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Conference Paper

The main indicators analysis that characterize the food consumption evolution in Romania in comparison between the period 2001-2006 and 2007-2014

Provided in Cooperation with:

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Suggested Citation: Necula, Raluca; Stoian, Mirela; Drăghici, Manea (2015) : The main indicators analysis that characterize the food consumption evolution in Romania in comparison between the period 2001-2006 and 2007-2014, In: Agrarian Economy and Rural Development - Realities and Perspectives for Romania. 6th Edition of the International Symposium, November 2015, Bucharest, The Research Institute for Agricultural Economy and Rural Development (ICEADR), Bucharest, pp. 246-253

This Version is available at:

<https://hdl.handle.net/10419/163309>

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THE MAIN INDICATORS ANALYSIS THAT CHARACTERIZE THE FOOD CONSUMPTION EVOLUTION IN ROMANIA IN COMPARISON BETWEEN THE PERIOD 2001-2006 AND 2007-2014

NECULA RALUCA¹, STOIAN MIRELA², DRĂGHICI MANEA³

Abstract: *The analysis on the food consumption is particularly important because it helps us to discover information about the individual's health and economic differences between the two periods studied, outlining the economic impact on human food consumption and the worldwide food trends impact on the food transit that's going on within our country. It have been also noticed changes at the level of urban and rural areas and the differences between the two environments, which illustrates on the one hand the existence of changes in feeding with the accession to the European Union, the tendency being to decrease the number of calories, and the differences between environments demonstrating a higher food consumption for the countryside.*

Keywords : *food consumption, calories, protein, carbohydrates, lipids*

INTRODUCTION

From FAO sources (Quarterly Bulletin of Statistics no. 2, 3, 4/1994), European Community (Eurostat Agriculture, Brussels, 1994) and Romanian (MAA data, 1994) the Romania's place within the Member countries of the European Union in 1994 after the food availability expressed in calories per person per day, we occupy the last place (about 3000) after United Kingdom and Netherlands. The top three are Greece and Ireland, and Spain with approximately 4000 calories per person per day. In the classification by number of grams protein per person per day, Romania (almost 100 gr) is ahead of Netherlands and United Kingdom (85-90 gr). The first three places being occupied by Ireland, France and Greece (approx. 120 gr).

MATERIAL AND METHODS

In the paper were used the following indicators: arithmetic mean, mean square deviation, standard deviation, coefficient of variation.

Food consumption expressed in calories and nutritional factors is the correspondent in calories and some nutrients (proteins, lipids, carbohydrates) of alimentary products in a person's consumption in a given time period (usually one day).

Main groups of nutritional principles which enters in the chemical composition of food are: proteins, lipids, carbohydrates, vitamins, mineral salts and water. Of these, proteins, lipids and carbohydrates are substances which provide the body trophicity, respectively, allow the cells of living organisms tissues to maintain specific structure needed for a normal metabolism.

Measuring the food consumption

- Net average daily food consumption per capita, expressed in calories (Cc)-content in calories of net daily average food consumption per capita; is calculated according to: $Cc = (ADC * cc)/1000$ where: cc = the number of calories contained in 1000 grams alimentary product, edible part.
- Net average daily food consumption per capita, expressed in proteins (Cp)-protein content of the net daily average food consumption per capita; shall be determined as follows: $Cp = (ADC * cp)/1000$ where: cp= the number of proteins contained in 1000 grams alimentary product, edible part.
- Net average daily food consumption per capita, expressed in lipids (Cl)-the content of lipids of net average daily food consumption per capita; shall be determined according to: $Cl = (ADC * cl)/1000$ where: cl represents average content in fat to 1000 grams alimentary product, the edible part.

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- Net average daily food consumption per capita, expressed in carbohydrates (Cg)-the content of glucides (carbohydrates) of net average daily food consumption per capita; shall be determined on the basis of the following relationships: $Cg = (ADC * cg)/1000$ where: cg represents average content in carbohydrates to 1000 grams, the edible part.

