
QUALITATIVE AND QUANTITATIVE ASPECTS REGARDING THE VEGETABLE CONSUMPTION IN ROMANIA

Cornelia Alboiu, PhD, Institute of Agricultural Economics, INCE, Romanian Academy

Abstract: *The agri-food system has known important challenges and changes in last years, regarding both the patterns of production and consumption. This is the reason why it is important to analyse also the level of expenditure dedicated for consumption. Economic theories on the one hand, and sociological and anthropological theories on the other hand give different interpretations of these challenges, and they often reinforce each other. This paper is an attempt to study the pattern of consumption of vegetable and vegetable supply in Romania compared to some European Union member states with similar consumption patterns, taking into account new consumer perspectives and globalization. The paper also makes an analysis of the level of expenditures by different social categories and regions for vegetable procurement. For this purpose, several qualitative and quantitative indicators were used regarding the consumption trends in Romania, the volatility of food supply, and the level of expenditure for vegetable consumption. The results show that although the consumption of vegetables is quite close to the standards set by the World Health Organization and close to that of countries with a high energy intake derived from vegetable consumption, however, the demand is not enough to cover the domestic consumption.*

Keywords: *consumption, vegetable farms, supply*

JEL Classification: *Q110*

INTRODUCTION

This paper is an attempt to present the qualitative and quantitative factors influencing the vegetable consumption in Romania. The agri food consumption has become very important in recent years. This paper tries to study the pattern of consumption of vegetable and vegetable supply in Romania compared to some European Union member states with similar consumption patterns, taking into account new consumer perspectives and globalization. Also, the paper makes an analysis of the level of expenditures made by different social categories and by regions for vegetables procurement and consumption. The vegetable production records high variability of prices and this has impact on the level of the expenditure made for vegetable procurement and vegetable consumption. As long as the area under greenhouses is small, the producers cannot benefit from the high prices paid in winter time; in this period of the year, most vegetables come from imports, mainly from Greece, Netherlands and Turkey and a very large proportion of vegetable consumed during winter is imported. Usually vegetables are produced in Romania on a seasonal basis, and the products have to be

consumed immediately after the harvest time or delivered to processors while the fresh consumption is completed by imports.

PREVIOUS STUDIES AND RESEARCH METHODOLOGY

Food consumption patterns and agri food systems were studied for the first time in the French school by Malassis (Malassis 1979; Malassis and Padilla 1986; Malassis and Gherzi 1996) from a perspective that takes into account economic studies, sociological and nutritional results; these studies were updated on the basis of recent researches that take into account new developments such as Common Agricultural Policy and other conventional studies (Revue économique 1989; Thevenot 1995; Wilkinson 1997), which provides new opportunities for understanding complex phenomena related to the production and food consumption.

The research is made based on calculation of quantitative vegetable consumption indicators based on data provided by Food and Agriculture Organization (FAO) and National Institute of Statistics (NIS). For this paper a comparative analysis is undertaken in order to see the level of consumption in countries with similar consumption patterns; the share of kcal/day coming from vegetables in total vegetable consumption is also calculated. The paper analyse indicators such as the average dietary energy intake adequacy, the volatility of food supply per capita, the self sufficiency level. All these indicators are calculated also for countries with similar consumption patterns.

RESULTS AND DISCUSSION

The analysis of qualitative indicators

According to FAO recommendations, the minimum caloric intake of normality, per person in a temperate climate and average conditions of physical and intellectual effort is 2700 calories (2500 calories in hot climates).

Compared to FAO, the minimum average daily calorie consumption at national level in 2012 was 3283 (Table 1), out of which 74,4,6% vegetable calories, reflecting an impaired nutrition from a qualitative point of view. If in the case of energy content of food expressed on average per capita, there is no issue in gap recovery in terms of structural and qualitative improvement, in the case of qualitative structural nutrition improvement, it should be noted that Romania has a higher share of food expenditure in the family budget compared with the most developed countries in the EU.

