



Munich Personal RePEc Archive

# **Assesment of competitiveness of moldovan agri-food products at the regional level**

Lucasenco, Eugenia and Ceban, Alexandru

National Institute for Economic Research, Chisinau, Republic of  
Moldova,, National Institute for Economic Research, Chisinau,  
Republic of Moldova,

19 November 2020

Online at <https://mpra.ub.uni-muenchen.de/106308/>  
MPRA Paper No. 106308, posted 01 Mar 2021 10:04 UTC

# ASSESSMENT OF COMPETITIVENESS OF MOLDOVAN AGRI-FOOD PRODUCTS AT THE REGIONAL LEVEL

EUGENIA LUCASENCO<sup>1</sup>, ALEXANDRU CEBAN<sup>2</sup>

**Abstract.** *The paper aims to assess the competitiveness of Moldovan agri-food products at the regional level, with an emphasis on neighbouring countries. Taking into account the latest trends in export of agri-food products, it is becoming necessary to analyze what are the most competitive Moldovan products on the regional EU market. In order to carry out the proposed assessment, the Revealed Comparative Advantage index has been used. This index helps calculating the relative advantage or disadvantage of a specific country in a certain class of goods as evidenced by trade flows. As a result, products with a significant comparative advantage have been identified, meaning the existence of the competitive potential at the regional level. At the same time, several proposals have been formulated in order to increase the competitiveness' level of selected Moldovan agri-food products.*

**Key words:** *trade, Revealed Comparative Advantage index (RCA), Republic of Moldova, agri-food products*

**Jel Classification:** *Q17.*

## INTRODUCTION

The agricultural sector of the Republic of Moldova is going through a significant period of modernization and development, relying on the gradual transition to a competitive agriculture, which implies the existence of advantages, both on the internal and external markets.

One of the methods used to assess the competitiveness of a product on the external market is the Revealed Comparative Advantage indicator (RCA) or Balassa indicator. The RCA of Moldovan livestock products for the period 2005 – 2014 has been studied by Ignat, Stratan and Lucasenco (Ignat et al, 2017). An approach of the RCA in relation to the total trade, including trade with agri-food products for the period 1994 – 2006 has been tackled by Prohntitchi et al (Prohntitchi et al, 2009). Ignjatijević et al focused on analysis of the RCA in the processed food sector of the Danube countries, including the Republic of Moldova (Ignjatijević et al, 2015). Moroz, Ignat and Lucasenco focused their research on the development of agri-food trade opportunities at the regional level, also by using the RCA indicator for the Republic of Moldova, Romania and Ukraine (Moroz et al, 2011).

Therefore, the aim of the paper is to assess the competitiveness of Moldovan agri-food products at the regional level, with an emphasis on neighbouring countries, Romania and Ukraine, by using the RCA indicator.

## MATERIAL AND METHODS

The Balassa indicator (RCA) is widely used in the empirical literature to identify the weak and strong export sectors of some countries. The mostly used formula to assess the competitiveness of certain products or categories of products is the following:

$$RCA = \frac{X_{ij}}{X_{it}} / \frac{X_{nj}}{X_{nt}} = \frac{X_{ij}}{X_{nj}} / \frac{X_{it}}{X_{nt}}$$

where,  $X$  represents exports,  $i$  – a country,  $j$  – a commodity or an industry,  $t$  – a set of commodities or industries, and  $n$  – a set of countries (Balassa, 1965).

This index starts from the idea of comparing a country's exports of a product or an industry with the exports for the same product or industry made by a group of countries, considered as a

---

<sup>1</sup> Eugenia Lucasenco, National Institute for Economic Research, Chisinau, Republic of Moldova, [eugenia\\_lucasenco@yahoo.com](mailto:eugenia_lucasenco@yahoo.com)

<sup>2</sup> Alexandru Ceban, National Institute for Economic Research, Chisinau, Republic of Moldova, [ceban\\_alexander@yahoo.com](mailto:ceban_alexander@yahoo.com)

reference point, but not directly compares the exports of that product or industry, but their share in the total trade.

The Balassa indicator (RCA) is based on the existing models in the foreign trade. This indicator measures the export of a product with the country's total exports and the export performance of a set of countries. If  $RCA > 1$ , it denotes a comparative advantage, for example: the sector in which the country is relatively specialized in the terms of exports (Moroz et al, 2011).

