

REVEALED COMPARATIVE ADVANTAGE OF MOLDOVA'S LIVESTOCK PRODUCTS

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Abstract

The paper aimed to present the analysis of the Revealed Comparative Advantage (RCA) of Moldova's livestock products. The research was carried out based on the statistical data provided by the National Bureau of Statistics, as well as data collected from the WITS database. The outcomes of the analysis of trade value, RCA, and CAGR of the Moldova's livestock exports at 2-digit and 4-digit levels of HS comparing to the world and EU-27 have been presented in the paper. As a conclusion, export of most livestock products is not stable from year to year. Often disruptions in exports supplies are caused by multiple factors such as weather conditions, more competitive regional imports, import bans imposed by partner countries, etc.

Key words: Revealed Comparative Advantage (RCA), Republic of Moldova, livestock products

INTRODUCTION

The climatic conditions of the country and fertile soils are favorable for the livestock production that is one of the oldest occupations of the rural population. Livestock products represent an important part of the diet of the Moldovan population. The cattle growing is the main branch of livestock production in Moldova, providing the highest amounts of animal production as milk and meat.

It plays also a strategic role in ensuring food security of the country, because milk and dairy products are socially important as an essential element of food rations of the population, including children, elderly people and socially vulnerable groups [8].

An important part of livestock products is traditionally exported since the geographical location of the Republic of Moldova is advantageous for trade with countries from CIS, Eastern Europe, Central Asia and Middle East. However, the agricultural production in Moldova, including the livestock sector is still characterized by large risk exposures, which often, but not exclusively, comes from climate phenomena.

MATERIALS AND METHODS

The revealed comparative advantage is used for calculating the relative advantage or disadvantage of Moldova's livestock products as evidenced by trade flows. That is, the RCA is equal to the proportion of the country's exports that are of the class under consideration divided by the proportion of world exports that are of that class. A comparative advantage is "revealed" if $RCA > 1$. If RCA is less than unity, the country is said to have a comparative disadvantage in the commodity or industry [2,3].

For a more comprehensive calculation and analysis of the Revealed Comparative Advantage of various groups of livestock products for Moldova compared to the world, to other individual countries and to some specific groups of countries the World Bank "World Integrated Trade Solutions (WITS)" database was used (World Bank, 2015) [9].

RESULTS AND DISCUSSIONS

Livestock products at 2-digit level

For the analysis of the competitiveness of livestock exports from Moldova we used such indicators as Revealed Comparative

Advantage (RCA) in 2005 and 2014, Compound Annual Growth Rate (CAGR) for the period of 2005-2014 and Trade value in 2014 at the 2-digit (chapter) level [4].

The most important categories of livestock exports are: “02_Meat and edible meat offal”, “04_Dairy produce; birds' eggs; natural honey” and “01_Live animals; animal products”.

The other three categories of livestock products at the 2-digit (chapter) level namely “16_Preparations of meat, of fish or of crustaceans”, “05_Products of animal origin, not elsewhere specified” and “03_Fish and crustaceans, molluscs and other aquatic invertebrates” have a much less importance in the agro-food exports from Moldova since volumes of trade for these groups of livestock products was less than 1 mil USD in 2014 and the RCA in 2014 less than 1 (Table 1) [6].

Table 1. Trade Value, RCA, and CAGR of the Moldova’s livestock exports at 2-digit level of HS comparing to the world, 2005-2014, mil USD

2-digit chapter of HS	Trade Value (2014), mil USD	RCA (2005)	RCA (2014)	CAGR (2005-2014)
02_Meat and edible meat offal	35.30	0.27	2.08	38.33
04_Dairy produce; birds' eggs; natural honey	17.89	0.04	1.44	3.49
01_Live animals; animal products	6.42	1.39	2.18	14.10
16_Preparations of meat, of fish or of crustaceans	0.29	2.72	0.05	-15.62
05_Products of animal origin, not elsewhere specified	0.12	0.49	0.09	19.11
03_Fish and crustaceans, molluscs and other aquatic invertebrates	0.01	0.03	0.00	-29.15

Source: elaborated by author based on *WITS database*

Exports of „02_Meat and edible meat offal” have a leading role among livestock exports amounting to 35.3 million USD in 2014. It has also one of the highest value of RCA among livestock products groups at 2-digit level of HS with a value of 2.08 in 2014 and this indicator is growing comparing with 2005 when its value was of 0,27.