The formulas, which can calculate these indicators are:

For arithmetic mean $\bar{x} = \frac{\sum xi}{n}$; where:

X = the arithmetical moving average; Xi = average production values on a number of years (i); n = number of years taken into account.

The average annual rate of increase $= r_{2000-2008} = \sqrt[n]{\prod (p1/p0)} - 1$;

For the standard deviation $\hat{\sigma} = \sqrt{\frac{\sum(\bar{x}-xi)^2}{n-1}}$; where:

$\hat{\sigma}$ = standard deviation; xi = average production values on a number of years; n = number of years taken into account

For mean square deviation $\hat{\sigma}_x = \sqrt{\frac{\sum(\bar{x}-xi)^2}{n(n-1)}}$; where:

$\hat{\sigma}_x$ = mean square deviation;

Coefficient of variation $= C = \frac{\hat{\sigma}}{\bar{X}} \times 100$ where:

C = coefficient of variation (express in percentages)

Coefficient of variation can be: 0-10% variation- small variation; between 10-20%- middle variation; more than 20%- high variation

The data used had as source: Statistical Yearbook of Romania, INS, data in the literature.

RESULTS AND DISCUSSIONS

1. Comparison between the evolution of food consumption in 2001-2006 and the period 2007-2014 at the country level.

As it can be seen from table 1, the number of total calories at the country level, for the period 2001-2006 falls within the boundaries of 2449 and 2521 calories, with an average of 2484 calories, with a declining annual rate and a coefficient of variation showing very small oscillations between data.

Table No. 1. The main indicators characterizing the evolution of food consumption in the period 2001-2006 COUNTRY-level

| Components expressed in calories and nutritional factors | MU | 2001-2006 | | | | | | |
|--|-----------|-----------|------|---------|-------------|--------------|--------------|---------------|
| | | min | max | average | annual rate | St. Dev. (σ) | Coef of var. | |
| | | UM | UM | UM | % | UM | % | signification |
| Total CALORIES: | No | 2449 | 2521 | 2484.0 | -0.3 | 23.6 | 0.95 | <i>small</i> |
| of vegetal origin | No | 1876 | 1967 | 1929.0 | -0.8 | 32.2 | 1.67 | <i>small</i> |
| of animal origin | No | 534 | 573 | 555.0 | 1.4 | 17.5 | 3.15 | <i>small</i> |
| Total PROTEIN of which: | GR | 78.7 | 80.7 | 80.0 | 0.4 | 0.9 | 1.08 | <i>small</i> |
| of vegetable origin | GR | 44.2 | 46.9 | 45.9 | -1.1 | 1.0 | 2.27 | <i>small</i> |
| of animal origin | GR | 31.9 | 36.2 | 34.1 | 2.6 | 1.6 | 4.78 | <i>small</i> |
| Total LIPIDS of which: | GR | 79.5 | 82 | 81.1 | 0.6 | 1.2 | 1.52 | <i>small</i> |
| of vegetable origin | GR | 41.5 | 42.5 | 42.0 | 0.1 | 0.4 | 0.84 | <i>small</i> |
| of animal origin | GR | 37.7 | 40.4 | 39.1 | 1.1 | 1.2 | 2.94 | <i>small</i> |
| Total CARBOHYDRATES | GR | 319.3 | 335 | 329.1 | -0.9 | 5.7 | 1.74 | <i>small</i> |

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Proteins, also for the period 2001-2006, are located around the average of 80 grams of which 28.5 grams are of vegetable origin and 34.1 grams of animal origin, with small variations per year. Lipids, as in the case of proteins have a higher share of vegetable origin, i.e. an average per year of 42 grams of 82.1 total and 39.1 grams of animal origin, and total carbohydrates are between 319.3 grams and 335 grams, the annual rate being of decrease, -0.9%.