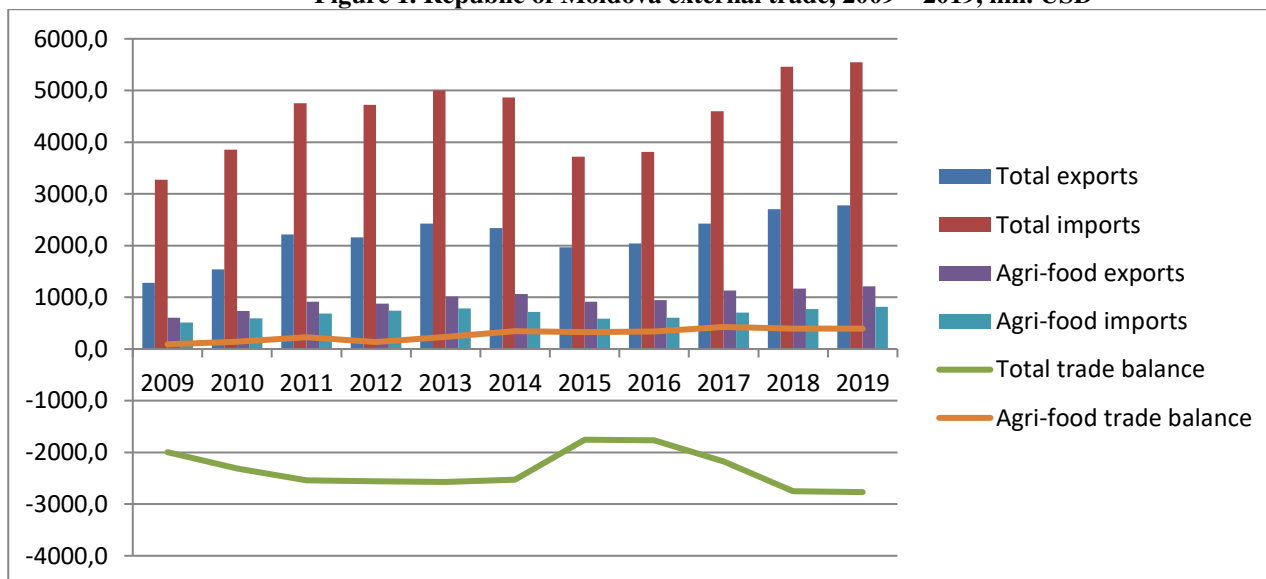
Data on foreign trade of the Republic of Moldova, Romania and Ukraine provided by the UNComtrade and WITS databases has been used for the analysis of the Revealed Comparative Advantage of various groups agri-food commodities from the the specified countries compared to the world and to EU. A limitation of the paper consists in the fact that foreign trade data for Ukraine for 2019 is still not available in official statistics.

## RESULTS AND DISCUSSIONS

The foreign trade of agri-food products of the Republic of Moldova plays an important role in the national economy, representing a basic pillar for the general trade. The share of the agri-food exports in the total exports varies from 40.7% in 2007 to 43.6 in 2019. The value of agri-food exports increased from 604.7 mil. USD in 2009 to 1211.1 mil. USD in 2019.

The share of agri-food imports in the total value of imports accounted for 15.7% in 2009 and 14.7% in 2019. The value of agri-food imports experienced an increase from 513.6 mil. USD in 2009 to 815.9 mil. USD in 2019. The agri-food trade balance is positive all over the analysed period, with a considerable increase in the last 5 years.

**Figure 1. Republic of Moldova external trade, 2009 – 2019, mil. USD**



Source: own calculations based on WITS database (2020)