Table 1: Average daily food consumption per capita expressed in calories and nutrient factors by types of calories and nutrients and by product groups (vegetables and vegetable products) 2013

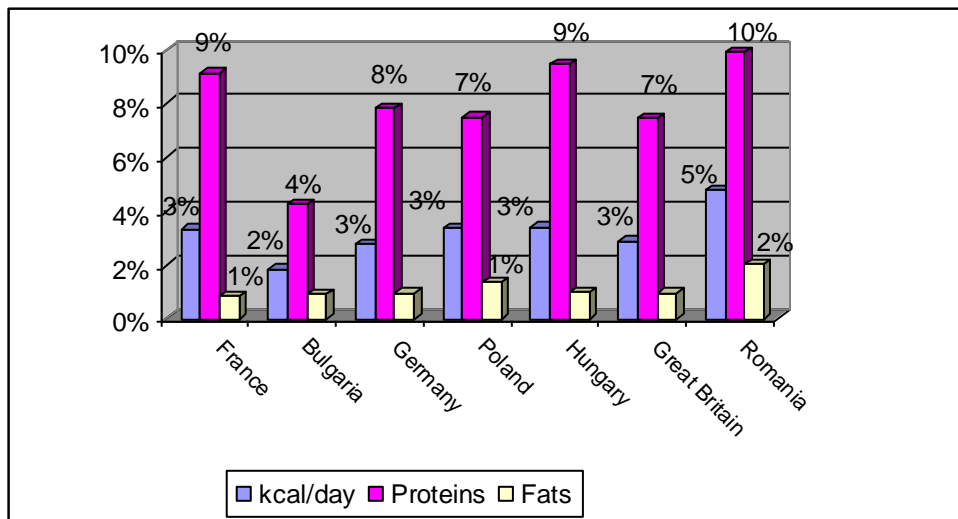
		1990	2012	Dynamics ,12/'90
Total calories	Number	3053	3283	7.5
Out of which:				
- animal origin			25,6%	
- vegetal origin			74,4%	

Out of which: Vegetables and vegetable products, legumes, melons	Number	108 (3,53 %)	156 (4,75%)	44.4
Proteins	Grams	98.8	106.6	7.8
Vegetables and vegetable products, legumes, melons	Grams	5.4	7.7	42
Lipide	Grams	94.1	103.5	
Vegetables and vegetable products, legumes, melons	Grams	0.9	1	1.1
Glucide	Grams	433.4	459.9	6.1
Vegetables and vegetable products, legumes, melons	Grams	18.9	27.7	46.5

Source: NIS, tempo online, 2014

As it can be seen from the figure below, Romania ranks first in the vegetable consumption calories compared to other countries surveyed, followed by Hungary (9%) and France (9%). As a structure, in Romania, the share of total vegetable calories out of total vegetal calories is 10%.

Figure 1: Share of kcal/day in total vegetable consumption comparisons at the EU level



