Assessment of Food Security in Romania and Identification of Main Risks

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Abstract. The analysis of the present situation of population’s food security in Romania is made from the perspective of its fundamental dimensions, namely access to food, food availability, agricultural supply stability and food utilization. In this context, the paper intends to address the issue whether the Romanians’ worries with regard to food security are justified on the basis of objective reasons. The first conclusion is that the food security of the population in Romania has been vulnerablized by an extremely unstable domestic agricultural supply. Agricultural production on Romania is much more volatile than in other European countries due to the structural factors and low input consumption. This implies a deficient self-sufficiency in certain categories of products, for instance in vegetables, fruit, meat and in many years for cereals. At the same time, the access to food is restricted by the low purchasing power of the categories of population with low incomes, with many children or with many family members. The food consumption of these population categories and mainly of children from the respective households can be lower than the minimum level recommended by nutritionists. At the same time, the rural population’s food consumption is influenced by the subsistence economy, self-consumption representing almost half of the food consumption expenditures on these households.

Keywords: food security, food self-sufficiency level, agricultural production stability, Romania

INTRODUCTION

The food security issue has become of great actuality in recent years, due to the increase of the world demand of agricultural products, to price volatility and last but not least, due to the economic crisis that adversely impacted the purchasing power of the population vulnerable from the economic point of view. There are regions in the world where ensuring the necessary food and the access to food are subject to food insecurity, and we can mention here certain African countries (e.g. Angola, Ethiopia) or from South-Eastern Asia (Cambodia, for instance) where the food availability per capita is under the minimum level recommended by nutritionists (Economist Intelligence Unit, 2012).

Although overall, in the European Union, food security is not endangered, in the future Common Agricultural Policy for the period 2014-2020 it is specified that food security for the population should represent the most important CAP objective and this is used as an argument in favour of maintaining CAP as a strong and integrated policy.

Food availability practically did not represent a problem in the European Union from its very beginning, in the early ’60s. Since the creation of the European Union the food security has not represented a problem. In the meantime, the European Union became one of the agricultural powers of the world, with top positions on the grain markets (mainly wheat), in meat and dairy products, wines, fruit, etc. The agricultural resources of the European Union are also important and in the situation of food crisis, additional agricultural resources could be mobilized to reach self-sufficiency. In the last 50 years, the food consumption per capita steadily increased in the EU member states, the share of food expenditures in the population’s consumption expenditures decreased, and the medium term forecasts indicate a constant increase of the agricultural production, even though the financial package devoted to subsidizing direct payments decrease. The relative food prices are low if we compare them to
the population’s incomes, and the average share of food expenditures in total consumption expenditures is about 16% throughout the Union. At the same time, the Union dependency on the extra-community agricultural imports is relatively low. The European Union is in the situation to ensure from its own production the majority of foodstuffs necessary for the consumption of its own population (Zahrnt, 2011).

However, if we examine the situation by the countries within EU-27, there are many countries where food security is no longer a problem, as well as countries with a higher vulnerability level, mainly due to the low incomes of the population, instability of domestic agricultural production and agricultural import dependency. In this context, if we examine the GFSI index (Global Food Security Index), among the EU-27 countries, Romania seems to be one of the vulnerable countries (62.5 score), followed by Bulgaria (57.6) (Economist Intelligence Unit, 2012). On the first position on the list with 105 countries, USA was on the top position (89.5 score) and Congo was on the last place (18.4 score).

In Romania, food security for the population also remained a problem in the present period, even though Romania is one of the European countries with the largest agricultural land areas in Europe, thus benefitting from significant agricultural resources. Romania has significant agricultural land areas in EU-27, namely 8% of the arable land (on the 5th place after France, Spain, Germany and Poland).

Food security for Romania’s population is not a recent problem, it has been a problem for a longer period of time, and its situation has been aggravated by economic crises, by periods of drought or by the excessive increase of agricultural exports.

