

## FOOD AND NUTRITION SECURITY IN ROMANIA IN THE POST-ACCESSION PERIOD

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### **Abstract**

*The paper makes an assessment of the food security situation in Romania, several years after the accession to the European Union. The approach focuses on certain problems regarding food security assurance at national level, as well as aspects linked to the access to food and the population's nutritional status. The methodology used is based on the SWOT analysis of the population's food and nutrition security. This started from the current approaches to the food security concept, namely supply availability, supply stability, economic access and food use. In this context, the paper presents certain vulnerabilities of food security for Romania's population; among these vulnerabilities, at the food supply availability level, we can mention the lack of self-sufficiency in certain staple foods, such as meat, fruit, sugar and fish, in which the systematic deficit is covered by imports. At the same time, the domestic agricultural production instability, mainly in the case of crop production, raises food security problems. As regards the access to food, the low incomes and the income gaps by regions and residence areas generate food insecurity for the low-income population categories, which are most often found in the rural area. At the same time, the deficient food consumption in quality terms, the high share of calories from cereals and potatoes, as well as the low animal protein intake generate nutritional risks.*

**Key words:** food and nutrition security, rural household

### **INTRODUCTION**

The paper contains the findings from SWOT analysis of Romania's food security and safety several years after the accession to the European Union. This approach is part of the larger framework of Romania's Development Strategy for the next 20 years, 2016-2035, coordinated by the Romanian Academy. The approach to the food security and safety theme had in view the much too slow progress of the Romanian agri-food system, the delayed convergence with the performance indicators of the EU member states, rural poverty maintenance on large areas and last but not least, the existing problems and vulnerabilities in food security assurance for the population. These vulnerabilities emerge from the insufficient agricultural production level, from the domestic supply instability and price volatility, as well as from the deficient access to food of large population categories, under the background of income decrease and poverty in certain areas of the country.

In the recent years, the population's food security problem has come to the foreground again, due to challenges at global level, among which we can mention food demand increase together with the change of the population's diet from the new emergent states, the non-food uses of agricultural production by bio-fuel production, as well as the impact of climate changes on agricultural production and food supply. Even in the EU countries where food assurance is no longer a problem, food security has become a concern at the level of highly vulnerable communities. At the same time, most prospective evaluations take into consideration global evolutions with contradictory effects upon food security for the next years. On one hand, as an effect of strong economic growth in the emergent countries, a significant increase of food consumption per capita will take place, and even more important, a modification in the structure of diet, i.e. the shift from a consumption pattern based on cereals and other foodstuffs rich in starch to a

consumption pattern based on animal protein, in which meat and dairy products will prevail [2]. At the same time, it is expected that in the next decades the total factor productivity in agriculture will stagnate, due to reaching certain biological limits combined with the unpredictable and increasing climate change effects.

In this context, the evaluation of the food security situation becomes of utmost importance in Romania's case, as due to the still insufficiently used agricultural potential, our country may have an important role in food security assurance at regional level in the years to come, on the condition of solving up its internal problems linked to productivity and competitiveness in agriculture.

## MATERIALS AND METHODS

The first attempts to define food security, in the early 1970s, focused on the agricultural and food supply availability, as it was considered that population's food security can be reached if all the people have sufficient food to lead an active and healthy life, according to their needs. The access to food issue and the importance of economic factors conditioning it appeared later on. Gradually, the food security concept evolved, certain authors mentioning the existence of about 200 definitions for this concept, in the early 1990s [3].

Food security can be evaluated at different levels, but most references are made to the macro-economic (world, regional or national) level and at micro-economic level, i.e. at household or individual level. Depending on the level to which reference is made, the focus is laid on one or several of the four pillars of food security, namely: food availability, supply stability, economic access and utilization, represented by people's desire to have a healthy nutrition.