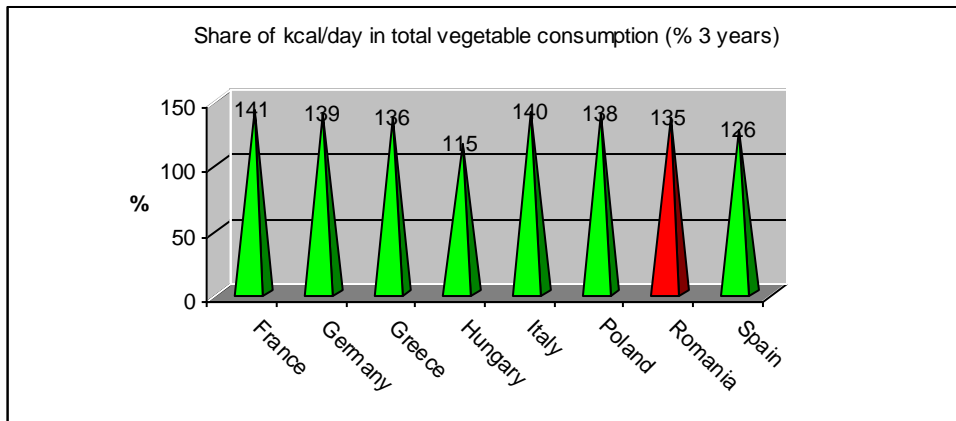
Source: NIS, tempo online, 2014

According to Australian researchers, the consumption of a large quantity of fruits and vegetables can make people happier. According to a study involving more than 12,000 people, the consumption of eight or more servings of fruits and vegetables a day improves mental state. Mujcic (2014) argues that current guidelines on eating fruits and vegetables have been largely focused on physical health and not mental health. This study looked at people's choices in terms of fruit and vegetables consumption and made an assessment of these preferences in relation to stress level, vitality and satisfaction of the persons concerned. Happiness is installed as fruits and vegetables are consumed, but there are optimal levels,

"consuming about five fruits and vegetables a day we become happier than we are accustomed." The optimum level of ten servings of fruits and vegetables consumed during the day is achieved by less than 10 percent of the respondents.

As regards, the adequacy of energy dietary intake, according to FAO data, Romania can be classified along with Greece in the category of countries with an adequate dietary intake. Good dietary intakes are registered in France, Italy and Germany. In contrast, with a lower dietary intakes appear countries like Hungary and Spain (Figure 2).

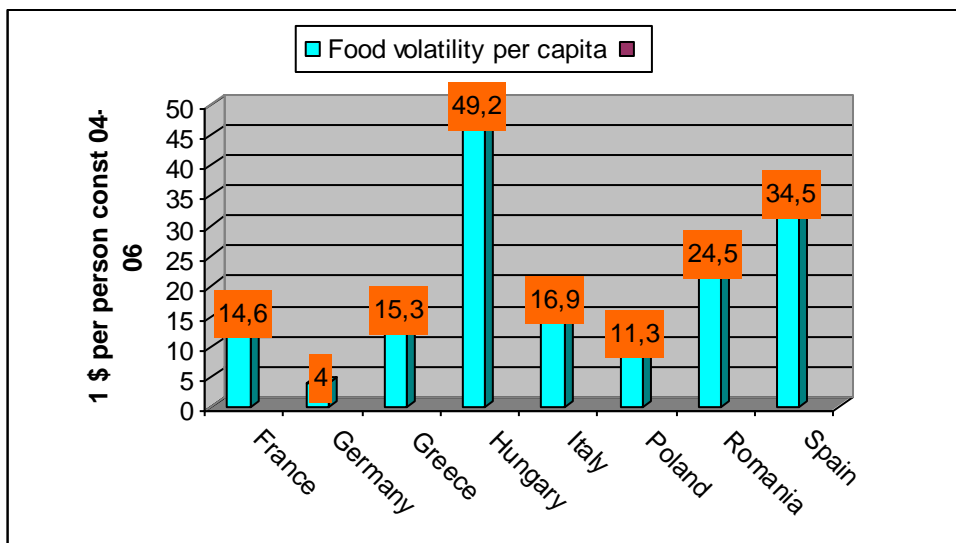
Figure 2: Average dietary energy intake adequacy, comparisons at the EU level



Source: FAO, 2014

As regards the volatility of food supply per capita, it might be noticed that this is very high in Hungary, followed by Spain and Romania. Germany has the lowest volatility followed by France and Poland (figure 3).