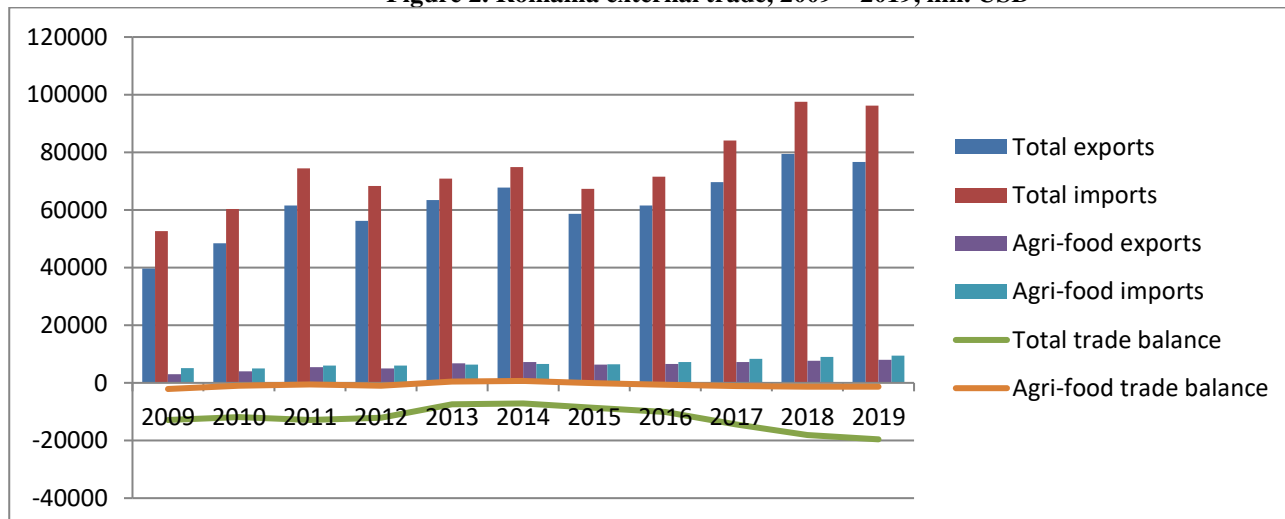
Nowadays, the trade policy of the Republic of Moldova is focused on development of strong trade relations with EU countries in the framework of DCFTA and geographical diversification of the agri-food exports to other countries, although, a certain category of products can still be exported mainly on the CIS market (apples). Thus, in the trade with agri-food products, EU became Moldova's main partner, with a share of over 55% of Moldovan exports and over 40% of agri-food imports.

At the same time, there is a dominance of exports of low value-added agricultural products, such as cereals, oilseeds and other unprocessed agricultural products. There is also a clear upward trend in exports to the EU and, consequently, a reduction in the share of exports of agri-food products to CIS countries.

In Romania, the share of the agri-food exports in the total exports varies from 7.7% in 2007 to 10.5% in 2019. The value of agri-food exports increased from 3041.84 mil. USD in 2009 to 8055.4 mil. USD in 2019.

The share of agri-food imports in the total value of imports accounted for 9.8% in 2009, with the same value in 2019. The value of agri-food imports experienced an increase from 5167.0 mil. USD in 2009 to 9535.1 mil. USD in 2019. The agri-food trade balance is mostly negative during the analysed period.

**Figure 2. Romania external trade, 2009 – 2019, mil. USD**

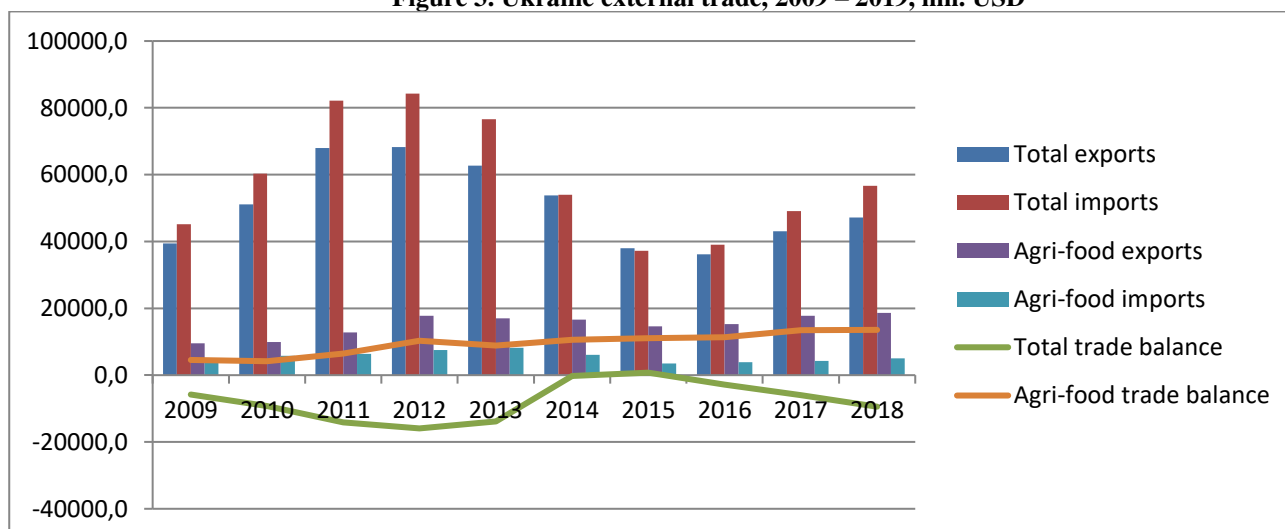


Source: own calculations based on WITS database (2020)

