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FOOD SECURITY AND POPULATION WELFARE IN ROMANIA

ABSTRACT

The paper targets one of the four specific pillars of food security, namely stability in food availability and access. This will be investigated from the perspective of relevant indicators: the self-sufficiency level nationwide and through the evolution of main factors that influence the access of each person to food. The data on the availability of main food products from domestic production, i.e. the self-sufficiency level, provides a valuable perspective in nutrition evolution. The people's access to food is investigated from the perspective of incomes and food expenditures, both for own-produced and bought foodstuffs, without sacrificing other basic needs.

Key words: agriculture, food security, self-sufficiency, welfare, Romania.

JEL Classification: Q01, Q2, Q10, Q18.

1. INTRODUCTION

The population's food security has a complex determination, being dependent both on the sectoral agricultural policies and on the general macro-economic framework, on the chain operation modality and on the prices within the chains, on the income distribution policies, on the social, fiscal, trade policies, etc.

Food security presupposes *the agri-food supply availability*, relating to the domestic agricultural production, the world market conjuncture, prices and trade policies, to the availability to import foodstuffs (existence of financial resources for this), to the extreme weather phenomena that affect the stability of the agricultural production and to the improvement of the methods to reduce the impacts of extreme weather events. Secondly, food security implies *access to food*, on a permanent basis and for the whole population, which presupposes the existence of the purchasing power or in other words of incomes, mainly in the case of the poor population, at high nutritional risk. The third factor that influences food security is of individual nature, i.e. it refers to each human being's desire to acquire appropriate foods for a healthy diet, this depending on socio-economic, educational, ethnic factors, etc. In the present context, from the consumer's point of view, in all

the categories of products the need to purchase certain products began to be an increasingly important criterion, and people also got reoriented towards buying more economical products: from high-priced products to medium-priced products and products with lowest prices.

As regards the s*tability in food availability and access*, the access to foods should not be threatened by the emergence of sudden shocks, for instance an economic crisis or climate factors, or certain cyclical events, such as the seasonal food insecurity.

2. STATE OF KNOWLEDGE

Knowing the population's food and nutritional situation presupposes the existence of a set of information on the availability of agri-food products, at national level, and on the modality to use it.

Food security is often associated with food self-sufficiency and with the need to produce more food. Yet, food security is closely connected to poverty problems, to labour employment and income gaining. In the developed countries, the focus is laid on the food quality and safety and on the social protection of different categories of persons.

The World Bank Report of 1986 on hunger and poverty differentiated between the chronic food insecurity, associated to permanent poverty problems or to structural problems and low incomes and the temporary food insecurity, mainly linked to critical transitory periods due to natural disasters, economic conflicts, etc.

The legal basis of the right to food is found in the international legislation on the human rights[1], in Article 11 of the International Covenant on Economic, Social and Cultural Rights (1966)[2], laying the basis of the general food security concept, at the same time acknowledging the nutrition importance; it is also acknowledged in the specific international instruments (UN, 2006), in the regional instruments (UNICEF, 2007) and in some national constitutions. Food security for each individual is a first condition for a decent living standard.

While GDP is useful for providing an orientative picture of an economy at a certain moment, this does not provide a comprehensive picture of the citizens' welfare in a society. According to J. Stiglitz, A. Sen and J.P. Fitous (2009), the citizens' material living standards are better assessed by the population's incomes, consumption and expenditures. OECD (2013) stipulated that in order to evaluate welfare, it is better to investigate it from the perspective of households and natural

[1] Article 25 of the Universal Declaration of Human Rights, adopted and proclaimed in the UN General Assembly in 1948.

[2] UN General Assembly, *International Covenant on Economic, Social and Cultural Rights*, December 16, 1966, United Nations, Treaty Series, vol. 993, p. 3, http://www.refworld.org/docid/3ae6b36c0.html.

persons, rather than from the perspective of the aggregate conditions of the economy, because a discrepancy may exist between the economic situation and the material welfare on households.

