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THE EVOLUTION OF MILK PURCHASE PRICE IN ROMANIA (2012-2016)

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Abstract

The paper seeks to create an overall picture of the evolution of the milk purchase price at national and regional level for the period 2012-2016. In this respect, using a credible database (www.insse.ro), it presents the price evolution and the positioning in the context of importance for the respective product to the Romanian agricultural economy. The milk sales price recorded a national multiannual average of 1.17 lei / l, with extreme values of 0.65 lei / l in 2014 for the South West Oltenia Region and 1.68 lei / l for the year 2015 for South Muntenia Region (total amplitude variation of 1.03 lei / l). As a result, there is a need at national level to implement adequate sequential policies in the territory to support milk-producing establishments to obtain favorable marketing prices through the involvement of competent decision-makers.

Key words**:** *amplitude of variation, evolution, milk, price, absolute variation*

INTRODUCTION

Taking into consideration the fact, that milk is a strategic product for a country economy, appear the tendency to provide with sufficient quantities the population by the development of primary milk production [2]. The production of milk in value terms is situated on the second place, after meat in animal production [6].

The milk supply is conditioned by: technical factors (number and breed of cows, their yield, breeding and feeding system, disease prevention, etc.); economic factors (referring to the ratio between the milk and fodder price, the conditions for the remuneration of staff working in the dairy sector and beyond, the changes and the production structure of the dairy farm, etc.). There is still a low quality of milk supply, which is mainly determined by the quality of feed and the lack of a focus on quality and hygiene on farms. Milk quality is also negatively affected by the lack of cooling facilities at farms and collection points.

The price of a product must be regarded as a good equivalent for paid money. That does not mean it has to be the cheapest the on the market. The costumers are willing for paying more money, when something that really suits them appear [3].

Price types for agricultural / agri-food products can be structured according to several criteria. In the literature there is the following form of classification: after the stages of the chain, the prices of agricultural / agri-food products; the price system used in Romania during previous periods; the price system used in the Common Market over the years. The EU Council fixes agricultural product prices at the beginning of each year: the indicative price being considered the price at which the transaction could be made; the initial price, which is the minimum level at which import products can be sold (higher than the intervention price, thus encouraging the purchase of Community products); the intervention price, which is the guaranteed price level at which the Authority can buy and store certain quantities produced [4].

Pricing can be a complex action if the closest competing firms are hard to identify. But one must not forget that no product is absolutely free of competition; there is almost always a way to satisfy the customer's need for the product. Also, different consumers have different needs; therefore, they will have

different needs as to what constitutes value in exchange for money. Therefore, markets need to be segmented carefully to ensure a fair price for each segment. As with any marketing issue, it's wise to start from the customer [3].

In the context of the competitive market economy, especially in transition periods - characterized by the emergence of inflationary factors, agricultural and agri-food prices have a number of characteristics such as: they show a fluctuation over time due to the perishability of the products, the degree of preference to storage and the size of specific storage capacities, the degree of scarcity (in certain situations), their qualities and the degree of consumer demand; may tend to stabilize or reduce; may lead to an increase or decrease in farmers' incomes, depending on the intensity of consumption; their fluctuation may amplify, reduce or stabilize the price of other goods for consumption [1].

The price of agricultural / agri-food products, at any stage of the market knows changes in the direction of its growth or decrease, depending on market orientation [5].

The influence of milk prices on profitability is crucial. The evaluation of profitability in dairy farms requires to consider both cost input and milk output as well as milk market price [8].

Marketed milk and milk price have a positive impact on profit, while production cost has a negative impact [9].

MATERIAL AND METHODS

The elaboration of this study called for the comparison of time and space [7]. Regarding the temporal sequences that are included in the analysis, the media was also operated.

For the present paper, the purchase price was used as an indicator (lei/l).

Running the analysis refers to the time period between 2012 and 2016, to which was added the average of the period, thus forming a dynamic series consisting of 6 terms.

The analysis was carried out at both national and regional level (seven development regions), showing the position of each region relative to the national average price level, the absolute variations of the indicator (lei / l) and the dynamics of the indicator. Please note that the database used does not show values for the Ilfov and West Regions of Bucharest respectively.

