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ROMANIAN FOOD CONSUMPTION AND ITS EFFECTS ON POPULATION’S HEALTH CONDITION

Case study

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Abstract

Public health is a top priority for the European Union. The main factor in ensuring population health is food consumption and in particular food quality. The present paper aims at analyzing Romanian population food consumption during the 1990-2012 periods, its evolution in time; it identifies its main features and their effects on population health. Amid the economic crisis the purchasing power of population is impaired leading to insufficient consumption of fresh fruits and vegetables and a low intake of vitamins, calcium, phosphorous and iron (especially in children, women and elderly people), which could be an important risk factor in the development of chronic diseases.

1. Introduction

Through the policy which it promotes, the European Union aims at preventing diseases; it promotes a healthy lifestyle as well as protecting citizens from health threats (Hamer, Owen & Kloek, 2005). The main factor in ensuring population health is food quality.

Beyond the common trends manifested in the diet, every historical region and every nation is distinguished by certain particularities.

The Romanian population food habits specific to every period, was grafted to the historical period weather particularities, by the socio-economic development level and last, but not least, by the adopted lifestyle. Food and Agriculture Organization (FAO) presents in its report of 2007 that in Romania about 2.5% of the population was undernourished during 1993-1995 and 2001-2003. Such causes of malnutrition were caused in general not by a lack of food but low economic access to food for certain social categories. After the year 2005 Romanians eating behaviour start to be characterized by chronic imbalances characteristic of modern human eating behaviour, including caloric excess intake of fats and carbohydrates (especially refined concentrated sources), and the uncontrolled usage of rigorous mechanisms of food additives (Graur et al., 2006).

2. The economic context of Romania during 1990-2012

According to the classical economic theory, the consumer income and the price of products represents major determinants of food demand. These relationships are assumed to be significant especially in low-income groups. Given the large share of low-income consumer segments in Romania, is grounded the belief that, in Romania, the importance of these factors is and shall remain significant in the near future (Petrovici & Minoiu, 2010).

During the first years of transition, between 1990 and 1992, there has been a

reduction in gross domestic product (GDP) of Romania, with an annual average rate of 9.1%, and then, during 1996-1999 gross domestic product to suffer another fall of 8.6% (Figure 1). This fall of GDP was accompanied by an increase in unemployment of 11.8% in 1999, 8.8% higher than the one registered in 1991 (3%). Thus, the real average income fell sharply during 1990-1999, which was demonstrated by the reduction with 43% real earning index in 1999 compared to 1990. However, a growing phenomenon of about 22% of the inequality of income distribution and poverty incidence was noticed.

One can appreciate the fact that socio-economic transition after 1990 is characterized by a decline in living standards, accompanied by inflation and unemployment expansion, all these resulting in nutritional imbalances widening, especially in deeply disadvantages groups by such evolution as children, elderly, unemployed and altering all of the common and most serious health condition. These are years where the majority of budgets of most families in Romania have guided towards trying to cover the daily requirement of food, many of the quality food products, being unfortunately, less accessible because of financial impediments.

Between 2001 and 2008 Romania's macroeconomic performance has improved somewhat, compared to the previous period, Romanian's gross domestic product registering an annual average growth of 5.84% during this period. Thus, at the end of 2008 the gross domestic product of Romania reached 131.66 billion of euros, which represents an increase of 62.6% of this indicator than the one registered in 2000. However, the GDP per habitant, in 2008, calculated at the purchasing power standard is only 26% compared to the average recorded in 27 EU states. The unemployment rate has also registered a decrease by 6.1% during this period from 10.5% of the year 2000, at

4.4% recorded in 2008. The average real incomes of the population has doubled during 2000-2008, an increase of 119.2% being registered, an increase of the real earning index in 2008 compared to 2000.

From 2008 to 2010, following a period of economic recession which the whole Europe faced, Romania has also registered an economic recession, the gross domestic product suffering a decrease by 8.2% in 2010 compared to 2008. The unemployment rate has increased by 2.6%, from 5.8% in 2008 at 7.3% recorded in 2010, and the real average income has declined as evidenced by a reduction of 5.1% of the real earning index in 2010 compared to 2008.