Table No. 2. The main indicators characterizing the evolution of food consumption in the period 2007-2014 at the country level

| Components expressed in calories and nutritional factors | The period 2007-2014 | | | | | | |
|--|----------------------|-------|---------|-------------|-----------------------|--------------|---------------|
| | min | max | average | annual rate | St. Dev. (σ) | Coef of var. | |
| | MU | MU | MU | % | MU | % | signification |
| Total CALORIES: | 2400 | 2487 | 2438.9 | -0.35 | 31.6 | 1.29 | <i>small</i> |
| of vegetable origin | 1783 | 1873 | 1822.9 | -0.65 | 30.9 | 1.70 | <i>small</i> |
| of animal origin | 600 | 623.6 | 616.1 | 0.55 | 4.6 | 0.75 | <i>small</i> |
| Total PROTEIN of which: | 80.7 | 83.1 | 81.6 | -0.14 | 0.8 | 0.98 | <i>small</i> |
| of vegetable origin | 40.7 | 43.6 | 41.9 | -0.98 | 0.8 | 1.84 | <i>small</i> |
| of animal origin | 38.2 | 40.3 | 39.7 | 0.77 | 0.4 | 1.07 | <i>small</i> |
| Total LIPIDS of which: | 82.8 | 85.2 | 84.0 | 0.20 | 0.8 | 0.98 | <i>small</i> |
| of vegetable origin | 40.3 | 42.2 | 41.3 | -0.14 | 0.6 | 1.54 | <i>small</i> |
| of animal origin | 41.8 | 43.3 | 42.7 | 0.50 | 0.3 | 0.74 | <i>small</i> |
| Total CARBOHYDRATES | 302 | 318.8 | 309.4 | -0.77 | 5.4 | 1.75 | <i>small</i> |

Processed: INS, accessed may 2015 Online TEMPO , BUF112I

With respect to the period 2007-2014, the indicators characterizing the food consumption at the country level, show the next situation:

- the total number of calories varies very little around the average of 2438.9, the annual rate being of decrease, -0.35%, standard deviation of 19.6 calories. It can be noticed a decrease in calories relative to the period 2001-2006.
- Compared to the first period surveyed, the protein number increased at 80 grams, years average at 81.6 for 2007-2014, raising in particular the share of animal proteins.
- We can observe an increase also at the number of lipids, at 84 grams, the media in particular increasing at animal origin lipids.
- Carbohydrates are the ones that fell, the average showing almost 20 carbohydrates grams less in food consumption.

Table No. 3. The main indicators characterizing the evolution of food consumption in comparison between 2001-2006 and 2007-2014 at the country level

| Components expressed in calories and nutritional factors | Deviations (+/-) period (2007-2013)-(2001-2006) | | | | | | | |
|--|---|-------------------|---------|-------------|-----------------------|--------------|--------------|--------------|
| | Average 2001-2006 | Average 2007-2014 | Average | Annual rate | St. Dev. (σ) | Coef of var. | tcal/average | significance |
| | UM | UM | UM | % | UM | % | | |
| Total CALORIES: | 2484.0 | 2438.9 | -45.1 | -0.06 | 8.0 | 0.3 | 1.94 | N |
| of vegetable origin | 1929.0 | 1822.9 | -106.2 | 0.13 | -1.3 | 0.0 | 5.05 | *** |
| of animal origin | 555.0 | 616.1 | 61.1 | -0.87 | -12.8 | -2.4 | 6.26 | *** |
| Total PROTEIN out of which: | 80.0 | 81.6 | 1.7 | -0.57 | -0.1 | -0.1 | 0.46 | N |
| of vegetable origin | 45.9 | 41.9 | -4.0 | 0.16 | -0.3 | -0.4 | 1.44 | N |
| of animal origin | 34.0 | 39.7 | 5.6 | -1.79 | -1.2 | -3.7 | 2.37 | * |
| Total LIPIDS of which: | 81.1 | 84.0 | 3.0 | -0.42 | -0.4 | -0.5 | 0.80 | N |
| of vegetable origin | 42.0 | 41.3 | -0.7 | -0.28 | 0.3 | 0.7 | 0.27 | N |
| of animal origin | 39.1 | 42.7 | 3.6 | -0.64 | -0.8 | -2.2 | 1.42 | N |
| Total CARBOHYDRATES | 329.1 | 309.4 | -19.7 | 0.10 | -0.3 | 0.0 | 2.57 | * |