Figure 3: The volatility of food supply per capita, comparisons at the EU level

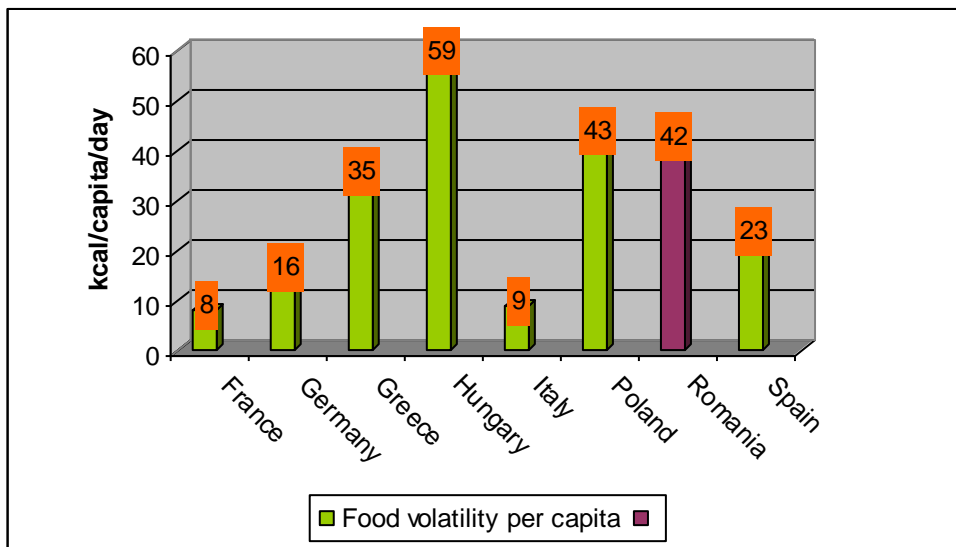


Source: FAO, 2014

According to FAO, the volatility of food supply per capita expressed in kcal / capita / day, is extremely high in Hungary, Poland and Romania. Lower volatility of food supply can

be found in Germany, Spain and Italy. In this regard, France registers the lowest volatility (Figure 4).

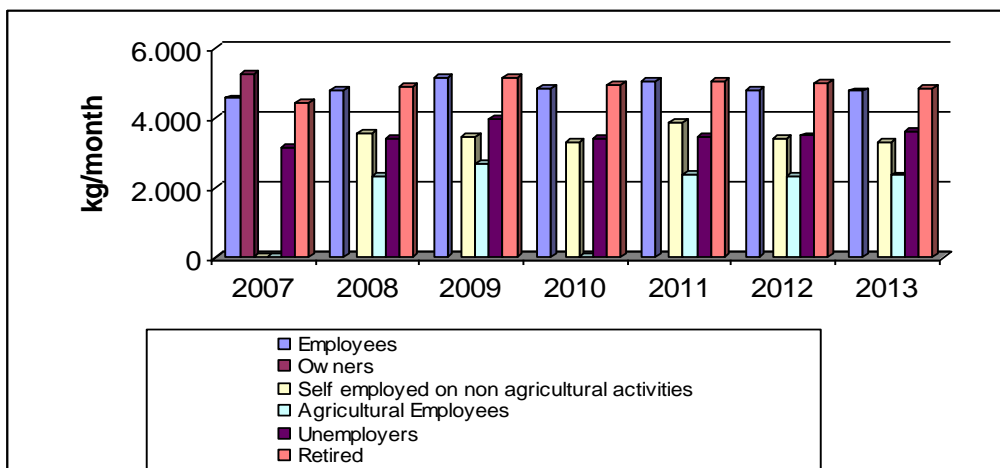
Figure 4: The volatility of food supply per capita, comparisons at the EU level



Source: FAO, 2014

The evolution of quantities of agricultural products purchased by a household on product categories and main social categories in Romania is shown in Figure 5. As it can be noticed, employees, employers and retirees buy the largest quantities of food. Instead, unemployed, self-employed in non-agricultural activities and farmers buy smaller quantities of food products (5 kg per month for the unemployed and 6 kg per month for agriculture).

