

PRODUCTION AND CONSUMPTION OF MILK IN ROMANIA. CURRENT LEVELS AND MARKET TRENDS

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Abstract. This paper aims at underlying a set of trends within the market chain of milk and milk derivatives, at national level in the period 2007-2012, on the data available within the National Institute of Statistics. The analysis highlights the following: the trend of milk production increase, simultaneously with the available production levels and the target to industrial transformation, which shows a decrease of the consumption availability. Foreign trade is characterized by an increase while the import records a higher pace than exports.

Keywords: available production, production potential, resources/uses, domestic consumption availability, industrial processing, foreign trade (import/export), average annual gross/net consumption, calories/categories of nutrient factors (proteins, glucides and lipids).

1. Introduction

This paper aims to emphasize the production and consumption trends in dairy products/ milk derivatives, which display significant variations at national level.

The use of synthetic markers and derivatives, present in the period 2007-2012 annual structure, the description of the levels of these markers, supplemented by appropriate comparative forms highlights the following: the trend of milk production increase, simultaneously with the available production levels and the target to industrial transformation, which shows a decrease of the consumption availability; foreign trade is characterized by an increase while the import records a higher pace than exports; average annual and daily food consumption shows variations and a

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decreasing rate. Analysis of the evolutionary form: production→use→consumption which aims at the correction/ alignment to the evolutionary system of the EU chain.

2. Materials and Methods

This paper aims at underlying a set of trends within the market chain of milk and milk derivatives. The approach to this problem required the use of some specific markers (synthetic and derivatives) that bring to the fore and present the problems specific to the market chain at national level in the period 2007-2012. The computation basis consisted of the data available within the National Institute of Statistics, by means of which the quantitative representation of the values for milk/ dairy derivatives was equated with 3.5% fat milk. Highlighting the level of the markers was performed on the basis of processing and interpreting the most recent data and information, establishing the result of a mainly statistical market research. [2, 3]

The research started from the presence of annual differences for milk which were based on an evolutionary form production→use→consumption. In the methodology employed, based on their contents, the database focused on¹: medium consumption (the value of the goods and services which are either processed, or entirely consumed during the production process); available production (the quantities of primary products obtained during the reference period, including the quantities used by the producers from their own production, self-consumption, and/or the quantities of processed products, excluding the waste of the production process); domestic consumption availabilities (the quantities of food products available for the domestic consumption adjusted to the stocks variation), of which the available human consumption (the quantities of food products available for use in the population's food consumption during the reference period, both as primary products and as processed products, irrespective of the supply source); foreign trade (import/export); industrial processing (the quantities of products used in the industry in order to obtain a food derivative and for which a food balance is established separately from the primary product balance).

Methodologically, synthetic and derivative markers were expressed at quantitative and percentage level and the annual levels were monitored by means of comparative forms in the sequence of years. The comparative forms were expressed at the level of 2007, the sequence of years and the period average. [5]

Within this paper the following statistical markers were used: arithmetic mean, standard deviation, variance inflation factor and the statistical representation of these markers.

The formulas used for the calculus of these markers are presented hereafter [1, 2]:

For arithmetic mean:

¹Definitions according to Food and Agriculture Organization and Eurostat methodology, presented in Food Balances, National Institute of Statistics, 2008-2013

$$\bar{x} = \frac{\sum xi}{n} \quad (1)$$

where:

n = the number of years taken into consideration

For the annual average rate of growth [3, 4]:

$$r_{2007-2012} = [\prod (p_1 / p_0) / (n - 1)]^{(1/n)} \quad (2)$$

where:

$r_{2007-2012}$ = annual average rate of growth; $\prod (p_1/p_0)$ = markers for chain-linked growth

For standard deviation:

$$\delta = \sqrt{\frac{\sum (\bar{x} - xi)^2}{n - 1}} \quad (3)$$

where:

M = standard deviation;

xi = the values of the average productions per a number of years;

n = the number of years taken into consideration

For the variance inflation factor:

$$C = \frac{\delta}{\bar{X}} \times 100 \quad (4)$$

where:

C = variance inflation factor (expressed in percentages)

The variance inflation factor can be: between 0-10% - low variation; between 10-20% - medium variation; over 20% - high variation.

