commodity groups: vegetable products (II); mineral products (V); prepared foodstuff (IV); raw hides, skins, and leather (VIII); fats and oils of animal origin (III); base metals and their products (XV), and chemical products (VI). In 2015, category B was significantly reduced: vegetable products (II) joined category A, and mineral products (V) and chemical products (VI) joined category C. This tendency for the last two commodity groups indicates that their position on the EU market weakened significantly and national manufacturers of such products are not able to compete with foreign producers and exporters. On the other hand, group XVII joined category B in 2015 that means that the producers of vehicles strengthened their position on the EU market. Other commodity groups belong to category C, indicating their marginal importance of their shares in total Lviv region's export.

**2015**

XVI. Machinery and mechanical appliances; electrical equipment  
XI. Textiles and textile articles;  
IX. Wood and articles of wood;  
XX. Miscellaneous manufactured articles;  
II. Vegetable products.

IV. Prepared foodstuff;  
VIII. Raw hides and skins, leather, furskins and articles thereof;  
III. Animal or vegetable fats and oils and their cleavage products;  
XV. Base metals and articles of base metal;  
XVII. Vehicles, aircraft, vessels and associated transport equipment.

X. Pulp of wood or of other fibrous cellulosic material;  
XVIII. Optical, photographic, cinematographic, measuring instruments;  
XIII. Articles of stone, plaster, cement;  
VI. Products of chemical or allied industries;  
XII. Footwear, headgear, umbrellas;  
VII. Plastics and articles thereof;  
I. Animal products;  
V. Mineral products.

**A(80%) B(15%) C(5%)**

XVI. Machinery and mechanical appliances; electrical equipment  
XI. Textiles and textile articles;  
IX. Wood and articles of wood;  
XX. Miscellaneous manufactured articles.

II. Vegetable products;  
IV. Prepared foodstuff;  
VIII. Raw hides and skins, leather, furskins and articles thereof;  
III. Animal or vegetable fats and oils and their cleavage products;  
XV. Base metals and articles of base metal;  
VI. Products of chemical or allied industries;  
V. Mineral products.

X. Pulp of wood or of other fibrous cellulosic material;  
XVIII. Optical, photographic, cinematographic, measuring instruments;  
XIII. Articles of stone, plaster, cement;  
XII. Footwear, headgear, umbrellas;  
VII. Plastics and articles thereof;  
XVII. Vehicles, aircraft, vessels and associated transport equipment.  
I. Animal products.

**2011**

Fig. 3. Priority commodity groups of exports in processing industry of Lviv region



Thus, the biggest export potential in Lviv region may be traced within commodity groups that belong to category A. In particular, this applies to such types of manufacturing, as production of electrical equipment, wood processing and manufacturing of wood products, textile industry, clothing and food production (in 2014, the last-mentioned belonged to category A), whose exports to the EU fluctuated under the influence of external factors in the analysed period.

The positive changes in EU-Lviv region export operations include:

- Stable growth of exports of such commodity groups as animal products and mineral products (both in Lviv region and in Ukraine in general), accompanied by a steady decline of imports of these groups;

- Absence of any commodity group, which would have a steady recorded fall in exports to the EU during the analysed period in exports of both Ukraine and Lviv region;

- Positions of such commodity groups as machinery and mechanical appliances, textiles and textile articles, wood and wood products in the category of priority of export in Lviv region remained unchanged;

- Improving the position of vegetable products in exports (upgraded to Category A).

However, the analysis also revealed negative trends of export operations in Lviv region, namely:

- Negative dynamics in the growth of export of Lviv region;

- Downward change in the export of the following commodity groups in 2015: wood and wood products, textiles and textile articles (which are considered as priority groups of region's exports) and chemicals products;

- The fact that prepared foodstuff (which is considered as promising group of exports) commodity group belongs to the group with high volatility of exports and its shares in the export structure of the region demonstrated fluctuations;

- Deterioration of chemicals products ranking (decreased to category C in 2015);

- A relatively small share of exports of Lviv region in Ukraine's exports to the EU (6.7% in 2014, whereas for example, the share of Dnipropetrovsk region amounted to 10.3%, respectively [7, p. 172]).

Summarizing the results of the analysis, one can state that there was a deterioration of export operations between Lviv region and the EU during 2011-2015. Exports of industrial goods were characterized by a tendency to instability. That indicated the instant reaction of region's exports to market changes. Particular attention should be paid to commodity groups that were most sensitive to market changes (prepared foodstuff (IV), chemical products (VI), wood and wood products (IX), vehicles, aircraft, vessels and associated transport equipment (XVII); optical, photographic, cinematographic, measuring instruments (XVIII) as well as machinery and mechanical appliances (XVI). Efficient use of these commodity groups potential can provide significant impetus to the development of exports of the region.