The second important group of livestock products according to the trade value in 2014 (17.9 millions USD) is “04_Dairy produce; birds' eggs; natural honey”. However it has a

lower and rather moderate Revealed Comparative Advantage and Compound Annual Growth Rate comparing with “01_Live animals; animal products” that had the highest RCA level in 2014 (2,18) comparing with other groups of livestock export products. However, the trade volume is less than those of the “04_Dairy produce; birds' eggs; natural honey”.

Per general all three groups of livestock products (at 2–digit level) that are competitive on the external markets has a rather moderate RCA with a value ranging from 1,44 to 2,18 in 2014.

Significant livestock products at 4-digit level

In order to identify in more detail different groups of livestock products the further analysis of the RCA and export value at 4-digit product groups with significant exports in 2014 was carried out.

Live animals and animal products

Export of “0102_Live bovine animals” has a dominant position in the group “01_Live animals; animal products” with a high and increasing RCA in 2014 comparing to 2005. The second important position according to the trade value in 2014 belongs to “0104_Live sheep and goats”. The RCA is also high and increasing (Table 2).

Table 2. Trade Value, RCA, and CAGR of the Moldova’s live animals exports at 4-digit level of HS comparing to the world, 2005-2014, thousand USD

4-digit chapter of HS	Trade Value (2014), thous USD	RCA (2005)	RCA (2014)	CAGR (2005-2014)
0102_Live bovine animals	1,284.03	2.31	3.86	15.57
0104_Live sheep and goats	667.86	5.67	11.31	10.88
0106_Other live animals	4.88	0.08	0.02	-4.43

Source: elaborated based on *WITS database*

The other groups of livestock products will be not analyzed due to the insignificant and unstable trade volume.

Meat and edible meat offal

The most important group of “02_Meat and edible meat offal” at 4-digit level is the “0203_Meat of swine, fresh, chilled or frozen” with a trade value of about 22.3 million USD in 2014. The RCA level is high and increasing especially taking into account that in 2005 the RCA was less than 1.

Table 3. Trade Value, RCA, and CAGR of the Moldova's live animals exports at 4-digit level of HS comparing to the world, 2005-2014, thousand USD

4-digit chapter of HS	Trade Value (2014), thous USD	RCA (2005)	RCA (2014)	CAGR (2005-2014)
0203_Meat of swine, fresh, chilled or frozen	22,266.56	0.04	5.42	89.07
0204_Meat of sheep or goats, fresh, chilled or frozen	3,298.04	1.04	3.51	24.08
0202_Meat of bovine animals, frozen	2,335.21	1.25	0.72	8.22
0209_Pig fat, free of lean meat, and poultry fat, not rendered or otherwise extracted, fresh, chilled, frozen, salted, in brine, dried or smoked	1,802.87	0.00	19.58	192.51
0205_Meat of horses, asses, mules or hinnies, fresh, chilled or frozen	313.75	0.75	5.13	26.76
0206_Edible offal of bovine animals, swine, sheep, goats, horses, asses, mules or hinnies, fresh, chilled or frozen	103.63	0.08	0.10	17.25
0207_Meat and edible offal, of the poultry of heading 01.05, fresh, chilled or frozen	0.61	0.10	0.00	-45.72

Source: elaborated based on WITS database

It is followed by “0204_Meat of sheep or goats, fresh, chilled or frozen” with a rather high and increasing RCA and a trade value of 3,3 million USD in 2014. The next after importance livestock products exported from Moldova are:

-“0202_Meat of bovine animals, frozen” that is the third after importance product in the group “02_Meat and edible meat offal” according to the trade value that was about 2.3 mill USD in 2014. However this product was rather uncompetitive in 2014 with an RCA of 0.72 that is decreasing comparing with a moderate competitiveness of this product in 2005 with an RCA value of 1.25.

