AGRI-FOOD TRADE - A PATH TO AGRICULTURAL DEVELOPMENT OF MOLDOVA

Liliana CIMPOIES[1]

[1]State Agricultural University of Moldova, 44 Mircesti, MD-2049, Chisinau, Moldova, Phone: +373 22.432.387, Fax: + 373 22 31.22.76, Email: liliana.cimpoies@.hotmail.com

Corresponding author: liliana.cimpoies@.hotmail.com

Abstract

In this study we try to assess the progress in the development of the agricultural sector of Moldova. As indicator of the successful/unsuccessful development of the agri-food sector may serve the foreign trade activity. Thus, in the given research is analyzed the changes in the agri-food trade structure during 2007-2011, the competitiveness of the agricultural sector and the pattern trade flows. For this aim was computed Gruber-Lloyd index for evaluating the intra-industrial trade in this period, and RTA index for inter industrial trade. As well, some policy measures necessary for further integration will be discussed.

Key words: *agricultural sector, agri-food trade, GL index, RTA index, Republic of Moldova*

INTRODUCTION

For Moldova, the transition to a market economy led to various changes in the ownership relations, the development of the market infrastructure, investments process and others. During 2009, Moldova registered 7,7% decrease in its GDP, 24% decrease in exports, and 43% decrease in FDI as a result of the global financial crisis.

Strong differences in the level of development in the countries with former planned economy are observed after over twenty years of transition towards market economy. This is related to the level of economic and social development, as well as to the level of integration of these countries in the world markets. Many researchers appreciate the level of integration of these countries in the world economy (Bergschimidt, Hartmann 1998, Levkovich, Hockmann 2007). In these works are established the level of competitiveness of one or another branch or country. Nevertheless, it is not given the answer in which measure these results should be related to the amount of utilized branches (countries) advantages of labour division, or how much these results are determined by the successfulness (unsuccessfulness) of the transition process (Levkovich, Hockmann 2007).

The aim of this research is to appreciate the progress of the transition process of the agri-food sector in the context of the Moldova's trade with agro-food products and to review which economic and politic measures that contributes to the economic integration of the country in the world economy should be undertaken. As the object of the analysis is the foreign trade, we will try to determine if it is enough the specialization in the area of international trade as a result of the "unstable" trade policy of Moldova and its partners (unfavourable trade policy of its partners) or if the reason is the too indecisive transition reforms.

MATERIALS AND METHODS

This research will analyze some indicators of inter and intra industry trade. For the appreciation of the country's comparative advantage (or a particular sector) Bela Balassa (Balassa 1965) elaborated the method that reveals the "Revealed Comparative advantages" (RCA). This method is based on the assumption that the implicit comparative advantages find their reflection directly in the trade flows. According to Balassa, comparative advantages are manifested in relatively high shares of a particular product/sector in the structure of exports. In

the same time the relative limitations are reflected through low shares of a product/sector.

The RCA index or Balassa index is an indicator that characterizes the ratio of a commodity i in the total amount of country's exports and the share of this commodity in the total amount of world's exports. This index is based on observed trade patterns. This index is defined as:

$$B = (X_{ij}/X_{it})/(X_{nj}/X_{nt}), \qquad (1)$$

Where: X – export; i – a country; j – a commodity; t – a set of commodities; n - a set of countries.

If B>1, then a comparative advantage is revealed. The standard deviation of this index across products can be used as measure of the comparative importance of inter-industry specialization or intra-industry trade.

An alternative specialization of revealed comparative advantage was developed by Vollrath (Vollrath 1991) and was called Relative Trade Advantage (RTA). The RTA index is calculated as the difference between relative export advantage (RXA) or Balassa index and relative import advantage (RMA):

RTA = RXA – RMA   (2)

Where, RXA $=B = (X_{ij}/X_{it})/(X_{nj}/X_{nt})$;

RMA $= (M_{ij}/M_{it})/(M_{nj}/M_{nt})$;

M – import.

The positive value of RTA indicates comparative trade advantages, while negative value indicates comparative trade disadvantages. When RTA is greater than zero, then a comparative advantage is revealed, which means that a sector of the country is relatively more competitive in terms of trade.