Processed: INS, accessed may 2015 Online TEMPO , BUF112; t_{teor} (0.001:4.31; 0.01:3.05; 0.05:2.17); GL = 12

As table 3 shows, the differences between the two periods are quite high, dropping the number of calories with 45.1, the large differences can be observed at the calories of vegetable origin, growing the interest for the animal origin for both protein and lipids.

2. Trends in food consumption in comparison between the period 2001-2006 and 2007-2014 at the URBAN residence level

As regards the indicators characterizing the evolution of food consumption at the urban level, the analysis can be seen in the following three tables.

Thus, table 4 characterizes food consumption for the period 2001-2006 in urban environments, where it becomes evident that:

- Towards the level of the country, urban areas consume fewer calories per capita, an average of 2385.7 for this period, where the maximum reaches at 2410 calories, with an slow annual rate of increase of 0.1% variation between the data is small $c\% = 0.72\%$;

Table No. 4. The main indicators characterizing the evolution of food consumption in the period 2001-2006 in URBAN area

| Components expressed in calories and nutritional factors | UM | 2001-2006 | | | | | | |
|--|-----------|-----------|-------|---------|-------------|--------------|--------------|--------------|
| | | min | max | average | annual rate | St. Dev. (σ) | Coef of var. | |
| | | MU | MU | MU | % | UM | % | MU |
| Total CALORIES: | No | 2357 | 2410 | 2385.7 | 0.1 | 17.3 | 0.72 | <i>small</i> |
| of vegetal origin | No | 1819 | 1881 | 1852.7 | -0.6 | 22.6 | 1.22 | <i>small</i> |
| of animal origin | No | 505 | 567 | 533.0 | 2.3 | 23.4 | 4.40 | <i>small</i> |
| Total PROTEIN out of which: | GR | 75.2 | 78.6 | 77.0 | 0.9 | 1.4 | 1.81 | <i>small</i> |
| of vegetal origin | GR | 41.2 | 43.5 | 42.6 | -1.1 | 0.9 | 2.04 | <i>small</i> |
| of animal origin | GR | 31.7 | 37.4 | 34.4 | 3.4 | 2.1 | 6.07 | <i>small</i> |
| Total LIPIDS of which: | GR | 79.9 | 83.6 | 81.6 | 0.9 | 1.4 | 1.74 | <i>small</i> |
| of vegetal origin | GR | 44 | 45 | 44.6 | -0.2 | 0.4 | 0.85 | <i>small</i> |
| of animal origin | GR | 35.2 | 39.1 | 37.0 | 2.1 | 1.4 | 3.91 | <i>small</i> |
| Total CARBOHYDRATES | GR | 303.8 | 314.9 | 310.3 | -0.7 | 4.1 | 1.32 | <i>small</i> |

Processed: INS, accessed may 2015 Online TEMPO , BUF112I

- The average number of protein consumed is of 77 grams, of which over half are of vegetable origin, 42.6 grams and 34.4 grams of animal grams;
- In total, is consumed for this period, approximately 50.7 grams of lipids, as well as the preference is for the vegetable origin, but the rate is of decline;
- It should be noted also the total number of carbohydrates consumed, so that the average of 310.3 grams is smaller than the total country, showing a decrease in the consumption of carbohydrates.