The living standard is a complex concept, encompassing material, cultural, educational and health elements etc., being tightly linked to the quality of life. The living standard and welfare are two concepts that are mutually interfering and inter-conditioning.

The World Bank defines the living standard as being the welfare level (of an individual, group or population of a country) measured by the level of incomes (GDP per capita, for instance), or by the quantity of different purchased goods and services (e.g. the number of cars in 1,000 people or of TV sets per capita). In the definitions given by the World Bank, the living standard is a life quality component, as, besides the material welfare aspects, the quality of life also includes intangible components such as environment quality, national security, personal security and the political and economic freedom.

In the absence of a single definition of welfare, OECD (2013) shows that most experts and ordinary people from the whole world agree that, in order to have welfare, we need to satisfy different human needs, among which some are essential (for example, a good health condition). It is also shown that, as welfare is a complex phenomenon, and welfare assessment needs a comprehensive framework to include a large number of components, for the understanding and measurement of people's welfare a multi-dimensional approach is needed, based on three pillars:

1. material living conditions (or economic welfare), which determine people's consumption and the access to resources,

2. quality of life, which is defined as a set of non-monetary attributes of the natural persons, which has an intrinsic value under different cultures and contexts,

3. sustainability of the socio-economic and natural systems where people are living and working; sustainability depends on the impact of human activities upon the different capital stocks laying at the welfare basis (natural, economic, human and social).

3. MATERIAL AND METHOD

Stability in food availability and access is investigated by the self-sufficiency at national level and by the evolution of the main factors influencing the access of each individual to food. The data on the national availability of the main food products, i.e. the self-sufficiency level, provides a valuable perspective on nutrition evolution. The access of the individual to food is analyzed from the perspective of incomes and expenditures for food procurement, either from own production or purchased food, without sacrificing other basic needs.

The measurement and analysis of the available economic resources for the population are based on two main approaches: 1) the macro approach, which has its roots in the System of National Accounts (SNA) both through the Gross Domestic Product (GDP) that reveals the global dimension of the economy, and through derived indicators, such as GDP per capita, as a comparison instrument of living standards; 2) the micro approach, which has its roots in micro-economy and, mainly, in the poverty analysis and its effect on the different socio-economic groups in the society.

At micro-economic level, the indicators come from the household budget surveys, being mainly represented by the level of incomes, the structure of expenditures and the nutrient intake, mainly calories and proteins. As a consequence, the welfare indicators can be classified into two main groups: 1) monetary indicators, i.e. income and consumption and 2) non-monetary indicators, i.e. health condition, nutrition, education etc.

Indicators from the National Set of social inclusion indicators were used, which provide an ample characterization of the poverty problem in Romania.

Thus, the indicators *Relative poverty rate, Households' available income, Poverty risk rate* or *Relative poverty rate, Severe material deprivation rate, Income inequality* provide a detailed picture of the living standard from the perspective of the access to food resources.

The data source is the Integrated Household Survey (ISH) for the period 1995–2000, the Household Budget Survey (HBS) starting with the year 2001 and the Survey of incomes and living conditions (EU-SILC). The EU-SILC statistics are at present the reference source for the EU statistics on incomes and living conditions and mainly for the social inclusion indicators. The Food Balance Sheets published by NIS for the period 2003–2014 also represented an important resource in the calculation of self-sufficiency.

The forecast method used was Brown's double exponential smoothing and where necessary, as the function of the data series was a polynomial 2^{nd} degree function, we used Brown's triple exponential smoothing method.

4. RESULTS AND DISCUSSIONS

4.1. STABILITY IN FOOD AVAILABILITY AND ACCESS

Agricultural production is fluctuating, the instability mainly stemming from the climate factors and the deficient production technologies in mitigating the climate factors effects. At the same time, ensuring the necessary resources from the domestic production is constrained by the organization and operation of the agri-food chains, mainly at industrial processing level. As the supply of agricultural products is extremely scattered, in many cases, the raw products for agro-processing come from imports.