For assessing the intra industry trade was developed some indicators, from which the most used is the Grubel-Lloyd index (GL) (Grubel, Lloyd 1975). According to it, intra industry trade is determined as the trade between countries, where the costs of exports of particular sector is corresponding to the costs of imports of same sector. The GL index determines the share of intra industry trade in the total amount of exports of a particular sector. For computing this index is needed to sum particular trade flows. The index is changing in values from 0 to 100.

$$GL_i = \frac{[(X_i+M_i)-|X_i-M_i|]}{X_i+M_i} \times 100\%, \quad (3)$$

Where, GLi – index of intra industry trade;

X_i - value of export in industry i;

M_i - value of import in industry i;

$X_i + M_i$ - total value of trade;

$|X_i - M_i|$ - trade balance of industry i.

The closer the GL value is to 100, the more important is intra industrial trade, and the closer is GL value to 0 the more important is inter-industry trade. In order to establish an average level of intra-industry trade, Grubel and Lloyd proposed the weighted index to arrive at an overall measure of intra industry trade.

The traditional measure of intra industry trade is used and the Grubel Lloyd index is calculated as:

$$GL_i = 1 - \frac{|X_i-M_i|}{(X_i+M_i)} \quad (4)$$

Where, Xi is the export in a certain line of goods and Mi is the import in the same commodity group.

The value of GLi index can vary between 0 and 1. The higher the value of this index, then the higher is the level of intra industrial trade.

For the appreciation of agri food trade indicators were used data from National Bureau of Statistics and COMTRADE according to the harmonized sections of commodities HS 2002, for the years 2007-2011. In the given research were analyzed 24 groups of commodities from the agri-food sector. From these, groups 01-15 are agricultural production, groups 16-24 – foodstuffs. As well, is analyzed the agri-food trade by groups of countries: EU27, CIS, others.

RESULTS AND DISCUSSIONS

A central place in the country's economy belongs to the agri-food sector. It represents 30% of GDP, 37% of exports and 40% of population is employed in this sector; but only 2,5% of total FDI.

Economic transformations from the beginning of the 90s lead to negative processes in country's agro-industrial complex that caused

changes in the proportions between agriculture and industry, as well as the decrease of the amount of agricultural production.

Table 1. Agri-food sector in the national economy

	2007	2008	2009	2010	2011
Share of agricultural sector in GDP, %	10.0	8.8	8.5	12	12.2
Share of population employed in the agricultural sector, %	32.7	31	28.2	27.5	27.5
Gross Agricultural Output (GAO), mio lei	9432.5	12460.3	11259.5	12146.7	12757.8
Agri food exports, mio US dollars	456750	525430	537680	640302	733522
Agri food imports, mio US dollars	424759	595483	488720	555169	652717
Share of agri food exports in the total amount of exports, %	34.08	33.02	41.9	41.5	33.08
Share of agri food imports in the total amount of imports,%	11.5	12.05	14.9	14.4	12.5

Source: based on data from National Bureau of Statistics

Another negative consequence is related to the proportions of distribution between the sector of crop production and livestock.

Table 2. Gross Agricultural Output, mio lei

	2007	2008	2009	2010	2011
Crop production	7491	10600	7861	13616	15751
Livestock	4509	5519	4987	5786	6347
Gross Agricultural output	1282.5	16503	13300	19873	22619

Source: based on data from National Bureau of Statistics

As a result of bankruptcy most livestock complexes were closed and the share of livestock sector is currently low comparing to its level at the beginning of 90s.

In the agricultural output largest share belongs to crop production (about 70%) namely, cereals (27%), potatoes and vegetables (19%), fruits and technical crops (14%), and grape (about 30%). The largest share in country's exports belongs to foodstuffs, alcoholic drinks, and tobacco (about 45%), followed by vegetal products as sunflower seeds, walnuts, fruits and cereal crops (about 40%), animal and vegetal fats and oil (8%) and livestock (2%).