-“0209_Pig fat, free of lean meat, and poultry fat, not rendered or otherwise extracted, fresh, chilled, frozen, salted, in brine, dried or smoked” have the highest and dynamically increasing level of RCA (19.58 in 2014) and the forth position according to the trade value in 2014 (1.8 mil USD).

-“0205_Meat of horses, asses, mules or hinnies, fresh, chilled or frozen” has a rather high and increasing RCA (5.13 in 2014 comparing with 0.75 in 2005). However its contribution to the total trade value is rather low (311.7 thousands USD in 2014)

-“0206_Edible offal of bovine animals, swine, sheep, goats, horses, asses, mules or hinnies, fresh, chilled or frozen” despite an increase still has a low competitiveness with an RCA

of 0.10 in 2014.

-“0207_Meat and edible offal, of the poultry of heading 01.05, fresh, chilled or frozen” very uncompetitive with a rapidly decreasing RCA that was close to the zero value in 2014 (Table 3).

Dairy produce; birds' eggs; natural honey

Exports of this group are limited to five livestock products, namely:

-The natural honey has a highest RCA among other products of the group “04_Dairy produce; birds' eggs; natural honey”. Its value was of 32.9 in 2014 with a dynamic increase from 4.6 in 2005. The trade value of natural honey exports reached 9.7 millions USD in 2014 [7].

-“0406_Cheese and curd” has second position in this group with a trade value of 5.4 millions USD in 2014 and an moderate RCA of 1.25 in 2014 with an slight increase from the 0.57 in 2005.

-“0405_Butter and other fats and oils derived from milk; dairy spreads” has a moderate RCA of 1.47 in 2014 that is decreasing comparing with its value of 3.82 in 2005.

-“0402_Milk and cream, concentrated or containing added sugar or other sweetening matter” became very uncompetitive in 2014 with an RCA value of 0.24 comparing with a rather high RCA of 5.84 in 2005.

-“0407_Birds' eggs, in shell, fresh, preserved or cooked” shows the same trend. Thus its RCA decreased from a very high level of 19.6 in 2005 to a very low RCA level of 0.52 in 2014 (Table 4).

Table 4. Trade Value, RCA, and CAGR of the Moldova's exports of products from the group “04 Dairy produce; birds' eggs; natural honey” 4-digit level of HS comparing to the world, 2005-2014, thousand USD

4-digit chapter of HS	Trade Value (2014), thous USD	RCA (2005)	RCA (2014)	CAGR (2005-2014)
0409_Natural honey	9,698.68	4.60	32.90	44.50
0406_Cheese and curd	5,367.07	0.57	1.25	19.80
0405_Butter and other fats and oils derived from milk; dairy spreads	1,641.06	3.82	1.47	-0.80
0402_Milk and cream, concentrated or containing added sugar or other sweetening matter	823.70	5.84	0.24	-20.63
0407_Birds' eggs, in shell, fresh, preserved or cooked	298.51	19.60	0.52	-23.62

Source: elaborated based on WITS database

The decrease of competitiveness of both last two livestock products are related to restrictions imposed by EU regulations for new member countries. Thus, one of the most important livestock exports on the Romanian market represented by “0407_Birds' eggs, in shell, fresh, preserved or cooked” was stopped completely in 2007, the year when Romania joined EU. One year later, in 2008, Romania stopped imports of honey “0409_Natural honey”. However four years ago, in 2013 imports of honey to Romania restarted due to the compliance of the Moldovan standards for natural honey with EU requirements. Only exports of ‘0307_Molluscs, whether in shell or not, live, fresh, chilled, frozen, dried, salted or in brine; aquatic invertebrates other than crustaceans and molluscs, live, fresh, chilled, frozen, dried, salted or in brine; flours, meals and pellets of aquatic invertebra” have continued to Romania after 2007 but with a continuously declining trend.

