# Empirical Analysis of the Effectiveness of the Free Trade Area between the EU and Ukraine for the Agricultural Market

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***Abstract*** **– The article presents the evaluation of the effectiveness of a deep and comprehensive free trade area between Ukraine and the European Union for the agro-food products. The dynamics of comparative advantages of agro-food products of Ukraine in the context of separate groups with the use of the modified Balassa index is analyzed. It has been established that the improvement of competitive positions after the introduction of the free trade area is observed in the most types of products among those with identified comparative advantages on the European market. The positive influence of the progress within trade and economic cooperation between Ukraine and the EU on the competitive position of agro-food products at the European market is substantiated.**

***Keywords*** **– Agricultural products, free trade zone, comparative advantages, Balassa index.**

## 1. Introduction

In the context of the development of foreign trade relations in Ukraine, the agro-food sector occupies one of the leading positions, which is conditioned by the presence of strong export potential and favorable geographic location. The growth rate of Ukrainian export of agricultural and food products far exceeds the world's one, which confirms Ukraine's availability for further entry into the system of world economic relations. One of the world's largest markets of agro-food products is the European Union market, which covers more than 500 million consumers, therefore deepening on the political association and economic integration between Ukraine and the EU creates preconditions for increasing export opportunities, expansion of production, development of specialization and strengthening of the positions of domestic products within agro-industrial sector on the European market. A key element of the Association Agreement between the European Union and Ukraine is the establishment of a deep and comprehensive free trade area (abr. DCFTA), which envisages a major liberalization of trade between the parties, including agricultural products, as well as the harmonization of Ukraine's legislation with the EU legal and regulatory framework. The introduction of the DCFTA aims to amplify the access of domestic producers to EU markets, improve the investment climate, and increase the quality, safety, and environmental characteristics of Ukrainian agro-food products. However, as the three-year experience of foreign trade in the new environment shows, the impact of the free trade area between Ukraine and the EU on the competitiveness of domestic agricultural products is ambiguous. This has triggered the initiative of the Ministry of Economic Development and Trade to review the conditions of free trade in order to determine the optimal format of cooperation in the short-term and long-term outlook [1]. In view of the above, investigation concerning the assessment of the effectiveness of the free trade area and the consequences of the liberalization of foreign trade relations with European countries for the Ukrainian economy are of the particular relevance.

DOI: 10.18421/TEM83-32
https://dx.doi.org/10.18421/TEM83-32

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*Received: 26 April 2019.*
*Revised: 30 June 2019.*
*Accepted: 12 July 2019.*
*Published: 28 August 2019.*



## 2. Analysis of recent research and publications

The problems of assessing the effectiveness of the integration processes within the agro-food sector of Ukraine's economy with the EU, identifying

opportunities and risks for the industry arising from the introduction of a deep and comprehensive free trade area, are currently at the center of attention of a large number of scientists from Ukraine and the EU. The question of the functioning and development of markets of agro-food products in the context of deepening European integration is highlighted in the works of Borodina O.M. [2], Zinchuk T.O. [3], Kvasha S.M. [4], Popescu G.H. [5], Svatos M., Smutka L. [6]. Evaluating the objective conditions of readiness of the agro-industrial sector of Ukraine for the process of European integration, Zinchuk T.O. [3] considers the prospects of foreign trade cooperation to be optimistic, despite a number of problems connected with accelerating the process of adaptation of domestic agricultural products to the requirements and norms of the European market. The EU market is characterized by growing attractiveness in the studies of Trokoza Y. V. [7] as well, who argues that the Agreement on a Deep and Comprehensive Free Trade Area between Ukraine and the EU provides opportunities for the modernization of trade relations and economic development. The process achieved in the implementation of measures related to goods trade in the context of the functioning of the DCFTA is regularly evaluated and covered by the experts from the Institute for Economic Research and Policy Consulting and the German Advisory Group Movchan V. and Giucci R. [8], Burakovsky I. [9], who note significant progress in liberalizing access to markets and getting the first benefits associated with a trade agreement. Balezentis A. and Yatsenko O. [10] predict a positive dynamics of the growth of goods turnover as a result of the implementation of the DCFTA between Ukraine and the EU, in particular, for the agro-food products scenario is more optimistic, which is explained by the domination of trade preferences for this industry. However, changing economic conditions require constant attention to the issues of assessing the integration processes of the agro-industrial sector of Ukraine's economy with the EU, strengthening the positions of domestic agricultural products on the markets of the EU members and studying the risks that limit the opportunities of Ukrainian producers of agricultural products.

