

ROMANIA'S FOOD SECURITY EVALUATION FROM THE DOMESTIC AGRICULTURAL SUPPLY AVAILABILITY PERSPECTIVE

CECILIA ALEXANDRI¹

¹ *Institute of Agricultural Economics, Bucharest, Romania*

Abstract: *The availability and stability of the agricultural supply represents a main factor in ensuring food security for the population. Although Romania has significant agricultural resources, it is one of the most vulnerable European countries from the population's food security point of view, according to the evaluations made by different international organizations. The main objective of the paper refers to the identification of structural factors that lead to this chronic insufficiency of the Romanian agri-food domestic supply. For this purpose, the paper makes an updating and re-evaluation of the problems related to Romania's productive potential, in the context of the present evolutions of the agrarian and production structures and of the possible effects of the future Common Agricultural Policy Reform.*

Key words: *food security, domestic supply, structural factors, Romania*

INTRODUCTION

The existence of a sufficient and stable agricultural supply has an important role in ensuring food security for the population, together with ensuring the population's access to food through the creation of adequate socio-economic conditions. At the same time, food security represents the most important objective of the agricultural policy of a country, as the ultimate most important role of agriculture is to provide the necessary food for a country or community. In Romania, food security has almost always been a concern for the last half of the century, even though Romania is one of the European countries with the largest agricultural areas in Europe, thus having significant agricultural resources. In the last decade and mainly after the accession to the European Union, in the economic growth context of the period 2001-2009, the population's food consumption increased both quantitatively and qualitatively, mainly in products such as meat, dairy products and fruit. However, many times the domestic agricultural supply could not satisfy this increase in food demand, systematic deficits emerging in many products. That is why, the main objective of the paper is to identify the structural factors that lead to this chronic insufficiency of the Romanian agri-food supply in a series of important products for a healthy food.

MATERIALS AND METHODS

The paper tries to evaluate, in a first stage, the way in which the population's consumption behaviour evolved in the period 2001-2012, on the basis of the information from the Family Budget Survey. In the next stage, we analyzed the extent to which the domestic agricultural supply could satisfy the population's increasing consumption demand. For this purpose, we calculated indicators concerning the self-sufficiency level for the main agricultural products. We next investigated the role of the present agrarian structure upon the domestic agricultural supply level and structure in Romania. The effects of farm structure upon the agricultural supply level and structure are estimated on the basis of statistical indicators on production variability, diversification and specialization on the small, medium and large-sized farms, calculated from the published data of the two successive agricultural censuses (GAC 2002 and GAC 2010) and of the EUROSTAT.

The main objectives of this study are:

- Identification of the way in which the main groups of foodstuffs are perceived by consumers (superior products, basic products or inferior products) and with this the possible consumption trends in the near future;
- Investigation of the self-sufficiency level of the domestic agricultural supply in the main categories of products;
- Evaluation of the effects of the present agrarian structure upon the domestic agricultural supply through the analysis of the role of farms of different sizes in meeting the population's food needs.

RESEARCH RESULTS

In the period 2001-2012 the population's real incomes increased, with a peak level in 2008; in this context, the food demand significantly increased in most products. We can notice from Figure 1 significant increases of the quantities of food consumed in the year 2012, compared to 2001 in fresh meat (44%), meat preparations (68%), fish (78%) and fruit (%). Consumption decrease was noticed in certain products, these being perceived as inferior products in this economic growth period, namely potatoes (-24%) and bread (-12%). The food consumption growth pattern in Romania corresponds to the expectations of a country with unsaturated demand, where the share of food consumption expenses is extremely high (45% in 2011), and the demand for certain food products is extremely sensitive to income growth (e.g. meat, fish and fruit).