Agri-food exports of Moldova are dominated by the high share of a number of commodities (commodity groups) and mainly: the highest share belongs to edible fruits and nuts – about 20% in 2011. Second place is for oil seeds and oleaginous fruits with a share of 19%, and after are placed beverages, spirits and vinegar – about 17%. A smaller share have the commodity group of animal or vegetable fats and oils and preparations of vegetables, fruit, nuts or other parts of plants, with a share of 8% and 7%. The amount of crop production in Moldova is influenced by weather conditions. Thus crop production is leader of country's structure of exports, which leads to a certain instability in the amount of cash payments and as result an unstable balance of payments.

As well, should be mentioned that in 2011 from the total amount of Moldavian agri-food exports about 80% were agricultural products (01-15 HS commodity group). In the same time, the share of food processing industry products is only 20%, which indicates an unused potential for increasing the competitiveness of Moldavian agri-food sector.

If in country's agri-food exports the largest share (other 50%) belongs to 3 main groups of commodities (beverages, oil seeds, edible fruits), then Moldova's agri-food imports are more diversified (Fig. 2).

During 2007-2011 the structure of agri-food imports did not changed significantly.

Exception was for imports of sugar which increased by 3 times, edible fruits and edible vegetables increased by 2 times, preparations of cereals (with 94%), fats and oils (56%) and tobacco (40%).

A major condition for a country's economic development and constant growth is the existence of a favourable policy framework. Unfortunately, this condition was not really characteristic for the case of Moldova.
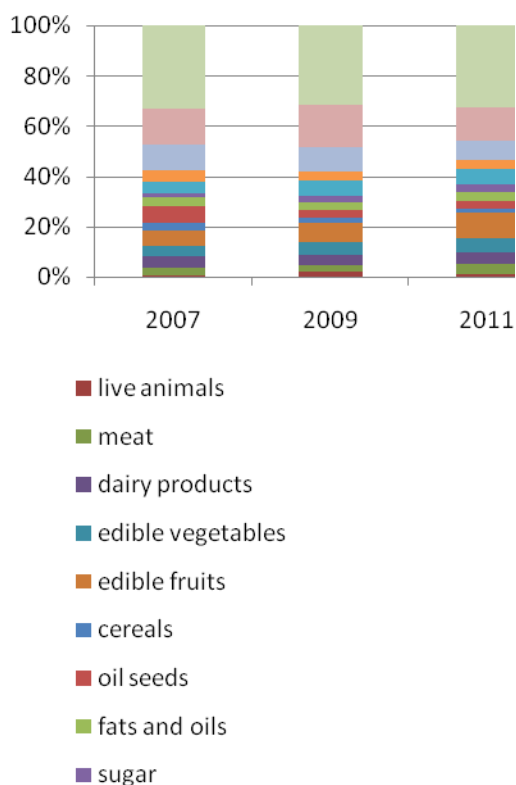

Fig. 1. Moldova's imports structure of agri food products for selected years 2007-2011

Nevertheless, a certain improvement in the implementation of some economic policies, and particularly agricultural and trade policy was noticed. One important step was the redirection of Moldavian exports towards EU countries.

An important step for Moldova's trade liberalization and its trade policy was joining the WTO in 2001. Another important movement in the Moldovan trade policy was accession at the Stability Pact for South-East Europe which offered some additional opportunities for its exports.

Another way of trade stimulation/ intensification between Moldova and EU is the Free Trade Agreement representing an efficient instrument for reaching its strategic objectives of future integration. Because of the importance of trade and investments for the economic progress, a free trade zone will offer considerable economic earnings, with the condition to be introduced in an adequate economic framework by each company or individual are free to value the available business opportunities. The key elements of a Free Trade Agreement are the dynamic effects which results from the changes in the economic growth because of the impact of big foreign investments. For countries in transition these investments are particularly important, mainly for the CIS countries where were invested only a small amount of direct investments. Therefore, in the opinion of many authors, Free Trade Agreement will create favourable conditions for the investments as well as will intensify the trade relations with the European partners (Bartosova 2008).

A deep and comprehensive free trade agreement supposes not only the elimination of tariffs on bilateral trade in goods, but also provides regulations in various selected areas (competition policy, state aid etc.) for market integration. The implementation of such a free trade agreement will cause major changes for Moldova. Some Moldavian export products are exempt from EU import tariffs and quotas, but in the same time there are charged high import tariffs for agricultural imports in the country. Most trade barriers are now non tariff measures such as trade-related transaction costs, different national regulations that increase the cost of market entry and others. An eventual FTA should reduce such non-traditional trade barriers (Perju et.al 2010).