## 3. The purpose of the study

The purpose and methodology of the study is to assess the effectiveness of the free trade area between Ukraine and the European Union for the agro-food market. The obtained results will allow determining existing comparative advantages of certain types of products and directions of their change as a result of liberalization of trade cooperation between countries.

## 4. Research methods

Additional benefits that are created as a result of the country's participation in international trade arise only when the formation of the structure of foreign trade takes place on the basis of comparative advantages. A common and most objective instrument for analyzing the foreign trade specialization of the country is the index of revealed comparative advantages, proposed by B. Balassa (Revealed Comparative Advantage):

$$RCA = \frac{X_{ij}/X_{rj}}{X_{iw}/X_{rw}}, \qquad (1)$$

where *RCA* – index of revealed comparative advantage; $x_{ij}$ – export of the *i*-goods of the country *j*; $x_{rj}$ – total export of the country *j* ; $x_{iw}$ – world exports of the *i*-goods; $x_{rw}$ – total world exports [11].

The economic content of the Balassa index consists in determination of the ratio between the share of export of a separate branch (type of goods) in the total export of the analyzed country and the share of export of the industry (type of goods) in the total volume of world exports. The value of an index for a particular industry (type of product) exceeding 1 indicates a revealed comparative advantage. In general, the value of the Balassa index can be interpreted as follows:

*Table 1. Interpretation of the Balassa index for determining the country's comparative advantages for a particular industry (type of product) [11].*

| Value of RCA | Content of the range of restrictions |
|---|---|
| (0;1] | Lack of comparative advantage in the export of industry products |
| (1;2] | Weak comparative advantage in the export of industry products |
| (2;4] | Significant comparative advantage in the export of industry products |
| > 4 | Strong comparative advantage in the export of industry products |

Adapting the indicated methodology to the research objectives, it is considered to be expedient to use for the analysis the modified Balassa index in the following interpretation:

$$RCA = \frac{X_{iu}/X_u}{X_{ie}/X_e}, \qquad (2)$$

where *RCA* – index of revealed comparative advantage; $x_{iu}$ – the volume of Ukrainian exports of the *i*-type of agricultural products to the EU markets; $x_u$ – total volume of Ukrainian exports of agro-food products (groups 1-24 for UCG FEA) to EU markets; $x_{ie}$ – volume of imports of the *i*-type of agricultural

products to EU markets; $x_e$ – total imports of agricultural products (groups 1-24 for UCG FEA) to EU markets.

Since the comparative advantages are not static, but those that vary in time depending on the existing trading conditions, this approach will reveal the possible effect of European integration on the agro-food sector of the economy. This will enable to determine the prospects for further deepening of economic integration with the countries of the European Union and to identify the sectors that can benefit most from the liberalization of Ukraine's foreign trade relations with the EU.

## 5. Research results

In the structure of commodity exports from Ukraine, the position of agro-food products is characterized by a significant share and the largest surplus ($ 13.456 million) among other commodity groups. In general, during 2013-2017, exports decreased by 31.7%, while the group of agro-food products showed an increase of 4.2%. The formation of such trends has led to a positive dynamics of the share of agricultural products in total exports, including to the EU countries (Fig. 1.).

