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# THE ANALYSIS OF COMPETITIVENESS AND COMPETITIVE ADVANTAGE OF THE HORTICULTURAL PRODUCTION FROM THE REPUBLIC OF MOLDOVA: CHALLENGES AND OPPORTUNITIES

ABSTRACT

The horticultural sector has a great importance on economic growth in the Republic of Moldova, accounting for approximately one-third of total agricultural production. The competitiveness of the horticultural production from the Republic of Moldova depends on many factors and the most important of them are the following: production quality, image of horticultural products, marketplace, prices, etc. In order to increase the competitiveness of the horticultural production, both on the local market and on the world market, it is necessary to pay attention not only to the production process, as most horticultural producers of the country are doing, but also to an adequate exterior aspect of horticultural products (size, colour, etc.), various assortment of products, attractive packaging, price/quality ratio, etc.

This paper investigates the competitiveness and competitive advantage of the horticultural production in the Republic of Moldova and certain measures are also proposed in order to increase the horticultural production competitiveness.

**Key words**: competitiveness, competitive advantage, horticultural products, marketplace.

**JEL Classification**: Q12, Q13.

## 1. INTRODUCTION

The concept of competitiveness is a very broad concept, applied both at macro-economic and micro-economic level. The high interest of scientists all over the world to study competitiveness at the national and farm level has considerably grown in recent years, and the basic question is why certain countries experience economic growth faster than others.

According to Stephen Garreli (Garreli, 2008), competitiveness represents: "the modality in which a nation manages its total resources and competences in order to increase its people's welfare."

In Professor Karl Aiginger' opinion (Aiginger, 2006), competitiveness is "the ability to create welfare", which contradicts Paul Krugman (Krugman, 1994), in whose opinion "competitiveness is a dangerous obsession – a zero-sum game in which a company's gain is another company's loss".

The horticultural sector of the Republic of Moldova accounts for one-third of the total agricultural production, having a multiplying role for the country's economy. The horticultural products are very rich in vitamins, being considered as high value added products which generate demand, and which are the main income source for the majority of the population of the Republic of Moldova who is working in agriculture.

Increasing the horticultural production competitiveness should be a strategic objective of the state economic policy, taking into consideration the conquest of new markets for farmers.

## 2. STATE OF KNOWLEDGE

Although many scientists all over the world investigate competitiveness both at macro- and micro-economic level, and there is a rich scientific literature in the field of competitiveness, the meaning of the competitiveness concept remains quite unclear and there is not a unique opinion that would reveal the complexity of this concept (Ogrean, 2010; Aiginger, 2006; Belostecinic, 1999).

Certain authors (Sharples, 1990; Ahearn et al., 1990) are worried about the competitiveness concept not having a clear-cut definition. Competitiveness has a relative size, and because it is a broad concept, there is no unique method to measure it accurately. Competitiveness determination is different from macro- to micro- level. According to certain authors (Porter, 1990), competitiveness can be measured on the basis of productivity; from another point of view competitiveness is determined by the country's exports of commodities (Balassa, 1965). The trade theory reveals that a nation will be competitive when it has cost advantages in the production of a commodity by comparison to neighbour countries. This means that a country will get specialized in those goods in which it is more productive, by comparison with the trade partners.

The objective of the research is to investigate the competitiveness of the Republic of Moldova at macro- and micro- level, the competitiveness and competitive advantage of the horticultural sector, to identify the constraints in the development of high competitive business in horticultural products, to propose measures to increase the horticultural production competitiveness of the Republic of Moldova.

## 3. MATERIAL AND METHOD

The research is based on data collected from the official statistics of the National Office of Statistics, the National Bank of Moldova, and the Ministry of Agriculture and the Food Industry of Moldova.

The analysis of the competitiveness of the Republic of Moldova at national level is based on the data collected from the Global Competitiveness Report and Doing Business Report.

For the specialization of the Republic of Moldova the revealed comparative advantage (RCA) is used, introduced by Balassa (1):

$$ACR_i^j = \left( \frac{X_i^j - M_i^j}{X_i^j + M_i^j} \right) \tag{1}$$

$$-1 \le RCA \le +1 \tag{2}$$

where: X – exports; M – imports; i, t – product or group of products; $ACR_i^j$ – revealed comparative advantage.

This indicator can take positive or negative values. In the case when this indicator takes positive values it is considered that the investigated country has comparative advantage, but when it takes negative values it is considered that there is no comparative advantage.

Another method to determine a country's comparative advantage is Lafay index (Lafay, 1992), which gives the possibility to analyze the comparative advantage of a country in the export of goods, comparing the trade balance of the analyzed good (group of goods) with the general level of trade balance.

$$LF_i = \left( \frac{X_i - M_i}{X_i + M_i} - \frac{\sum_{i=1}^{n} X_i - M_i}{\sum_{i=1}^{n} X_i + M_i} \right) * \frac{X_i + M_i}{\sum_{i=1}^{n} X_i + M_i} * 100 \ , \ \ i = 1,..,n \tag{3}$$

where: LFi – the specialization index; Xi – the export of good i; Mi – the import of good i.

The index gives the possibility to analyze the influence of the groups of goods to normalize the trade balance. If Lafay index takes positive values, this means that the country has a comparative advantage for the analyzed group of goods, otherwise the country will have a disadvantage.

## 4. RESULTS AND DISCUSSIONS

The competitiveness of the Republic of Moldova is determined by many factors. Thus, at macro-economic level, since 2005, the World Economic Forum (WEF) has analyzed the competitiveness of the countries from all over the World through the Global Competitiveness Index (GCI), which is a comprehensive instrument that measures the micro-economic and macro-economic bases of

national competitiveness. According to WEF, competitiveness is defined as "the set of institutions, policies and factors that determines the productivity level of a country". The productivity level determines the level of prosperity that can be reached by a given economy.