In the period between the two world wars, Romania was considered a great European agricultural power, due to its positions on the world grain market. However, the population’s food situation was quite precarious, if we have in view the fact that in the rural area, where 80% of the population was living, the basic foodstuffs were the grain products, out of which maize flour had the greatest share. Meat consumption was extremely low: 21 kg/capita in the year 1938 (Filotti et al., 1938).

The communist period was characterized, in the first decades, by a quantitative and qualitative improvement of food consumption, as a result of the purchasing power increase. However, since 1980, under the impact of system crisis experienced by the central command economy, the decline started, with the enlargement of the gap between the population’s purchasing power maintained by the system of controlled prices and the increasingly frail domestic supply of foodstuffs.

In the period of transition to the market economy, which began in the year 1990, the population’s living standard experienced a continuous deterioration, which implied negative modifications of food consumption in quantity and quality terms, materialized into an increase of the budget coefficient of food up to 57% (in the year 1998).

After the year 2000, when the economy started growing again, incomes increased each year, while the food consumption also increased in quantity and quality. Unfortunately, the food processing industry was not ready to satisfy the Romanians’ increasingly sophisticated food demand, so that the imports of processed food products increased each year, with a maximum in the year 2008 (when imports reached more than 4 billion euro for foodstuffs and beverages).

The purpose of this paper is to identify the main determinants of food security in Romania and to evaluate the current situation of the Romanian population’s food security from the perspective of: a) food availability b) domestic supply stability, c) access to food and d) food utilization.

The food availability measures the domestic food supply sufficiency, the risks linked to the domestic supply, the capacity at national level to ensure the necessary agricultural and
food production to cover the population’s needs in quantitative and qualitative terms. The supply stability refers to the domestic agricultural supply and to the risks this is subject to.

The access to food measures the consumers’ ability to procure foodstuffs either by buying (in the case of urban population in general) or by the consumption of own production obtained on the farm (rural population). The most synthetic indicator that expresses the access to food is the population’s purchasing power, which is expressed by the ratio of nominal incomes to the general consumption price index.

The food utilization refers to the quantitative consumption, nutritional composition of consumed food, nutritional diversity.

MATERIALS AND METHODS

The study identifies the representative indicators for the evaluation of the main dimensions of the population’s food security and contains accurate quantifications of food security at the level of Romania. An important aspect that must be mentioned is that the population’s food security has several levels, namely: individual level, household level and macro level. (Pangaribowo et al., 2013). The calculated indicators refer to: macro level in the case of supply availability and stability, household level in the case of access to food and individual level in the case of food utilization.

For the evaluation of food availability I used the self-sufficiency at Romania’s level, which represents the domestic agricultural production capacity to cover the population’s consumption needs. According to the methodology of the Romanian Institute of Statistics, which is harmonized with the Eurostat methodology, the food self-sufficiency (Gapr) is calculated for the main agricultural products, in a reference period (one year in general), according to the formula:

\[
\text{Gapr} = \frac{\text{Pint}}{\text{Da}} \times 100 \quad (1)
\]

\[
\text{Da} = \text{Pint} + I - E - (V_s) \quad (2)
\]

\[
\text{Da} = \text{Supply availability}
\]

\[
I = \text{Import}, \ E = \text{Export}, \ \text{Pint} = \text{Domestic production}, \ V_s = \text{Stock at the end of year} - \text{Stock at the beginning of the year}
\]

Romania’s agricultural production stability is evaluated by calculating the dispersion and the variability coefficient. These indicators provide information on the instability of domestic agricultural supply that affects the domestic availability of foodstuffs and the population’s food security.

In order to evaluate the access to food, I used the share of food consumption expenditures in total consumption expenditures of different types of households. As food demand is inelastic, the diminution of real incomes leads to the increase in the share of consumption expenditures and practically this indicator provides a very good picture of the vulnerability of different socio-economic categories to procure the necessary food.