In 2011 the Romanian gross domestic product increased with 3.8% compared with that recorded in 2010 and then, in 2012, to fall by 1.5% from the previous year. In 2011 the unemployment rate increased by 0.1% since 2010, while the real incomes of the population continued to decline, as evidenced by the 1.9% reduction in real earnings index in 2011 compared to 2010. In 2012 the unemployment rate decreased by 0.3% compared to 2010 while the real incomes of the population have experienced a slight improvement over those recorded in 2010.

3. The food consumption of Romanian population during 1990-2011

The main determinant of long-term changes in food consumption is the consumer's income.

The decline in real income (table 1) and the increase in product price between 1990-1999 determined a decrease in the purchasing power of population which was reflected in the changes occurring in food consumption patterns (Petrovici & Minoiu, 2010). Another cause of substitution effects occurred in the consumption structure changes is that until 1999 the consumer price indices of food products were superior to the total consumer price indices. Thus, this period is characterized by reduced fruit consumption (by 27.06%),

sugar (by 23.44%) and vegetable fats (14.5%), from the category of vegetable products and respectively fish (by 56.86%), meat (by 20.82%), eggs (by 16.26%) and animal fats (by 35.29%), belonging to the group of animal products. On the other hand, there is a substantial increase in potato consumption (by 44.95%), vegetables (by 22.83%) and cereals and cereal products (by 9%), from the category of vegetable products and milk and dairy products (by 38.47%), from the category of animal products. With regard to drinking, between 1990 and 1999 there is an increase in the consumption of non-alcoholic beverages by 89.42% and of wine consumption, until 1998, by 74.05% compared to the year 1990, while the consumption of beer decreases until 1997, by 21.84% compared to 1990, the same tendency being recorded for the consumption of distilled alcoholic beverages.

Table 2 presents the coefficient of elasticity of food demand in relation to income. The economic model mentioned had as dependent variable, the average net nominal monthly earnings. As referred to the variation of the expenditures concerning the acquisition of certain foods during the period 1990-1993, it can be remarked a decrease in income population by 10%, which determines the increase of expenditures with the purchase of cereals and cereals products by 4% in 1993 compared to 1992, for potato acquisition by 13.34% (in 1992 compared to 1991) and by 9.36% (in 1993 compared to 1992), for vegetable acquisition by 6.68% (in 1992 compared to 1991) and by 4.16% (in 1993 compared to 1992), for milk acquisition and dairy products by 6.33% (in 1991 compared to 1990) and 3.71% (in 1993 compared to 1992) (table 2). Also, the same decrease by 10% of income population generates the decrease expenditures for the purchase of fish and fish products, by 39.71% (in 1992 compared to 1991) and 49.75% (in 1993 compared to 1992), for meat acquisition,

meat products and offal by 5.4% (in 1991 compared to the year 1990) and 6.46% (in 1992 compared to 1991) for eggs acquisition by 15.31% (in 1992 compared to 1991) (table 2).

Between 1994 and 1996 the decline in income has stagnated, a slight increase being recorded from year to year. Corresponding to this period, the population increased revenues by 1% has generated a decrease of expenditures for the purchase of potatoes by 27.02% (in 1994 compared to the year 1993), expenditures for the purchase of cereals and cereal products by 1.58% (in 1994 compared to 1993), which demonstrates, once again, the operation of substitution effect of population consumption structure, expenditures for the purchase of vegetable fats by 32.39% (in 1994 compared to 1993), that is animal fats by 5.69% (in 1994 compare to 1993), but the most worrying still remains the declining share of the purchase of fruits and fruits products by 86.39% (in 1994 compared to 1993) and respectively of the expenditure ratio for meat acquisition by 10.09% (in 1994 compared to 1993) (table 2). On the other hand, the increase of income by 1% has determined the expenditure increase for purchasing fish and fish products by 48.13% (in 1994 compared to 1993), the expenditure for the purchase of eggs by 5.16% (in 1994 compared to 1993) and that the expenditures for the purchase of milk and dairy products by 3.63% (in 1994 compared to 1993) (table 2).