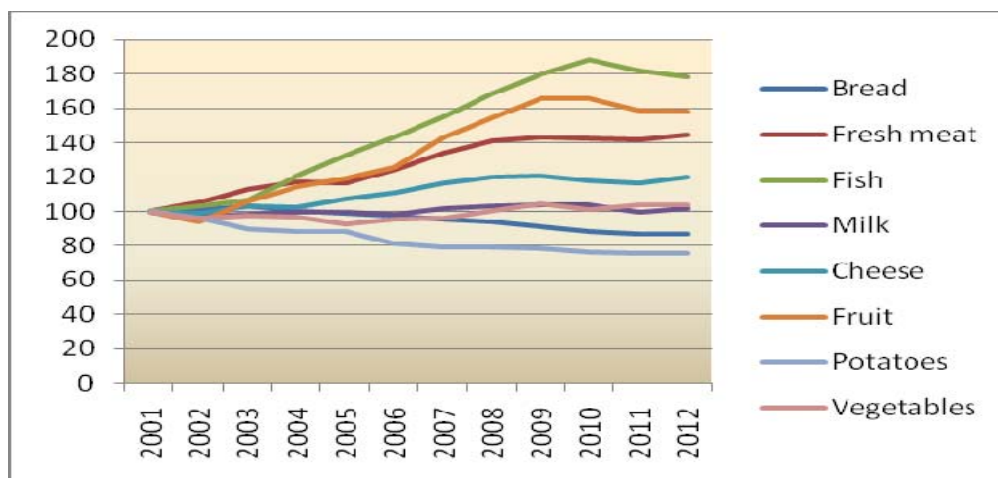


Fig 1 Consumption evolution in the main products (2001=100)

This food demand increase put under pressure the available supply and the domestic agricultural production implicitly. Table 1 presents the extent to which the domestic farm production satisfies Romania's population's consumption needs. We can notice that throughout the reference period there were chronic deficits in a series of products such as meat, fruit or fish and these deficits were largely covered by imports. Even in cereals, although Romania is one of the important European producers, there are years with significant deficits, due to domestic production instability, generated by weather excesses and the insufficient technological endowment. We try to figure out what are the causes of these systematic deficits and whether they have a structural or conjunctural nature.

Table 1

Self-sufficiency level of farm production in Romania (%)

| | Cereals | Vegetables | Fruits | Milk | Meat | Fish |
|-------------|---------|------------|--------|------|------|------|
| 2005 | 114 | 105 | 79 | 100 | 75 | |
| 2006 | 97 | 92 | 74 | 101 | 68 | 16 |
| 2007 | 51 | 80 | 74 | 97 | 67 | 19 |
| 2008 | 124 | 95 | 78 | 96 | 71 | 19 |
| 2009 | 116 | 93 | 84 | 99 | 72 | 15 |
| 2010 | 134 | 90 | 81 | 93 | 74 | 15 |
| 2011 | 147 | 93 | 82 | 93 | 82 | 14 |

Source: NIS, 2012

We next investigated certain aspects of the agrarian dynamics and also the way in which the country's agrarian structure influences the domestic agricultural supply in terms of level and diversity. Romania is the country with the most fragmented agrarian structure in EU-27, with 32.2% of the total number of EU farms and 7.7% of utilized agricultural area. Land restitution to former owners and to their heirs, which was initiated in the 1990s, featured certain characteristics that favoured the present fragmentation. Although the total number of agricultural holdings decreased by more than half a million in the last decade, from 4.48 million farms registered by the General Agricultural Census of 2002 to 3.86 million farms according to the 2010 Census, the extremely fragmented structure of Romania's agriculture and the subsistence character of most farms was maintained.

Table 2

Evolution of agricultural holdings in Romania in the last decade

| | 2002 | 2005 | 2007 | 2010 |
|---|--------|--------|--------|--------|
| Number of holdings (thou.) | 4 485 | 4 256 | 3 931 | 3 859 |
| Utilized agricultural area (thou.ha) | 13 931 | 13 907 | 13 753 | 13 298 |
| Average area of holding (ha) | 3.1 | 3.3 | 3.5 | 3.45 |

Source: General Agricultural Census 2002 and 2010, Farm Structure Survey 2005 and 2007, National Institute of Statistics, Bucharest

If we look back and refer to the agrarian structure in the inter-war period, i.e. the year 1930 (Table 3), we can notice that the situation is much more difficult now, as the number of farms under 1 hectare was by almost three times as high in 2002 compared to 1930. Probably if there had been no forced collectivization in the communist period, the farm consolidation process would have followed a normal trend, and now Romania would have had an agrarian structure close to that of the other Central-European countries.