At the same time, the modality to approach the food security issue is different by the residence area of households, with different determinants in the urban area compared to the rural area (von Braun et al., 1992). Hence, in order to reveal the subsistence economy importance for the food security of rural households I presented the share of self-consumption for different types of products on these households.

The data used in the present study come from the Romanian Institute of Statistics, i.e. the food balance data, the population’s consumption availabilities, the household budget survey. Faostat and Eurostat data were also used for certain international comparisons.
RESULTS AND DISCUSSIONS

Throughout the years, the food security definition significantly evolved from a concept focusing on the need to ensure a sufficient agricultural supply to a multidimensional concept, which also takes into consideration the access to food, utilization of food and supply stability.

In Romania significant agricultural resources unfortunately do not provide for a stable and diversified agricultural production in correlation with the evolution of the population’s consumption demand. Thus, if we look at Romania’s food availability, we can notice that some of its components (mainly the domestic production and the foreign trade) are prone to vulnerability and thus can provide reasons to worry both for the population and for decision-makers. Thus, agricultural production suffers from instability, mainly generated by the agricultural crop production, which each year has to face the weather excesses that are combined with insufficient production technologies practiced on a large part of the country’s agricultural areas. At the same time, the agri-food chains do not operate satisfactorily, so that the Romanian agricultural products can get from farm to consumers, to offer finite food products obtained by the processing of local agricultural products. The products obtained on the local farms can hardly reach the agri-food chains (mainly in the case of milk, fruit and vegetables), so that these raw products have to be systematically imported in order to meet the urban population’s demand in particular.

The direct consequence of this situation is that Romania has been a net importer of agricultural and food products for 20 years, and this burdens the deficit of Romania’s trade balance.

Tab. 1 presents the food self-sufficiency level in Romania. As it can be noticed from table, in Romania, out of the important food products, only the milk has relatively constant levels, around 100%. The cereal supply features strong volatility, with differences across years, from 147% in the year 2011 to up to 51% in the year 2007. The other investigated products are constantly under 100%, thus resulting that the population’s consumption needs can be covered from imports. This is the situation of pork and poultry meat, fruit, sugar and even vegetables. Nevertheless, it might be noticed a positive trend namely, the food self-sufficiency level for certain group products such as fruits and meat have increased constantly.

Fig. 1 offers a picture of the domestic agricultural production from Romania, which presents the cereal production evolution in the last 50 years.

Tab. 1

<table>
<thead>
<tr>
<th></th>
<th>Cereals</th>
<th>Vegetables</th>
<th>Fruit</th>
<th>Milk</th>
<th>Meat</th>
<th>Fish</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>114</td>
<td>105</td>
<td>79</td>
<td>100</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>97</td>
<td>92</td>
<td>74</td>
<td>101</td>
<td>68</td>
<td>16</td>
</tr>
<tr>
<td>2007</td>
<td>51</td>
<td>80</td>
<td>74</td>
<td>97</td>
<td>67</td>
<td>19</td>
</tr>
<tr>
<td>2008</td>
<td>124</td>
<td>95</td>
<td>78</td>
<td>96</td>
<td>71</td>
<td>19</td>
</tr>
<tr>
<td>2009</td>
<td>116</td>
<td>93</td>
<td>84</td>
<td>99</td>
<td>72</td>
<td>15</td>
</tr>
<tr>
<td>2010</td>
<td>134</td>
<td>90</td>
<td>81</td>
<td>93</td>
<td>74</td>
<td>15</td>
</tr>
<tr>
<td>2011</td>
<td>147</td>
<td>93</td>
<td>82</td>
<td>93</td>
<td>82</td>
<td>14</td>
</tr>
</tbody>
</table>

Source: NIS, 2012
In this graph we can distinguish three periods in the grain production evolution: 1961-1976, when there is an almost continuous increasing trend of total productions, under the background of technological advance and probably of the increasing irrigated areas; 1977-1990, when productions get stabilized, ranging from 17 million to more than 20 million tons; 1992-2010, when production volatility reaches a maximum level, as the cropping technologies are increasingly precarious, the irrigated areas are lower each year and the grain production is mostly vulnerable to weather excesses. These observations are confirmed by the variation coefficients calculated for the three mentioned periods. Thus, the greatest variability of grain production is found in the recent period (years 1992-2010) when the variation coefficient of grain production was 24.3% compared to only 6.2% in the period 1977-1990, the main causes of this situation being mainly of structural nature.