After the large stage of price liberalization in April 1997, a more important decrease of the population purchasing power had taken place. Against this background, one can observe a decrease in consumption goods whose prices have been semi given (meat), but a revival of potatoes, vegetables and eggs consumption (in 1998)(Petrovici&Minoiu, 2010). In this way, in 1997 the same substitution effects work in the consumption structure, a decrease by 10% of income population generating an increase by 3.45% of

expenditure for potatoes acquisition, but a decrease of expenditures made with fish acquisition by 15.28% and that of fruits by 4.58%. The period 1998-1999 is characterized by a new stagnation of income decline, which registers a slightly increase from year to year, generating a further amendment consumption expenditure ratios. Thus, the increase by 1% of income population has determined the increase of expenditures for vegetable purchase by 30.82% (in 1999 compared to 1998), of expenditures for vegetable fats by 51% (in 1999 compared to 1998), expenditures for the purchase of eggs by 11.55% (in 1999 compared to 1998) expenditures for the purchase of potatoes by 11.06% (in 1999 compared to 1998) (table 2). The same increase by 1% of income population has determined a decrease of expenditure for the purchase of fish and fish products by 173.08% (in 1999 compared to 1998), expenditures for meat purchase, meat products and organs by 28.18% (in 1999 compared to 1998), expenditures for the purchase of fruits and fruits products by 26.32% (in 1999 compared to 1998) and expenditures for the purchase of animal fats by 14.42% (in 1999 compared to 1998).

During 2000-2008, amid an improvement in the economic situation of Romania and as a result of duplication of consumer income (table 1) proven by the increase in real earnings index in 2008 by 119.2% compared to 2000, the consumers' purchasing power has increased, which is underlined by the increase consumption of all merchandise groups except for cereals and cereal products whose consumption decreased by 5.9% in 2007 compared to 2000. The biggest consumption increase (by 212.09%, in 2008 compared to 2000) was in non-alcoholic beverages, followed by fruits and products obtained from fruits (by 86.97%, in 2006 compared to 2000), fish and fish products (by 76.92% in 2006 compared to 2000), beer (by 67.27% in 2007 compared to 2000), meat and meat

products and offal (by 50.97% in 2006 compared to 2000).

Regarding development expenditure ratios for food acquisition for the 2000-2008 period, it can be notice an income increase by 10% which generated a decrease of expenditures for purchase of cereal and cereals products between 2003 and 2008, the most significant registered decreases being of 4.81% (in 2003 compared to 2002) and of 4.11% (in 2006 compared to 2005). Income increase by 10% has determined an increase of expenditures made for the purchase of vegetables and vegetable products, by 43.65% (in 2000 compared to 1999), by 18.51% (in 2001 compared to 2000), by 17.32% (in 2003 compared to 2002) and by 12.81% (in 2006 compared to 2005). Regarding the share of expenditure for fruits and fruit products purchase, it registered an oscillating evolution, significant being the increase by 24.45% (in 2003 compared to 2002) and by 24.07% (in 2004 compared to 2003), to an income increase by 10%. The share of expenditure for the purchase of milk and dairy products had increased every year, to income increase by 10%, the most significant increase being of 34.75% registered in 2002 compared to 2001. As far as share expenditure for the purchase of eggs is concerned, to a 10% income increase it registered a 17.67% increase (in 2001 compared to 2000), by 19.62% (in 2002 compared to 2001) and of 18.11% (in 2004 compared to 2003), and after 2005 to decrease every year. After the 41.56% decrease registered in 2000 compared to 1999, of the share of expenditure for the purchase of fish and fish products to a 10% income increase, it registered later a slightly significant increase, of 79.58% (in 2002 compared to 2001), of 10.73% (in 2004 compared to 2003) and of 10.65% (in 2005 compared to 2004). Also, the 10% increase of population income has determined the annual increase of share expenditure for the purchase of meat and meat products, by 11.67% (in 2000 compared to the year 1999), by 7.48% (in

2001 compared to 2000), by 49.24% (in 2002 compared to 2001), by 10.21% (in 2003 compared to 2002) and by 8.31% (in 2004 compared to 2003) (table 2).

The decrease of population income during 2008-2010 as a result of economic recession, has determined new changes in the food consumption structure, except for fish and fish products, all food commodity groups recording a decrease in consumption. Thus, the average annual consumption of fruits and fruit products has decreased from 66.7 kg per inhabitant in 2008, to 63.3 kg per inhabitant, corresponding to the year 2010, consumption of milk and dairy products has decreased by 12.05% (in 2010 compared to 2008), meat consumption has registered a 9.91% decrease (in 2010 compared to 2008), the beverages consumption following the same decreasing trend, higher in the case of alcoholic beverages.