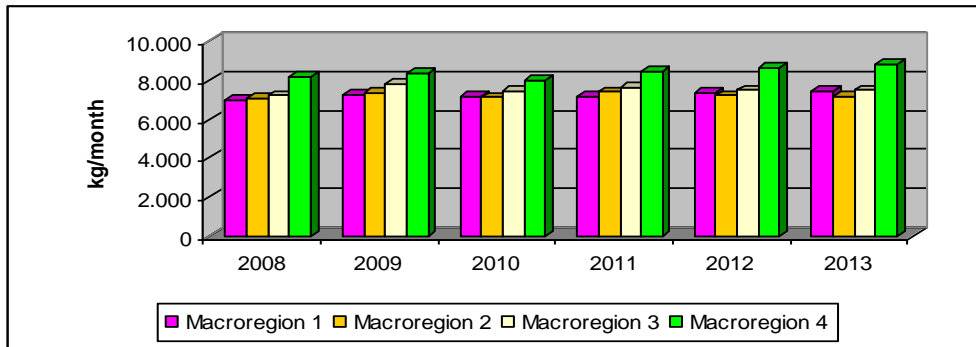
Figure 5: Agricultural products purchased by a household on product categories and main social categories in Romania



Source: NIS, tempo online

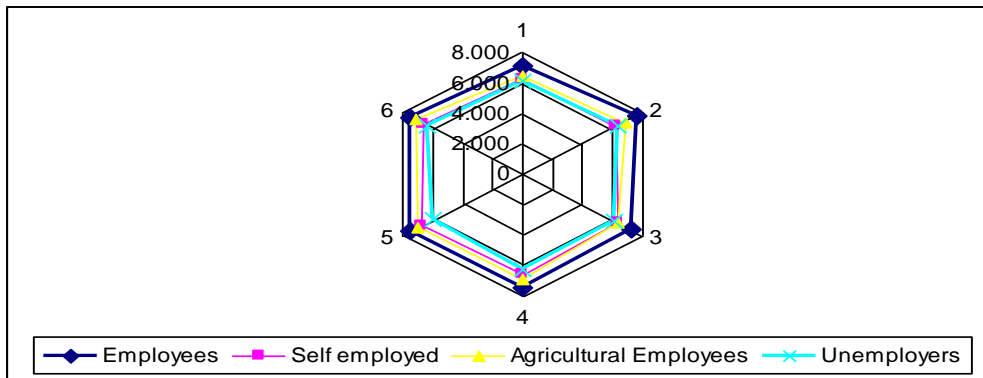
In terms of consumption of vegetables and canned vegetables at macro regions level, the average monthly consumption of vegetables and canned vegetables records the highest increase in macro region-4 (South-West Oltenia and West) over 8kg / month and self-employed (figure 6). A lower consumption has been recorded in macro region 1 (NW region and center) and 2 (RegionNE and SE).

Figure 6: Vegetables and canned vegetables by macroregions



Source: NIS, tempo online 2013

Figure 7: The average monthly consumption of vegetables and canned vegetables by type of categories, 2013 (kg/month)