Table No. 5. The main indicators characterizing the evolution of food consumption in the period 2007-2013 in URBAN

| Components expressed in calories and nutritional factors | The period 2007-2014 | | | | | | |
|--|----------------------|--------|---------|-------------|--------------|--------------|--------------|
| | min | max | average | annual rate | St. Dev. (σ) | Coef of var. | |
| | MU | MU | MU | % | UM | % | MU |
| Total CALORIES: | 2340 | 2442.4 | 2390.9 | -0.15 | 34.3 | 1.44 | <i>small</i> |
| of vegetable origin | 1738 | 1817.1 | 1774.8 | -0.44 | 27.3 | 1.54 | <i>small</i> |
| of animal origin | 598 | 629.6 | 616.1 | 0.68 | 10.3 | 1.68 | <i>small</i> |

| | | | | | | | |
|--------------------------------|-------|-------|-------|-------|-----|------|--------------|
| Total PROTEIN of which: | 78.8 | 82.4 | 80.5 | 0.02 | 1.1 | 1.38 | <i>small</i> |
| of vegetable origin | 38.5 | 40.5 | 39.5 | -0.72 | 0.6 | 1.52 | <i>small</i> |
| of animal origin | 39.7 | 42.2 | 41.1 | 0.74 | 0.7 | 1.80 | <i>small</i> |
| Total LIPIDS of which: | 83 | 87 | 85.3 | 0.20 | 1.3 | 1.58 | <i>small</i> |
| of vegetable origin | 41.9 | 44 | 43.1 | -0.23 | 0.8 | 1.83 | <i>small</i> |
| of animal origin | 41 | 43.1 | 42.2 | 0.65 | 0.7 | 1.70 | <i>small</i> |
| Total CARBOHYDRATES | 292.3 | 304.7 | 298.1 | -0.45 | 4.4 | 1.48 | <i>small</i> |

Processed: INS, accessed may 2015 Online TEMPO , BUF112I

The period 2007-2014 represented a period of profound economic and administrative changes, of course, with repercussions on the food consumption.

The total number of calories consumed per day in the urban area is oscillating between 2340 calories and 2442.4 calories, with an average of 2390.9 calories, the annual rate is of decrease -0.15%, while the variation is small, 1.44%.

The protein consumption expressed in grams is situated within the limits of 78.8 grams and 82.4 grams with an average of 80.5 grams, of which over half are those of animal origin 41.1 and 39.5 grams protein of vegetal origin.

The proportion of lipids of different origins is similar, from 85.3 grams, 43.1 grams are of vegetal origin and 42.2 grams of animal origin. The vegetal origin lipids are dropping, with an annual rate of -0.23%. The carbohydrates grams make for a day an average of 298.1 grams for the period 2007-2014, with variations between 292.3 grams and 304.7 grams.

Table 6. The main indicators characterizing the evolution of food consumption in comparison between 2001-2006 and 2007-2014 period in the URBAN area

| Components expressed in calories and nutritional factors | Deviations (+/-) period (2007-2013)-(2001-2006) | | | | | | | |
|--|---|-------------------|------------|-------------|--------------|--------------|--------------|--------------|
| | Average 2001-2006 | Average 2007-2014 | | Annual rate | St. Dev. (σ) | Coef of var. | | |
| | MU | MU | Average MU | % | MU | % | tcal/average | significance |
| Total CALORIES: | 2385.7 | 2390.9 | 5.3 | -0.20 | 17.0 | 0.7 | 0.23 | N |
| of vegetable origin | 1852.7 | 1774.8 | -77.8 | 0.17 | 4.7 | 0.3 | 3.88 | N |
| of animal origin | 533.0 | 616.1 | 83.1 | -1.66 | -13.1 | -2.7 | 8.22 | *** |
| Total PROTEIN of which: | 77.0 | 80.5 | 3.6 | -0.87 | -0.3 | -0.4 | 0.99 | N |
| of vegetable origin | 42.6 | 39.5 | -3.1 | 0.36 | -0.3 | -0.5 | 1.17 | N |
| of animal origin | 34.4 | 41.1 | 6.7 | -2.62 | -1.3 | -4.3 | 2.79 | * |
| Total LIPIDS of which: | 81.6 | 85.3 | 3.7 | -0.66 | -0.1 | -0.2 | 0.99 | N |
| of vegetable origin | 44.6 | 43.1 | -1.5 | -0.05 | 0.4 | 1.0 | 0.55 | N |
| of animal origin | 37.0 | 42.2 | 5.2 | -1.48 | -0.7 | -2.2 | 2.08 | N |
| Total CARBOHYDRATES | 310.3 | 298.1 | -12.2 | 0.23 | 0.3 | 0.2 | 1.66 | N |