After 1990, agricultural land restitution to former owners (former cooperative farm members) and to their heirs transformed Romania into a country of small farmers. This country currently has more than 4 million farms, out of which 90% are subsistence or semi-subsistence farms. At the same time, the irrigation equipment been gradually abandoned and even pillaged by the rural people. Therefore, the agricultural yields featured great instability across years, as on small farms the cropping technologies are quite rudimentary, while on the other farms, the absence of an extended operational irrigation system makes it impossible to maintain the grain crops in the droughty years, mainly in the southern and south-eastern areas, which form the Romania’s cereal basin. The consumption of inputs carriers of technical progress is much lower in Romania, compared to other European countries, as it can be seen in Fig. 2.
Tab. 2 presents the variability coefficients of grain production in Romania, compared to other European countries, the figures revealing the very high volatility level of production in this country. We can notice that in Romania the grain production features the highest volatility, with a variation coefficient of 27.4%, which is 3-4 times higher compared to the other countries in the comparison.

Tab. 2

<table>
<thead>
<tr>
<th>Country</th>
<th>Average production -thousand tons-</th>
<th>Standard deviation -thousand tons-</th>
<th>Variation coefficient (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany</td>
<td>45968.4</td>
<td>3568.1</td>
<td>7.76</td>
</tr>
<tr>
<td>France</td>
<td>66167.9</td>
<td>3840.0</td>
<td>5.80</td>
</tr>
<tr>
<td>Poland</td>
<td>26981.1</td>
<td>2414.6</td>
<td>8.95</td>
</tr>
<tr>
<td>Romania</td>
<td>16984.0</td>
<td>4652.8</td>
<td>27.40</td>
</tr>
</tbody>
</table>

Source: own calculations using Eurostat Data Base

The main conclusion that we can draw so far is that Romania domestic agricultural supply has featured a chronic deficiency in certain products, while being also extremely unstable, this resulting in price instability and the need to resort to food imports.

Another condition for reaching food security refers to the access to food. The access to food of different social categories is largely determined by the level of incomes and the level of prices. This is a well-known fact. In Romania, the low general level of incomes induces a high share of food consumption expenditures in the population’s consumption expenditures, as food consumption represents a basic need for people and hence the food demand inelastically responds to the decrease of incomes. As such, even though incomes decrease, the food expenditures decrease to a less extent, as people have to eat something if they want to survive. That is why, the smaller the incomes, the higher the share of food consumption expenditures in total consumption expenditures. According to Tab. 3, the average share of food consumption expenditures in total consumption expenditures was above 45% in the year 2011, yet in certain socio-economic categories, it was higher: in farmers’ households, it reached 59%, and according to this criterion, these are considered the poorest households in Romania.

Tab. 3

<table>
<thead>
<tr>
<th>Households</th>
<th>Consumption expenditures (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Food</td>
</tr>
<tr>
<td>Total</td>
<td>44.9</td>
</tr>
<tr>
<td>Employees</td>
<td>40.9</td>
</tr>
<tr>
<td>Self-employed</td>
<td>47.9</td>
</tr>
<tr>
<td>Farmers</td>
<td>59.5</td>
</tr>
<tr>
<td>Unemployed</td>
<td>49.2</td>
</tr>
<tr>
<td>Pensioners</td>
<td>46.1</td>
</tr>
</tbody>
</table>

Source: NIS, 2012

By income groups, the share of food consumption expenditures vary in inverse ratio to incomes: thus, while in the group with the largest incomes (decile 10) it reaches only 32.8% of the consumption expenses, in the population group with the lowest incomes (decile 1), it exceeds 65.7% (Fig. 3). The highest values of this indicator are found on the households with many members or with 4 children or more (67%), and from the point of view of the social status of household, on the farmers’ households (59%). These shares of food
consumption expenditures are high for a European country and in fact, Romania is registered with the highest value in the EU-27, reflecting the low incomes of a large part of the country’s population. The food consumption level ultimately depends on the families and individuals’ purchasing power, in the case of monetary economy and on the household’s own production in the case of subsistence and semi-subsistence economy.