The results of export analysis of Lviv region allow to propose measures necessary for the development of export potential of the region:

- Develop a program to promote export, which would provide a wide range of support: funding for market research, participation in exhibitions, verifying products certification, legal services, development of international market strategy for companies (that go ahead to the European market);

- Elaborate proposals to amend legislative acts (particularly in the Tax Code of Ukraine and the Budget Code of Ukraine) that regulate tax regimes for investors, who first came to Ukrainian market (partial or full exemption from income tax for a specified period of time) as well as registration and licensing process;

- Invest from local budgets (especially under decentralization reforms) at the expense of budgets and investment resources that are formed from municipal borrowing (such experience was implemented in Poland, Latvia, Lithuania, Hungary);
- Provide tax incentives to existing businesses through the use of incremental method, which means the reduction of the amount of tax that must be paid, which will not depend on actual indicators (number of jobs, investment, spending on innovation, etc.) but on their positive trend compared with previous years;
- Promote foreign investments to create closed production cycle, in particular by providing tax incentives and selling abandoned capital that does not bring any profits to the state (including JSC «Lvivsilmash», JSC «Lviv Plant of Car-Lift Truck», «LORTA Plant», «Polaron Plant», JSC «Almaz-Instrument», «Zhydachiv Pulp and Paper Mill») on concessional terms;
- Create business centres that will help to establish an ongoing dialogue between companies and executive bodies of local governments (such experience was implemented jointly by Rivne and Lublin city councils). Such centres should provide information and –consulting on European customs duties, quotas, licensing and how to obtain high-quality certification (the increase of amounts of exports to Europe is the best sign that the products meet the most strict international quality standards, and this in turn is a pass to other markets);
- Assist exporters in obtaining information on the possibilities of raising funds from the EU funds, in particular within the cross-border, inter-regional and inter-sectoral cooperation programmes. Ukraine has the opportunity to participate in the following financial programs of the EU under the Association Agreement: *Horizon 2020, EU SURE: EU Support to Ukraine to Re-launch the Economy*, which includes support for small and medium enterprises, and «The Support to Ukraine’s Regional Development». Participation in the EU funding enables companies not only to get the necessary funding, but also gain business experience (through participation in the EU training programs).

Further studies should be devoted to the issues of export potential accumulation in Western Ukraine and Ukraine as a whole, in terms of deepening of European integration processes.

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**Міхель Р. В. Аналіз динаміки експорту товарів із Львівської області до Європейського Союзу.**

*Львівська область є важливим промисловим, торговим і транспортним центром України, що обумовлено природним географічним розташуванням регіону на кордонах з країнами-членами ЄС. Для Львівщини, як і для України, ринок ЄС є одним з найбільших ринків збуту. Зважаючи на це, актуальним завданням є проведення оцінки динаміки експортних операцій у Львівській області за товарними групами з країнами-членами ЄС, а також розробка пропозицій і рекомендацій, необхідних для покращення стану розвитку експортного потенціалу області. Метою статті є проведення оцінки стану розвитку експортних операцій у Львівській області за товарними групами з урахуванням вимог ЗВТ між Україною і ЄС. Об'єктом аналізу є товарна структура експорту у Львівській області до країн-членів ЄС.*

*Результати аналізу динаміки та структури експортних операцій Львівської області з ЄС виявили, що упродовж 2011-2015 рр. спостерігалось погіршення динаміки експорту області у країни-члени ЄС. Експорт товарів характеризувався схильністю до нестабільності, що свідчило про їх миттєву реакцію на зміни ринку. В експорті Львівщини переважали машинобудівна, харчова, легка та деревообробна промисловості. До позитивних змін у динаміці експорту належить збільшення обсягів експорту продуктів тваринного походження та мінеральних продуктів, а також відсутність протягом аналізованого періоду в експорті як України, так і Львівської області товарної групи, у якій би було зафіксовано стабільне падіння експорту в ЄС. Негативною була зміна тенденції експорту на спадну у 2015 р. таких товарних груп, як деревина та вироби з деревини, текстильні матеріали та вироби (що вважаються пріоритетними групами експорту), а також продукція хімічної та суміжних видів промислової діяльності. За результатами аналізу визначено, що особливу увагу слід приділити виробникам таких видів переробної промисловості, як виробництво електричного устаткування, оброблення деревини та виготовлення виробів з деревини, текстильне виробництво, виробництво одягу та виробництво харчових продуктів (у 2014 р. група готових харчових продуктів належала до категорії А), експорт яких до країн-членів ЄС коливався під дією зовнішніх чинників в аналізованому періоді. Вміле використання потенціалу зазначених видів переробної промисловості може дати значний поштовх для розвитку їх експорту.*

*Ключові слова: товарні групи, експорт, промисловість, товарна структура, Львівська область.*

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