Lower income population by 10% has determined a decrease of share expenditure for the purchase of fruits and fruit products by 45.46% (in 2009 compared to 2008), expenditure for the purchase of milk and dairy products by 59.35% (in 2009 compared to 2008) and by 10.79% (in 2010 compared to 2009), and of expenditures for the purchase of eggs by 63.58% (in 2009 compared to 2008) and by 4.40% (in 2010 compared to 2009). For other food groups, the 10% decrease of income population has caused a delayed reaction to decrease the share of expenses incurred for their purchase. This is the case of expenditure for the purchase of fish and fish products which has increased up to 107.29% in 2009 compared to 2008, for the following year to register an 11.43% decrease. The same evolution was registered by expenditures for meat purchase, meat products and offal which have increased by 8.53% (in 2009 compared to 2008), as for later to decrease by 32.85% (in 2010 compared to the year 2009). An opposite trend to lower income population of 10%, was registered by the

share expenditure for the purchase of potatoes in 2009 which decreased by 44.25% (compared to the year 2008), and in 2010, along with increased revenues decline, to register an increase of 13.65% (compared to the year 2009). As for the share of expenditures for the purchase of vegetables and vegetable products, the lowering in population income by 10% has determined its decrease by 29.85% (in 2009 compared to 2008), for later to increase with 9.34% (in 2010 compared to 2009), a similar evolution being also registered by the expenditure to purchase of fruits and fruit products which decreased by 45.46% (in 2009 compared to the year 2008), for later to register a slightly increase of 4.15% (in 2010 compared to the year 2009) (table 2).

As for the share of expenditures for the purchase of food and beverages, in total consumption expenditures, as expected, it is higher for lower-income social categories (farmers, unemployed, retired) and lower for those social categories with higher income (employers and employees). Engel's law is confirmed in terms of time series analysis. Whatever type of social category, during the periods with low income population, the share of expenditure on food and beverages has increased, but for the periods with a slightly economic increase, when the population income has reached the share of expenditures for food and beverages, to decrease. Thus, having as background the declining average of real wage income for the period 1990-1993, there was an increase of the average food expenditure in total household spending budget, for all social categories (Stanciu, 2010). For the 1994-1996 period, having as background a slightly increase of population income, the share of expenditure on food and beverages has decreased, from 68.7% to 57.6%. The decrease in household income in 1997 has determined a slightly increase of share for the purchase of food and beverages, at 58.8%, as for ulterior period, between 1998-1999, due to a slight

increase of income population, the share of food expenditure to decrease at 53.5%. During 2001-2008, as a result of the increase in income population, the share of food and beverage expenditure decreased from 58.25% (corresponding to the year 2001) to 48.0% (for 2008). During 2008-2010, a new lowering in income population was registered, which determined an increase in the share of food expenditure, up to 48.7% in 2010.

Differentiating cost structures can be also highlighted by a comparison of income. In this way, in 2010, the spending power of low-income group (decile 10 above 1394 lei), although it represents a lower weight in the total expenditure, were 194.31% higher compared to the ones of the lower income group (decile 1, up to 236 lei), actually reflecting the net income differentiation in Romania.

Food quality is a concern because it directly affects the health of the population. Thus, it is known that certain deficient food patterns are associated with 4-10 causes of death (coronary heart disease, some cancers, stroke, type 2 diabetes). Also, a healthy diet can reduce major risk factors for a number of chronic diseases such as obesity, high blood pressure, high blood cholesterol content, etc. It is considered that the primary means of improving the population's health condition is improving its food.

As it can be observed from the analysis consumption of the Romanian population, a number of food or food components are consumed in excess, which increases the risk of chronic disease. It is the high consumption of saturated fats (food rich in saturated and trans fatty acids) cholesterol, salt and even alcohol. Although the prevalence of obesity in Romania is much reduced compared with developed countries, a diet rich in saturated fat, cholesterol, refined sugars and alcohol increases the risk of chronic disease. Therefore, are required a series of nutritional recommendations to limit consumption of these foods or nutrients in

order to ensure the nutritional and energetic needs of the body and to reduce the risk of chronic disease.

Respecting religious traditions, especially within the countryside families, creates the opportunities for deficiencies of protein and calcium, due abstinence from animal products, during relatively long periods of the year. Families with low incomes among the unemployed and pensioners constitute a special risk group.