There are many factors that determine productivity and competitiveness. The understanding of factors that lie at the basis of competitiveness has been the concern of several economists for hundreds of years, beginning with Adam Smith, who focused on the theory of specialization and labor division up to the neoclassic economists who focused on investments in physical capital and infrastructure and most recently up to the interest in different other mechanisms like education, training, technological progress, macro-economic stability, sophistication of firm, market efficiency etc.

The competitiveness concept implies both static and dynamic components. Although a country's productivity determines the ability to maintain a high level of incomes, it is also one of the main determinants of the return on investments, which is one of the key factors that explain the growth potential of an economy.

Thus the Global Competitiveness Index represents a weighted average of variables that are grouped into "pillars" of competitiveness (WEF, 2012).

According to WEF, there are three basic pillars of competitiveness (Table 1):

• **Basic requirements**: institutions, infrastructure, macro-economic stability, health and primary education;

• **Efficiency enhancers**: higher education and training, commodity market efficiency, labor market efficiency, financial market sophistication, technological training, market potential;

• **Innovation and sophistication factors:** business sophistication and innovation.

Finally the pillars of competitiveness are grouped into 3 development stages of the economy.
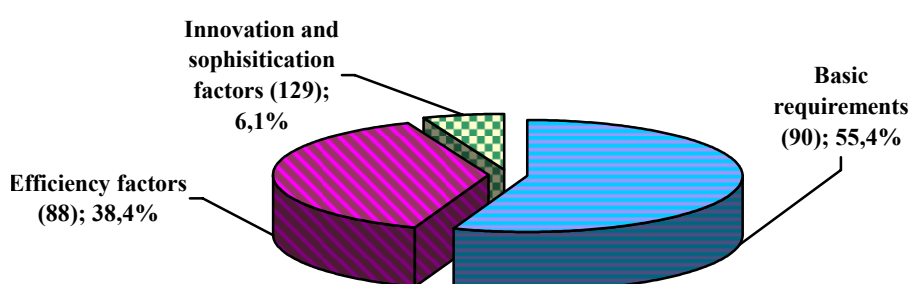
*Table 1*
Importance of factors and income thresholds in ensuring competitiveness
at different stages of economic development

|  | Stage 1: factor driven | Transition from stage 1 to stage 2 | Stage 2: efficiency driven | Transition from stage 2 to stage 3 | Stage 3: innovation driven |
|---|---|---|---|---|---|
| **GDP per capita (USD)** | <2,000 | 2,000-2,999 | 3,000-8,999 | 9,000-17,000 | >17,000 |
| **Basic requirements,%** | 60 | 40-60 | 40 | 20-40 | 20 |
| **Efficiency enhancers,%** | 35 | 35-50 | 50 | 50 | 50 |
| **Innovation and sophistication factors,%** | 5 | 5-10 | 10 | 10-30 | 30 |

*Source*: WEF, 2014.

Thus, WEF identified three stages of economical development in ensuring competitiveness: factor driven economies, efficiency driven-economies, and innovation driven-economies.

According to the Global Competitiveness Report 2014-2015, elaborated by WEF, the Republic of Moldova is in a transition stage from the development based on production factors to the development based on efficiency, being on the 82$^{nd}$ place (GDP per capita is 2229 USD) from the 144 investigated countries, which represent a positive evolution compared to the period 2013-2014, when the Republic of Moldova was on the 89$^{th}$ place.



*Source*: elaborated by the author on the basis of WEF data.

Figure 1. The importance of factors in ensuring the Republic of Moldova's competitiveness, % (2014-2015).

From the analysis of the share of factors that contribute to the competitiveness of the Republic of Moldova for 2014-2015 (fig. 1), it is revealed that the main importance is played by the fundamentals factors – 55.4%, the Republic of Moldova being on the 90$^{th}$ place from 144 countries; the efficiency factors come next, with 38.4%, the Republic of Moldova being classified on the 88$^{th}$ position; the innovation and sophistication factors are on the last place, with 6.1%.

Thus, the Republic of Moldova remains in the group of countries where competitiveness is based on the production factors.
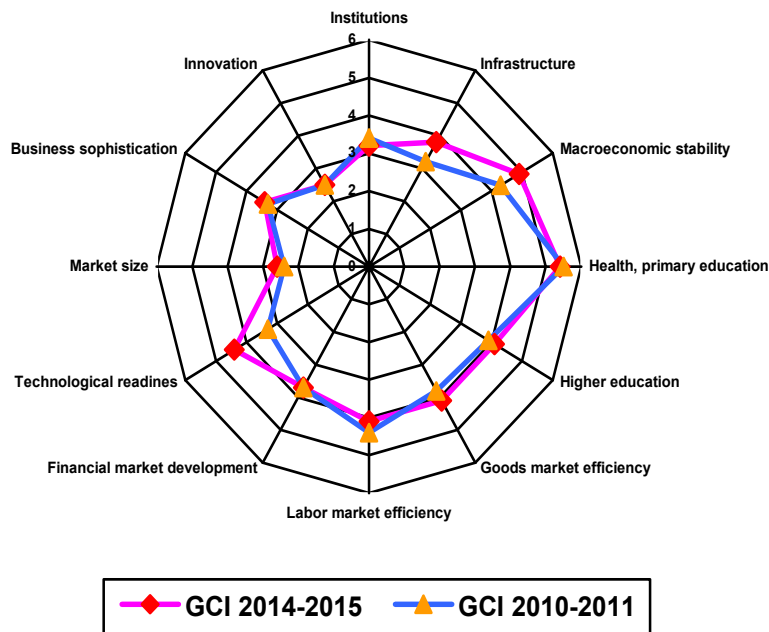
The analysis of the competitiveness pillars in the Republic of Moldova in the period 2014-2015 compared to 2010-2011 (fig. 2) reveals the ascending evolution of almost all the pillars of competitiveness. However, although for certain competitiveness pillars positive evolutions were noticed in the period 2014-2015 compared to 2010-2011, certain improvement measures are necessary for certain pillars, namely:

• **Institutions** – the Republic of Moldova was placed on the 102$^{nd}$ position from 139 countries in 2010-2011, to reach the 121$^{st}$ position from the 144 analyzed countries in the period 2014-2015. Thus, Moldova has to improve its institutional system (the legal and administrative framework), where all the members of the society interact: individuals, enterprises and governments.