Table 3

Romania's agrarian structure in the year 1930 compared to that in the year 2002

| | Number of farms (%) | | Hectares (%) | |
|--------------------|---------------------|-------|--------------|-------|
| | 1930 | 2002 | 1930 | 2002 |
| < 1 ha | 18.6 | 49.5 | 1.6 | 4.9 |
| 1-2 ha | 56.6 | 20.0 | 26.4 | 8.1 |
| 2-10 ha | 16.9 | 28.8 | 20.0 | 31.2 |
| 10-20 ha | 5.5 | 1.1 | 12.0 | 3.9 |
| 20-50 ha | 1.7 | 0.2 | 7.8 | 2.0 |
| 50-100 ha | 0.4 | 0.1 | 4.5 | 1.7 |
| > 100 ha | 0.4 | 0.2 | 27.7 | 48.1 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 |

Source: own calculations on the basis of data from the General Agricultural Census 2002 (NIS) and Romania's Economic Evolution, tome 2, p. 242 (V. Axenciuc, 1996)

The information on the economic size of agricultural holdings confirms the above-mentioned statement about the excessive fragmentation and the prevailing subsistence character of a large part of Romanian farms. The FADN data, corroborated with the GAC-2010 data, reveal that 86 % of the Romanian farms, i.e. about 3.3 million (out of 3.7 million farms) had an annual production value under 4000 euro in the year 2010, and practically they can be considered subsistence farms.

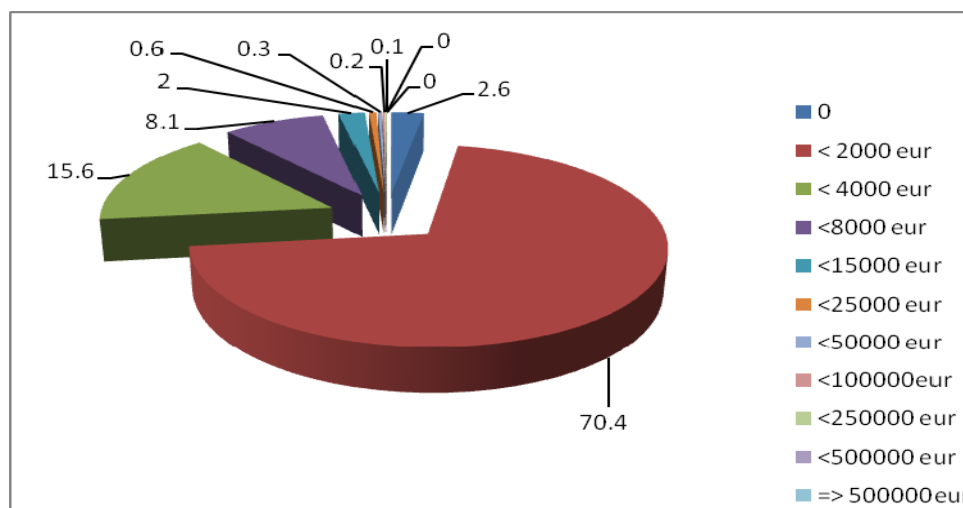


Fig.2 Farm structure in Romania by economic size, 2010

The subsistence farms play a significant role in food security for the population. Subsistence farming refers to small-scale agriculture, where the crop and livestock productions go mainly to self-consumption, and sales are only on occasional basis (Abele and Frohberg, 2003). The subsistence farms are still a significant presence in the European agriculture (45% of the total number of farms in EU-27), at the same time representing a challenge in many EU-12 member states.

The main function of subsistence farms in our country practically resides in providing a kind of social protection for the rural people who used to work on the former agricultural cooperatives and whose pensions are insufficient for a decent living. However, these small farms cannot contribute to the increase of professional farmers' welfare, many of them being dependent on the agricultural services provided by the owners of agricultural machinery and equipment. Although marginalized by the national and European agricultural policies (Ghib and Villemin-Ciolos, 2009), the small farms have a social buffer role, which enabled Romania to go through the difficult period of the 1990s without social disturbances, when deindustrialization generated premature unemployment that found its attenuation in the subsistence farming practice. Furthermore, these farms contribute to Romania's food security, if we have in view the high self-consumption share on the rural households. Another advantage, from the territorial point of view, is represented by the presence of these farms mainly in the hills and in the mountain areas, these being the main local economic players in these areas. In the present context of the prolonged economic crisis, the economic behaviour of small farms should be also considered, which, although featuring a lower productivity, ensure a stable production due to production diversification. Thus, while the very large-sized farms in Romania are generally specialized in small grains and oil crops, the very small-sized farms feature strong diversification of production: they mainly grow maize that is used as animal feed but also in the food of humans; at the same