Deficiencies of vitamins and minerals, especially in children, can have long-term dramatic effects: impaired due to vitamin deficiencies, anaemia due to the reduced rate of absorption of iron from food, especially in children with vitamin C deficiencies, high risk of diarrhea and respiratory diseases caused by lack of iron. The structure of caloric consumption in the year 2010 does not reflect any major signs of concern, the proportion of protein (14.13%), carbohydrates (57.39%) and fats (29.23%) being close to the OMS recommendations. Regarding the consumption structure in depth, although fat consumption is within the limits of nutritional recommendations the high percentage of saturated fats (by the consumption of pork and animal fats), increases the risk of cardiovascular diseases, actually supported by a high rate of cardiovascular disease in Romania, one of the highest in the European Union. Examining the incidence of mortality by specific categories of diseases of the circulatory system, it is shown a very high incidence of especially cerebrovascular diseases, women being more vulnerable, a distribution different from the distribution of ischemic heart disease.

Another cause of high incidence of cardiovascular disease is the relatively high egg consumption associated with high cholesterol intake. Thus, according to a study performed by Cinteza M. in December 2010, 30% of the Romanian population, both at the urban and rural level, presents a high level of cholesterol, while 42.6% among people aged over 70

records a high level of serum cholesterol which explains the high rate of sudden death caused by stroke. Over 30% from the Romanians have a high level of cholesterol and approximately 40% are hypertensive, the consequence being that 2 out of 3 Romanians die from cardiovascular diseases compared to the situation in the traditional core of countries in Western Europe, which have been popularized as the devastating effects of high cholesterol, from the same cause 1 out 3 Europeans die (Graur et al., 2006). One can appreciate that this phenomenon is caused by poor education on diet and induced risk of high cholesterol. Therefore, in countries with a traditional diet rich in fibres and low in cholesterol, diseases such as colon cancer, diabetes and cardiovascular diseases are much rarer than in Western countries.

In Romania fruits, vegetables, fish and even milk and dairy products consumption are inferior to nutritional recommendations, which determine a lower intake than the need for some nutrients like potassium, calcium, vitamin D, polyunsaturated fatty acids and therefore of concern to ensure the population's health condition. In order to avoid maintaining these potential long term gaps, with adverse implications on the health condition of the population, the following recommendation can be made:

- Increase the consumption of fresh fruit and vegetables;
- Reduce the consumption of potatoes and increase the consumption of vegetables and legume;
- Replacing refined cereals with whole ones;
- Increasing the consumption of partially or completely skimmed milk products, foods and beverages fortified with soy;
- Diversification of protein in the diet: fish and sea fruits, lean meat, poultry, eggs, legumes, soy products, unsalted fruits;
- Decrease in food weight of pork and the increase in meat eating fish and

seafood;

- Reducing foods high in solid fats with other lower-calorie or high aromatic oils;

- Replacing the consumption of solid fat oils, whenever possible.

The biggest challenge for consumers is that these recommendations careful control the body weight. That is why it is recommended the consumption of certain „dense foods” which provide vitamins, minerals and other substances with favourable effects on health but with low calorie intake. These foods are rich in dietary fibres, but do not contain or have a very low fat content of solid fats, sugar, starch, sodium or high sodium containing compounds. Legumes (except for potatoes), fruits, whole cereals, milk and partially or totally defatted dairy products, fish and sea fruits, lean meat and poultry, eggs, oleaginous fruits that are prepared without added fat solids, sugar, starch and salt are considered dense foods.

There are three arguments behind the recommendation to increase consumption of fruit and vegetables. The first one is that, most of fruits and vegetables are the main source of certain nutrients whose food intake does not equal the daily needs of the body, namely magnesium, potassium, calcium, dietary fibres, vitamin A, C, folic acid, making it a concern to ensure the population’s health condition. Secondly, fruit and vegetable consumption is associated with reducing the risk a numerous chronic disease. Thus, there are evidence in this regard, that a daily consumption of 2.5 fruit and vegetable portions reduce the risk of cardiovascular disease, including myocardial attack and stroke. Furthermore, certain fruit and vegetables can have a protective role against different types of cancer due to their high content in antioxidants. In the third place, most fruits and vegetables, when consumed fresh or prepared without added fats or sugars have a low caloric content which allows a good control of

daily energy intake and body weight default.