The analysis of the comparative levels of supplementary consumptions was enhanced by the markers for the annual and daily total consumption levels. By means of the used markers, we observed the qualitative changes of the food consumption model, with particular references to knowing the quantities of the nutrient principles of the diet and, within this diet, of the proteins of animal origin.

By means of the methodological approach, we investigated the various forms of interpretation, by knowing the factors, with reference to their structure and trends.

3. Results and Discussion

The approach to the problem was structured tridimensionally as follows: production potential, medium consumption and foreign trade, food consumption, and their comparative level, respectively.

3.1. The potential of milk production and consumption availability

The volume of milk production is inseparably connected to the actual number of bovines, with particular reference to the categories of cows, buffalo cows and heifers. At organizational level, the volume of raw milk quantities taken over from the milk processing centers is in close correlation with the productions at the level of farms or the dairy primary production businesses. This raises questions about knowing the production potential expressed by means of the actual number of animals producing milk in Romania. The structure was rendered through the values of the markers presented in Table 1, emphasizing the aspects resulting from both the actual total and the number of animals per 100 ha, the annual level and the comparisons pointing up the following:

Table 1. Production potential for milk production in Romania
(actual number of cows, buffalo cows and heifers) [4, 5, 6]

<i>Specification</i>	<i>UM.</i>	2007	2008	2009	2010	2011	2012	<i>Average/ pace</i>	<i>Standard deviation</i>	<i>Variance inflation factor (%)</i>
Actual total of cows, buffalo cows and heifers	number thousands	1732	1639	1569	1299	1266	1265	1461.7	209.5	14.3
	in regard to previous year	-	0.95	0.96	0.83	0.97	1.00	-6.09	x	x
	% in regard to 2007	100	94.63	90.58	75	73.09	73.03	x	x	x
	% in regard to period average	118.49	112.13	107.34	88.87	86.61	86.54	x	x	x
Number of animals (cows, buffalo cows and heifers) per 100 ha. of land	number	21.4	20.4	19.1	14.6	14.7	14.8	17.5	3.2	18.0
	% in regard to previous year	-	0.95	0.94	0.76	1.01	1.01	-7.11	x	x
	% in regard to 2007	98.61	94	88.01	67.28	67.74	68.2	x	x	x
	% in regard to period average	122.28	116.57	109.14	83.42	84	84.57	x	x	x

- the analyzed dynamics point up an annual variation, the annual milk productions being in a decreasing trend. This situation is significant on the basis of the comparison between 2007 and the period average, that the minimum level of the last year, 2012, is 73.03% and 86.54%, respectively.

- a comparison with the number of animals (with reference to the categories of cows, buffalo cows and heifers) per 100 ha. points up the same regress, the minimum levels being of 67.28% in 2010 compared to 2007, and 84.00% in 2012 in regard to the period average;

- in regard to the average pace, we can observe negative values (-6.09 and -7.11), that the variance inflation shows a medium variation (10-20%), the fluctuations being of 14.3 from the actual number of cows, buffalo cows and heifers and of 16.0 from the number of animals (cows, buffalo cows and heifers) per 100 ha. of land.

We can notice that the production potential displays a decreasing trend, which is going to have consequences on the volume of obtained production. Thus, the volume of the quantities of milk products obtained in the processing units is characterized by the variation of its level along the years of the analyzed dynamics, to which we added the quantities of received raw milk which are not always determined. This is due to the fact that there is a tight correlation between the production level of the farms or dairy primary production businesses and the actual record system that they practice (references can be mainly made to the shortcomings of the records and the self-consumption of the milk productions).