Processed: INS, accessed may 2015 Online TEMPO , BUF112I $t_{\text{teor}} (0.001:4.31; 0.01:3.05; 0.05:2.17)$; GL = 12

Table 6 shows the evolution of food consumption compared between the two periods, 2001-2006 and 2007-2014 where it is noticed:

- it has increased the total number of calories with 5.3 calorie difference between the two periods, of which has decreased the vegetal origin calories with 77.8 calories and increased consumption of animal origin calories with 83.1 calories;
- in the case of proteins, an increase of 3.6 grams can be observed, being preferred the animal origin protein at the expense of those of vegetal origin;
- also has increased the consumption of lipids with 3.7 grams per capita, while maintaining the growth of animal origins lipids with 5.2 grams and has dropped those of vegetal origin with 1.5 grams;
- Carbohydrates have suffered a decrease, from 310.3 grams at 298.1 grams, a decrease of 12.2.

3. The food consumption evolution in comparison between the period 2001-2006 and 2007-2014 at the RURAL residence level.

We have also characterized the indicators that characterize food consumption in rural areas, both for the period 2001-2006 and for the period 2007-2014.

So table 7 outlines the evolution of food consumption for the period 2001-2006 where we find that the total number of calories consumed per day was between 2643 and 2526 calories, with an average of 2597.2 calories, the variation being determined by the coefficient of variation, namely 1.53%, representing a small variation.

Of this total number of calories, the vegetal origin ones occupies a share of over 77%, namely 2017 calories.

Table No. 7. The main indicators characterizing the evolution of food consumption in the period 2001-2006 in the RURAL area

| Components expressed in calories and nutritional factors | MU | 2001-2006 | | | | | | |
|--|-----------|-----------|-------|---------|-------------|--------------|--------------|--------------|
| | | min | max | average | annual rate | St. Dev. (σ) | Coef of var. | |
| | | MU | MU | MU | % | MU | % | MU |
| Total CALORIES: | No | 2526 | 2643 | 2597.2 | -0.6 | 39.8 | 1.53 | <i>small</i> |
| of vegetable origin | No | 1946 | 2061 | 2017.0 | -0.9 | 42.8 | 2.12 | <i>small</i> |
| of animal origin | No | 562 | 603 | 580.2 | 0.5 | 14.9 | 2.58 | <i>small</i> |
| Total PROTEIN of which: | GR | 82.5 | 84.5 | 83.4 | 0.0 | 0.7 | 0.88 | <i>small</i> |
| of vegetable origin | GR | 47.8 | 50.9 | 49.8 | -1.1 | 1.2 | 2.44 | <i>small</i> |
| of animal origin | GR | 32.1 | 34.7 | 33.6 | 1.6 | 1.1 | 3.30 | <i>small</i> |
| Total LIPIDS of which: | GR | 78.9 | 82.3 | 80.4 | 0.3 | 1.4 | 1.69 | <i>small</i> |
| of vegetable origin | GR | 38.3 | 39.7 | 39.0 | 0.4 | 0.5 | 1.27 | <i>small</i> |
| of animal origin | GR | 40.2 | 43.7 | 41.5 | 0.1 | 1.3 | 3.02 | <i>small</i> |
| Total CARBOHYDRATES | GR | 338.1 | 357.1 | 350.8 | -1.0 | 7.4 | 2.10 | <i>small</i> |

Processed: INS, accessed may 2015 Online TEMPO, BUF112I

The protein grams have an average of 83.4, with a greater appreciation of vegetal origin, having a share of 59.7% of total proteins.