Trade with the EU (RCA of Moldova’s livestock products vs. EU 27)

Livestock exports to EU 27 countries is rather limited and decreasing, especially after accession to the EU of such countries as Romania and Bulgaria that traditionally imported from Moldova considerably quantities of livestock products.

Table 5. Trade Value, RCA, and CAGR of the Moldova’s livestock products at 2-digit level of HS comparing to the EU-27, 2005-2014, thousand USD

2-digit level of HS	Trade Value (2014), thous USD	RCA (2005)	RCA (2014)	CAGR (2005-2014)
02_Meat and edible meat offal	0.97	0.02	0.00	-39.52
03_Fish and crustaceans, molluscs and other aquatic invertebrates	8.14	0.05	0.00	-26.80
04_Dairy produce; birds' eggs; natural honey	9202.94	1.89	0.91	5.69
05_Products of animal origin, not elsewhere specified	72.41	0.06	0.09	18.86
16_Preparations of meat, of fish or of crustaceans	80.59	0.01	0.02	19.27

Source: elaborated based on *WITS database*

The main reason for the shrinking livestock exports to EU is the noncompliance of the Moldovan standards for livestock products with EU norms and regulations. At present the most competitive group of Moldovan

livestock products is the “04_Dairy produce; birds' eggs; natural honey” with a RCA decreasing from a very moderate competitiveness level of 1,89 in 2005 to an almost uncompetitive level of 0,91 in 2014. The other groups of livestock products exported by different modalities to EU 27 are very uncompetitive, with a decreasing trend, or, as in the case of the group “05_Products of animal origin, not elsewhere specified” with an increasing trend (Table 5).

RCA analysis at the 4-digit level of HS shows that the only competitive livestock product on the EU-27 market is the “0409_Natural honey” that has the RCA of 37.56 in 2014 with a dynamic increase of 5.38 in 2005 (Table 6).

The other livestock products exported from Moldova to EU 27 are very uncompetitive with decreasing or slightly increasing trends. *Export of livestock products in the context of DCFTA regulation*

The Deep and Comprehensive Free Trade Area (DCFTA) sets up a free-trade area between the EU and Moldova, in line with the principles of the World Trade Organization [1].

Table 6. Trade Value, RCA, and CAGR of the Moldova’s livestock products at 4-digit level of HS comparing to the EU-27, 2005-2014, thousand USD

4-digit HS code	Trade Value (2014), thous USD	RCA (2005)	RCA (2014)	CAGR (2005-2014)
0303_Fish, frozen, excluding fish fillets and other fish meat of heading 03.04.	0.03	0.05	0.00	-49.57
0307_Molluscs, whether in shell or not, live, fresh, chilled, frozen, dried, salted or in brine; aquatic invertebrates other than crustaceans and molluscs, live, fresh, chilled, frozen, dried, salted or in brine;	8.11	0.39	0.01	-25.60
0405_Butter and other fats and oils derived from milk; dairy spreads	0.07	0.25	0.00	-53.22
0406_Cheese and curd	0.08	0.31	0.00	-61.58
0407_Birds' eggs, in shell, fresh, preserved or cooked	0.07	32.59	0.00	-69.67
0409_Natural honey	9,202.61	5.38	37.56	49.47
0505_Skins and other parts of birds, with their feathers or down, feathers and parts of feathers (whether or not with trimmed edges) and down, not further worked than cleaned, disinfected or treated for preservation	28.26	0.29	0.24	17.93
1604_Prepared or preserved fish; caviar and caviar substitutes prepared from fish eggs	80.32	0.04	0.06	19.22

Source: elaborated based on *WITS database*

It removes import duties for most goods traded between the EU and Moldova and provides for broad mutual access to trade in services. It also includes provisions on establishment, which allow EU and Moldovan companies to set up a subsidiary or a branch office on a non-discriminatory basis, benefitting from the same treatment as domestic companies in the partner's market.