In time, the dynamics of the available milk production, the uses, the domestic consumption availabilities and the human consumption availabilities, represented in Table 2, point up the following annual levels:

Table 2. Available production and consumption availability for milk in Romania [5, 6]

Specification	UM	2007	2008	2009	2010	2011	2012	Average/ pace	Standard deviation	Variance inflation factor (%)
Available production	thousands of hl.	65373	64923	62195	55434	56201	54638	59794.0	4933.6	8.3
	in regard to previous year	-	0.99	0.96	0.89	1.01	0.97	-3.69	x	x
	% in regard to 2007	100	99.31	95.13	84.79	85.96	83.57	x	x	x
	% in regard to period average	109.33	108.57	104.01	92.7	93.99	91.37	x	x	x
Uses	Thousands of hl.	67904	68304	66634	59759	61270	59415	63881.0	4173.2	6.5
	in regard to previous year	-	1.01	0.98	0.9	1.03	0.97	-2.30	x	x
	% in regard to 2007	100	100.58	98.12	88	90.23	87.49	x	x	x
	% in regard to period average	106.29	106.92	104.31	93.54	95.91	93	x	x	x

Domestic consumption availability	thousands of hl.	67563	67883	65988	58875	60340	58241	63148.3	4476.6	7.1
	in regard to previous year	-	1	0.97	0.89	1.02	0.97	-3.10	x	x
	% in regard to 2007	100	100.47	97.66	87.14	89.3	86.2	x	x	x
	% in regard to period average	106.99	107.49	104.49	93.23	95.55	92.22	x	x	x
Human consumption availability	thousands of hl.	54445	54761	50063	47998	48616	46952	50472.5	3355.7	6.6
	in regard to previous year	-	1.01	0.91	0.96	1.01	0.97	-2.87	x	x
	% in regard to 2007	100	100.58	91.95	88.15	89.29	86.23	x	x	x
	% in regard to period average	107.87	108.49	99.18	95.09	96.32	93.02	x	x	x

- the available production records annual decreases as follows, in 2012, -2.79% decrease in regard to the sequence of the previous years; in regard to 2007 the decrease is -16.43%; and in regard to the period average it is -8.03 %;

- the uses follow the same decreasing trend, the levels of the previous year showing negative differences;

- the domestic consumption availabilities, and the human consumption availability as well are triggered by the paces of this diminution which are correlated;

- from the statistical representation regarding the average pace of the annual variations, we can notice recordings of negative values (between -3.69 and -2.30).

The variance inflation factor (as marker of spreading) shows the existence of a low variation (0-10%), which lays between 6.5 (for uses) and 8.3 (for the available production).

This leads us to the deduction that the level of the actual number can be associated with certain forms of renunciation of milk bovines breeding, expressed by means of the evolutionary level of the markers, observing a decrease of the production availabilities and of the consumption availability. An important role, at least at declarative level, was played by the consequences of a laborious system for the elaboration of the records imposed by the application of the milk quota.

3.2. Medium consumption and foreign trade of milk in Romania

The specific medium consumption for the milk production is indicated by the milk quantities considered as fodder (food for calves) and the industrial processing (with special reference to the dairy products resulted from the processing processes), therefore those products which are either processed, or consumed during the production process.

We can emphasize the following problems from the data presented in Table 3 according to the 2007-2012 dynamics:

Table 3. (Total, Fodder and Industrial processing) medium consumptions for milk in Romania [6]