The supply level is the indicator measuring the *food self-sufficiency* and it is an important indicator in the assessment of food security. This reflects the coverage level of the population's consumption needs by domestic production. In order to calculate it, we divide the domestic production by the supply availability (consisting of the utilizable production plus imports minus exports), according to the formula:

$$AA = \frac{P_u}{P_u + I - E} \ 100 \ (\%)$$

where:
P_u – utilizable production;
I – imports;
E – exports

When the self-sufficiency level has values close to 100% and is maintained relatively constant, we can consider that the domestic supply can ensure the population's food security. When the self-sufficiency level is lower and has yearly fluctuations, the supply is volatile and the country's vulnerability increases. Analyzing the data from the group of main agricultural products, on the basis of food balance sheets, we calculated the self-sufficiency for the group of products from Table 1.

Table 1

Self-sufficiency in the main agricultural products
Current situation (%)

Agricultural products	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Cereals and cereal products	95	103	105	88	111	122	130	119	140	158
Wheat and rye	90	101	116	86	124	143	138	113	142	213
Maize	100	104	102	92	102	112	122	121	137	135
Rice	2	6	7	18	26	37	50	36	41	34
Other cereals	91	117	95	87	312	307	156	136	148	170
Potatoes	97	95	94	96	95	97	96	95	89	92
Legumes	81	82	83	59	62	59	72	76	70	75
Vegetables and canned vegetables	87	90	90	87	89	90	89	90	89	91
Tomatoes	77	76	80	72	80	80	76	83	78	82
Dry onions	83	86	87	88	92	92	91	88	87	89
Cabbages	99	99	99	98	99	99	98	98	98	99
Edible roots	91	89	91	86	86	85	85	86	83	86
Different vegetables	95	94	93	89	89	93	93	92	91	91
Water melons	99	99	99	96	97	99	98	97	96	97
Fruits and fruit products	91	86	78	77	77	83	81	81	75	79
Apples	104	109	92	103	108	105	103	100	94	95
Plums	101	101	102	100	100	100	100	99	98	98

Table 1 (continued)

Cherries – morello cherries	106	105	105	104	100	102	100	103	101	100
Peaches	58	47	37	33	36	52	38	28	24	32
Grapes	99	96	97	96	96	96	95	95	93	95
Different indigenous fruits	126	110	93	92	81	93	98	90	87	93
Meridional and exotic fruits	–	–	–	–	–	–	–	–	–	–
Sugar	85	85	85	80	69	71	87	100	92	92
Milk	100	100	99	97	96	99	94	93	94	94
Eggs	99	98	98	97	95	95	97	95	101	101
Meat and meat products	79	72	69	74	70	71	76	83	83	82
Beef	98	85	75	96	92	88	88	94	97	92
Pork	76	68	67	69	62	62	64	71	72	73
Sheep – goat meat	101	103	102	100	100	101	106	106	100	102
Poultry meat	70	68	65	71	74	78	91	97	94	95
Other meat types	58	89	93	7	1	5	8	10	27	4
Edible offal	92	78	57	77	79	72	70	76	74	78
Vegetable and animal fats	84	80	82	79	67	66	75	77	75	79
Refined vegetable oils	83	81	84	77	61	63	69	71	69	76
Margarine	101	101	96	93	91	85	114	101	94	91
Pig fat	81	63	65	75	71	68	69	83	79	81
Butter	71	68	63	64	52	52	66	71	68	59

Source: own calculations based on data from Food Balance Sheets 2004-2013, NIS, Bucharest.

The milk and dairy products represented a group of products with a constant supply and a self-sufficiency level close to 100% until 2005. Starting with the year 2006, the self-sufficiency level in milk decreased, yet it remained high, i.e. over 90%, to reach 94% in the year 2013. A similar trend was noticed in potatoes, in which self-sufficiency reached 92% in the year 2013.