A significant part of the food consumption on the households from Romania comes from own production obtained on the peasant household farm. This is a characteristic of the countries with rural areas less developed from the economic point of view and probably Romania is one of the European countries where this self-consumption is particularly high. According to the Household Budget Survey data, on the households from the rural area, about 44.6% of food consumption expenditures represented the value of self-consumption. At the same time, the self-consumption plays an important role for the urban households as well, covering 19.4% of the food consumption expenditures.

Fig. 4 presents a comparison between the food consumptions by the two residence areas. In calories term, the consumption in the rural area is slightly higher than the consumption from the urban area (2487 in the rural area and 2340 in the urban area, in the year 2011), yet in fact this originates in the higher consumption of certain foodstuffs that are considered of lower quality, such as bread, maize flour, potatoes and alcoholic drinks. Many
categories of foodstuffs largely come from own household, the self-consumption coefficient being over 50% in maize flour, milk, cheeses, eggs, vegetables, alcoholic drinks (Fig. 5).

An interesting finding is that the self-consumption level of rural households is inversely proportional to cash incomes. Thus, when incomes decrease, self-consumption increases, indicating that in the situation of crisis, the consumption of foodstuffs obtained on people’s households represents a safety net for the food security of rural households. This almost autarchic pattern of peasant households from many zones of Romania comes from the history, from the experience of past generations, who lived without having a lot of contacts and changes with entities outside the respective rural community.

As regards food consumption expressed in nutritional factors, according to the Household Budget Survey, in the year 2011, the average consumption per capita was 2408 calories. According to FAO, the recommended number of calories would be 2000 calories for women and 2500 for men, but these levels are merely orientative, the necessary calories being much higher in the case of children, pregnant women or under low temperatures conditions, etc. If we examine the food consumption expressed in nutritional factors, in the families with many children or with low incomes, we can notice that these are getting close to the minimum level (see Fig. 6 and 7). The most dramatic situation seems to exist on the households with many children, where the consumption level is close to 2000 calories/person and it is clear that children need more than this.
This kind of findings are presented also in the study carried out by the Romanian National Institute of Public Health (2011), revealing that “the calorie consumption within population taken into consideration has an average ratio below the energetic requirements in Romania, the only overconsumption ratio being recorded in the aging group of population”.

CONCLUSION

The first conclusion is that the food security of the population in Romania has been vulnerablized by an extremely unstable domestic agricultural supply. The direct consequence of this situation is that Romania has been a net importer of agricultural and food products for 20 years, and this burdens the country’s trade balance deficit.

From the perspective of the population’s access to food, the available statistical data reveal vulnerabilities for certain social categories from the food security point of view, among which we mention the families with many members, with many children or with low incomes, coming from areas considered poverty poles.

The share of food consumption expenses in total consumption expenditures, which represents a synthetic indicator of the standard of living, reached 45% in the year 2011 and this is a very high value for an EU member state. If we examine the food consumption expressed in nutritional factors in the families with many children or with low incomes, we can notice that these are close to the minimum level recommended by FAO and it is obviously that children need much more in order to have a normal development.

A significant part of food the consumption on the households from Romania comes from the peasant household own production. This is a characteristic of the countries with a rural area lagging behind from the economic point of view, and probably Romania is one of the European countries where self-consumption reaches high values. According to the Household Budget Survey, on the households from the rural area, almost half of the food consumption expenditures are represented by the value of self-consumption. Self-consumption represents a safety net for the food security of rural households.

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