Specification	UM	2007	2008	2009	2010	2011	2012	Average/ pace	Standard deviation	Variance inflation factor (%)
Total medium consumption	thousands of hl.	7619	7704	9602	6696	6746	6516	7480.5	1153.7	15.4
	in regard to previous year	-	1.01	1.25	0.7	1.01	0.97	-2.84	x	x
	% in regard to 2007	100	101.11	126.02	87.88	88.54	85.52	x	x	x
	% in regard to period average	101.85	102.98	128.36	89.51	90.18	87.1	x	x	x
Fodder consumption	thousands of hl.	6058	6319	7852	4922	4762	4633	5757.7	1244.7	21.6
	in regard to previous year	-	1.04	1.24	0.63	0.97	0.97	-5.23	x	x
	% in regard to 2007	100	104.3	129.61	81.24	78.6	76.47	x	x	x
	% in regard to period average	105.21	109.749	136.37	85.48	82.7	80.46	x	x	x
Industrial processing	thousands of hl.	1561	1385	1750	1774	1984	1883	1722.8	218.0	12.7
	in regard to previous year	-	0.89	1.26	1.01	1.12	0.95	3.80	x	x
	% in regard to 2007	100	88.72	112.1	113.64	127.09	120.62	x	x	x
	% in regard to period average	90.6	80.39	101.57	102.97	115.15	109.29	x	x	x

- the total medium consumption within the analyzed dynamics shows a period of increase, 2007-2009, afterwards, during the next period, 2010-2012, this level decreases. Comparisons with the previous year, 2007 and the period average confirm these variations rendered in percentages;

- the fodder consumption (with reference to the calves' consumption) maintains the same trend in the annual evolution, the level of these consumptions being correlated with the number of animals;

- regarding the industrial milk processing, we can observe the maintenance of the annual variations, but also an increasing trend. The comparisons with the previous year in three of the mentioned years exceed the previous years, in the case of 2012, exceeding 2007 with +20.62%, and with +9.29% in regard to the period average;

- for consumptions, the comparison with the annual paces renders positive results for the industrial processing (of +3.80), but negative for consumptions (of -2.84 for total medium consumption and of -5.23 for fodder consumption). We can also notice a differential fluctuation of the variance inflation factor which can thus be summarized: a medium variation (10-20%) for the total medium consumption (15.4%) and industrial processing (12.7%); a high variation (20-30%) for fodder consumption (21.6%).

Foreign trade, through the import/export chains is considered in the category of resources/uses, in this situation their level and trend differing from the previously analyzed consumptions. The detailed elements presented in *Table 4* analyze this problem, the following aspects being emphasized:

Table 4. Foreign trade (import/export) of milk in Romania [5]

Specification	UM	2007	2008	2009	2010	2011	2012	Average/ pace	Standard deviation	Variance inflation factor (%)
Import	thousands of hl.	2531	3381	4439	4325	5069	4777	4087.0	952.9	23.3
	in regard to previous year	-	1.34	1.31	0.97	1.17	0.94	13.37	x	x
	% in regard to 2007	100	133.58	175.38	170.88	200.27	188.74	x	x	x
	% in regard to period average	61.92	82.72	108.61	105.82	124.02	116.88	x	x	x
Export	thousands of hl.	341	421	646	884	930	1174	732.7	320.8	43.8
	in regard to previous year	-	1.23	1.53	1.37	1.05	1.26	27.81	x	x
	% in regard to 2007	100	123.46	189.44	259.23	272.72	344.28	x	x	x
	% in regard to period average	46.54	57.46	88.17	120.65	126.93	160.23	x	x	x

- the import of milk production/ milk derivatives shows an increasing annual trend, levels which analyzed by comparison signify the following enhancements: in 2010, +17.20 in regard to the previous year, in 2012 the increase is of +88.74 % in comparison with 2007 and +16.88 % in regard to the analyzed average period;

- the export of dairy products records a much lower level, which represents approx. 1/6 of the imports, but the existence of an annual trend rendered by a

much more prominent annual increasing pace. In 2007, a quantity of only 341,000 hl. was exported, and in 2012 the quantity is 1,174,000 hl. All these, analyzed by comparison represent increases which in 2012 are of +26.23% in the sequence of years, +244.28 % in regard to 2007 and +60.23 % in regard to the period average;

- related to the average pace of the foreign trade activities, we observe in the case of the variance inflation factor the existence of positive values which signify a high variation (over 20%) for import/export. But we could mention the fact that the level of export variation is much higher than that of import (the range of the values of the variance inflation factor being of 43.8% and 23.3 %, respectively).