• **Commodity market efficiency** – Republic of Moldova was placed on the 124th position from 144 countries in 2014-2015, which represents a negative trend compared to 2010-2011, when it was on the 121st position from 139 countries. The problem of the marketplace is very stringent, because the local market is very small, and thus the marketplace needs diversification, in order to create new opportunities for scale economies for Moldovan companies. The embargo imposed by Russian Federation must be a starting point in the conquest of new marketplaces.

• **Business sophistication** –the quality of the business network from RM and the quality of operations and strategies of firms are considered. According to WEF, "business sophistication means branding strategy, marketing, distribution, advanced processes of production and production of unique and sophisticated goods." In the horticultural sector, business sophistication is at a low level, because there is no branding strategy, and the marketing and distribution sector is also weakly developed.
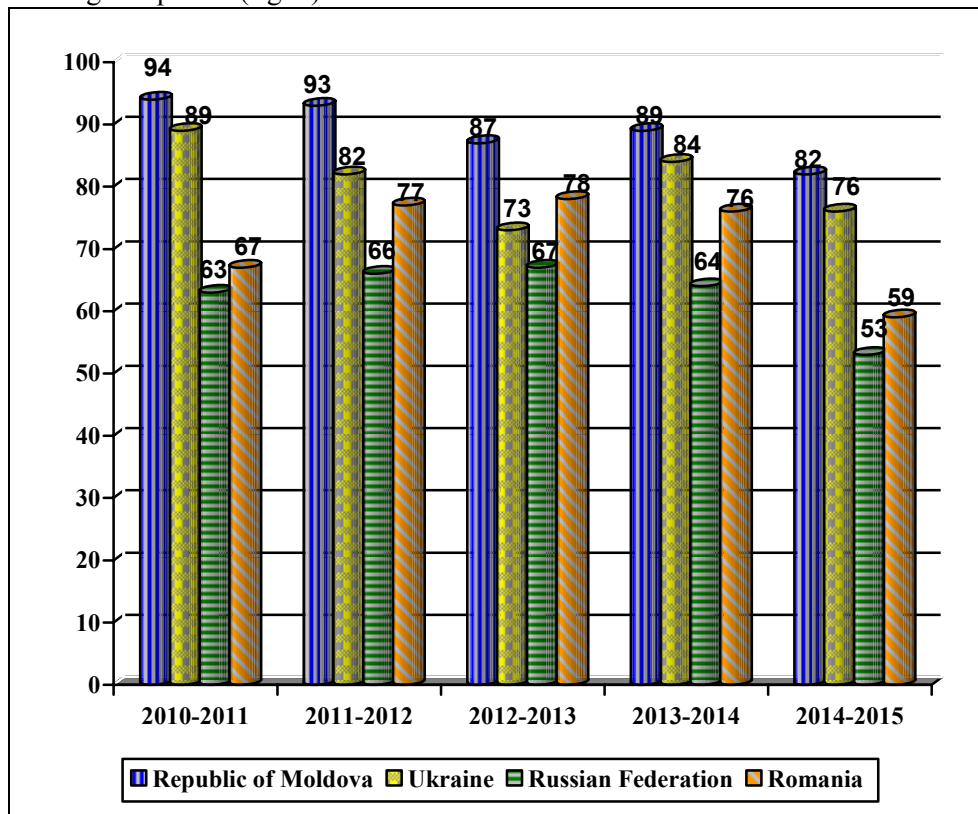
**Innovation** – the Republic of Moldova is on the 131st place from 144 countries according to GCR for 2014-2015. This reveals that the public/private investments in technological innovations of the production process are very low: there is no well-organized collaboration between the firms who produce the goods and the scientific institutions.



*Source*: elaborated by the author on the basis of WEF data.

Figure 2. Evolution of competitiveness pillars in 2014-2015 compared to 2010-2011.

Following the analysis of GCI evolution in the Republic of Moldova in regional context in 2010-2015, it results that this indicator has evolved from the 94th position according to WEF report 2010-2011 to the 82nd position in 2014-2015; this means that the Republic of Moldova increased by 12 positions in the investigated period (fig. 3).
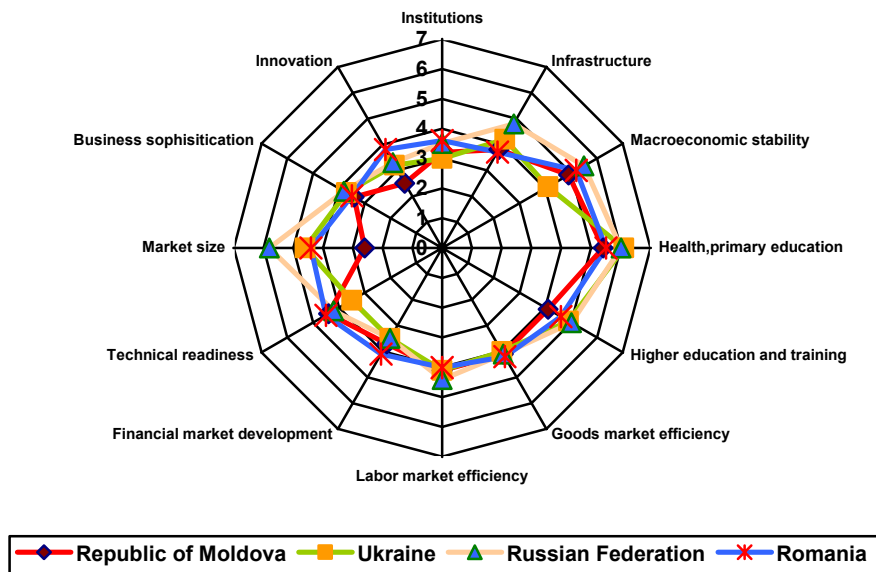


*Source:* elaborated by the author on the basis of WEF data.