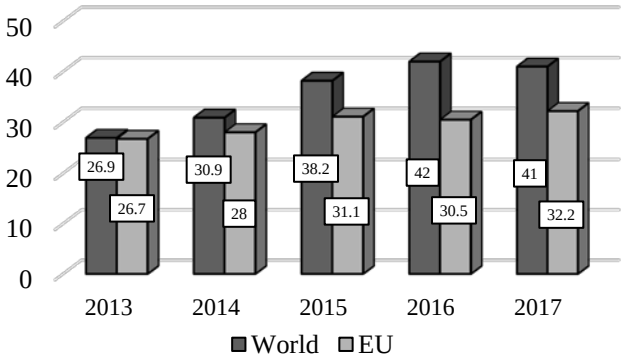


*Figure 1. Dynamics of the share of agro-food products in the structure of commodity exports from Ukraine, % [12].*

The main commodity group, which forms the bulk of export flows in the structure of agricultural products, is the products of vegetable origin (groups 6-14 for UCG FEA) - more than 50% of commodity exports to the EU countries and in the world exports of products of agro-based industries; in the last few years, exports of fats and oils of animal or vegetable origin beset about 26% and 16% respectively (group 15 for UCG FEA) (Tab. 2.).

In view of the data, it can be argued that in the long run the competitiveness of agricultural products will largely determine the competitiveness of Ukraine on the world market as a whole.

The intensification of exports, in particular agro-food products, contributed to the signing of the Association Agreement between Ukraine and the EU, an important element of which was the establishment of a Deep and Comprehensive Free Trade Area, which officially began to operate on January 1, 2016. The agreement on DCFTA provides the gradual liberalization of markets by abolishing customs tariffs, granting duty free access within the limits of quotas, eliminating barriers to trade, realization of full harmonization of domestic laws, norms, standards and regulations with European ones.

*Table 2. Commodity structure of export of agro-food products to EU countries and the world in 2013-2017, % [12]*

| Code and name for the group of products UCG FEA | EU countries | | | | | World | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2013 | 2014 | 2015 | 2016 | 2017 | 2013 | 2014 | 2015 | 2016 | 2017 |
| I. Live animals and livestock products | 1,2 | 2,9 | 4,0 | 4,3 | 5,0 | 6,4 | 6,1 | 5,7 | 5,1 | 6,2 |
| II. Plant products | 70,1 | 61,6 | 60,4 | 49,4 | 53,6 | 52,0 | 52,4 | 54,7 | 53,0 | 52.0 |
| III.Animal or plant fats and oils | 11,2 | 16,6 | 16,8 | 29,2 | 26,1 | 20,6 | 22,9 | 22,7 | 25,9 | 25,9 |
| IV. Finished food industry products | 17,5 | 18,9 | 18,8 | 17,1 | 15,3 | 21,0 | 18,6 | 16,9 | 16,0 | 15,9 |
| Agro-food products, total | 100,0 | 100,0 | 100,0 | 100,0 | 100,0 | 100,0 | 100,0 | 100,0 | 100,0 | 100,0 |

According to Heilier M. and Pyatnitsky V. [14], after the entry into force of the FTA+ more than 99% of Ukrainian exports of goods, including agro-food products, will be carried out without payment of import duties. Changing the order of tariff protection on the internal market provides the abolition of import duties for 97% of goods exported from Ukraine to the EU countries, as well as partway the import of goods on duty-free basis within the tariff quotas.