From the analysis of the level of the average annual consumption, we can observe decreases although the total number of milk bovines is at a stable level in the past years which were analyzed. At the same time the import of milk/ dairy derivatives increases, but its pace is by far exceeded by export.

3.3. Food consumptions and the comparative level for milk in Romania

The investigations concerning food consumptions are based on the knowledge of on the one hand, the annual/daily food consumption, and on the other hand, the comparison in time and with the total level of consumption at national level, the form of analysis being expressed in nutrient principles (calories, proteins, glucides and lipids).

The average gross/net consumption for milk rendered in Table 5 emphasizes for the dynamics of the period 2007-2012 levels of the adequate markers, the following being observed:

Table 5. Average annual and daily consumption of milk in Romania [6]

<i>Specification</i>	<i>UM</i>	2007	2008	2009	2010	2011	2012	<i>Average/ pace</i>	<i>Standard deviation</i>	<i>Variance inflation factor (%)</i>
Average annual gross consumption	litres/ inhabitant	252.8	254.7	233.2	224.0	227.7	220.3	235.5	14.8	6.3
	in regard to previous year	-	1.01	0.92	0.96	1.02	0.97	-2.71	x	x
	% in regard to 2007	100.0	100.8	92.2	88.6	90.1	87.1	x	x	x
	% in regard to period average	107.4	108.2	99.0	95.1	96.7	93.6	x	x	x
Average annual net consumption	kilos/ inhabitant	260.4	262.2	240.2	230.7	234.5	226.9	242.5	15.2	6.3
	in regard to previous year	-	1.01	0.92	0.96	1.02	0.97	-2.72	x	x
	% in regard to 2007	100.0	100.7	92.2	88.6	90.1	87.1	x	x	x
	% in regard to period average	107.4	108.1	99.1	95.1	96.7	93.6	x	x	x

Average daily net consumption	grams day/ inhabitant	713.4	718.5	658.1	632.1	642.6	621.7	664.4	41.7	6.3
	in regard to previous year	-	1.01	0.92	0.96	1.02	0.97	-2.71	x	x
	% in regard to 2007	100.0	100.7	92.2	88.6	90.1	87.1	x	x	x
	% in regard to period average	107.4	108.1	99.1	95.1	96.7	93.6	x	x	x

- the average annual gross consumption of milk analyzed in the period 2007-2012, shows a variation and we can observe a decreasing pace. Thus, the comparisons of the 2012 level are of -3.25 % in regard to the sequence of years of the period, of -12.86% in regard to the basic year of 2007 and of -6.44% in regard to the average of the analyzed period;

- the average annual net consumption, which is rendered by the level of the presented markers, maintains both the annual variation and the successive decreasing trend, observing a similarity of the data;

- the average daily net consumption also records decreases whose absolute and relative variations by comparison shows the same variation and decreasing trend for the analyzed annual dynamics;

- the interpretation of the statistical representation of the average consumption per inhabitant shows a decrease, the resulting pace being negative (of -2.71 and -2.72), and the variance inflation factor shows a low variation (0-10%), the value of 6.3 being common to all the three forms of average consumption (gross, net and daily).

The analysis was deepened by knowing the consumptions through markers in physical and percentage form, in regard to the principal categories of nutrient principles, calories, proteins, glucides, and lipids, respectively. In *Table 6*, these levels are presented, where we can point up the following problems of the daily food consumption:

Table 6. The comparative level of daily food consumption of milk in Romania [5, 6]

Specification	UM	2007	2008	2009	2010	2011	2012	Average/pace	Standard deviation	Variance inflation factor (%)
Average daily food consumption, expressed in calories	number calories/ inhabitant	478	481.4	440.9	423.5	430.5	416.5	445.1	28.0	6.3
	in regard to previous year	-	1.01	0.92	0.96	1.02	0.97	-2.72	x	x
	% in regard to 2007	100	100.7	92.2	88.6	90.1	87.1	x	x	x
	% in regard to period average	107.4	108.1	99.0	95.1	96.7	93.6	x	x	x
	% in regard to total calories at national level	14.1	13.9	12.8	12.5	12.7	12.7	x	x	x
	% in regard to total calories of animal origin	50.8	50.0	47.1	48.0	50.2	49.5	x	x	x