Figure 3. GCI evolution in regional context in the period 2010-2015.

Although the GCI of the Republic of Moldova had a positive evolution in the regional context, compared to the neighbor countries, Moldova has lowest position in the region namely: Ukraine is on the 76th place, by 6 positions higher compared to Moldova; the Russian Federation is on the 53rd place, by 29 positions higher than Moldova, while Romania is on the 59th place, by 23 positions higher than Moldova.

The analysis of the competitiveness pillars of the Republic of Moldova in regional context, according to WEF Competitiveness Report for 2014-2015, reveals that the Republic of Moldova is on the lowest place as regards infrastructure, the main problem being the road quality, in which it is on the 140th position; compared

to Romania (121st place) and Russian Federation (124th place) this is a lower position (fig. 4). The low developed infrastructure determines many people from the rural areas to migrate; at the same time, the rural area is facing the demographic ageing problem, which influences in a negative way the competitiveness of the horti-cultural sector of RM.
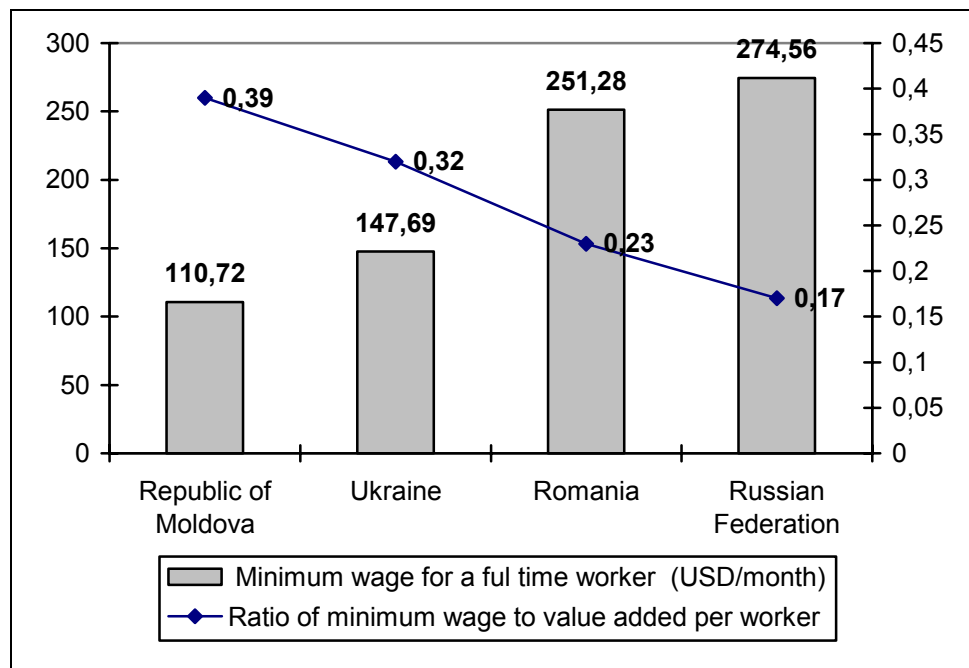


*Source:* elaborated by the author on the basis of WEF data.

Figure. 4. Analysis of competitiveness pillars of the Republic of Moldova versus neighbor countries, 2014.

The competitiveness of the horticultural sector also depends on the efficiency of the labor market, the Republic of Moldova being situated on the 82nd place, before Romania, which is on the 90th place.

Thus, according to the Doing Business Report for the 2014 year, the Republic of Moldova has the lowest minimum salary for a full-time worker compared to the neighbor countries, i.e. 110.72 USD/month in 2014, which is 2.47 times lower than in the Russian Federation and 2.26 times lower than in Romania. Analyzing the minimum salary rate in relation to the value added per worker, it is revealed that in RM this indicator represents 0.39, which represents by 0.22 more compared to the Russian Federation and by 0.16 more compared to Romania (fig. 5).

Therefore, the Republic of Moldova has the lowest salary per full time worker (110.72 USD/month) and the highest valued added per worker (0.39).

*Source*: elaborated by the author on the basis of data from Doing Business Report 2014.

Figure 5. Analysis of the labour market regulation indicators in the Republic of Moldova
compared to neighbor countries, 2014.

The competitiveness of a given country very much depends on the business environment of that country. The analysis of the World Bank's "Doing Business Report 2015" reveals that the Republic of Moldova is on the 63rd position according to the ease of starting a business, after the Russian Federation and Romania, which are placed on the 62nd position and on the 48th position respectively, but before Ukraine, which is placed on the 96th position.

Analyzing the competitiveness of the Republic of Moldova compared to the neighbor countries by the ease of starting a business (Table 2), we can see the weaknesses in starting a business highlighted in grey, namely:

• **Dealing with construction permits**, RM being on the 175th place from 189 analyzed countries, which represent the lowest position from the region: Russian Federation – 156th place, Romania – 140th place, Ukraine – 70th place.

• **Trading across borders**, RM is on the 152nd place. The best place is held by Romania, which is on the 65th place. The low position by this indicator is connected to the high cost of export per container – 1510 USD, while the cost of import per container is 1870 USD.

• **Getting electricity**, RM is situated on the 149th position. First of all, the agricultural producers face many problems regarding the necessary time to fulfill all the procedures connected to the access of the enterprise to energy.