time, they also grow a multitude of crops for their own use, such as beans, potatoes, pumpkins, vegetables and fruit. At the same time, most small farms raise animals: 1-2 dairy cows, poultry, a few sheep or goats. Hence, in the rural area, people's food mainly comes from the production on the small peasant household farms. These products do no longer transit the market, but they are used for self-consumption and go through the so-called short chains. According to the Family Budget Surveys (NIS, 2011), on the rural households, about 45% of total food consumption expenditures is represented by the value of self-consumption (consumption from own resources). In this context, we must specify that at present, the low connection to the market of Romanian agricultural holdings, compared to other EU member states, is revealed by the 2010 Agricultural Census data. Thus, in Romania, 93% of the 3.8 million registered agricultural holdings declare that they use more than 50% of their production for self-consumption, while in Poland their percentage is 34% and in France only 4%. Furthermore, the number of holdings that mainly produce for self-consumption increased in Romania, in the economic crisis period, from 3.17 million in 2007 to 3.58 million in 2010. That is why we can consider that the small farms have an important social role in Romania, although it is considered that they represent an obstacle to the development of a high productivity agriculture: they are an important factor in ensuring food security in the countryside, where about 45% of the country's population is living.

In order to evaluate the modality in which the farms contribute to meeting the food demand, we next analyzed the structure of cultivated areas, for the farms that we consider small farms (under 10 ha) that operate 39% of the Utilized Agricultural Area (UAA) and the large-sized farms (over 100 ha) that operate 49% of UAA.

The diversification of areas cultivated with different crops is specific to the small-sized farms and is mainly manifested by the high share of areas under food crops, such as maize, potatoes, field vegetables, beans. On the large farms, mainly cereals and oil crops are grown, whose share increased between the two agricultural censuses. The higher production diversification on the small farms is reflected by the land use diversification index, which is significantly higher on the farms under 10 ha compared to the farms over 100 ha, both in the year 2002 and in the year 2010 (Table 4).

Table 4

Land utilization diversification index by categories of holdings

| Categories of holdings | 2002 | 2010 |
|------------------------|------|------|
| < 10 ha | 0.59 | 0.65 |
| 10-20 ha | 0.52 | 0.57 |
| 20-30 ha | 0.45 | 0.55 |
| 30-50 ha | 0.42 | 0.54 |
| 50-100 ha | 0.42 | 0.52 |
| > 100 ha | 0.55 | 0.50 |

Source: own calculations on the basis of GAC 2002 and GAC 2010 data

We mention that a higher diversification of agricultural production also represents a risk reduction modality, as in Romania's agriculture, with a precarious technological endowment and irrigation infrastructure, risk is a major element, mainly in the crop production sector.

The results regarding the importance of farm production structures in ensuring food security reveal small farm specialization in certain crops that are manual labour intensive (vegetables, strawberries, melons), while the large farms are specialized in extensive crops, cultivated on large areas, where modern cropping technologies are used, with an extremely

low manual labour input. The farms of this type probably have a competitiveness level quite close to the European farms, and their production largely goes to export. The most often evoked argument according to which these farms are very important for the population's food security (and hence they must receive support through agricultural subsidies) is quite debatable, as these eventually sell their production for the best price, be it in the country or abroad. We cannot contest the fact that in a food crisis situation the production of these farms can become essential in meeting the population's consumption needs; but at the same time, we must often highlight that the small farms do have the same important role, as their production is exclusively dedicated to the rural population's consumption and even to the urban population's consumption, through the sale of products on the peasant markets, on traditional products fairs, etc.

As regards the farm livestock herds, these had different evolutions by species. However, the herds expressed in LLU (large livestock units) decreased by about 17% at the 2010 census compared to the 2002 census. By types of farms, there was a significant decrease in herds on the farms with 1-10 hectares, while the animal herds on the medium and large-sized farms increased. This trend is also confirmed by the results of Table 5, which indicate the decrease in share of herds on the small farms, under 10 hectares, between the two agricultural censuses.

If we examine the evolution of herds by species, we can notice that in the period 2002 – 2010, the bovine herds decreased by 30%, the pig herds by 35%, while the poultry number decreased by only 4%. The number of goats was significantly up, by 66%, while the number of sheep increased by 16%. The causes of these differentiated evolutions are specific to each species (Fig.3-Fig.5) .