The highest volatility is specific to the cereals group, the self-sufficiency level being different across years, from 95% (in the year 2004) to 158% (in the year 2013), with a minimum of 88% in the year 2007 against the severe drought background of that year. The self-sufficiency in maize increased from 100% in the year 2004 to 135% in the year 2013, with a minimum of 92% in 2007.

The products having a self-sufficiency level of over 100% in the year 2013 are the following: cereals and cereal products with 158%, out of which wheat and rye 213%, cherries and morello cherries 100%, eggs 101%.

The other investigated products were constantly under the level of 100%, and the coverage of agricultural and food deficits are completed from imports.

The share of imports in the domestic consumption availabilities is more important in the case of vegetables and vegetable products (13.2% in 2004, maximum 14.2% in 2007 and 11% in 2013) and mainly in the case of grain legumes: 20% in year 2000 with maximum 42% in the period 2007-2009, to reach 26.4% in 2013.

For fruits and fruit products, the imported quantities contributed by 14.2% to availabilities in the year 2004, but under the background of demand and consumption increase, the imports share in the availabilities increased to maximum 30.8% in the year 2012, to decrease to 26% in 2013. The highest increase was found in milk, so that the share of imports in the domestic consumption availabilities significantly increased from 0.8% in 2004 to 9% in 2013, i.e. by more than 10 times, with more sustained growth beginning with 2007.

4.2. POPULATION'S HOUSEHOLD INCOMES

Total incomes comprise the cash incomes plus the incomes in kind (evaluated in RON). The *total* incomes are formed by the total cash incomes, regardless the source of origin (excluding granted credits and loans, sums withdrawn from deposits at banking institutions), as well as the value of incomes in kind (human consumption of food and non-food products and feed consumption from household's own resources, the commodities and services obtained free of charge or at low prices from the private and public economic operators) that are not considered in-kind wages.

In the year 2014, the total monthly average incomes reached 2500.7 RON per household and 937.7 RON per person. *The cash incomes* averagely amounted to 2104.3 RON per household per month and 789.0 RON per person. Wages contributed by 1278.91 RON to the household cash income, and by 479.53 RON to the income per person. The *in-kind income* level was 396.4 RON per household per month, 148.6 RON per person respectively.

The total income structure of households, by origin sources, shows that the most important income source is represented by cash incomes, with an increasing share, from 76 % in year 2002 to over 83% beginning with the year 2008. The value of consumption from own resources, mainly representing the household self-consumption, is the second income source. This accounted for 24.7% of total incomes in the year 2001 and 14.2% in the year 2014.

In the opinion of the researchers from the Research Institute for Life Quality (RILQ) "in Romania, self-consumption not only saves a great part of the rural population from absolute poverty, but it also reduces the economic inequality. In the period of strong poverty, 1995-2000, self-consumption represented about 30% of the household budget, and the wage incomes only 35% (NIS, Tempo). But in the next period, the contribution of self-consumption to household incomes was down up to 14–16%, in favor of wages, which reached 52% of total incomes, below the level in early transition. With the gradual decrease of self-consumption contribution to the household budget, as a result of economic growth, its role of inequality levelling has been also reduced" (RILQ, 2010).

4.3. POVERTY RISK RATE

As it has been mentioned before, the comparative analyses of the living standard are based on the key indicator G*ross Domestic Product per capita* – which is a measure of a country's economic output per person, capturing the monetary value of a country's economy compared to other countries. Nevertheless, this indicator reflects to a little extent aspects linked to incomes distribution inside one country and it does not deliver information on the non-monetary factors, which can have a significant role in determining the population's quality of life.

In this context, the social indicators represent an important instrument used to substantiate the social policies, making it possible to describe in statistical terms the social development level in the society, as well as the current problems that exist. The analysis of the indicators in time makes it possible to monitor the progress achieved in solving up the problems of general interest. One of the modalities to measure the success of the social protection measures is to compare the poverty indicators before and after the social transfers.