In the case of using the food security concept at world or national level, the focus is mainly laid on the capacity of countries to provide a sufficient agricultural supply to satisfy the population's food and nutritional needs [12]. At the same time, recent approaches [7] assign a special importance to "food

autonomy" as food security stability factor, which reduces the vulnerability to the fluctuations of domestic and world agricultural markets. Yet food availability does not ensure access to food, as the problems linked to the distribution of incomes at society level can seriously affect the access to food and food security at household level implicitly. Hence food security is finally a problem at household or individual level. It is generally considered that food insecurity and hunger are the direct result of poverty. With the economic growth and increase of incomes, the poor households will have the ability and presumptively the desire to obtain an adequate diet [13]. Although the household is used as unit of observation in most studies on the population's nutritional status, the key problem is nutrition at individual level, particularly in the case of those persons who are considered to be at nutritional risk.

Depending on the context, in this analysis we had in view the two approaches to food security: the macro-economic approach when we investigated the domestic agricultural production capacity to cover the population's consumption needs for different categories of products and the micro-economic approach when we referred to the nutritional situation of certain less-favoured categories of rural households or of certain socio-professional categories or ethnic groups.

The set of indicators used represents a combination between the indicators used by the national and international organizations for the assessment of the population's food and nutrition situation. The methodological and information sources are quite various and we list here the indicators and studies elaborated by FAO, OECD, IFPRI, Eurostat, EIU (European Intelligence Unit), Defra, Ministry of Health and Romanian Institute of Statistics.

The indicators used are selected to mostly comprehensively reflect the level of domestic agricultural availabilities and supply stability, as well as aspects in relation to the physical and economic access to food, to food use and elements related to the nutritional situation of population and of vulnerable demographic categories. The investigated data generally

cover the period 1990-2012, and we tried to compare the indicators with the similar indicators from two important agricultural countries of the European Union, i.e. France and Poland.

## RESULTS AND DISCUSSIONS

### 1. Domestic agricultural supply availability and stability

The food security issue was a permanent concern of the Romanians in the last century, even though Romania is among the European countries with the largest agricultural land areas, thus having significant resources for food production. Romania has significant agricultural areas among the EU-27 member states (14,612 thousand hectares), i.e. 8% of the arable area (5th position after France, Spain, Germany and Poland) and 8% of the area under permanent pastures (5th position after Great Britain, Spain, France and Germany). The agricultural land structure is favourable to the development of diverse agriculture: in total agricultural land, arable land accounts for 64.3%, pastures and hayfields 32.9%, while the vineyards and orchards 2.8%. The arable land per inhabitant (0.44 ha/inhabitant) is higher than the values found in important agricultural countries from the European Union, such as France and Poland.

From the food security standpoint, agricultural production is the main reliable source for the food consumption availability assurance for a country's population. With significant agricultural land resources, as well as with a population whose consumption needs became increasingly large and diversified in the last years with the growth of incomes and accession to the EU, at present Romania's agricultural production only partially covers the population's consumption needs. This because in the last 25 years, systematic deficits existed in certain important groups of foodstuffs, among which we can mention meat, milk, fruit, vegetables and fish and also cereals in the less favorable years as regards the weather conditions. The **self-sufficiency level** of domestic production was only 79% in fruit, 95% in vegetables, 82% in

meat, 94% in dairy products and 17% in fish in the year 2013. The existing problems with regard to the domestic agricultural supply sufficiency are largely the effect of the lower performance of the Romanian farming sector, generated by a complex set of factors, materialized into major gaps in the total factor productivity, in the productivity per employed person and in the average yields per hectare. One of the most important causes of this situation resides in the extremely fragmented agrarian structure and the extremely large number of small and very small-sized farms, which appeared as a result of the 1991 land reform. The consolidation process of small farms and the emergence of medium-sized farms is a process that takes time and needs adequate interventions, certain measures in this respect being also included in the rural development program 2014-2020, and the results are expected after many years or even decades. At the same time, the extremely fragmented agricultural supply obtained on these farms makes it difficult to organize the chains, mainly in milk, fruit and vegetables, and thus only a low share of these products travel from farm to consumer's table, being mainly used for subsistence consumption. Another aspect worth mentioning is the unbalanced structure of Romania's agricultural production, in the sense of the progressive diminution of the share of animal production in total agricultural production. This disequilibrium lies at the origin of gaps between the Romanian farms value added and incomes and the European ones, as the livestock production development makes it possible to better valorize the domestic production of cereals and other fodders. If we take into consideration the European Union average, in the year 2014, its production structure is well-balanced (54.5% crop production and 45.5% animal production) [5]. These values for Romania in the same year were 74.0% for crop production and 26% for animal production, while the same values for France were 59.9% for crop production and 49.1% for animal production. The assortment structure of Romania's agricultural production (2009-2013 average) is dominated by crops, among which we mention the cereals (14.9%),