Table 5

Structure of animal herds expressed in LLU, by the farm size where animals are raised (%)

| Farms | 2002 | 2010 |
|-----------|-------|-------|
| 1-10 ha | 89.9 | 79.3 |
| 10-20 ha | 4.8 | 6.1 |
| 20-30 ha | 0.8 | 1.5 |
| 30-50 ha | 0.8 | 1.7 |
| 50-100 ha | 0.6 | 2.2 |
| > 100 ha | 3.1 | 9.3 |
| Total | 100.0 | 100.2 |

Source: own calculations on the basis of GAC 2002 and GAC 2010 data

Following the analysis of the evolution of livestock herds by types of farms, we can draw the conclusion that the number of animals from certain species that are important in meeting the population's meat consumption needs decreased in number, and we refer here to pigs, bovines and also poultry. The facts that contributed to this situation differs from species to species; however, the prevailing causes of this situation are linked to product quality that restricted access to foreign markets, the poor organization of chains, the sanitary-veterinary conditions that are difficult to comply with, under the background of domestic demand contraction in meat and meat products in the economic crisis context. The thriving species are sheep and goats, owing to the increase of export opportunities, on one hand and the increase of domestic demand for the products of these species (meat, milk, cheese), considered healthier and cleaner from the ecological point of view.

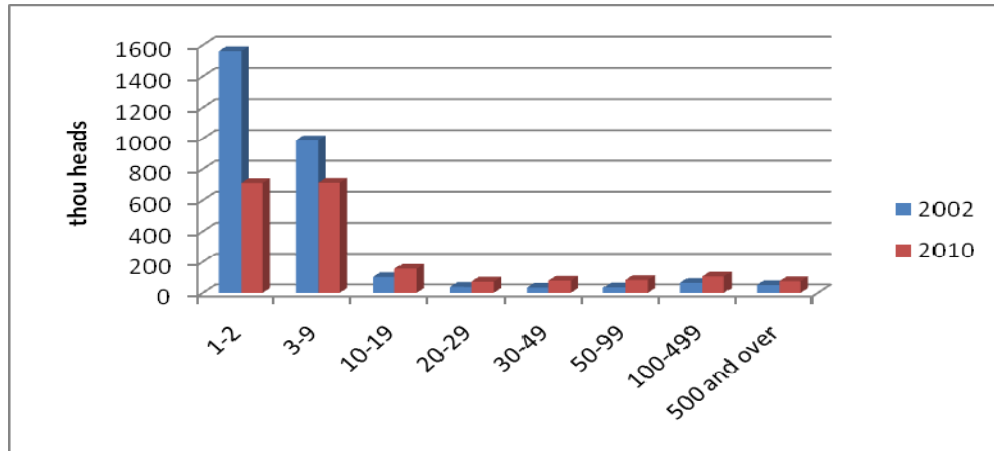


Fig.3 Structure of cattle herds, by the size of herds on different types of farms, 2010

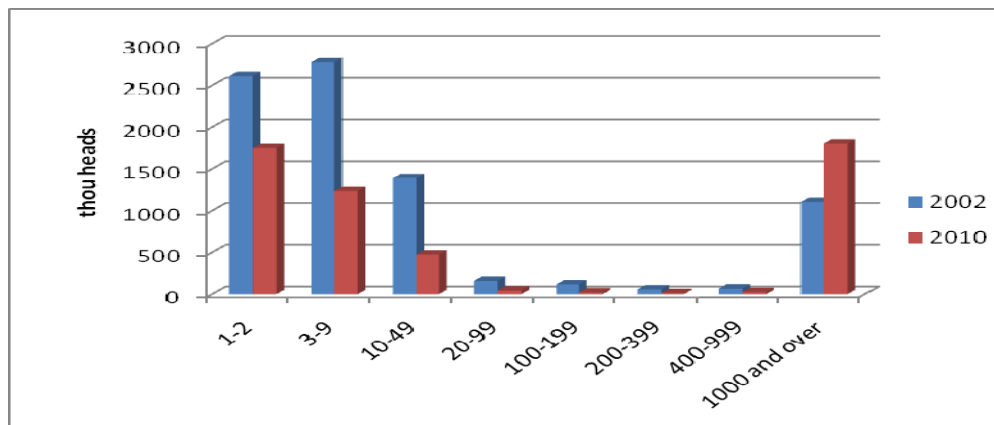


Fig.4 Structure of pig livestock, by the size of herds on different types of farms, 2010