4. Conclusions

Reduction in real income, as well as, enhancing income distribution inequality in the expenditure pattern has led to mutations in the structure of families expenses. Thus, in the periods with significant reduction in household income (1997, 2000, 2009-2010), the consumers must reduce their consumption expenses and a series of involuntary mutations occur, resulting in the expenditure for food purchase and consumption of agricultural products from own resources, accompanied by the falling share of acquisition of non-food products. During such period, mutations occur also in the structure of food consumption which determines involuntary changes of food habits, some of them being considered beneficial by specialists (such as increased margarine consumption at the expense of butter, due to the relatively affordable price or margarine). However, families of farmers use the highest proportion of products from own resources (44%, corresponding to 2010), that is products obtained from areas in use or livestock, so that the largest share of production costs is recorded (3.6% for 2010). Own resources consumption contribution is significant for other social categories, that is retired (20.2% in 2010), unemployed (16.3% in 2010) and employees (8.75% in 2010). This can be a survival and adaption strategy to the problems of poverty (inability to purchase food from the market or lack of other alternatives). In periods when household incomes slightly increase (1998-1999, 2001-2008) there is an increase of expenditure for acquisition of non-food products, the payments for services, capital expenditure and for default of the payment of taxes, fees, contributions and other taxes, having as background a slight decrease in expenditure for the purchase of food and

the consumption of agricultural products from own resources.

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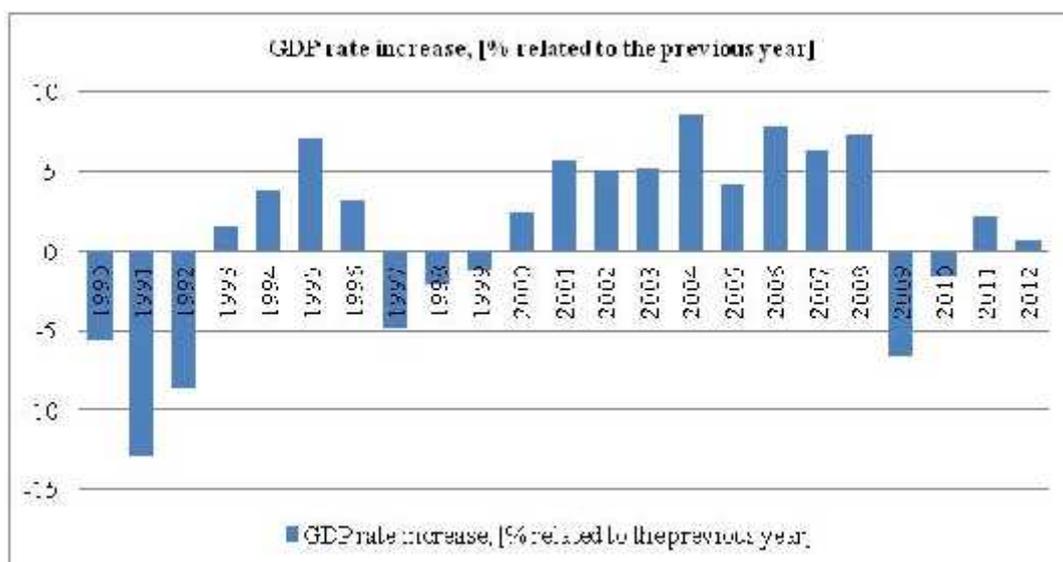


Figure No.1. Romanian's GDP Rate Increase during 1990-2012, [% related to the previous year].

Data processed after Romanian National Institute of Statistics

Table No. 1

Evolution of average net nominal monthly earnings, during the period 1990-2011

Year	Average net nominal monthly earnings, [lei]	Consumer price index (CPI), 1990=100, [lei]	Average net nominal monthly earnings recalculated at the 1990's prices
1990	3381	100	3381
1991	7460	270.2	2760.92
1992	20140	838.8	2401.05
1993	59717	2987	1999.23
1994	141951	7071.9	2007.25
1995	211373	9353.4	2259.85
1996	321169	12983.4	2473.69
1997	632086	33076.9	1910.96
1998	1042274	52624.2	1980.60
1999	1522878	76728	1984.77
2000	2139138	111767.1	1913.92
2001	3019424	150290.7	2009.06
2002	3789202	184162.1	2057.54
2003	4839648	212291	2279.72
2004	5986386	237504.5	2520.54
2005*	746	258912.1	0.288129
2006	866	275900.37	0.313881
2007	1042	289245.48	0.360248
2008	1309	311949.38	0.419619
2009	1361	329380.27	0.413200
2010	1391	349450.21	0.398054
2011	1444	369673.84	0.390616