vegetables (17.8%), fodder crops (13.2%) and potatoes (5.7%), and less by higher value-added products, such as wines, fruit, floriculture or the animal products. This structure also influences the stability of agricultural production expressed in value terms, as it is well-known that crop production is much more unstable than the animal production, due to weather excess effects; implicitly, a higher share of crop production generates higher instability on the global agriculture production. At the same time, **supply stability** is one of the weaknesses of domestic agricultural supply. If we refer to the cereal production, for instance, the variation coefficient in Romania for the period 2004-2012 was 27.4%. By comparison, in France, the cereal production volatility was 5.8% and in Poland 8.9%, in the same period.

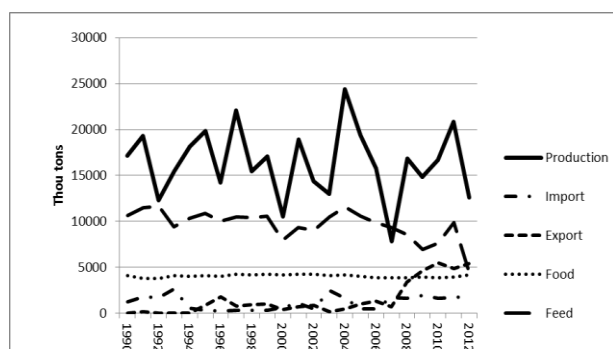


Fig. 1. Evolution of cereal production, import, export and consumption in Romania, in the period 1990-2012 (Source: FAO and Romanian Statistical Yearbook (2014)).

The deficits between consumption and domestic production are covered by imports, and the import dependency of domestic consumption is higher in Romania's case compared to the countries of reference. Thus, in wheat for instance, the import dependency, calculated as ratio of imports to the domestic supply of cereals, was 9%-10% for France, 8% for Poland and between 13%-22% for Romania in the period 2008 - 2011.

The chronic causes of domestic agricultural supply instability are the permanent and consistent decrease of effectively irrigated areas in the first place, under the background of the increasingly frequent extreme weather phenomena, mainly drought and excessive temperatures. The share of effectively

irrigated areas in total agricultural land area was lower than 10% each year after 2007, to reach only 5.94% in the year 2013. The production technologies used and the extremely low consumption of agricultural inputs as technical progress carriers represent the second factor generating agricultural production instability in Romania. There is a differentiation between the large and very large-sized farms, which practice an advanced European agriculture on almost half of the country's cultivated area, with good results and high average yields, on one hand, and the small and very small-sized farms, with a traditional, subsistence farming practice, with very poor results and low yields, on the other hand. On the average, in Romania, the fertilizer application rate per hectare is one of the lowest in the EU member states (30 kg/ha nitrogen compared to 76 kg/ha nitrogen, in France, 2013), and this is one of the main causes of the extremely low average yields per hectare in this country.

At the same time, there is an extremely low interest of public authorities in research & development in agriculture in Romania, as in the period 2007-2010, the total agricultural research expenditures decreased from 552.1 mil. RON to 170.7 mil. RON, while from the public funds from 249.4 mil. RON to 96.8 million RON [14]. At the same time, farmers' access to banking loans is quite low, which constrains the possibility of funding certain production infrastructure segments (local irrigation solutions, for instance) or the utilization of certain production technologies that could attenuate the extreme weather effects.

Among **the strengths** that can be noticed with regard to the agricultural and food supply availability, one can mention the development of the food and beverages industry sector in the last years; this sector became the second in size in Central and Eastern Europe, after that from Poland, and significant investments were made in the sector in the last decade. Many investments in the processing sector were made with EU funds, under the programs SAPARD and NRDP (2007-2013). Thus, 833 investment projects in the food industry were approved under NRDP, with a

total value of about 1700 million euro, out of which from public funds 621 million euro, but only 75% were paid by May 2015. In the period 2007-2013, the farmers spent about 527 million euro by funding certain investment projects under NRDP, in order to build up and improve the cereal storage facilities, which determined the increase of the cereal storage space by 2.5 million tons, reaching 17.3 million tons at the end of the period.