All the deficiencies mentioned above, according to the macro-economic analysis, negatively influence the competitiveness increase of the horticultural sector in the Republic of Moldova.

*Table 2*

The competitiveness analysis of the Republic of Moldova compared to neighbor countries by the ease of starting a new business, 2014

| Countries \ Steps in initiating a business | Republic of Moldova | Ukraine | Romania | Russian Federation |
|---|---|---|---|---|
| Starting a business | 35 | 76 | 38 | 34 |
| Dealing with construction permits | 175 | 70 | 140 | 156 |
| Registering property | 22 | 59 | 63 | 12 |
| Getting credit | 23 | 17 | 85 | 61 |
| Protecting minority investors | 56 | 109 | 40 | 100 |
| Getting electricity | 149 | 185 | 171 | 143 |
| Paying taxes | 70 | 108 | 52 | 49 |
| Trading across borders | 152 | 154 | 65 | 155 |
| Enforcing contracts | 42 | 43 | 51 | 14 |
| Resolving insolvency | 58 | 142 | 46 | 65 |

*Source*: elaborated by the author on the basis of data from Doing Business Report 2014.

Analyzing the competitiveness of the Republic of Moldova in the period 2009-2013, using the Revealed Comparative Advantage (RCA), it can be noticed that several positions are occupied by agricultural products (Table 3). Thus, out of all agricultural products, the highest RCA was found in the case of cereals – 0.810, followed by oil seeds, oleagic fruits, grain, seed, fruit – 0.729; edible fruit, nuts, peel of citrus fruit, melons – 0.505; vegetable, fruit, nut, etc. nes, food preparations – 0.487.

According to the next table, the Republic of Moldova has revealed comparative advantage in the horticultural production: for the products codes **edible fruit, nuts, peel of citrus fruit, melons ('08) and vegetable, fruit, nut, etc. food preparations ('20)**, the value of RCA is more than 0, being equal to 0.505 and to 0.487 respectively.

Another method used to analyze the specialization of a country is the calculation of the Lafay index, which took values larger than 1 for horticultural products, to reach 3.31 in 2012 (Table 4).

Further analyzing RCA of products (Table 5) included in the group '08 – "Edible fruit, nuts, peel of citrus fruit, melons" for 2009-2013, it can be noticed that the most comparative advantage was found for: apples, pears and quinces, fresh, which represented 0.985 in 2013, i.e. an increase by 0.017 compared to 2010; dried fruits come next, with 0.910; grapes fresh or dried 0.788; apricots, cherries, peaches, nectarines, plums & sloes, fresh 0.701.

*Table 3*
The Revealed Comparative Advantage dynamics of top 10 products from the Republic of Moldova
in the period 2009-2013

| Years<br>Products | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|
| Cereals ('10) | 0.751 | 0.759 | 0.754 | 0.488 | 0.810 |
| Oil seed, oleagic fruits, grain, seed, fruit, etc., nes ('12) | 0.618 | 0.545 | 0.802 | 0.627 | 0.729 |
| Pulp of wood, fibrous cellulosic material, waste etc. ('47) | 0.812 | 0.858 | 0.867 | 0.834 | 0.701 |
| Carpets and other textile floor coverings ('57) | 0.571 | 0.531 | 0.589 | 0.630 | 0.561 |
| Beverages, spirits and vinegar ('22) | 0.538 | 0.597 | 0.566 | 0.518 | 0.537 |
| **Edible fruit, nuts, peel of citrus fruit, melons ('08)** | **0.514** | **0.486** | **0.464** | **0.493** | **0.505** |
| **Vegetable, fruit, nut, etc. food preparations ('20)** | **0.429** | **0.394** | **0.465** | **0.424** | **0.487** |
| Animal, vegetable fats and oils, cleavage products, etc.  ('15) | 0.519 | 0.423 | 0.511 | 0.519 | 0.189 |
| Glass and glassware ('70) | -0.044 | 0.064 | 0.036 | -0.097 | 0.075 |
| Copper and articles thereof  ('74) | 0.186 | 0.266 | 0.315 | 0.461 | 0.066 |

*Source*: elaborated by the author on the basis of data from www.intracen.org

*Table 4*
The specialization analysis of the Republic of Moldova in 2008-2012 (using Lafay index)

| Years<br>Products | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|
| Clothing and accessories | 3.03 | 3.5 | 2.99 | 2.51 | 3.03 |
| **Vegetables and fruits** | **1.41** | **2.6** | **2.74** | **2.34** | **3.31** |
| Drinks | 2.16 | 2.5 | 2.36 | 1.66 | 2.25 |
| Oilseeds and oil fruits | 0.80 | 1.1 | 1.19 | 1.80 | 1.24 |
| Cereals and products based on cereals | 0.35 | 0.94 | 0.84 | 0.56 | -0.23 |
| Fixed vegetable fats and oils refined or fractioned | 0.76 | 0.8 | 0.67 | 0.77 | 1.03 |
| Furniture | 0.24 | 0.15 | 0.28 | 0.57 | 0.91 |
| Mineral fuels, lubricants and related materials | -2.43 | -2.22 | -2.22 | -2.41 | -2.93 |
| Chemical products | -1.80 | -1.81 | -1.65 | -1.52 | 0.08 |
| Machines and transport equipments | -2.40 | -1.26 | -1.53 | -1.43 | 2.36 |