From 1st of January 2006, Moldova is already beneficiating from the General System of Preferences (GSP+) granted by the EU. As well, in 2008 Moldova obtained a larger access to the EU market through Autonomous Trade Preferences (ATP), achieving free trade advantage for some important products for country's economy as alcoholic drinks, a number of agricultural products, sugar and others.

The geographic structure of agri-food trade is presented in the following two charts.

From 2008 about half of Moldavian exports were to EU countries and almost all the other half to CIS countries.

Concerning the agricultural exports, mostly food and live animals, beverages and tobacco have a smaller share in EU than in CIS countries.
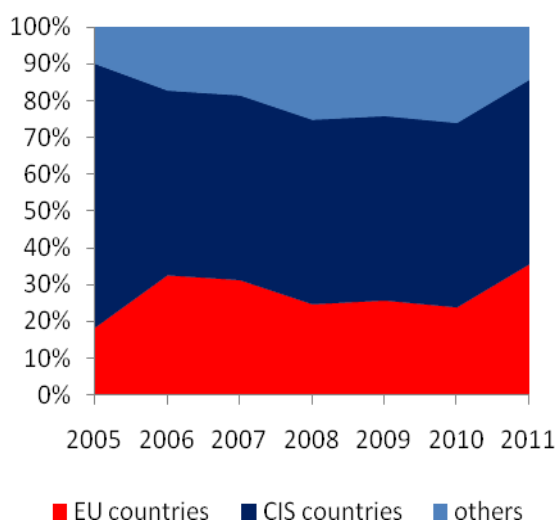

Fig.2. Moldova's agri-food exports by main trading partners, 2005-2011

This might be explained through Moldova's incapacity of facing the demanding sanitary standards (particularly in the case of meat and dairy products) imposed by EU. Romania had a large share in country's meat exports before joining the EU family. Concerning wine and other alcoholic products, the European market is highly competitive, which impose difficulties in terms of price and quality for Moldavian products entering on this market.

In general, the Moldova's agri-food trade in 2005-2011 had significantly increased. The agri-food exports to EU increased twice in this period, and in 2011 it was 274363 mio US dollars. Nevertheless, should be mentioned that a share of 58% from agri-food exports is for food processing industry, and 58% for agricultural products.

As well, is increasing the share of other countries, as Moldova's trade partners. Their share increased in the geographical structure of agri-food exports by three times in 2011 comparing to 2005 (Fig. 3). The share of these countries in imports is about 24% in the total agri-food imports of Moldova.

The amount of agri-food imports of Moldova as well increased in the analyzed period (in its total amount as well as for each commodity group), about two times. In the same time the geographical structure of agri-food imports did almost not changed.
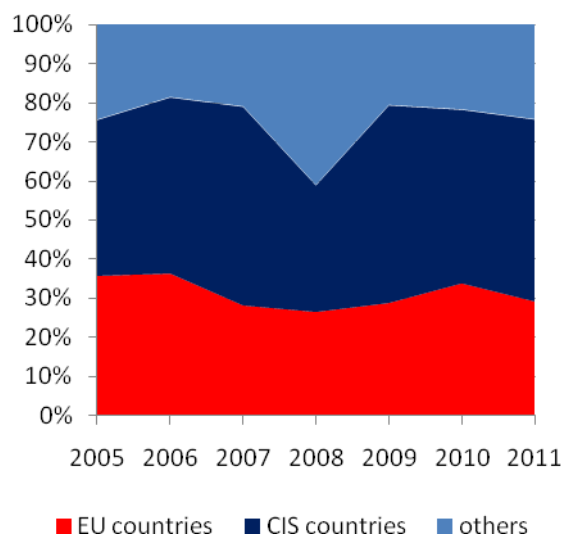

Fig. 3. Moldova's agri-food imports by main trading partners, 2005-2011

Thus, agri-food imports from EU countries increased twice in 2011 comparing to 2005, from CIS and other countries almost by three times.