According to these indicators, it was assessed that in the period 2007–2013 almost one fourth of Romania's population was at *poverty risk* after the social transfers, i.e. 24.8 % in the year 2007 and 22.4% in the year 2013.

In the investigated period, the impact of social benefits was relatively low, the social transfers reducing the poverty risk rate in the Romanian population from 30.9% to 24.8% in the year 2007, and from 27.8% to 22.4% in the year 2013.

By genders, there is a relatively small difference between the poverty risk rate (after the social transfers) in men and in women respectively.

The differences in the poverty risk rates were larger when the population was classified by the occupational status (Table 2).

Table 2

Poverty risk rate by the most frequent activity in the previous year

Item	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Total persons	21.4	20.4	20.1	19.6	21.6	22.5	21.8
Employed	17.6	17.0	17.6	17.1	18.7	19.0	17.8
Non-employed	27.2	25.5	24.0	23.5	26.1	27.9	28.5
Unemployed	46.7	42.9	46.4	45.1	47.8	52.4	51.1
Pensioners	16.4	12.0	10.2	8.8	9.2	8.3	9.4

Source: Eurostat [ilc_li04]

The most vulnerable group from the point of view of the poverty risk is represented by the unemployed, more than half of this group being at poverty risk in 2013, while one in four non-employed persons is at poverty risk.

In the group of employed persons, there are relatively high shares of employed people at poverty risk (almost 18% in 2013), while the pensioners were more or less prone to poverty risk, their share decreasing from 16.4% in 2007 to 9.4% in 2013.

4.4. THE SEVERE MATERIAL DEPRIVATION

One of the main characteristics of the material deprivation is the incapacity of having access to adequate foods in quantitative and qualitative terms. The share of the Romanian population who cannot afford a meal containing meat, chicken or fish (or vegetarian equivalent) every two days – which is defined as a basic need by the World Health Organization – was 36.5% in 2007, which means almost 8 million persons. Although the statistical data indicate a decreasing trend in this respect, the number of persons at risk remains high, i.e. over 6 million, and their share in total population also remains high (28.5%) (Table 3).

Table 3

Severe material deprivation

Item	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Number of persons	7879	7023	6817	6643	6286	6391	6070
Share in total population %	36.5	32.9	32.2	31	29.4	29.9	28.5

Source: Eurostat [t2020_53]

Income inequality, measured by Gini coefficient, is based on the equivalated available income of each individual. The evolution of income inequities shows that, although the values are decreasing, these income discrepancies have been maintained at high levels in time. The social transfers (except for pensions) have played a modest role in the diminution of inequalities (Table 4).

Table 4

Evolution of income inequalities before and after the social transfers

	2007	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Gini coefficient before the social transfers	41.8	40.0	39.0	37.2	37.3	36.2	37.0
Gini coefficient after the social transfers	37.8	36.0	34.9	33.3	33.2	33.2	34.0

Source: Eurostat [ilc_di12] and [ilc_di12c]

4.5. EXPENDITURES ON THE POPULATION'S HOUSEHOLDS

The consumption expenditures on households are influenced by cultural, economic and other factors affecting the expenditures and savings habits.

In the year 2014, one household averagely spent 2269.3 RON per month, and one person spent 850.9 RON per month. The expenditures represented 90.7% of total income level.

The main destinations of expenditures made by households are the consumption of food and non-food goods, the payment of taxes, contributions, fees, meeting the needs in relation to household production (feedstuffs for animals and poultry, payment of the labourforce on the household, of seeds, vet services etc.). The

expenditures for investments in dwellings, land etc. account for less than 1% in total expenditures on the population households.

The share of food expenditures in total consumption expenditures of a household represents a relevant indicator for the food security of the respective household. The higher the food share in total consumption expenditures of household, the more vulnerable the respective family is from the food security perspective. Although it is maintained at a high level, the share of expenditures for agri-food products and non-alcoholic drinks in total consumption expenditures decreased. While in the year 2001 these expenditures represented more than half of consumption expenditures (52.2%), in the year 2014 a household allocated 40% of consumption expenditures to cover its basic needs. The expenditures for purchasing food products represented 39.32% of total consumption expenditures in the year 2002 and 34.97% in the year 2013.