*Source:* author's calculations on the basis of data from NBS.
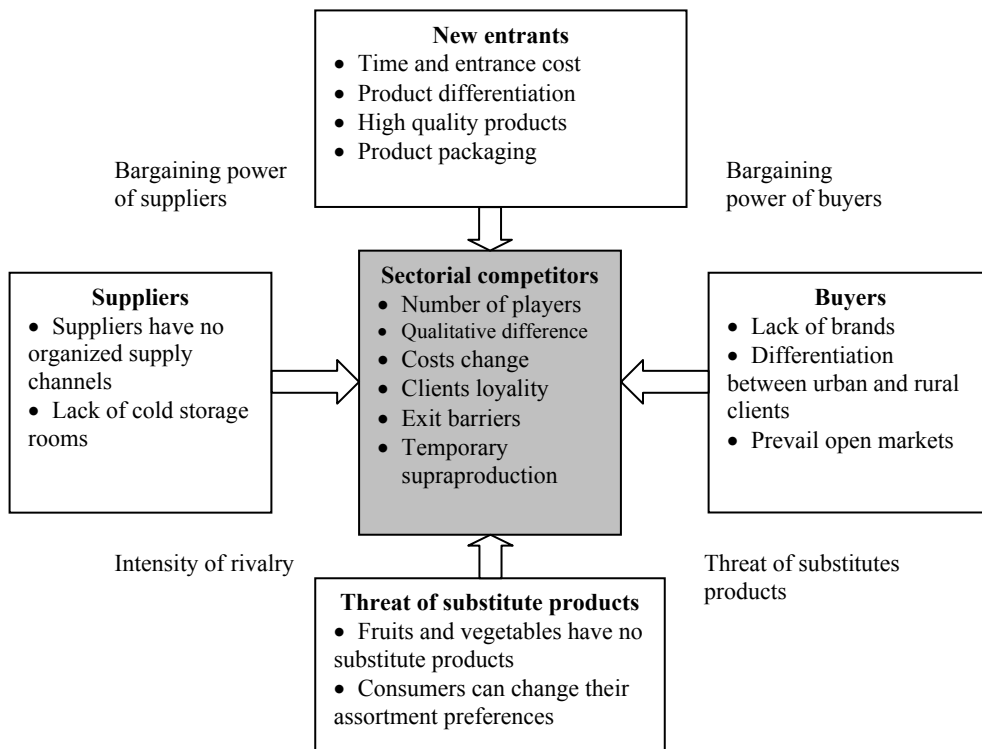
*Table 5*
The analysis of RCA of '08 horticultural products group from Republic of Moldova
in the period 2009-2013

| Years<br>Products | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|
| **Apples, pears and quinces, fresh ('0808)** | **0.989** | **0.970** | **0.970** | **0.968** | **0.985** |
| Dried fruit ('0813) | 0.915 | 0.941 | 0.908 | 0.871 | 0.910 |
| **Grapes, fresh or dried ('0806)** | **0.900** | **0.854** | **0.669** | **0.812** | **0.788** |
| **Apricots, cherries, peaches, nectarines, plums & sloes, fresh ('0809)** | **0.500** | **0.536** | **0.508** | **0.449** | **0.701** |
| Nuts nes ('0802) | 0.579 | 0.424 | 0.513 | 0.689 | 0.604 |
| Citrus fruit, fresh or dried ('0805) | -0.836 | -0.856 | -0.764 | -0.756 | -0.782 |
| Brazil nuts, cashew nuts & coconuts ('0801) | -1.000 | -0.952 | -1.000 | -1.000 | -0.699 |
| Dates, figs, pineapples, mangoes, avocadoes, guavas ('0804) | -0.985 | -0.545 | -0.745 | -0.840 | -0.565 |

*Source*: author's calculations on the basis of data from www.intracen.org

In regional context, according to the data collected from Moldova's National Office of Statistics, the distribution of agricultural enterprises that obtained horticultural products reveals that in the year 2011 the largest number of horticultural enterprises was concentrated in the North region of Moldova namely: seed fruit species – 570 enterprises; stone fruit species – 241 enterprises; vegetables – 174 enterprises. The largest number of vineyard enterprises was concentrated in the South region of Moldova – 385 enterprises. In the region Center we can notice that the number of seed fruit species enterprises is quite similar to the number of stone fruit enterprises, i.e. 293 seed fruit enterprises and 288 stone fruit enterprises.

Therefore, in order to analyze the competitiveness of the horticultural sector of the Republic of Moldova, **"The five forces model that manages the market competition"** is used, proposed by Michael Porter (fig. 6).

**New entrants**
- Time and entrance cost
- Product differentiation
- High quality products
- Product packaging

Bargaining power of suppliers

Bargaining power of buyers

**Suppliers**
- Suppliers have no organized supply channels
- Lack of cold storage rooms

**Sectorial competitors**
- Number of players
- Qualitative difference
- Costs change
- Clients loyality
- Exit barriers
- Temporary supraproduction

**Buyers**
- Lack of brands
- Differentiation between urban and rural clients
- Prevail open markets

Intensity of rivalry

**Threat of substitute products**
- Fruits and vegetables have no substitute products
- Consumers can change their assortment preferences

Threat of substitutes products

*Source*: elaborated by the author.

Figure 6. The analysis of the horticultural sector
using Michael Porter' five forces competition model.

The analysis of the horticultural sector using Michael Porter's five forces competition model reveals that the competition on the local market is moderate, without great bias toward consumers or producers.

**The risk of new entrants** on the market is not very high because starting a fruit production business requires long-term investments in multi-annual plantations, which is a little different from the production of vegetables in the cold period of the year, which also needs investments for greenhouses. The new entrants on the market must also ensure high quality, well-packaged products, so as to be competitive with the existing companies on the market.

**Buyers** are the final point of all the producers' concerns, because the purchase of the horticultural products by consumers represent the acceptance of the producers' supply by which commodity is traded for money. Unfortunately, in Moldova there is no brand strategy for agricultural products, which would differentiate the products, thus influencing the prices.