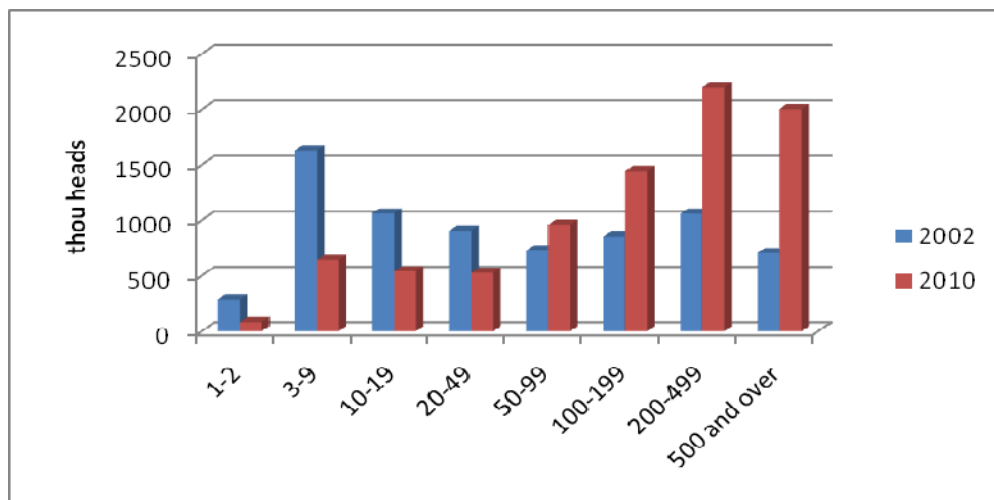


Fig.5 Structure of sheep livestock, by the size of herds on different types of farms, 2010

CONCLUSIONS

Although Romania is a country with significant agricultural resources, it cannot ensure a stable and diversified production in correlation with the population's consumption demand evolution. If we examine the self-sufficiency level of domestic production in relation to the population's consumption needs, we can notice groups of products with a chronic deficit, such as vegetables, fruit, meat and fish. Even in cereals, where Romania is one of the important European producers, there are years with significant deficits, due to the domestic production instability, generated by the weather excesses and the insufficient technological endowment. Farm restructuring is a slow process, yet there are signals of an early consolidation process, in the sense of the diminution in number of small farms and increase in number of those over 10 hectares. There is a higher crop diversification on the small farms, which thus gain in importance in ensuring the rural population's food security. On these farms, we can notice that significant areas are cultivated with food crops, such as beans, potatoes, field vegetables and maize. At the same time, on the farms over 100 ha, wheat and sunflower had the highest shares in 2010, the production of which has a significant place in Romania's agricultural trade. As regards the farm livestock herds, these had different evolutions by species. The herds of sheep and goats has increased in the last years. However, the herds expressed in LLU (large livestock units) decreased by about 17% at the 2010 census compared to the 2002 census. By types of farms, there was a significant decrease in herds on the farms with 1-10 hectares, while the animal herds on the medium and large-sized farms increased.

REFERENCES

1. **ABELE, S., FROHBERG, K.**, 2003, Subsistence Agriculture in Central and Eastern Europe: How to break the vicious circle, Studies on the Agricultural and Food Sector in Central and Eastern Europe, vol.22, IAMO
2. **AXENCIUC, V.**, 1996, Evolutia economica a Romaniei vol II, Editura Academiei Romane, Bucuresti;
3. **GHIB, M-L, CIOLOS-VILLEMIN, V.**, 2009. Quelle politique agricole pour les exploitations de subsistance et de semi-subsistanceen Roumanie?, 3emes journees de recherche en science sociales, INRA, SFER, CIRAD, Montpellier;
4. **INS**, Disponibilitățile de consum ale populației, Anul 2011, București;
5. **INS**, Recensământul General Agricol 2002. Date Generale, București;
6. **INS**, Recensământul General Agricol 2010, Rezultate Naționale, București;
7. **INS**, 2011, Coordonate ale nivelului de trai în România, București;
8. *** – www.insse.ro
9. *** - www.eurostat.com;