Average daily food consumption, expressed in proteins	grams proteins/ inhabitant	25.0	25.2	23.0	22.1	22.5	21.8	23.3	1.5	6.3
	in regard to previous year	-	1.01	0.92	0.96	1.02	0.97	-2.71	x	x
	% in regard to 2007	100.0	100.7	92.2	88.6	90.1	87.1	x	x	x
	% in regard to period average	107.4	108.2	99.0	95.1	96.7	93.6	x	x	x
	% in regard to total proteins at national level	21.8	21.6	20.3	20.2	20.4	20.4	x	x	x
	% in regard to total proteins of animal origin	42.03	41.63	39.16	40.43	42.11	41.68	x	x	x
Average daily food consumption, expressed in glucides	grams glucides / inhabitant	34.2	34.5	31.6	30.3	30.8	29.8	31.9	2.0	6.3
	in regard to previous year	-	1.01	0.92	0.96	1.02	0.97	-2.71	x	x
	% in regard to 2007	100.0	100.7	92.3	88.6	90.1	87.1	x	x	x
	% in regard to period average	107.4	108.2	99.1	95.1	96.7	93.6	x	x	x
	% in regard to total glucides at national level	7.17	7.23	6.62	6.36	6.46	6.25	x	x	x
	% in regard to total glucides of animal origin	43.0	42.1	39.2	40.1	42.4	41.7	x	x	x
Average daily food consumption, expressed in lipids	grams lipids / inhabitant	25.6	25.9	23.7	22.8	23.1	22.4	23.9	1.5	6.2
	in regard to previous year	-	1.01	0.92	0.96	1.02	0.97	-2.68	x	x
	% in regard to 2007	100.0	100.9	92.4	88.8	90.2	87.3	x	x	x
	% in regard to period average	107.2	108.2	99.1	95.2	96.7	93.6	x	x	x
	% in regard to total lipids at national level	24.5	23.7	21.3	20.3	22.2	21.6	x	x	x
	% in regard to total lipids of animal origin	43.0	42.1	39.2	40.1	42.4	41.7	x	x	x

- the daily food consumption expressed in calories represents a basic marker for food safety, for this reason, the analysis of the period signifying an annual decrease (from 478.0 to 416.5 number of calories per day). This level also implies a decrease by comparison to the percentages of the previous years, to 2007 and the period average (the levels of 2012 being under the comparison limit with -3.26%, with -12.87% and 6.44%, respectively). The comparison is deepened in its comparative form in regard to the national level of calories consumption that also results in a decrease which is displayed both in regard to the total calories at national level (in percentages from 14.08% in 2007 to 12.68% in 2012), and regarding the comparison with the consumption of total calories of animal origin (in percentages from 50.79% in 2007 to 49.52% in 2012);

- the consumption expressed in proteins renders the same annual decrease (from 24.79 in 2007 to 21.76 grams of proteins/inhabitant in 2012), which determines decreases in comparison with the previous year, the basic year 2007 and the period average (which shows decreases similar to the ones

resulted from the analysis of the number of calories). The decrease is also shown by the analysis resulted from the situation of proteins consumption expressed in percentages in comparison with the total consumption at national level (the decreasing variations being for 2007 and 2012 between 21.76% and 20.41%), but also in comparison with the proteins of animal origin (the variations being decreasing for 2007 and 2012 between 42.03% and 41.68%);

- from the analysis of the consumption expressed in glucides the decrease is shown for all the analyses that were made (in absolute values the variations are between 34.24 and 29.84 grams of glucides/inhabitant). The comparisons with the sequences of years, 2007 and the period average show decreases similar to the ones resulted from the analysis of the previous consumption. The comparative representation of milk consumption in regard to the total national consumption of glucides shows decreases in percentages which vary from 7.17 % (year 2007) to 6.25 % (year 2012);