4.6. SELF-SUFFICIENCY FORECAST UNDER THE CONDITIONS OF MAINTAINING THE CURRENT TREND

Starting from the existing situation, we forecast the self-sufficiency in the main food products for the period 2014–2023. The premise from which we started is that the present tendencies are inertially maintained, without any modifications.

From the obtained results (Table 5) a strong tendency of self-sufficiency increase can be noticed for the products from the cereals group and a more reduced increasing tendency for the products in the vegetables group, for sugar, eggs and for vegetable and animal fats. There is an approximate linear trend for meat and meat products, with small modifications by groups of products, a slight decreasing trend being noticed in the case of beef. Decreasing trends can be noticed in the group fruits and fruit products, with a drastic decrease in peaches, and also in milk la (although by VAT decrease for food products from 24% to 9% since June 1, 2015, the domestic milk production can be stimulated).

Self-sufficiency is reached for the group of cereals and cereal products, with a tendency of surplus increase in this group. Self-sufficiency increase in cereals from 159.6% to 232.6% is mainly based on the increasing trend of average yields by 13% until 2024 and to a smaller extent on the increase of cultivated areas (0.1%). By types of cereals, the tendency is to decrease the areas under wheat and rye (-4%), the areas under maize (-1%) and to increase the area under barley (by 44%). The estimated yields are increasing for all three types of cereals, by 29% for wheat and rye, by 8% for maize and by 22% for barley. As a result, the self-sufficiency level will increase on the basis of productivity gains. For the area cultivated with oil crops, the estimated increase is by 11%, while the estimated yield increase is by 17%. These evolutions will influence the increase of the self-sufficiency level for refined vegetable oils and margarine up to 99.6% and 97.2% respectively.

Table 5

Self-sufficiency level in the main agricultural products. Forecast, (%)