In Ukraine, the share of the agri-food exports in the total exports varies from 24.2% in 2007 to 39.5% in 2018. The value of agri-food exports increased from 9514.84 mil. USD in 2009 to 18611.5 mil. USD in 2018.

The share of agri-food imports in the total value of imports accounted for 10.9% in 2009, decreasing to 8.9% in 2018. The value of agri-food imports experienced an increase from 4579.0 mil. USD in 2009 to 13556.4 mil. USD in 2018. The agri-food trade balance is positive all over the analysed period, with a considerable increase in the last 5 years.

**Figure 3. Ukraine external trade, 2009 – 2019, mil. USD**



Source: own calculations based on WITS database (2020)

The analysis of the comparative advantage of Moldovan, Romanian and Ukrainian agricultural commodities includes two aspects: the comparative export advantage of agricultural products with respect to world exports, and also vis-à-vis the EU countries.

Thus, with respect to the world trade, in 2019, high values of RCA has been identified for the following commodities groups:

Republic of Moldova: oil seeds and oleaginous fruits – 16 (with a considerable increase compared to 2009 and 2014), cereals – 12.4 (increase of the indicator), edible fruits and nuts – 10.1 (decrease from 18 in 2009 and 15.1 in 2014), beverages – 9.5 (considerable decrease) and vegetable planting materials – 7.3. At the same time, very low indicators are observed in the livestock commodities groups.

Romania: cereals – 5.6 (increase compared to 2009), tobacco – 5.6, live animals – 4.3 and oil seeds – 2.7. For the rest of the commodity groups, RCA has values lower than 1, meaning the lack of comparative advantage.

For Ukraine, due to data limitations for 2019, the intermediate period (2014) has been analyzed, being identified high values for vegetable planting materials – 32.8, cereals – 18.6, animal or vegetable fats and oils – 13.9, oil seeds – 5.8.

Considerable common disadvantages for the three countries in relation to the world market can be observed for some commodity groups like fish and crustaceans, live trees, coffee and tea, lac and gums, being explained by a low level of production or undercompetitive products in these fields.

**Table 1. RCA for agri-food exports from Moldova, Romania and Ukraine with respect to the world market, 2009, 2014, 2019**