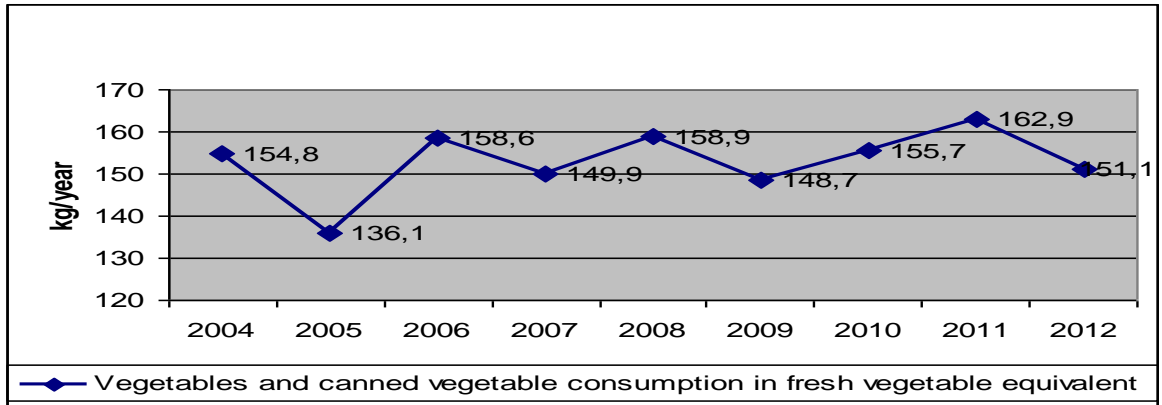


Source: NIS, tempo online 2013

According to NIS, the consumption of vegetables and canned vegetables in fresh vegetables equivalent, was per total household on monthly average of 6.4 kg / person and by residence of 6.4 kg / person in urban area and 6, 5 kg / person in rural areas.

By region, the highest average consumption per person of vegetables and canned vegetables expressed in fresh vegetable equivalent was recorded in the South-West Oltenia (7.9 kg / person). In terms of average annual per capita consumption of vegetables and vegetable products expressed in fresh vegetable equivalent, this is shown in Figure 7. It has been fluctuated during the period 2004-2012, with an increasing trend, income level influencig practically its evolution.

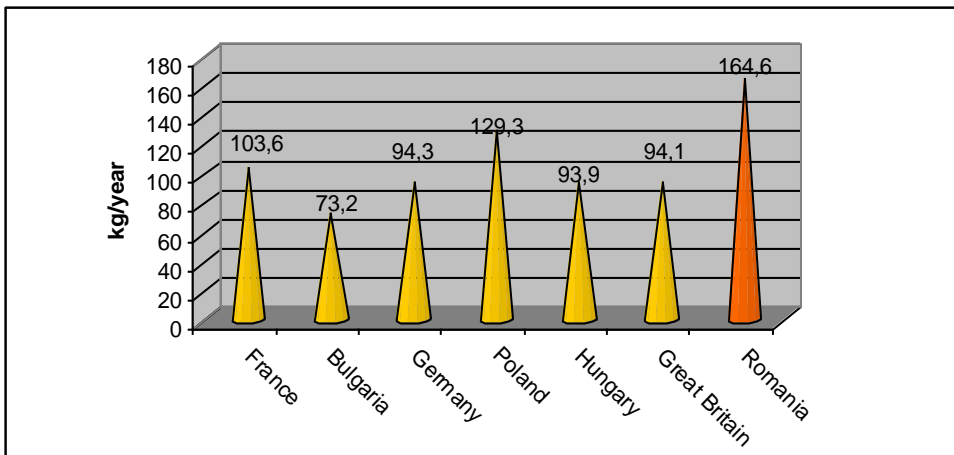
Figure 8 The annual average consumption/inhabitant of vegetables and canned vegetables in fresh vegetable equivalent



Source: NIS, tempo online 2013

Compared to some European Union member states with similar food consumption pattern, surprisingly Romania recorded the highest consumption of vegetables per year, approaching a lot to the nutritionists recommendations.

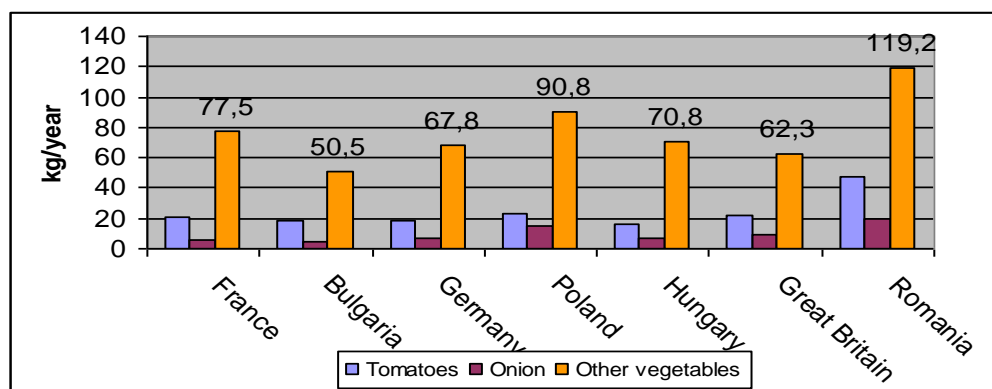
Figure 9 The annual average consumption/inhabitant of vegetables and canned vegetables in fresh vegetable equivalent in România and some EU countries