RESULTS AND DISCUSSIONS

Table 1 shows the milk price data at national and regional level as well as the position of the latter relative to the national situation [10].

The year 2012 is characterized by price variations of 0.85 lei / l for the South West Oltenia region (-0.26 lei / l and -23.42% compared to the national situation) and 1.24 lei / l for the Centru region (+0.13 lei / l and + 11.71% compared to the national situation), while at national level the indicator reached 1.11 lei / l. As a result, we are talking about regions that recorded higher levels than the reporting base (national level of the indicator), such as: 1.16 lei / l North West Region (+0.05 lei / l and + 4.50%). At the same time, lower values are recorded: 0.98 lei / l in the South Muntenia Region (-0.13 lei / l and -11.71%) 1.01 lei / l South East Region (-0.10 lei / l and -9.01%), 1.08 lei / l North East Region (-0.03 lei / l and -2.70%).

At the level of 2013, the national average price was 1.20 lei / l, compared to which there were at the regional level both supra-unitary values and sub-unitary levels. Thus, the South West Oltenia, South Muntenia, South East and North East regions are characterized by sub-unitary levels: 0.66 lei / l, 1.03 lei / l and 1.09 lei / l the last two regions. Consequently, we discuss absolute declines of 0.54, 0.17 and 0.11 lei / l, decreases in relative sizes of 45.0, 14.17 and 9.17%. Surplus levels reached 1.27 lei / l for the North West Region (+0.07 lei / l and + 5.83%), 1.43 lei / l at the Center Region level (+ 0.23 lei / l and + 19.17%).

In the case of 2014, the price ranged from 0.65 lei/l in the South West Oltenia Region (-48.0% and -0.60 lei/l compared to the comparison term) to 1.48 lei/l, in the case of the Center and South Muntenia (+ 18.40% +0.23 lei/l) and the national level of the indicator was 1.25 lei/l. The regions of South East, North East and North West are characterized by registering sub-unit values, compared to the reporting base. The decrease

was: -0.18 lei/l South East Region (1.07 lei/l, -14.40% in relative values), -0.10 lei/l North East Region (effective 1.15 lei / l, decrease by 8.0% the base of reporting), -0.06 lei/l North West region (1.19 lei / l, decrease by 4.80% - relative to the national level).

Table 1. Situation of sales prices (lei / l) at national and regional level

Specification	Year										Average**	
	2012		2013		2014		2015		2016			
	Eff. *	% compared to the national level **	Eff. *	% compared to the national level **	Eff. *	% compared to the national level **	Eff. *	% compared to the national level **	Eff. *	% compared to the national level **	Eff.	% compared to the national level **
National level	1.11	100	1.20	100	1.25	100	1.16	100	1.15	100	1.17	100
North West Region	1.16	104.50	1.27	105.83	1.19	95.20	1.12	96.55	1.10	95.65	1.17	100.0
Center Region	1.24	111.71	1.43	119.17	1.48	118.40	1.31	112.93	1.27	110.43	1.35	115.38
North East Region	1.08	97.30	1.09	90.83	1.15	92.00	1.00	86.21	1.03	89.57	1.07	91.45
South East Region	1.01	90.99	1.09	90.83	1.07	85.60	1.14	98.28	1.18	102.61	1.10	94.02
South Muntenia Region	0.98	88.29	1.03	85.83	1.48	118.40	1.68	144.83	1.57	136.52	1.35	115.38
South West Oltenia Region	0.85	76.58	0.66	55.00	0.65	52.00	0.75	64.66	0.78	67.83	0.74	63.25

Source: *http://statistici.insse.ro/shop/index.jsp?page=tempo3&lang=ro&ind=PPA102C (28.11.2017)
**own calculation

In the case of 2014, the price ranged from 0.65 lei/l in the South West Oltenia Region (-48.0% and -0.60 lei/l compared to the comparison term) to 1.48 lei/l, in the case of the Center and South Muntenia (+ 18.40% +0.23 lei/l) and the national level of the indicator was 1.25 lei/l. The regions of South East, North East and North West are characterized by registering sub-unit values, compared to the reporting base. The decrease was: -0.18 lei/l South East Region (1.07 lei/l, -14.40% in relative values), -0.10 lei/l North East Region (effective 1.15 lei / l, decrease by 8.0% the base of reporting), -0.06 lei/l North West region (1.19 lei / l, decrease by 4.80% - relative to the national level).