- the average daily food consumption expressed in lipids shows annual fluctuations whose variation is between 25.64 (year 2007) and 22.38 grams of lipids/inhabitant (year 2012). The comparisons made with the sequence of years, basic year 2007 and the period average, shows decreases similar to the ones resulted from the analysis of the previous consumption. The comparisons of the consumption of lipids from milk with the consumption of this nutrient factor at national level shows annual decreases which are between 24.53% (year 2007) and 21.62% (year 2012), the same decreasing trend being recorded by comparison in percentages in regard to the total consumption of lipids of animal origin where the decreases are from 43.02 % (year 2007) to 41.67 % (year 2012);

- For the analysis of the consumption of the principal categories of nutrient principles, calories, proteins, glucides and lipids, respectively, the annual paces, the standard deviation and the variance inflation factor show diminishing levels of consumption resulted from the forms of average consumption (gross, net and daily).

From the above, it results that there is decreasing food consumption, this being shown in a quantitative form in regard to the gross and net consumption, but also in a qualitative form resulting from the balance between the principal categories of nutrient factors, calories, proteins, glucides and lipids, respectively. The difference is observed as well in the pace of variations resulted from the annual levels of the markers and operations in use.

Conclusions

Romania's potential for milk and dairy products is based on the evaluation of the production potential and its target, which emphasizes the dimension of the resources and the structure of the consumptions, the following can be emphasized:

(1) Regarding the production potential, rendered by the number of cows, buffalo cows and heifers, we can observe a decreasing trend shown by the same decrease and variation of the annual levels of the annual productions of milk. The statistical interpretation shows the existence of a medium variation for the total numbers, and a low variation for production.

(2) We observe that the level of available production and the consumption decrease. This can be partially justified by the correlation which is shown in the lack of evidence and self-consumption of the milk productions. The levels of the variance inflation factor, as marker of spreading, lies within the limits of a low variation.

(3) The structure which is represented by the principal elements of the medium consumptions shows annual paces, whose levels and trends are differentiated. For instance, the quantities of milk used as fodder are decreasing, and for industrial processing we can observe increases. Statistically, we remark the existence of a differentiated fluctuation: medium variations for the total medium consumption and industrial processing, and a high variation for the fodder consumption.

(4) On the whole, foreign trade with milk/ milk derivatives shows an increasing trend, the paces being differentiated. Thus, the import records much higher than export (the levels of export being of approx. 1/6 of imports), but the pace of increase of export is much prominent than export. Related to the statistical representation of these markers we can observe that the average pace of foreign trade activities has positive values, which means a high variation. But by means of the fluctuations of the variance inflation factor, resulting in positive values, we observe a high variation for the export activities which exceed by far those of import.

(5) The annual and daily average consumption for milk/milk derivatives show variations with the trend of a decreasing pace. Regarding the annual average gross and net consumption, rendered by the level of the markers presented, we observe the maintenance of an annual variation but also the successive decreasing trend, noticing a similarity of the data level.

(6) The analysis of the comparative level of the daily food consumption for milk, expressed in calories and the principal categories of nutrient factors (proteins, glucides and lipids), by a representation in percentages of annual structures, signifies a decrease. In the statistical representation of the analysis of the average consumption per inhabitant we can also observe a decrease, the resulting pace being negative, and the variance inflation factor shows a low variation. The same representations are maintained (in regard to the diminished

levels of consumptions) also in the structure of the consumption of the principal categories of nutrient factors, calories, proteins, glucides, and lipids, respectively.

This decreasing trend is substantiated both by the results of the annual comparisons of the level of markers for milk in the dynamics and the sequence of years, of year 2007 and the period average, and also in comparison with the structure of consumptions expressed in calories and the principal categories of nutrient factors at total national level and of those of animal origin.

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