In exchange, the lipids consumption, with an average of 80.4 grams, is divided into 39 grams of vegetal origin and 41.5 grams of animal origin. Carbohydrate consumption lies at 350.8 grams, oscillating between the limits of 338.1 grams and 357.1 grams.

Table No. 8. The main indicators characterizing the evolution of food consumption in the period 2007-2014 in the RURAL area.

| Components expressed in calories and nutritional factors | The period 2007-2014 | | | | | | |
|--|----------------------|-------|---------|-------------|-------------|--------------|--------------|
| | min | Max | Average | annual rate | St. Dev.(σ) | Coef of var. | |
| | MU | MU | MU | % | MU | % | significance |
| Total CALORIES: | 2443 | 2554 | 2497.0 | -0.59 | 33.8 | 1.35 | <i>small</i> |
| of vegetable origin | 1828 | 1952 | 1881.1 | -0.91 | 37.2 | 1.98 | <i>small</i> |
| of animal origin | 602 | 629.7 | 616.0 | 0.41 | 5.9 | 0.97 | <i>small</i> |
| Total PROTEIN of which: | 81.8 | 83.9 | 82.9 | -0.33 | 0.7 | 0.84 | <i>small</i> |
| of vegetable origin | 43.3 | 47.3 | 45.0 | -1.25 | 1.0 | 2.27 | <i>small</i> |
| of animal origin | 36.5 | 38.8 | 38.0 | 0.80 | 0.4 | 1.13 | <i>small</i> |
| Total LIPIDS of which: | 81.8 | 83.2 | 82.5 | 0.19 | 0.4 | 0.53 | <i>small</i> |
| of vegetable origin | 38.4 | 40 | 39.2 | 0.00 | 0.5 | 1.32 | <i>small</i> |
| of animal origin | 42.5 | 44.2 | 43.4 | 0.37 | 0.4 | 0.98 | <i>small</i> |
| Total CARBOHYDRATES | 311.6 | 337.7 | 323.2 | -1.14 | 7.0 | 2.17 | <i>small</i> |

Processed: INS, accessed may 2015 Online TEMPO, BUF112I

Along with the changes our country has passed, it has been affected also the food consumption in rural areas, so that for the period 2007-2014, the number of calories was located between 2443 and 2554 calories, with an annual rate of decrease of -0.59% change in data being small, $c\% = 1.35\%$. Protein consumption were at 51.5 grams, slightly increasing the animal origin one, at the expense of proteins of vegetal origin. In addition, has increased the consumption of animal fats, with a growth rate of 0.37%, while carbohydrates decreased, with -1.14% annually, with an average of 323.2 grams.

Table nr 9. The main indicators characterizing the evolution of food consumption in comparison between 2001-2006 and the 2007-2014 period at the RURAL level residence