It is also worth mentioning that in the Republic of Moldova most horticultural products are bought by consumers from open-air markets, because prices are lower than in supermarkets.
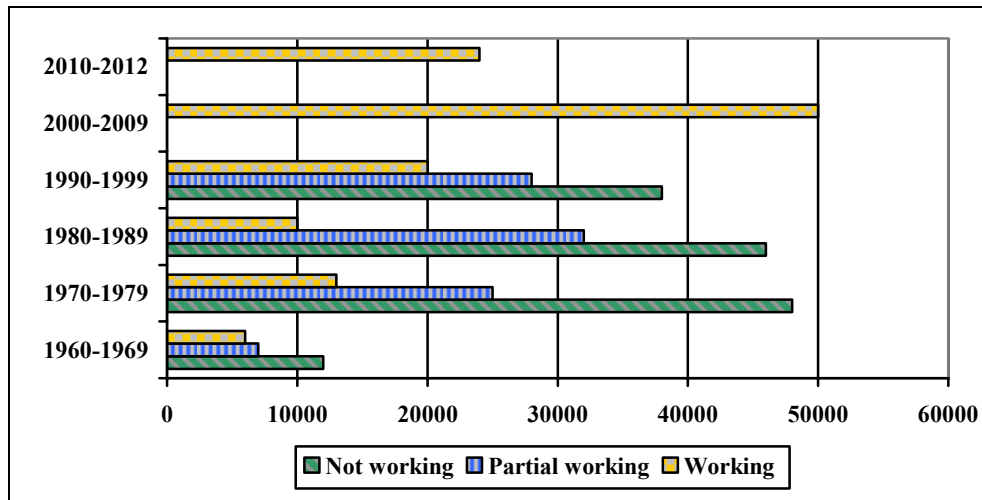
**Threat of substitute products**. Fruit and vegetables have no substitute products. As the population's incomes decrease in the Republic of Moldova, the consumers will change their preferences to lower price products, from exotic products to local products.

**Suppliers**. In the Republic of Moldova the number of suppliers of horticultural products is very high. Those who have a well-organized distribution network of horticultural products from the producer to the consumer (this is rather a small number) are more advantaged compared to those who do not have a well-organized distribution network. The local suppliers of horticultural products have no strong brands that could determine the consumers to give up some of their preferences in favor of local horticultural products. A very serious problem is the lack of cold storage rooms, which determines the agricultural producers to sell the horticultural production directly from the field during the harvest season, at low prices compared to the period out of season, when they could get twice higher incomes, if they had cold storage rooms for keeping the horticultural production in the cold period of the year.

The age structure and operation status of cold storage rooms (fig. 7) reveals that in the period 2000-2009, the functional capacity of the cold storage rooms doubled, to reach 50 000 tons, compared to 20 000 tons in 2009. In the period 2010-2012 a diminution of the functional capacity of the cold storage rooms took place, from 50 000 tons to 25 000 tons.

**Rivalry between players**. Examining the rivalry of horticultural enterprises existing on the market, it results that there are situations when the local market is confronted with surplus production due to the absence of stable foreign outlet

markets. The Republic of Moldova is also facing many export barriers. As a result of the embargo imposed by Russian Federation, in the year 2014, the fruit and vegetables producers from the Republic of Moldova, according to the Ministry of Agriculture and Food Industry had losses amounting to over 20 mln USD in the export of apples; as regards the total exports of food products, Moldova had losses of over 200 mln USD.



*Source*: elaborated by the author on the basis of data from USAID, MAFI, AIPA.
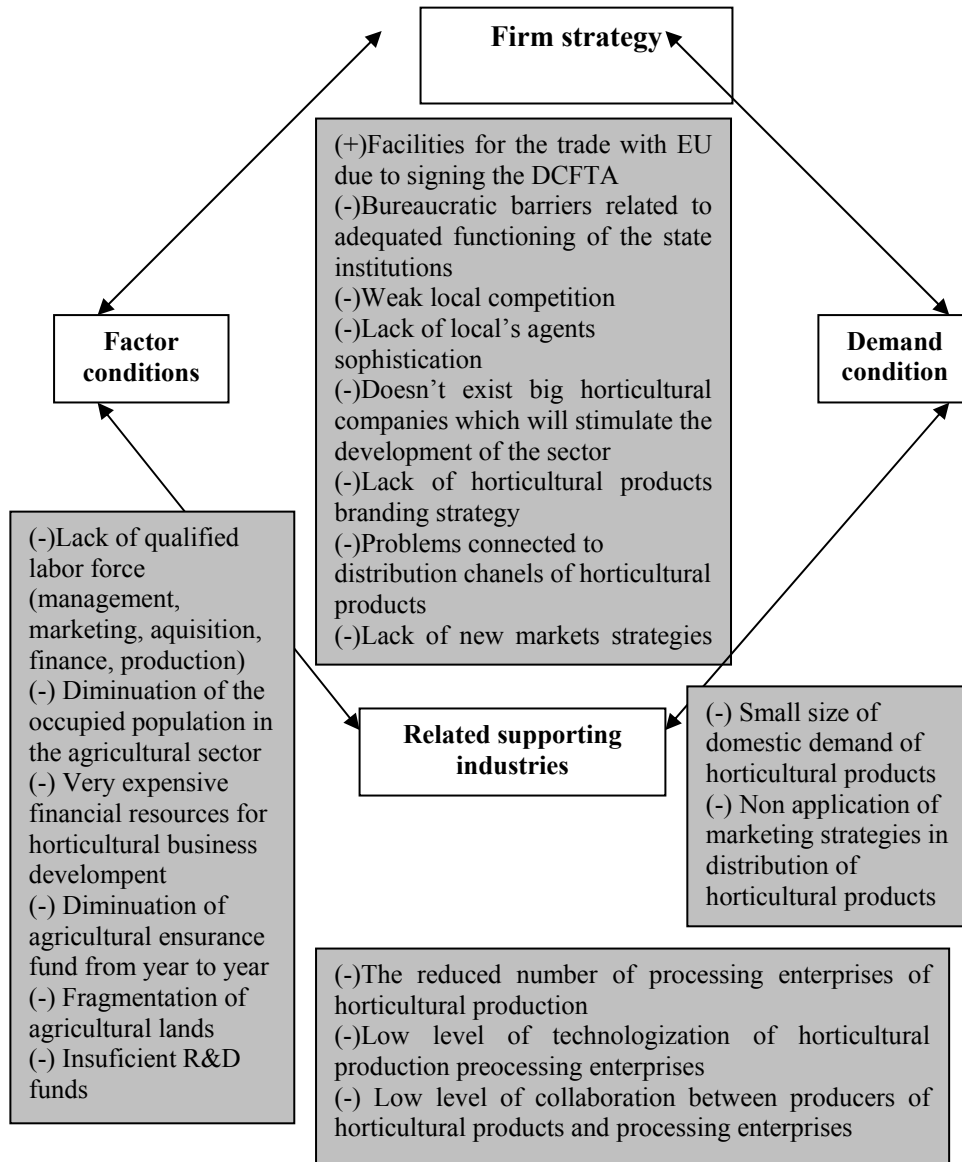
Figure 7. The age structure and operation status of cold storage rooms, tons.