Note. * Between 1990 and 2004 the earnings are expressed in ROL and since 2005 the earnings are expressed in RON (1 RON = 10000 ROL). Data processed after Romanian National Institute of Statistics

Table No. 2

Consumption elasticity for food commodities, on groups of goods, related to the variation of consumer income, during 1990-2011

Year	Consumption elasticity, [%]														
	Cereals and cereal products	Potato	Vegetables and vegetable products	Fruits and fruit products	Sugar and sugar made products	Vegetable fats	Milk and dairy products	Eggs	Fish and fish products	Meat, meat products and edible offal	Animal fats	Nonalcoholic beverages	Beer	Wine and wine products	Distilled alcoholic beverages
1990	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1991	0.221	1.057	0.624	1.345	0.152	0.491	-0.633	0.092	-1.063	0.540	0.379	0.942	0.148	0.422	-0.799
1992	-0.055	-1.334	-0.668	-0.198	0.547	1.529	-0.016	1.532	3.971	0.646	-0.139	0.131	-0.539	0.332	-1.251
1993	-0.408	-0.936	-0.416	-1.331	0.147	0	-0.371	0.157	4.975	-0.193	0.332	-1.169	-0.011	-0.868	0.995
1994	-1.578	-27.017	-3.380	-86.394	8.172	-32.389	3.625	5.160	48.131	-10.092	-5.688	28.793	-25.208	39.915	-13.173
1995	0.209	0.542	0.452	-0.391	-0.381	1.187	0.432	0.136	0.639	0.280	0	2.782	-0.571	0.743	0.447
1996	-0.130	0.378	0.114	1.077	0.606	0.454	0.246	0.116	0.399	-0.230	-0.846	-2.433	-1.099	0.311	0
1997	-0.184	-0.345	0.147	0.458	0.836	0.329	0.005	0.237	1.528	0.119	0.367	-0.529	0.180	-0.654	0.179
1998	-0.529	0.812	1.949	0.807	0.832	1.991	0.293	2.122	9.480	1.500	-2.509	-1.104	6.563	-2.086	-18.548
1999	-1.432	11.056	30.816	-26.321	9.109	50.996	-0.981	11.553	-173.078	-28.578	-14.423	65.146	51.819	-153.063	-45.330
2000	0.065	-0.125	4.365	-0.668	-2.466	-3.918	0.140	-0.260	-4.156	1.167	-0.795	-8.162	-2.652	-0.582	4.502
2001	0.139	0.360	1.851	1.580	0.880	0.925	0.471	1.767	0	0.748	0	11.178	-0.233	1.905	11.846
2002	0.725	0.989	0.144	-2.524	-0.903	-2.285	3.474	1.962	7.958	4.924	6.366	-3.316	1.213	2.358	6.189
2003	-0.481	0.570	1.732	2.445	0.338	0.595	0.456	0.043	0.879	1.021	-1.811	1.032	0.779	-1.732	-2.700
2004	0.252	0.267	0.320	2.407	0.532	-1.182	0.609	1.811	1.073	0.831	1.102	-0.209	1.546	2.407	-4.264
2005*	-0.177	0.008	-1.017	-0.158	0.525	1.204	0.010	-0.141	1.065	0.327	-0.444	0.380	-0.291	-6.623	0
2006	-0.411	-0.075	1.281	1.069	0.672	0.633	0.366	-0.308	0.265	0.279	0.642	1.672	1.496	2.715	-5.132
2007	-0.065	-0.105	-0.833	-1.765	-1.279	-0.901	0.191	-0.261	-1.636	-0.373	-1.177	0.662	1.165	0.764	-1.457
2008	-0.087	0.242	0.478	-0.117	-0.518	0.387	0.053	-0.026	0.353	-0.011	0	0.596	0.038	0.345	2.356
2009	1.018	4.425	2.985	4.546	-6.487	-5.632	5.935	6.358	-10.729	-0.858	-9.903	1.734	7.454	6.959	12.874
2010	0.227	-1.365	-0.934	-0.415	4.400	2.131	1.079	0.440	1.143	3.285	3.865	0.204	2.087	5.256	6.570
2011	0.113	0.015	-0.001	0.075	0.053	1.825	0.302	0.007	0.872	0.058	-0.321	0.258	-0.245	-5.582	0.014

Note. Data processed after Romanian National Institute of Statistics