The analysis of agri-food trade flows structure of Moldova demonstrates the need of products and regional diversification, fact which will increase the stability of exports earnings and will decrease the dependence of local producers and exporters from the policy of partner countries.

For agricultural producers a FTA would open opportunities in new large markets with high purchasing power and prices stability. In the same time, they will face with high competition in terms of supply prices and quality, as well as products promotion policies. A positive impact from a FTA would be an increase in FDI in the agricultural sector, modernization of agriculture and food processing industry.

The expansion of free trade facilities on exported products as alcoholic drinks, sugar, cereals, and animal products will increase, on long term, the share of trade to EU countries.

Nowadays, a large share of exports to EU is not entirely used. For promoting country's exports more important are the products with comparative advantage, especially in high value. These are wines and strong alcoholic beverages, fruits, vegetables, nuts, cereals and technical crops and agricultural ecologic products.

Nevertheless, Moldova's exports to EU and other developed countries face difficulties in terms of quality and food security, as well as low competitiveness. Concerning low competitiveness it includes the following: production factors (except land), economic potential and behaviour of producers, competitive market, demand factors (quality and variety of demanded products, quality standards), the connection with food processing industry (quality and price of inputs). Nowadays, local prices are much lower than those international, which affect the profitability in the agricultural sector. As result, income in the agricultural sector is lower than in other sectors, causing lower productivity and quality of products, not competitive on foreign markets (Perju et. al 2010).

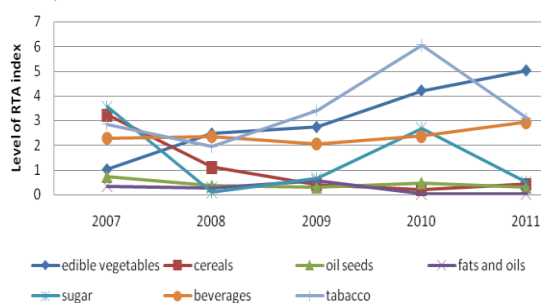Fig. 4.The dynamics of RTA index on different groups of commodities, 2007-2011

If analyzing the level of revealed trade advantages index on commodity groups in the years 2007-2011 is possible to distinguish groups with products that have positive index value, products with diminishing value and products with unstable RTA values (in some years high value and others decreasing and again increasing). The given results are presented in Fig.5 for selected commodity groups.

The results revealed that in 2011, from the 24 agri-food products (commodity groups) analyzed, 10 had positive values of RTA index, fact which demonstrates the relative trade advantages of Moldova on these commodities groups.

The higher levels of RTA index from agricultural products are noticed for dairy products (5.52) and for edible vegetables and certain roots and tubers (5.02). From food processing products highest values are for tobacco (3.09) and beverages (2.93).

A characteristic of revealed trade advantages for Moldavian agri-food products is the decrease of RTA values for some commodity groups (12,15,17,19) as: sugar form 3.5 in 2007 to 0.5 in 2011, fats and oils from 0.33 to 0.022, oil seeds from 0.7 to 0.3. Reasons for this decrease are many: old equipment and technologies, low efficiency of production, low products quality etc.

The level of intra industrial trade varies depending on commodity group or country partner. In general, the share of intra industrial trade varies from year to year and has not a clear tendency. In average the level of intra industrial trade is about 80%, which is indicating about a foreign trade with comparative advantages.

Both agricultural products and foodstuffs have high intensivity of intra industrial trade. For agricultural products is observed a slow decrease in the analyzed period from 99% to 72%. For foodstuffs the values of GL index is high and unstable but slowly increasing to 95% in 2011.

The increasing values of GL index (as for groups 02, 07, 17, 19, 20) is related to the high increase in imports of these products and decrease in exports. Such changes are good for consumers, because they obtain a higher variety of products. From the point of view of producers such an increase in the intra industrial trade is not related to an increase of earnings for them.

For the groups 4, 10, 12, 22 the values of the index is indicating to the utilization of advantages or receiving extra earnings of intra industrial specialization, due to concentration of production, decrease of production costs and increase of production efficiency.