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Cereals and cereal products	159.6	167.7	175.8	183.8	191.9	200.0	208.0	216.1	224.2	232.2
Wheat and rye	188.0	198.6	209.2	219.9	230.5	241.1	251.8	262.4	273.0	283.7
Maize	142.6	148.3	154.0	159.6	165.3	170.9	176.6	182.2	187.9	193.5
Rice	33.0	31.1	29.1	27.2	25.2	23.3	21.4	19.4	17.5	15.5
Other cereals	180.7	184.8	188.9	193.1	197.2	201.3	205.4	209.5	213.6	217.7
Potatoes	91.9	91.4	90.9	90.5	90.0	89.5	89.1	88.6	88.2	87.7
Legumes	70.0	69.5	69.0	68.5	68.0	67.5	67.1	66.6	66.1	65.6
Vegetables and canned vegetables	90.1	90.3	90.4	90.6	90.7	90.9	91.0	91.2	91.4	91.5
Tomatoes	78.8	78.8	78.9	78.9	79.0	79.1	79.1	79.2	79.2	79.3
Dry onions	88.5	88.1	87.7	87.3	86.7	86.1	85.4	84.7	83.8	82.9
Cabbages	98.3	98.2	98.2	98.1	98.0	98.0	97.9	97.8	97.8	97.7
Edible roots	84.3	84.0	83.6	83.3	82.9	82.6	82.2	81.9	81.5	81.2
Different vegetables	91.0	90.7	90.5	90.3	90.1	89.8	89.6	89.4	89.2	89.0
Water melons	96.5	96.3	96.1	96.0	95.8	95.6	95.5	95.3	95.1	95.0
Fruits and fruit products	77.1	76.4	75.7	75.1	74.4	73.7	73.0	72.3	71.6	70.9
Apples	99.8	99.6	99.4	99.2	99.1	98.9	98.7	98.5	98.3	98.1
Plums	98.1	97.8	97.5	97.3	97.0	96.7	96.4	96.1	95.8	95.5
Cherries – morello cherries	100.0	99.6	99.1	98.7	98.3	97.9	97.5	97.1	96.6	96.2
Peaches	26.5	24.3	22.2	20.0	17.9	15.7	13.6	11.4	9.3	7.1
Grapes	93.7	93.4	93.0	92.7	92.3	92.0	91.6	91.3	90.9	90.6
Different indigenous fruits	93.7	96.3	99.5	103.5	108.1	113.4	119.4	126.1	133.5	141.6
Sugar	95.4	97.3	99.2	101.2	103.1	105.0	106.9	108.8	110.8	112.7
Milk	92.9	92.4	91.8	91.2	90.6	90.0	89.5	88.9	88.3	87.7
Eggs	102.4	103.7	104.9	106.2	107.5	108.8	110.0	111.3	112.6	113.9
Meat and meat products	84.6	86.2	87.8	89.4	91.1	92.7	94.3	95.9	97.5	99.1
Beef	91.1	90.9	90.7	90.4	90.2	90.0	89.8	89.6	89.4	89.1
Pork	74.5	76.2	77.9	79.6	81.3	83.1	84.8	86.5	88.2	89.9
Sheep – goat meat	101.7	101.7	101.7	101.7	101.7	101.7	101.7	101.7	101.7	101.7
Poultry meat	95.6	96.3	97.0	97.7	98.4	99.1	99.8	100.5	101.2	101.9
Edible offal	73.1	72.4	71.6	70.9	70.1	69.4	68.6	67.9	67.1	66.4
Vegetable and animal fats	79.5	80.8	82.1	83.3	84.6	85.9	87.2	88.5	89.8	91.1
Refined vegetable oils	77.7	80.1	82.6	85.0	87.4	89.9	92.3	94.7	97.2	99.6
Margarine	97.7	97.7	97.6	97.6	97.5	97.5	97.4	97.3	97.3	97.2
Pig fat	81.5	82.9	84.2	85.5	86.8	88.1	89.5	90.8	92.1	93.4
Butter	61.6	61.0	60.4	59.8	59.2	58.5	57.9	57.2	56.5	55.8

Source: own calculations based on data from Food Balance Sheets 2004–2013, NIS, Bucharest

This increase of average yields is based on the diminution of damages produced by weeds, pests and diseases, through the increased application of chemical treatments in agriculture. Thus, the estimated area on which herbicides are applied

will reach 992,344 ha, representing a 28% increase in 10 years. The area treated with insecticides will reach 405,842 ha, up by 24%, and in fungicides 547,234 ha, up by 27%. The area on which chemical fertilizers will be applied will also increase by 6%. A slight increase in the active ingredient quantity applied per hectare can be noticed, from 67.39 to72.67 kg a.i.

The self-sufficiency in potatoes followed a decreasing trend, from 91.9% in the year 2014 to 87.7% in the year 2024. The self-sufficiency decrease is caused by the strong decreasing trend of the cultivated areas, by 54% and by maintaining the yields at a constant value.

The self-sufficiency for the group vegetables and canned vegetables will follow a relative increase, from 90.1% to 91.5%. This positive evolution is the result of self-sufficiency increase in tomatoes on the basis of yield increase by 3% in the conditions in which the area is maintained constant. For the other species of vegetables, self-sufficiency slightly decreases.

In the group fruits and fruit products, self-sufficiency decreases from 77.1 % in the year 2014 to 70.9 % in the year 2024. A lower self-sufficiency level will be noticed for each species compared to the beginning of the forecast period. For the apple-tree orchards the forecast area is down by 7%, while the yields increase by 10% will not compensate this decrease in order to maintain or increase the self-sufficiency level. The situation of the pear-tree orchards shows a decrease of areas estimated at 48% and an increase of yields by 11%.

The domestic supply of peaches covers the consumption needs by 26.5 %, and it is estimated that the self-sufficiency level will reach 7.1%. Practically, the demand will be covered from imports.