If we refer to the specific situation of 2015, there is a national price of 1.16 lei/l, against which the development regions were positioned as follows: -35.34% South West Oltenia Region (effective 0.75 lei/l, real decrease (-0.17 lei/l), -3.45% North West Region (1.12 lei/l, absolute decrease of 0.04 lei/l), -13.79%/-1.72% South East Region (1.14 lei/l, absolute decrease of 0.02 lei/l), + 12.93% for Center Region (1.31 lei/l, absolute excess of 0.15 lei/l), + 44.83% South Muntenia Region (actual level of 1.68 lei/l, 0.52 lei/l absolute overrun).

For the year 2016, there was a national level of 1.15 lei/l of the selling price, with limits of 0.78 lei/l in the South West Oltenia Region (-42.17% and -0.37 lei/l compared to the national situation) and 1.57lei/l in South Muntenia Region (+ 36.52% and +0.42 lei/l). Below the reference level are the North East Region - 1.03 lei/l (-0.12 lei/l and -10.43%) and North West Region - 1.10 lei/l (-0.05 lei/l and -4.35%). The other regions exceeded the base of comparison as follows: + 2.61% South East (effective 1.18 lei/l, absolute 0.03 lei/l), + 10.43% Center (1.27 lei / l, absolute growth of 0.12 lei / it).

Based on the above-mentioned annual situations, the average of the period characterized by a national level of the indicator of 1.17 lei/l was determined (Figure 1): -36.75% South West Oltenia Region (effective 0.74 lei/l, absolute decrease of 0.43 lei/l); -8.55% North East Region (effective 1.07 lei/l, absolute decrease of 0.10 lei/l); -5.98% South East Region (effective 1.10 lei/l, absolute decrease of 0.07 lei/l); level for the North West Region; + 15.38% of Centru and

South Muntenia (1.35 lei/l level, 0.18 lei/l absolute increase).

The evolution of the price for milk are shown in Table 2, in absolute terms (lei/l), at national and regional level.

There is an increase of the milk price at national level, in the years 2013 and 2014 (+0.09 and +0.05 lei/l respectively) and decreases in the years 2015 and 2016 (-0.09 and -0.01 lei/l respectively). Under these conditions, the average of the period exceeded the level of 2016 by 0.02 lei/l.

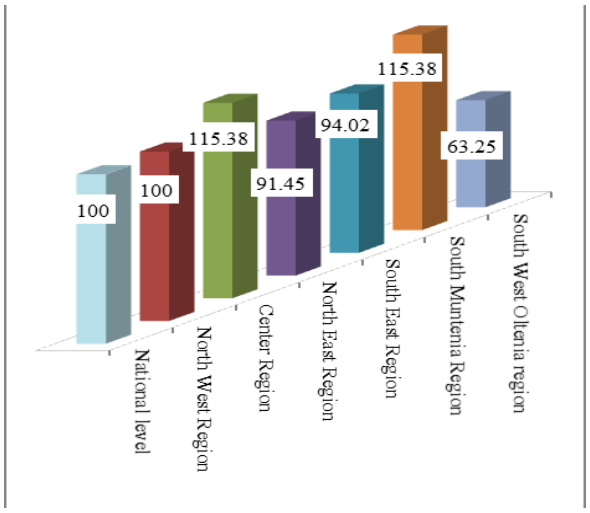

Fig. 1. Positioning of development regions against the national price level (% of the period)
Source: Own calculation and design.

For the North West Region, there are increases in the years 2013 and 2014 (+0.11 and +0.08 lei/l respectively), as well as decreases compared to the bases in the years 2015 and 2016 (-0.17 and -0.02 lei/l respectively). For the average of the period, there are increases compared to the reference period (+0.07 lei/l).

In case of the Center Region, it is noted that the indicator showed 3 growth trends (+0.19, +0.05 and +0.08 lei/l in 2013, 2014 and the for the period average) and 2 downward trends for 2015 and 2016 years (- 0.17 and - 0.04 lei/l).

