VEGETABLE PRODUCTION IN ROMANIA IN THE CONTEXT OF THE NEW CAP - A PRODUCTIVITY GROWTH ANALYSIS

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Abstract: *Romania can play an important role on the European vegetable market in case it would be able to recover the productivity gaps in comparison with other European countries. The Romanian vegetable sector is characterized by increased fragmentation and high volatility both of production and prices. Sector productivity is still under volatility, while productivity gaps recovery, mainly in the primary production, represents an important objective. At the same time, globalization has an important impact on production and yield evolution if we take into consideration the technological progress and innovation in the vegetable chain. The paper makes an analysis of the productivity indicator at the level of the vegetable primary production in the period 2007-2013 and the findings allow to signal out an extremely important and positive phenomenon, namely the increase of areas under vegetables in greenhouses and plastic tunnels by 50%. Similar trends were noticed in production levels.*

Key words*: vegetable production, CAP, productivity growth*
JEL Classification: **Q110**

INTRODUCTION

In the recent years, the productivity of agrifood chains has come to the foreground, due to the challenges at global level determined by the food demand increase in the new emergent states, the non-food uses of farm output as biofuels, as well as the impact of technology and innovation upon productivity in agriculture, including the emergence and fast development of the great chain stores, which can lead to the economic growth and poverty alleviation both in the urban and rural areas. The interest attached to this issue is mainly marked by the increase of agrifood process under the background of agriculture productivity diminution, quoted as one of the long-term causes of crisis (Fuglie, 2008), while the need to increase productivity is considered to be one of the long-term solutions to crisis (Diao et al., 2008). Even in the EU member states, agriculture productivity regained in interest in the context of certain recent phenomena, such as the increase of agricultural prices and their volatility, market fragmentation and last, but not least, the significant diminution of consumers' incomes under the impact of the current economic crisis. The Romanian vegetable sector is characterized by strong fragmentation and high volatility of production and prices. The sector productivity continues to be under the sign of volatility and the bridging up of productivity gaps mainly in primary production represents an important objective, both as research aim and as agricultural policy objective. At the same time, globalization also has an impact upon production and yields, if we take into consideration the technological progress and innovation contribution on the vegetables chain.

While competition at the level of retail chains stimulates changes of the type of retail sale formats, with a concentration and consolidation tendency among these, at the level of vegetable farmers and of the support provided to different forms of association/collective actions, certain disequilibrium can be noticed. That is why, a major challenge emerges, for the small vegetable farmers, either from Romania or from other parts of Europe and not only, namely how to become part of the modern retail chains, in which most often the modern retail chains coordinate the other players (Dell'Aquila et al, 2011).

PREVIOUS STUDIES AND RESEARCH METHODOLOGY

The recent studies give a complete picture of the impact of chain globalization upon the small farmers from developing countries or from countries in transition such as those from Central and Eastern Europe (Codron et al., 2004, Reardon et al., 2009, Swinnen, 2007). These studies highlight the importance of market imperfections both at production and marketing level and at the agricultural *input* level, hindering farmers' access to modern retail chains.

The agricultural productivity increase and the recovery of productivity gaps along the agrifood chains between Romania and the European Union are important agricultural policy objectives. Agricultural productivity increase has a complex determination, depending on the agricultural sectoral policies and on the general macro-economic framework, on the chain prices, on the income distribution policies, social, fiscal and commercial policies, etc. Concretely, agricultural productivity growth is determined by land and labour productivity increase, yet it presupposes a much more complex analysis of capital productivity and of other agricultural inputs, including the new technology adoption rate.

The instability and turbulences that have been manifested on the world markets of agricultural raw products in recent years generated significant increases in the prices of agricultural products, of vegetables inclusively. This unprecedented agricultural price volatility further highlights the need to increase Romania's agriculture productivity, and mainly to find solutions to bridge up the productivity gaps, under the background of a low capitalization level of Romania's agriculture and a domestic vegetable production that is still far from meeting the population's consumption needs.