The estimated self-sufficiency in milk will decrease, and the domestic milk production will cover only 87.7% of the food availability. There is a deficit in the case of butter, in which the domestic production will contribute to the self-sufficiency level only by 55.8%.

As regards the other animal products, self-sufficiency will be ensured for eggs, sheep and goat meat and poultry meat. Even though the demand is not fully covered by the domestic supply, self-sufficiency will increase in pork, up to 89.9% and in pig fat, up to 93.4%. In beef, self-sufficiency will decrease by 2%, to reach 89.1%. The edible offal will cover only 66.4% of the consumption availabilities.

The reasons for the domestic milk production decrease are the following:

- The competition pressure. The very high value of imports since the accession to the EU: only in the year 2007 the milk imports in euro increasing by 447% compared to the previous year, the value of imports reaching 14,246 thousand euro, to continuously increase ever since. In the year 2014, the total value in the category milk and dairy products reached 112,435 thousand euro and 149,349 thousand USD.
- The low absorption level of the European funds for the technological revamping of small farms, both for dairy cow raising and for milk processing facilities, due to the absence of co-funding and of the crediting facilities for small farmers.

- The incentive measures for the small and medium-sized farmers through subsidies could not sustain a competitive milk price compared to the EU competitors.

The embargo imposed by Russia on the EU Member States led to a surplus production crisis in the producing countries and thus the entrance of dairy products at very low prices on the Romanian market, for the sale of these stocks.

According to FAO, the food demand of a population is conditioned, on one hand, by the food intake specificity necessary for satisfying the nutritional physiological needs (depending on age, gender, health condition, type of activity), expressed in nutrients and their equivalent in foods, and on the other part by the food preferences of the population, materialized into its food behaviour. The energy requirements of the population are constant and can be estimated with an error margin of around +/- 5% (FAO, 1992).

5. CONCLUSIONS

For self-sufficiency and food security ensurance, both on short and long term, Romania should exploit the agricultural potential through a more favorable political framework and increase of investments in agricultural and rural development. While in cereals the self-sufficiency is ensured, in other categories of agri-food products, although at present self-sufficiency is not ensured, through correct economic policies, in the future this desideratum is possible to be reached. Fruits are an exception, due to the strong seasonal effect and to the ageing of orchards. As regards meat, although per total category of meat and meat products, self-sufficiency is ensured, in the categories pork and beef, self-sufficiency will not be reached by the year 2023 by maintaining the present trend. Thus, the active support measures for the domestic producers should be intensified in order to decrease the time horizon in which self-sufficiency can be reached in the deficient categories.

Agricultural production is oscillating, instability being mainly generated by the weather factors and by the deficient production technologies in the melioration of climate factors effects. At the same time, ensuring the necessary resources from domestic production is restricted by the organization and functioning modality of the agri-food chains, mainly at the level of industrial processing. As the supply of agricultural products is extremely dispersed, in many cases, the raw materials for processing come from import, at higher prices and efforts for their purchase by consumers.

The structure of total incomes of households, by origin sources, shows that the most important source of incomes is the cash income, with an increasing share, from 76% in the year 2002 to over 83% starting with year 2008. The value of consumption from own produced food, representing the household self-consumption, represents a second income source. The self-consumption share in total incomes of households decreased, under the background of economic growth.

The share of food expenditures in total consumption expenditures of the household, which is a relevant food security indicator, is still maintained at a high level, although it decreased from 52.2% in the year 2001 to 40% in 2014, which leads to the conclusion of higher accessibility of the population for the procurement of foodstuffs. In principle, as the share of food expenditures in total consumption expenditures of household is higher, the respective family is more vulnerable from the food security perspective.

The population's poverty risk remains high, as 22.4% of the country's population was exposed to this risk in the year 2013, the most vulnerable categories being the non-employed persons and the unemployed. The severe material deprivation is also maintained at a high level, even though it decreased from 36.5% in 2007 to 28.5% in 2013.

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