An important part of the DCFTA is aligning Moldovan trade-related laws to selected EU legislative acts. Adoption by Moldova of EU approaches to policy-making will improve governance, strengthen the rule of law and provide more economic opportunities by opening further the EU market to the Moldovan goods and services. It will also attract foreign investment to Moldova.

The Deep and Comprehensive Free Trade Area presumes a stronger collaboration between Moldova and the EU in terms of development of agricultural policies, based on EU principles, but also enlarges the opportunities for Moldovan producers and exporters and their presence at the EU market. Thus the DCFTA will result in significant harmonization of Moldova's regulatory practices to European rules and norms in trade related spheres and envisage the significant quotas on duty-free exports of selected agricultural products, including dairy products, grain and cereals, and sugar, to the EU, but also the duty free imports of majority of EU agricultural products to Moldova.

The start of the implementation of this agreement in September 2014 has already brought some changes to the sector's opportunities. Exports to the EU of the main categories of agricultural products increased in 2014 in comparison with 2013. The same tendency is available for livestock products. Thus the export of livestock products to EU 27 increased 3.3 times in 2014 comparing with previous year. It is worth to mention that 98.3% of total livestock exports were covered just by one product, namely – "0409_Natural honey"[9].

In 2015 the EU and Moldova have signed a new program for rural development and agriculture, under ENPARD (the European Neighborhood Program for Agriculture and

Rural Development), worth an amount of €64 million [5]. This program aims to improve the competitiveness and modernization of the agro-food sector, develop rural areas and increase the living standard of Moldovan citizens. With the launch of the ENPARD Moldova program, the EU will support the establishment of a long-term relationship and dialogue between the government and civil society organizations, farmers, producers' organizations and federations, food business operators and rural communities.

Among the most important measures of this program that may lead to improved livestock exports one can mention the following:

- Improving design and implementation of agricultural and rural development policies and improved service delivery,
- Increasing investment in the modernization of the agriculture, agro-food and feed chains meeting EU food safety and quality requirements,
- Improving education, research and extension services in the agriculture, agro-food sector, including facilitating information systems,
- Improving access to capital, input and output markets for farmers

On the other hand as a side effect of the DCFTA signing exports of agricultural products to Russian Federation decreased due to more restrictive tariff and non-tariff measures imposed for Moldovan agricultural, including livestock products. Thus the total trade value of livestock exports to Russian Federation decreased in 2014 with more than 33% comparing with previous year. Taking into account products with a most important share in total livestock exports one can see that exports of nine livestock products that assured on average about 99% of livestock exports during the period 2005-2014 decreased in 2014 with 38% comparing with 2013. However after a more detailed analysis one can see that this picture is not uniform. Thus for certain livestock products such as "Meat of bovine animals, fresh or chilled", "Butter and other fats and oils derived from milk; dairy spread", "Cheese and curd", "Meat of horses, asses, mules or hinnies, fresh, chilled or frozen" and "Natural honey" the volume of exports decreased from 18% to

100%. In the same time exports of such products as: “Meat of sheep or goats, fresh, chilled or frozen”, “Meat of bovine animals, frozen”, “Other prepared or preserved meat, meat offal or blood” and “Milk and cream, concentrated or containing added sugar or other sweetening matter” increased from 25% to almost 8 times.

CONCLUSIONS

Export of most livestock products is not stable from year to year. Often disruptions in exports supplies are caused by multiple factors such as weather conditions, more competitive regional imports, import bans imposed by partner countries etc. The natural honey is the only livestock product exported without restriction all around the world.

Livestock exports are characterized by a limited number of exported goods and markets. Often one type of livestock products is exported predominantly to one country. Live animals are exported predominantly to Middle East countries, namely to Syria, and during the recent years significant exports were developed to Iraq and Libya. The most important export destination countries for meat are Russian Federation and Belarus. Kazakhstan is the major destination for dairy exports.

Despite a general increase of the livestock exports the more detailed analysis shows that in many cases the increase of meat exports was not a clearly assumed target but rather an escape valve helping to distribute large quantities of slaughtered animals because of the lack of forages in unfavorable agricultural years.

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