Commodity group / Year	Republic of Moldova			Romania			Ukraine		
	2009	2014	2019	2009	2014	2019	2009	2014	2019
01 – Live animals	1,2	2,2	2,4	4,0	4,6	4,3	0,2	0,2	n/a
02 – Meat and edible meat offal	0,2	2,1	0,4	0,3	0,5	0,4	0,3	1,0	n/a
03 – Fish and crustaceans	0,0	0,0	0,0	0,0	0,0	0,1	0,1	0,0	n/a
04 – Dairy produce	0,8	1,4	1,2	0,4	0,5	0,5	2,5	2,0	n/a
05 – Products of animal origin	0,1	0,1	0,3	0,6	1,1	0,8	0,3	0,5	n/a
06 – Live trees and other plants	0,3	0,4	0,5	0,0	0,0	0,0	0,0	0,0	n/a
07 – Edible vegetables	0,8	1,8	0,8	0,3	0,4	0,3	1,0	0,7	n/a
08 – Edible fruit and nuts	18,0	15,1	10,1	0,2	0,3	0,1	0,8	0,5	n/a
09 – Coffee, tea	0,1	0,1	0,2	0,1	0,1	0,2	0,1	0,1	n/a
10 – Cereals	8,3	11,9	12,4	3,4	5,7	5,6	14,3	18,6	n/a
11 – Products of the milling industry	0,6	1,1	0,4	0,2	0,2	0,2	2,0	2,2	n/a
12 – Oil seeds and oleaginous fruits	10,6	12,2	16,0	2,7	2,9	2,7	5,4	5,8	n/a
13 – Lac; gums, resins	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	n/a
14 – Vegetable planting materials	4,5	8,0	7,3	1,0	0,6	0,4	1,5	32,8	n/a
15 – Animal or vegetable fats and oils	9,3	6,5	4,7	0,7	0,8	0,6	10,6	13,9	n/a
16 – Preparations of meat, of fish	0,1	0,0	0,0	0,4	0,8	0,9	0,3	0,2	n/a
17 – Sugars and sugar confectionery	9,5	9,8	1,5	0,4	0,6	0,2	1,5	1,1	n/a
18 – Cocoa and cocoa preparations	0,7	1,0	0,9	0,3	0,3	0,5	4,4	2,2	n/a
19 – Preparations of cereals, flour	1,4	2,0	1,2	0,4	0,6	0,6	1,4	2,0	n/a
20 – Preparations of vegetables, fruit	10,5	7,8	7,1	0,2	0,2	0,3	1,0	1,7	n/a
21 – Miscellaneous edible preparations	0,6	0,9	0,6	0,5	0,6	0,5	0,6	1,1	n/a
22 – Beverages, spirits and vinegar	18,7	13,7	9,5	0,3	0,3	0,3	1,7	0,8	n/a
23 – Residues and waste from the food industry	1,6	2,0	1,9	0,5	0,8	0,7	1,9	4,6	n/a
24 – Tobacco	4,3	3,2	3,3	4,4	5,9	5,6	1,9	2,8	n/a

*Source: own calculations based on UNComtrade data (2020)*

With respect to the EU countries, in 2019, Republic of Moldova had the highest RCA values for the following commodity groups: oil seeds – 28.8, cereals – 13.9, animal or vegetable fats and

oils – 7.8, edible fruits and nuts – 7.5. and vegetable plaiting material 5.1. The 4-digit detalization of the highest RCA values of the commodity groups show that within commodity group 08 - Edible fruit and nuts, the highest indices of RCA are for nuts – 74.7, grapes – 12.5 and apricots, cherries, peaches – 6.4. In the commodity group 10 – cereals, the highest share is hold by maize – 49.9, wheat – 43.5 and barley – 5.2. For sunflower seeds – Republic of Moldova has an RCA of 111.1 in 2019. The highest figures come to prove, once again, the specialization of the country on low added value products like maize, wheat and sunflower.

Romania holds high values of RCA in 2019 at oil seeds – 5.6, cereals – 4.6 and tobacco – 4.6. The rest of the commodity groups accounted values less than 1.

As for Ukraine, in 2014, a high RCA rate has been observed in vegetable plaiting materials – 171.2, cereals, 23.8 and oil seeds – 18.3.