The competitiveness of the horticultural sector can be investigated by using Michael Porter's Diamond Model (fig. 8) that includes the following compete-tiveness factors: **firm strategy; demand conditions; related supporting industries; factor conditions**.

**Factor conditions**. Analyzing the competitiveness factors of the horticultural sector of the Republic of Moldova using the Porter Diamond, it results that most competitiveness factors have negative values, the factor based economy prevailing in the Republic of Moldova. The competitive advantage is based on the low cost of production factors.

**Firm strategy**. In the Republic of Moldova, it is very difficult to say that the horticultural enterprises have a well-defined firm strategy. There is a weak local competition and the business is not sophisticated. A great problem that the horticultural enterprises are facing is that there are no strategies to conquest new markets. The main outlet market for the Moldovan producers is the Russian Federation (about 90% of exports); however, following the embargo imposed by this country in the summer of 2014, the dependence on a single partner is quite risky. There are no branding strategies that would differentiate the horticultural

products, and thus the consumers have to choose locally produced horticultural products due to the popularity of the brand and quality compared to the imported products.



*Source*: Elaborated by the author.

Figure 8. The analysis of the horticultural sector competitiveness factors
using Michael Porter's Diamond Model.

**Demand condition**. The local market is very small and the farmers are facing problems with regard to the sale of their products. The products are mainly sold directly from the field in the harvest period. There are no marketing strategies applied in the distribution of horticultural products.

**Related supporting industries**. Most horticultural products are sold under fresh form directly from the field or on the markets using the farmer's own distribution network; only a low quantity is sold to the processing enterprises.

*Table 6*

Sale of main horticultural products by types of enterprises in 2010-2012, thousand tons

|  | **Total sold production** | | | **out of which:** | | | | | |
|---|---|---|---|---|---|---|---|---|---|
|  | | | | **to enterprises and organizations that collect and process agricultural production** | | | **by other marketing channels (market, own trade system, barter transactions)** | | |
|  | 2010 | 2011 | 2012 | 2010 | 2011 | 2012 | 2010 | 2011 | 2012 |
| Vegetables | 36.9 | 33.7 | 29.7 | 14.6 | 9.3 | 6.9 | 22.3 | 24.4 | 22.8 |
| Fruit | 131.9 | 142 | 144.7 | 31.1 | 26.3 | 47.1 | 100.8 | 115.7 | 97.6 |
| Grapes | 48.6 | 81.5 | 63.4 | 21.7 | 43.7 | 31.9 | 26.9 | 37.8 | 31.5 |

*Source*: Elaborated by the author under the basis of NBS data.

As it can be seen from table 6, in the period 2010 – 2012 most horticultural products were sold by other marketing channels (market, own trade system, barter transactions). For example, in 2012, more than 6.9 tons of vegetables were sold to enterprises that collect and process agricultural production, which represent 3.3 times less than by other channels, by which 22.8 tons were sold. In the year 2012, 47.1 tons of fruit were sold to processing companies, which is less by 2.07 times than by other marketing channels. Thus, analyzing the volume of sold production, it results that a small quantity of horticultural production was sold to the processing industry, most products being sold through other marketing channels. The collaboration level between farmers and processors is very low in the horticultural sector.

## 5. CONCLUSIONS

The competitiveness of the horticultural sector of the Republic of Moldova is based mostly on factor conditions, the Republic of Moldova being in the transition stage from factor driven economy to efficiency driven economy, according to the World Economic Forum Report.

The lack of a stable marketplace and of a firm strategy how to conquer markets makes the horticultural sector subject to many risks. The dependence on only one market is very risky for the Republic of Moldova, being demonstrated by the embargo imposed by the Russian Federation. The Republic of Moldova had losses as a result of the Russian Embargo of more than 200 mln USD.

The absence of marketing strategies in the distribution of horticultural products results in most products being sold directly from the field in the harvest period, at low prices, compared to products stored in cold rooms and sold at high prices out of season. The problem of production storage in the cold period of the year is very stringent and will give the possibility to agricultural producers to earn more money.

Due to the low level of collaboration between horticultural producers and processing industries, most horticultural products are sold directly from the field. There is also the price problem, with prices being more attractive when selling directly from the field. The technological level of the processing enterprises is very low.

Therefore, in order to increase the competitiveness of the horticultural sector, it will be necessary to conquer new outlet markets by the design of firm strategies; to increase the skilled labor force in the horticultural sector; to initiate procedures that will increase the collaboration between horticultural producers and processing enterprises; to create distribution channels for the horticultural production.

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