| Components expressed in calories and nutritional factors | Deviations (+/-) period (2007-2013)-(2001-2006) | | | | | | | |
|--|---|-------------------|---------|-------------|--------------|--------------|--------------|--------------|
| | Average 2001-2006 | Average 2007-2014 | Average | Annual rate | St. Dev. (σ) | Coef of var. | tcal/average | significance |
| | MU | MU | MU | % | MU | % | | |
| Total CALORIES: | 2597.2 | 2497.0 | -100.1 | 0.03 | -6.0 | -0.2 | 4.17 | ** |
| of vegetable origin | 2017.0 | 1881.1 | -135.9 | 0.02 | -5.6 | -0.1 | 6.02 | *** |
| of animal origin | 580.2 | 616.0 | 35.8 | -0.08 | -9.0 | -1.6 | 3.56 | * |
| Total PROTEIN of which: | 83.4 | 82.9 | -0.4 | -0.28 | 0.0 | 0.0 | 0.12 | N |
| of vegetable origin | 49.8 | 45.0 | -4.8 | -0.12 | -0.2 | -0.2 | 1.66 | N |
| of animal origin | 33.6 | 38.0 | 4.4 | -0.77 | -0.7 | -2.2 | 1.86 | N |
| Total LIPIDS of which: | 80.4 | 82.5 | 2.1 | -0.09 | -0.9 | -1.2 | 0.57 | N |
| of vegetable origin | 39.0 | 39.2 | 0.2 | -0.41 | 0.0 | 0.1 | 0.09 | N |
| of animal origin | 41.5 | 43.4 | 1.9 | 0.22 | -0.8 | -2.0 | 0.71 | N |
| Total CARBOHYDRATES | 350.8 | 323.2 | -27.6 | -0.14 | -0.3 | 0.1 | 3.44 | ** |

Processed: INS, accessed may 2015 Online TEMPO, BUF112I Jason t (0.001:4.31; 0.01:3.05; 0.05:2.17); GL = 12

Comparisons between the two periods for rural areas, demonstrate a decrease in calories with over 100 calories in the second period. It had decreased these calorie-number of vegetal origin increasing those of animal origin. The same trend is maintained for the proteins, where have decreased the vegetal origin one with 4.8 grams and have increased those of animal origin with 4.4 grams.

Differences in consumption of lipids are quite small, slightly increases with 2.1 grams, especially those of animal origin.

A bigger difference can be seen in the consumption of carbohydrates, 16.8 grams, with the rate of the decline being of 0.14%.

CONCLUSIONS

The food consumption characterization per capita per day for the two periods reflected changes taking into account the intense economic differences caused by the economic crisis.

For the period 2001-2006- the country-level presents a number of calories around the average 2484, having an annual rate declining. Proteins are located around the average of 80 grams, the average of years for lipids of 42 grams and total carbohydrates are between 319.3 grams and 335 grams, the annual rate being in decline.

The period 2007-2014,- country-level the total number of calories varies very little around the average of 2438.9, the annual rhythm being of decrease. Proteins have an average of 81.6 grams, lipids revolve around 84 grams and carbohydrates are the ones that fell, the average pointing nearly 20 fewer carbohydrates in the persons food consumption. The differences between the two periods are quite high, dropping the number of calories with 45.1, high differences can be observed at the calories of vegetal origin, growing interest for the animal for both total protein and lipids.

2001-2006 -Urban level. Compared to the country level, in urban areas are consumed fewer calories per capita, an average of 2385.7.

The period 2007-2014 at Urban level when the total number of calories consumed per day are oscillating between 2340 calories and 2442.4 calories with an average of 2390.9 calories.

Between the two periods are observed differences, i.e. have decreased the calories of vegetal origin with 77.8 calories and increased consumption of animal origin calories with 83.1.

The total number of calories consumed daily in **the period 2001-2006, in Rural areas**, it was located between 2643 and 2526 calories, with an average of 2597.2 calories. Of this total number of calories, the vegetal origin calories occupie a share of over 77%, namely 2017 calories.

The calories number for **the period 2007-2014, in Rural areas**, it was located between 2443 and 2554 calories, with an annual rate of decline.

Comparisons between the two periods for rural areas, demonstrate a decrease in calories with over 100 calories in the second period. Subtract from these calorie-number of vegetal origin increasing those of animal origin. The same trend is maintained for the proteins, have dropped the proteins of vegetal origin.

It can be concluded that in rural areas for both periods food consumption is higher in relation to food consumption in urban areas, the differences being noticed in the number of calories and carbohydrates, important to note the fact that in urban areas has increased the number of grams of protein of vegetal origin, the orientation towards a more balanced nutrition is more pronounced in this environment.

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