**Table 2. RCA for agri-food exports from Moldova, Romania and Ukraine with respect to the EU market, 2009, 2014, 2019**

Commodity group / Year	Republic of Moldova			Romania			Ukraine		
	2009	2014	2019	2009	2014	2019	2009	2014	2019
01 – Live animals	0,0	0,0	0,0	1,9	1,2	0,9	0,0	0,0	n/a
02 – Meat and edible meat offal	0,0	0,0	0,0	0,2	0,4	0,3	0,0	0,3	n/a
03 – Fish and crustaceans	0,0	0,0	0,0	0,1	0,1	0,0	0,0	0,1	n/a
04 – Dairy produce	0,0	0,6	0,6	0,2	0,3	0,3	0,1	0,3	n/a
05 – Products of animal origin	0,3	0,1	0,1	0,7	1,2	0,8	0,7	0,5	n/a
06 – Live trees and other plants	0,1	0,0	0,1	0,0	0,0	0,0	0,0	0,0	n/a
07 – Edible vegetables	0,1	0,1	0,3	0,3	0,3	0,3	0,4	0,2	n/a
08 – Edible fruit and nuts	7,7	11,4	7,5	0,1	0,2	0,1	0,8	0,7	n/a
09 – Coffee, tea	0,3	0,1	0,3	0,1	0,2	0,2	0,1	0,1	n/a
10 – Cereals	10,7	12,8	13,9	3,6	3,8	4,6	10,5	23,8	n/a
11 – Products of the milling industry	1,1	1,3	0,6	0,2	0,2	0,2	0,3	0,4	n/a
12 – Oil seeds and oleaginous fruits	20,3	19,5	28,8	5,5	5,0	5,6	30,3	18,3	n/a
13 – Lac; gums, resins	0,0	0,0	0,0	0,0	0,0	0,0	0,1	0,1	n/a
14 – Vegetable plaiting materials	15,3	19,5	5,1	2,4	1,3	0,8	11,0	171,2	n/a
15 – Animal or vegetable fats and oils	6,9	11,1	7,8	0,7	0,7	0,7	9,9	8,9	n/a
16 – Preparations of meat, of fish	0,0	0,0	0,0	0,4	0,7	0,7	0,0	0,0	n/a
17 – Sugars and sugar confectionery	7,8	3,8	1,8	0,6	0,7	0,3	0,6	0,5	n/a
18 – Cocoa and cocoa preparations	0,6	0,4	0,5	0,1	0,2	0,3	0,5	0,3	n/a
19 – Preparations of cereals, flour	1,1	1,5	0,9	0,2	0,3	0,4	0,2	0,2	n/a
20 – Preparations of vegetables, fruit	4,3	5,0	4,7	0,1	0,1	0,2	0,3	1,5	n/a
21 – Miscellaneous edible preparations	0,1	0,1	0,1	0,3	0,4	0,5	0,2	0,2	n/a
22 – Beverages, spirits and vinegar	3,5	2,8	3,7	0,2	0,2	0,2	0,4	0,2	n/a
23 – Residues and waste from the food industry	0,4	0,7	0,4	0,5	0,6	0,4	3,6	6,1	n/a
24 – Tobacco	0,5	0,7	0,2	3,7	4,9	4,6	0,0	0,1	n/a

Source: own calculations based on UNComtrade data (2020)

As a result of comparison with the neighbouring countries, one can note that all the countries have increased RCA figures for cereals and oil seeds, making them competitors on the EU market in terms of exporting these products. Unfortunately, the lack of competitiveness of low RCA products represent a significant obstacle in accessing the world and EU markets. At the same time, EU member states supply the market with more competitive products, making, thus difficult for non-EU countries to access certain segments of the market. The livestock sector products would represent an example in this regard, which makes difficult, due to increased safety requirements and other standard requests, for producers to access the EU market.

## CONCLUSIONS

External trade of the analysed countries (Republic of Moldova, Romania and Ukraine) differs considerably in terms of volumes and values. All the countries have important growth rhythms in terms of exports of agri-food products during 2009 - 2019, with more moderate growth rates of agri-food imports. Republic of Moldova and Ukraine are emphasized by high share of agri-food exports in the total export value of the countries during the researched period, while Romania has more modest indicators regarding this chapter. The agri-food trade balance is positive for Moldova and Ukraine, while for Romania – is mostly negative.

Common competitive advantages with respect to EU countries have been observed for cereals and oil seeds, while considerable disadvantages for the three countries have been noted for fish and crustaceans, live trees, coffee and tea, lac and gums.

The perspectives on competitiveness of Moldova's agri-food products should rely on development of added value agri-food production, increase of productivity, improvement of the quality of products, development of quality standard infrastructure, development of other sectors, like the livestock one, etc.

## BIBLIOGRAPHY

1. Balassa, B. (1965), Trade Liberalisation and 'Revealed' Comparative Advantage, The Manchester School, 33, 99-123.
2. Ignat, A., Stratan, A., Lucasenco, E. (2017). Revealed Comparative Advantage of Moldova's Livestock Products. Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development Vol. 17, Issue 2, p. 177 – 182
3. Ignjatijević, S. et al (2015). Balance of Comparative Advantages in the Processed Food Sector of the Danube Countries. Sustainability 2015, 7, p. 6976-6993
4. Moroz, V., Ignat, A., Lucasenco, E. (2011). Agri-food trade development opportunities at the regional level. Economie si Sociologie, Nr. 2, p. 68 – 73
5. Prohntichi, V., et al (2009). A Free Trade Area between the Republic of Moldova and the European Union: Feasibility, Perspectives and Potential Impact. Expert-Grup, Chisinau, 90 p.
6. UN Comtrade database (2020). Retrieved 19.08.2020 from <https://comtrade.un.org/>
7. World Integrated Trade Solution database (2020). Retrieved 19.08.2020 from <https://wits.worldbank.org/>