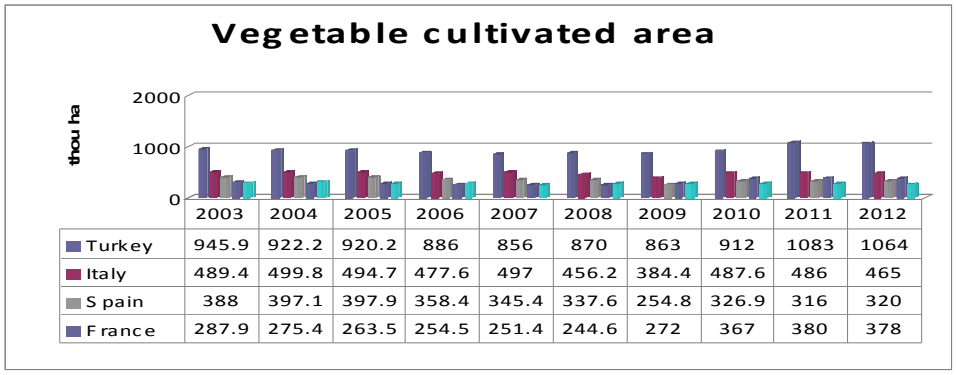
The objective of the paper is to evaluate the vegetables chain from the perspective of bridging up the productivity gaps between Romania and other EU member states at the production level. In order to reach this objective several productivity indicators are used and comparisons with the EU member states are made. The main indicators used at the primary production level are the following: cultivated areas, productions and average yields per hectare in Romania and comparisons with the EU member states.

RESULTS AND DISCUSSION

According to the data supplied by the Integrated Farm Control System in Romania, in the vegetable sector, the farms under 3 ha prevail, 90% of these being managed by individual farmers. The existence of a very large number of farmers, who produce for self-consumption but also sell part of their production, directly at farm gate or through intermediaries, does not permit a clear differentiation between commercial farms and subsistence farms and consequently hinders the adoption of adequate and coherent fiscal policies. All these factors have a direct impact upon farmers' incomes, upon price fluctuation, commercial orientation of the sector and its productivity.

As regards the cultivated area, Romania is on the 5th position among the countries producing vegetables in the European Union (Figure 1) and on the 6th position as regards the area of the fruit farming sector.

Figure 1: Areas cultivated with vegetables in Romania and other EU or non-EU member states



	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Turkey	945.9	922.2	920.2	886	856	870	863	912	1083	1064
Italy	489.4	499.8	494.7	477.6	497	456.2	384.4	487.6	486	465
S pain	388	397.1	397.9	358.4	345.4	337.6	254.8	326.9	316	320
F rance	287.9	275.4	263.5	254.5	251.4	244.6	272	367	380	378

Source: Eurostat

As regards the cultivated areas in Romania, **an extremely interesting and important phenomenon** that can be signalled out in the last period is the increase of cultivated areas under greenhouses and plastic tunnels. The areas cultivated with vegetables under greenhouses and plastic tunnels increased by **50%** and **24%** respectively compared to the 2007/2011 average (Table 2).

Table 1

Cultivated areas by categories of land areas – hectares

	2007	2008	2009	2010	2011	2012	Variation	Variation 2012/2007
Total	241220	258851	257752	254293	254549	249282	-2%	0%
Individual households	95%	96%	96%	96%	95%	95%		
Field vegetables	156056	167136	165865	159364	161355	157622	-3%	1%
Individual households	93%	94%	95%	93%	92%	93%		
Vegetables in greenhouses and plastic tunels	**2170**	**2415**	**2481**	**2545**	**3506**	**3275**	**24%**	**50%**
Individual households	**84%**	**87%**	**90%**	**89%**	**87%**	**92%**		
Fresh vegetables in family gardens	82994	89300	89406	92384	89688	88385	-1%	0%
Individual households	100%	100%	100%	100%	100%	100%		

Source: INSSE, tempo on line, 2013

At the same time, a certain stability can be noticed with regard to the areas under field vegetables, including the cultivated areas in kitchen gardens.

Production and yields

With the increase of areas under vegetables in greenhouses and plastic tunnels we can also notice **an increase of the productions of vegetables cultivated in green houses and plastic tunnels**, by **44%** in 2012 compared to 2007 and by **9%** compared to the 2007/2011 average (Table 2).

Table 2

Production of vegetables by categories of areas – Tons

	2007	2008	2009	2010	2011	2012	Variation 2012/2007 11	Variation 2012/2007
Field vegetables	2082095	2580433	2664055	2388781	2753054	2373957	-14%	14%
of which individual households	66%	67%	67%	61%	65%	66%		
Vegetables in plastic tunnels	68003	85319	76053	90534	124632	98158	9%	44%
of which individual households	2%	2%	2%	2%	3%	3%		
Fresh vegetables in families garden	965620	1154138	1161754	1384389	1298616	1063201	-10%	10%
of which individual households	32%	31%	31%	37%	33%	32%		

Source: NIS, tempo on line, 2013

Compared to other EU member states, Romania is on the 7th position as regards the production of vegetables and melons, after countries such as Italy, Spain, Poland, France and Netherlands.