Within the obligations under the agreement on FTA, the change in the order of tariff protection on

the internal market provides for the establishment of a tariff quota with a zero rate of customs duty on the following types of agricultural products: wheat - 950 thousand tons with an increase to 1 million tons for 5 years; corn - 400 thousand tons with an increase to 650 thousand tons for 5 years; milk, cream and yogurt - 8 thousand tons with an increase to 10 thousand tons for 5 years; beef - 12 thousand tons; pork - 40 thousand tons; chicken - 16 thousand tons; sugar - 20,07 thousand tons; fruit juice - 27 thousand tons with an increase to 100 thousand tons for 5 years. According to some estimates, the volume of quotas at weighted average prices may be almost $ 1.5 billion, subject to full use of tariff quotas. According to the FTA parameters between Ukraine and the EU, modification of tariff quotas is envisaged in the part of their increase for a number of Ukrainian agricultural and food products. It is anticipated that these positions will increase once for five years, on average by 10% per year. The weighted average import duty of the EU will decrease from 18.9% to 0.6%. At the same time, Ukraine is obliged to reduce the import duty rate for the group of goods 1-24 UCG FEA from 9.24% to 6.77% and reach an average arithmetic rate of 1.38% during the 11 years of the functioning of the Agreement.

According to the study of experts from the German Advisory Group [15], the results of the introduction of FTA+ between Ukraine and the EU in the long run will be GDP growth of Ukraine by 0.5% annually, as well as an increase of the welfare of citizens by 1.2% per year. The volume of foreign exchange earnings at the expense of domestic exporters will be $ 587.4 million every year, which is $ 14.6 million more than exports of the same amount of agricultural products under the current principles of the WTO.

Confirmation of the positive effect of introducing FTA+ on trade in goods on the European agrarian market necessitates a study of changes in the competitiveness of Ukrainian agro-food products. The analysis of the dynamics of the absolute values of exports within certain commodity groups does not allow making the correct conclusions, since these indicators can be influenced by the monopolization of a particular industry. Therefore, a change in comparative advantages within trade of agricultural products using the Balassa index will be displayed. The use of this index will allow the identification of commodity groups from the list of 1-24 UCG FEA, which have comparative advantages on the European market, and also investigate how sensitive the reaction of the competitiveness of the goods mentioned positions on the full-fledged establishment of FTA+ between Ukraine and the EU has become. The investigated time interval for the purpose of such analysis is conditionally divided into two periods: before the action (2013-2015) and after (2016-2017) (Tab. 3.).

*Table 3. Dynamics of the Balassa index in terms of groups of agricultural products with comparative advantages on the EU market, 2013-2017 (calculated according to data [13]).*

| Code and name for the group of products UCG FEA | 2013 | 2014 | 2015 | 2016 | 2017 | Increase (⇑) , decrease (⇓ ) of the index in 2016-2017 compared to 2013-2015. |
|---|---|---|---|---|---|---|
| 02 Meat and meat preparations | 0,01 | 0,27 | 0,51 | 0,51 | 11,99 | ⇑ |
| 04 Milk and milk products; eggs; honey | 0,89 | 1,10 | 1,38 | 2,27 | 2,26 | ⇑ |
| 10 Cereals | 9,86 | 9,71 | 8,04 | 9,58 | 10,63 | ⇑ |
| 11 Flour-grinding products | 1,29 | 1,59 | 1,84 | 2,20 | 1,72 | ⇑ |
| 12 Oil seeds and fruits | 3,09 | 2,26 | 2,18 | 1,79 | 2,23 | ⇓ |
| 14 Plant materials for producing | 9,15 | 10,61 | 8,83 | 5,33 | 3,29 | ⇓ |
| 15 Animal or plant fats and oils | 1,62 | 2,21 | 2,31 | 3,87 | 3,18 | ⇑ |
| 23 Remains and wastes of food industry | 1,22 | 1,47 | 1,51 | 1,59 | 1,37 | ⇑ |

The analysis showed that only 8 product groups from 24 identified comparative advantages on the European market. It should be noted, that after the introduction of the free trade area, the improvement of competitive positions was observed in such groups as meat and edible offal, milk and dairy products, poultry eggs, honey, cereals, flour and cereal products, fats and oils of plant and animal origin, residues and waste of the food industry. The effect of the trade preferences under the DCFTA led to a change in the status of the commodity group 02 Meat and edible offal, which had not previously revealed the comparative advantages (the index of RCA increased from 0.26 on average for 2013-2015 to 2.65 on average for 2016- 2017). In groups such as seeds and yield of oilseeds, vegetable materials for manufacturing against the background of increased exports, there is a deterioration of competitive positions. This is due to the fact that these positions, although having high rates of the RCA index, are characterized by a low degree of processing and a significant dependence on price fluctuations on the foreign market.