At the same time, the food retail sector has significantly developed in recent years, with one of the highest growth rates in the region. The change of the lifestyle following the economic growth and accession to the European Union resulted in the increase of consumers' openness to the modern food retail forms. Significant improvements have been also made in food safety, with the accession to the EU. Phyto-sanitary and zoo-veterinary norms in conformity with the European legislation were also implemented both in the agricultural production sector and in agro-processing. The adoption of these norms became compulsory with Romania's EU membership, although certain transitory periods and derogations existed, limited in time and to certain units, which produced only for the domestic market. At the same time, food supply diversity also increased, mainly for the processed foodstuffs, as well as in the fruit/vegetables segment, which was reflected in the increase of the population's consumption diversity. The food diet diversity in Romania, as measured by the Berry index, increased from 0.87 in the year 2004 to 0.90 in 2011 [1].

## 2. Economic access to food

The population's access to food improved in the last decade, under the background of the growth of main income sources (wages and pensions) and of the population's purchasing power implicitly. The real incomes significantly increased in the economic growth period, so that in the year 2008, compared to 1990, the real wage index was 130% and the real pension index 112%. Starting with the year 2009, real incomes began to decrease, yet they resumed their growth in the year 2013 [9].

At the same time, the relative food prices, according to the purchasing power parity, are lower in Romania compared to the EU average, yet they have increased much faster in recent years, reaching higher levels than in Poland in the year 2012. In the year 2012, compared to the average level of EU-27 of 100%, the food prices accounted for 67% in Romania, 60% in Poland and 110% in France [9]. By groups of products, the situation of relative prices in Romania was the following: 63% for cereal products, 57% for meat, 68% for fish and 93% for dairy products. The effect of incomes and prices on consumption was manifested by consumption increase in those foodstuffs considered as superior food, mainly meat, fruit, dairy products and fish. Thus, according to the data supplied by the Integrated Household Survey, in the year 2009 (when incomes reached a maximum level) compared to the year 2001, meat consumption per capita increased by 45%, fruit consumption by 58% while fish consumption by 78% (Fig. 2). At the same time, the food consumption in the products considered inferior in nutritional terms decreased in the same period, namely in potatoes, roots and even bread. It is worth mentioning that animal protein consumption increased to 60.4 grams/day (2008) from 43.7 grams/day in 2001 [8].

At the same time, **as a weakness**, in the context of the population's access to food, we cannot ignore that the population's average incomes are very low in Romania, and GDP per inhabitant expressed in purchasing power parity terms is quite low in Romania, below the EU average, on the penultimate place after Bulgaria. Thus, in the year 2014, the average GDP per inhabitant in EU-28, expressed in PPS, was 27,325 euro, in Romania 14,674 euro, in Poland 18,638 euro while in France 28,923 euro. Yet, beyond the average values, there are large population income gaps by regions, reflected by GDP per capita expressed in PPS, and these gaps grew larger in the post-accession period.

Thus, in the year 2012, compared to the European level of 100%, GDP per capita was 122% in the region Bucharest-Ilfov, while in the poorest region of the country, North-East,

GDP per capita reached only 29%. In the year 2014, in the same regions, the values were 72% for the region Bucharest – Ilfov and 23% for the region North-East.

Yet the key factor, which reflects population’s vulnerability in Romania with regard to food security, is represented by the share of food consumption expenditures in total consumption expenditures. This has very high values in our country, practically indicating that half of the consumption expenditures of households (44.9%, in 2013) are food expenditures. This indicator has even higher values in the case of the poor population (first decile of incomes), reaching 65% of the consumption expenditures in the year 2013; yet this percentage slightly decreased in the last decade (compared to 79% in 2001 and 68% in 2007). In the other European countries this share is much lower, i.e. 12.2% in France and 18.9% in Poland. Although probably there are also certain differences as regards the calculation methodology, and mainly we refer here to the evaluation of food consumption from household own production mainly in the rural area. However, in Romania these values are excessively high and reveal the vulnerability of the low-income population’s access to food, of the population from the poor areas of the country or from certain less-favoured categories.