Table 3.

Total production of vegetables in Romania, compared to EU - Thou. tons

	Tomatoes	Carrots	Onions
EU-28	15 855	5 185	5 977
Spain	4 074	370	1 170
France	764	541	412
Italy	5 962	543	414
Poland	759	835	642
Portugal	1 393	75	48
Romania	**423**	**111**	**214**
Bulgaria	94	10	10

Source: Eurostat, 2013

The total vegetable production in EU-28 was estimated at 15.8 mil tons tomatoes in 2012, out of which two-thirds come from Italy and Spain. While the tomato production significantly decreased in Italy (from 7.5 mil tons in 2000 to 6 mil tons in 2011, the production in Spain was much more stable, this oscillating around 4 mil tons. Romania with 423 thousand tons of tomatoes remains quite an important player. As regards other vegetables, 5.2 million tons of carrots and 6 millions tons of onions were produced in EU-28 in the year 2012. The carrot production was relatively high in Poland and Great Britain, together these countries representing more than one quarter, i.e. 16.1% and 12.8% respectively. Netherlands and Spain are the main onion producers in EU, together accounting for more than 42% of EU's onion production in the year 2012, Romania being on the 7th position.

In the case of tomato production, a high variability of yields can be noticed, with minimum yields in 1997, 2002 and 2007, and a maximum of 28 tons in 2004. The average tomato yield in EU is 60 tons, while the average cabbage yield is 28 tons[1]. By comparison, the tomato production in Romania is almost 3-4 times smaller. As regards the yields per hectare in tomatoes, these feature an extreme volatility, Romania having the highest annual volatility in 2012 compared to 2011, as against other EU member states. At the same time,

[1] According to FAO data

Romania has the lowest yields compared to countries like Spain or Italy, for instance, where yields can reach 50-60 or even 70 tons per hectare, in the case of Spain (Table 4). Unfortunately, Romania has extremely low yields also compared to countries like Bulgaria or Poland, where a maximum yield was reached in the year 2008, with 38.3 tons/ha in Bulgaria and 24.5 ton/ha in Poland, while in our country the maximum yield per hectare was reached in 2011, i.e. 20.1 tons/ha.

Table 4:

Evolution of tomato yields in the European Union - Tons/ha

	2007	2008	2009	2010	2011	2012	2007-2011 average	2012/ 07-11 variation	2012/2011 variation
Italy	52.1	51.8	54.5	50.7	57.4	53.9	53.4	1.10%	-6%
Spain	76.6	69.6	76.5	72.7	76.6	83.5	75.9	12.20%	9%
Romania	**15.6**	**17.7**	**17.0**	**14.5**	**20.1**	**15.2**	**16.7**	**-10.4%**	**-24%**
Greece	53.1	53.5	54.0	58.1	59.4	59.4	55.6	6.80%	0%
Portugal	83.5	80.3	80.1	84.7	74.6	90.4	80.6	12.20%	22%
Poland	24.1	24.5	23.9	15.5	23.3	22.3	22.3	0.10%	-4%
Bulgaria	27.8	38.3	34.7	32.7	24.0	27.6	30.9	-12.30%	15%
France	174.3	174.3	161.1	137.0	140.8	146.8	155.7	-6.70%	4%

Source: Eurostat, 2013

CONCLUSIONS

The productivity along the vegetables chain is very low, mainly in the primary sector. In spite of this, an increase of areas under vegetables cultivated in greenhouses and plastic tunnels by about 50% can be noticed. This tendency is also noticed in the case of yields. The cultivation of vegetables in greenhouses and plastic tunnels makes it possible to use certified seeds and to apply modern technologies. However, this implies the need to improve the chain organization, to build up storage facilities and to acquire modern logistic systems, also in the context of producer groups development. In the European Union, the Common Market Organization provides support for the establishment of producer groups and other association forms. While in Netherlands the organization level is over 90%, and the EU average is 34%, in Romania the producers' organization is extremely low, under 1%. The introduction of certain fiscal measures would be necessary, such as VAT diminution for all the agrifood products and application of a low VAT rate, for example 5-9% for all farmers regardless of their legal organization status. A larger taxation basis could mean not only the increase in number of tax payers, but also the regulation of the commercial behaviour of all players participating to the chain. In the absence of adequate organization, the increase of yields and productions is not possible, as it would not allow farmers to obtain sufficiently high incomes to acquire and adopt new technologies applied in modern greenhouses and plastic tunnels or to acquire modern storage facilities and advanced logistic systems.

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