Goods that have comparative advantages on the European market, in general, provided in 2017 about 90.6% of currency revenues from the export of agricultural products to the EU countries (Fig. 2.).

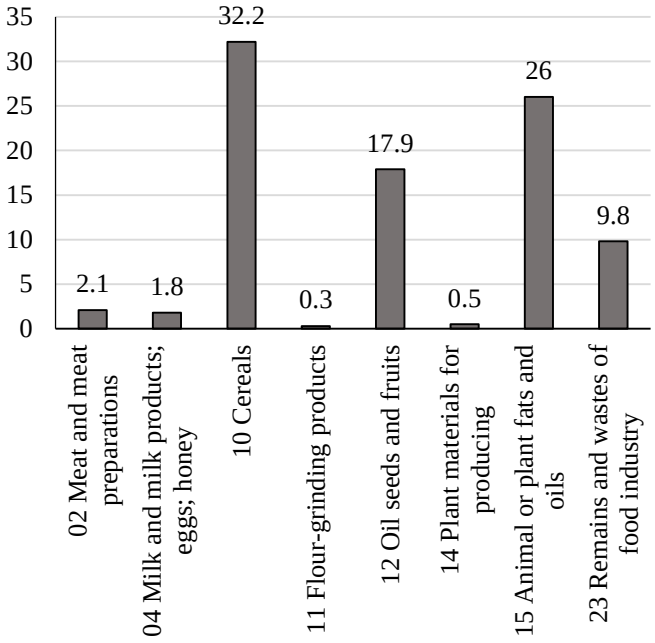


*Figure 2. Share in exports of commodity groups of agro-food products, in trade with which Ukraine has comparative advantages in 2017, % [12].*

The above data suggest that progress in trade and economic cooperation between Ukraine and the EU has a positive impact on the competitive position of agricultural products and offers additional opportunities for exports.

This makes the European market perspective for Ukraine. However, it should be noted that Ukrainian exports of agricultural products are mostly of raw nature, high value-added products do not have comparative advantages on the European market, and their exports grow slowly. The dynamic process of developing trade relations between Ukraine and the EU is complicated by factors such as high European standards and technical regulations, insufficient level of competitiveness of Ukrainian agro-food products, its high cost price.

## 6. Conclusions

So, liberalization of trade on the European market within the framework of a deep and comprehensive free trade area has opened up new opportunities for exporters of agro-food products. Against the backdrop of a general decline in domestic exports of goods, this group experienced the increase of 4.2% over 2013-2017. The EU remains one of the main trading partners in this field, receiving more than a third of agricultural products, processing and food industries exported from Ukraine. The study of comparative advantages in the context of separate groups of agricultural products with the help of the modified Balassa index has allowed to establish that the improvement of competitive positions after being observed at 6 positions with 8, which have such advantages on the European market. According to groups such as meat and edible offal, cereal crops demonstrated rather high level of comparative advantage (11.99 and 10.63 respectively), with these indicators having a steady tendency to increase. Goods that have comparative advantages on the European market, in general, provided in 2017 about 90.6% of currency revenues from the export of agricultural products to the EU countries. However, most agro-food products, that have shown comparative advantages, have a raw material character, which is a sign of insufficient technological development of the industry.

Therefore, one of the main tasks of the state's policy in the future is to expand the export orientation of agricultural production at the expense of products with a high share of value added that will fully realize all the benefits of economic integration and direct access to the EU market.

The subject of further research may be the development of approaches to the implementation of national economic interests in the context of further deepening of the integration relations with the European Union, in particular, in terms of stimulating the development of export potential and the liberalization of agricultural markets.

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