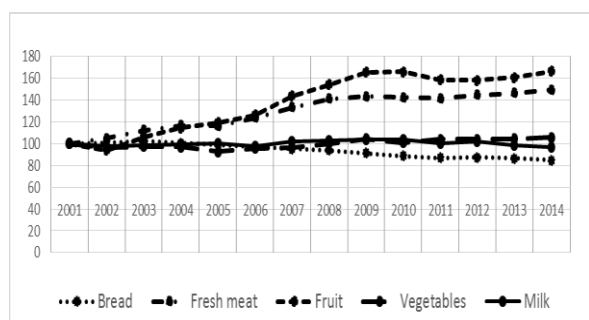


Fig. 2. Food consumption evolution in the growth period 2001-2014 (2001=100%)  
 Source: Tempo on line, 2015, NIS.

Yet behind the average values, there are significant gaps between households by residence areas. Although food consumption in the rural area is quite similar to that in the urban area in terms of energy intake (Fig. 3), in terms of food expenditures, the rural

households are in a difficult situation (Fig. 4), with about three quarters of households allocating more than 50% of their consumption expenditures on food.

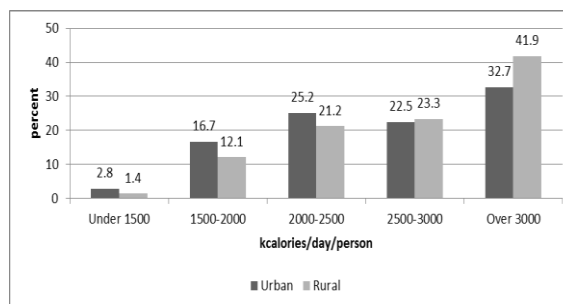


Fig. 3. Distribution of households by the food consumption expressed in calories in the 1<sup>st</sup> quarter of the year 2011, by residence areas  
 Source: processing of microdata from the Household Budget Survey, NIS, 2011.

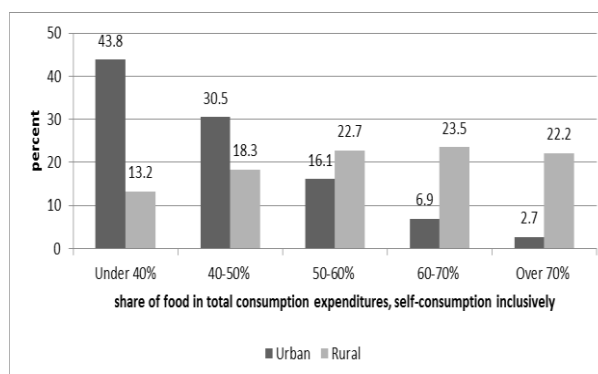


Fig. 4. Distribution of households by the share of food expenditures in total consumption expenditures in the 1<sup>st</sup> quarter of the year 2011, by residence areas  
 Source: processing of microdata from the Household Budget Survey (HBS), NIS, 2011.

The HBS data also make it possible to approximate the vulnerability level of a certain segment of the population, i.e. the Roma households, in which the food energy intake is under the minimum requirements defined by FAO (about 2,000 kcal/day/person) for almost 44% of the enumerated cases (Fig. 5).

At the same time, more than half of the Roma households spend more than 60% of total consumption expenditures on food, and a great part even more than 70% (Fig. 6).

At the same time, the databases that contain the food security indicators for certain countries point to certain problems in the population’s physical access to food in our

country, if we consider the road network density in 100 km<sup>2</sup>, which is lower in Romania compared to the reference countries, and followed a decreasing trend in the last years [4].

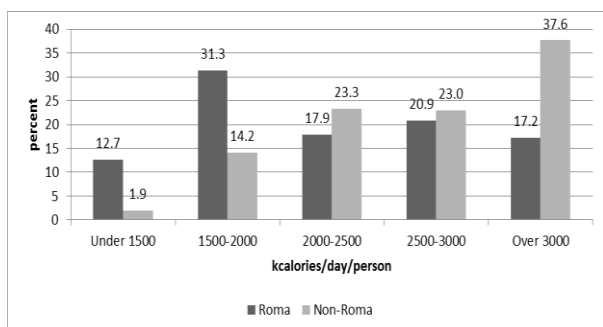


Fig. 5. Distribution of households by food consumption expressed in calories in the 1<sup>st</sup> quarter of the year 2011, for certain population segments

Source: processing of microdata from the Household Budget Survey (HBS), NIS, 2011.