Source: FAO, 2014

In terms of consumption of various types of vegetables, Romania has the highest consumption of tomatoes, onions and other vegetables (Figure10). It follows Poland, France and Hungary which also record higher consumption of vegetables. Britain and Bulgaria are at the opposite pole with the lowest consumption of vegetables (for instance, the consumption of other vegetables was of 50.5 kg in Bulgaria and 62.3 kg in UK).

Figure 10 Vegetable consumption (kg/year)



Source: FAO, 2014

The degree of selfsupply is not insufficient (table 2) and imports are quite high especially in the extra season even though, as it was already said an increase in both protected areas and productions by about 50% took place in Romania beginning with 2007. Nevertheless, insufficient organization of the supply chain and farmers adaptability to the retail chains requirements (quantity, quality, frequency, safety standards) and consumer demands still creates a gap between domestic demand and supply.

Table 2: The self sufficiency level with fresh vegetables in Romania

	Production	Import	Export	Stock variation	Supply disponibility	Human consupt	Self sufficiency supply %
2007	3153	486	19	-393	4013	3533	.6
2008	3257.6	419.7	23.6	-72.4	3653.6	3263.4	.2
2009	3249	396.9	188.3	105.3	3601.3	3030.2	.2
2010	3925	521	77	-	4369	3738	.8
2011	4253	496	68	127	4554	3865	.4
2012	3599	497	63	-99	4132	3558	.82

Source: NIS, Food balances

CONCLUSIONS

The results reveal that vegetable consumption in Romania is quite close to recommendation made by nutritionists. However, the self supply is not sufficient and this is the reason why an increase of the area under vegetable green houses is needed. Sector policy should meet the requirements of the market by reducing price fluctuations and the imbalance between supply and demand and encourage consumption of vegetables, while ensuring the competitiveness of products. However, it has been noticed a higher volatility of food supply, especially in countries like Romania, Hungary and Poland compared to other EU countries.

Nevertheless, the adequacy of energy dietary intake, according to FAO data, the analysis show that Romania has an adequate dietary intake coming from vegetables similar to that of countries like Greece. At the macro region and region level, there appear small differences in terms of vegetable consumption, where theregion-4 (South-West Oltenia Region and West Region) records the highest vegetable consumption with over 8kg / month. At the same time, by social categories, it could be noticed that self-employed people have the highest level of vegetable consumption, approaching the nutritionist recommendations. As long as vegetable consumption in Romania is close to that recommended by World Health Organization, it must be said that this consumption unfortunately is not covered from the domestic supply. Although in the last year an increase of the area under vegetable has been noticed, Romania has to significantly improve its supply chain, including a better organization at the farm level.

REFERENCES

1. Malassis, Louis. 1979. *Economie Agro-alimentaire*, vol. I *Economie de la consommation e de la production agro- alimentaires*, Paris: Cujas.
2. Malassis, Louis. and Martine Padilla. 1986. *Economie Agro-alimentaire*, vol. III *L'économie mondiale*, Paris: Cujas.
3. Malassis, Louis. and Gerard Gherzi (eds). 1996. *Introduzione all' economia agroalimentare*, Bologna, Il Mulino
4. Thévenot, Laurent.1995. "Des marchés aux normes". Pp. 33-52 in *La grande transformationde l'agriculture*, edited by G. Allaire, R.Boyer. Paris: INRA, Economica.
5. Wilkinson, John. 1997. "A New Paradigm for Economic Analysis?" *Economy and Society* 26:26-42.