Table 3. The level of intra industrial trade for different groups of agri-food products, percents 2007-2011

Commodity groups	2007	2008	2009	2010	2011
01 – Live animals	94.83	15.52	37.52	75.91	82.53
02 – Meat and edible meat offal	46.28	7.43	20.26	54.12	82.28
04 – Dairy products	50.21	54.85	37.15	34.25	40.41
07 – Edible vegetables and certain roots and tubers	24.78	25.40	28.04	45.03	78.46
08 – Edible fruits and nuts	47.16	51.39	48.59	51.42	53.59
10 – Cereals	95.34	61.76	24.91	24.07	24.59
12 – Oil seeds and oleaginous fruits	78.25	44.66	38.24	45.48	19.81
15 – Animal or vegetable fats and oils	44.93	49.85	48.09	57.69	48.87
Total agricultural production 01-15	99.20	99.14	81.76	81.04	72.28
17 – Sugars and sugar confectionery	47.41	97.03	58.42	60.27	86.61
19 – Preparations of cereals, flour, starch or milk, pastry cooks products	32.22	31.33	37.22	35.35	43.34
20 – Preparations of vegetables, fruit, nuts or other parts of plants	41.56	73.91	57.06	60.60	53.51
22- Beverages, spirits and vinegar	52.14	55.63	46.18	40.28	43.42
24 – Tobacco and manufactured tobacco substitutes	37.71	39.28	30.17	45.79	47.23
Total foodstuffs 16-24	92.88	94.85	98.04	99.09	95.91
Total agri-food products	95.93	96.85	92.12	89.55	85.69

Source: authors calculations based on COMTRADE data

In the market from the diversification of production consumers are benefitting.

CONCLUSIONS

The level of RTA index is indicating to the competitiveness of some commodities groups on international markets as: from agricultural products are noticed for dairy products (5.52) and for edible vegetables and certain roots and tubers (5.02). From food processing products highest values are for tobacco (3.09) and beverages (2.93).

In general, agricultural products in the structure of agri-food exports have a share of 65%, and food stuffs – about 35%.

Nowadays, the comparative advantages of Moldova are not fully used. This is explained by decreasing values of RTA index for some commodities groups (12, 15, 17, 19). Prices and trade liberalization, low state support is just some of the reason for this situation. Another important fact is the lack of long term funding that is affecting not only particular sub sectors but the agri-food sector as a whole.

One important step in the development of the agricultural sector of Moldova is the reform of the whole agro-industrial complex. The changeable and not continuous agricultural trade policies are those that determine the position of the country on international markets of agri-food products.

At microeconomic level, an important direction for increasing the competitiveness of agri-food products will be by increasing the efficiency of production, modernization of food processing industry, increasing the quality of production. As well, the investment climate, state support programs, liberalization of trade and political stability will create favourable conditions for the activity of agricultural producers and food processing firms on international market.

For agricultural producers a FTA would open opportunities in new large markets with high purchasing power and prices stability. In the same time, they will face with high competition in terms of supply prices and quality, as well as products promotion policies. A positive impact from a FTA would be an increase in FDI in the agricultural sector, modernization of agriculture and food processing industry.

REFERENCES

[1]Balassa B.,1965, Trade Liberalization and Revealed Comparative Advantage. The Manchester School of Comparative Advantage, 33.
[2]Bartosova D. et.al., 2008, EU enlargement implications on the new member states agri-food trade, EAAE.
[3]Bergschimidt, A., Hartmann, M., 1998, Agricultural Trade Policies and Trade relations in transition economies, Discussion Paper no. 12, IAMO, Halle.

[4]Grubel, H. G., Lloyd, P. J., 1975, Intra-industry trade: the theory and measurement of international trade in differentiated products. Macmillan, London.

[5]Levkovich I., Hockmann H. ,2007, Foreign Trade and Transtion process in agri-food sector of Ukraine. Discusiion paper no. 114, IAMO, Halle.

[6]Perju I., Chivriga, V., Fala, A., 2010, Impactul viitorului accord de liber schimb intre Republica Moldova si Uniunea Europeana asupra sectorului agroalimentar din Republica Moldova. IDIS Viitorul, Chisinau.

[7]Vollrath, T.L., 1991, A theoretical evaluation of alternative trade intensity measures of revealed comparative advantage, Weltwirtschaftliches Archiv, pg.127.