Thus, for the year 2011, the road network density was 191.6 km/km<sup>2</sup> in France, 131.8 km/km<sup>2</sup> in Poland and 46.8 km/km<sup>2</sup> in Romania.

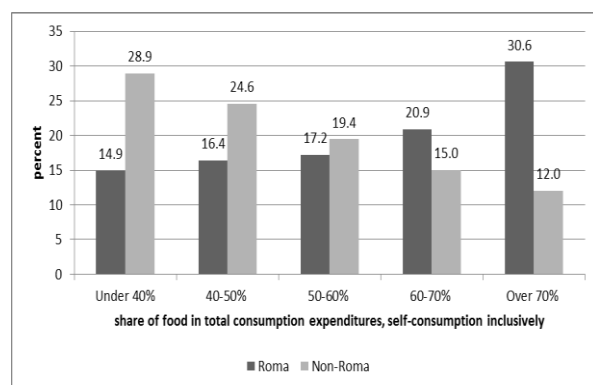


Fig. 6. Distribution of households by the share of food expenditures in total consumption expenditures in the 1<sup>st</sup> quarter of the year 2011, for certain population segments

Source: processing of microdata from the Household Budget Survey (HBS), NIS, 2011.

Another category of problems affecting the population's **food quality and safety** in Romania results from the lack of sanitary infrastructure and drinking water supply network in many localities, most often in the rural areas. Thus, the share of the population with access to improved drinking water sources is below the EU standards, where the population has full access to improved

drinking water sources, except for several countries (among which Romania). However, in Romania, this percentage increased from 75% to 83% of the population in the period 1990 – 2009, according to FAO database. In the two reference countries (France and Poland) this percentage is 100%.

At the same time, the share of the population with access to sanitary facilities also increased in the period 1990 – 2008 from 71% to 72% according to FAO data. In France and Poland this percentage reached 100%.

Another **weakness** as regards the population's access to food is represented by the small children's nutrition. In this context, Romania is one of the few EU countries in which there are problems with children's nutrition, mainly in small children in the rural area. These aspects are emphasized in the studies of the organizations concerned with these issues [10]. Thus, the percentage share of children under 5 years of age who died as a result of nutrition problems ranged from 4.3% to 3.3% in total children under 5 years old in the period 1990 – 2002. At the same time, the percentage of stunted children under 5 years old due to inadequate nutrition ranged from 11% to 15% in the above-mentioned period, and of underweight children from 3.5% to 5%. In most EU member states, there are no such problems, and these health problems in small children are specific to the poorest European countries, such as certain former Soviet states (Moldova, Ukraine) or to certain Balkan countries like Kosovo or Albania.

## CONCLUSIONS

The analysis of the food security and safety in Romania revealed several vulnerabilities, which we shall briefly present in a short list in order to select the priorities for food security improvement on the medium and long term, as follows:

- a) *Inadequate domestic agricultural supply* in a wide range of products, among which long term deficits can be found in meat, vegetables, fruit, sugar and fish.
- b) *Domestic agricultural supply instability*, mainly in the case of crop products, in cereals in particular, which indirectly affects animal

production through the feed prices.

c) *Farmgate prices* continue to be higher than the regional prices (from Hungary, Poland) in certain agricultural products, among which the most important are pork, potatoes, certain fruit and vegetables. As a result of the price convergence process on the European Single Market, these products are in difficulty and their economic performance should be improved in the years to come.

d) *The low income level* and the gaps between incomes by regions and residence areas are a food insecurity source. *Poverty incidence increase* amplifies the food insecurity in the less-favoured social categories.

e) *Inadequate road and sanitary infrastructure*, mainly in the countryside, generates food security risks and nutritional insecurity.

f) *The deficient consumption in qualitative terms*, the high share of calories from cereals and potatoes, as well as the low consumption of animal protein result in nutritional risks.

g) There are population categories identified as having *high food and nutritional risk*, among which the rural children and those from the Roma communities.

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