The North East region is characterized by the existence of four situations when the indicator increases compared to the reference terms, respectively, the years 2013, 2014, 2016 and the average of the period (+0.01, +0.06, +0.03 and +0.04 lei/l respectively) - a situation of decrease of the indicator level - 2015 (-0.15 lei/l).

The South East Region shows an evolution characterized by increases in indicator levels in the years 2013, 2015 and 2016 (+0.08, +0.07 and +0.04 lei/l compared with reporting terms), but also downward trends in 2014 and for the average of the period (-0.02 and -0.08 lei/l).

Table 2. The absolute variation in selling prices (lei / l) in Romania, at national and regional level *

Specification	±Δ 2013 vs. 2012	±Δ 2014 vs. 2013	±Δ 2015 vs. 2014	±Δ 2016 vs. 2015	±Δ Average vs. 2016
National level	+0.09	+0.05	-0.09	-0.01	+0.02
North West Region	+0.11	-0.08	-0.07	-0.02	+0.07
Center Region	+0.19	+0.05	-0.17	-0.04	+0.08
North East Region	+0.01	+0.06	-0.15	+0.03	+0.04
South East Region	+0.08	-0.02	+0.07	+0.04	-0.08
South Muntenia Region	+0.05	+0.45	+0.20	-0.11	-0.22
South West Oltenia Region	-0.19	-0.01	+0.10	+0.03	-0.04

Source:* own calculation.

In the South Muntenia Region case, there are decreasing tendencies for the level of the indicator (0.11 lei/l in 2016, 0.22 lei/l in the average of the period), but also growth tendencies (0.05 lei/l in 2013, 0.20 lei / 2015 and 0.45 lei/l in 2014).

The South West Oltenia Region shows the absolute decrease of the indicator of 0.01, 0.04 and 0.19 lei/l in 2014, for the period average and for the year 2013. Trends in price growth are shown in the years 2016 and 2015 - 0.03 and 0.10 lei/liter.

As for the annual variation amplitudes of the indicator, they were 0.39 lei/l in 2012 (45.88%), 0.77 lei/l in 2013 (116.67%), 0.83 lei/l in 2014 (127.69%), 0.93 lei/l in 2015 (124.0%), 0.79 lei/l in 2016 (101.28%) and 0.61 lei/l for the average of the period (82.43% - Figure 2). It can be seen that the highest price uniformity occurred in 2012 (relative differences of 45.88% between extreme values), and the largest variation is specific to 2014 (relative differences of 127.69% between extreme values).

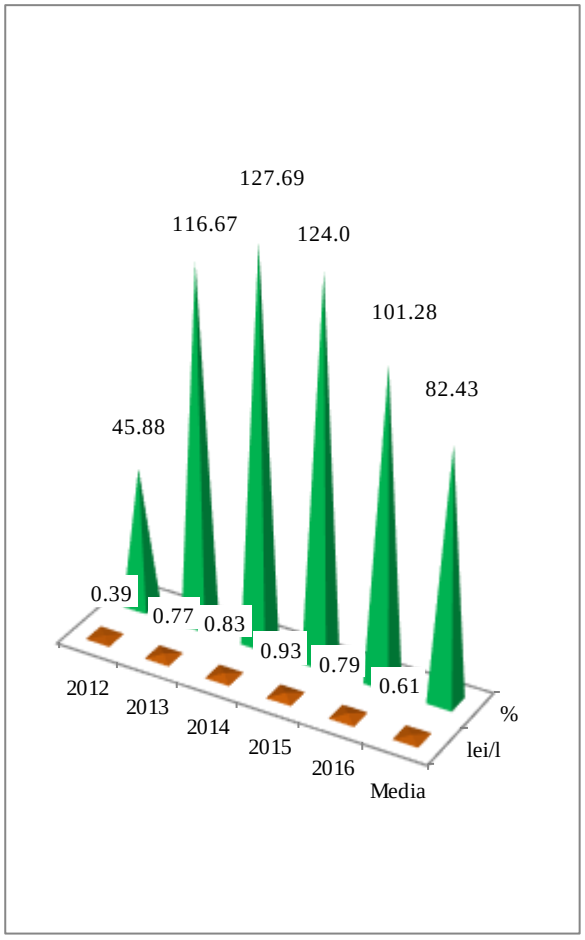

Fig. 2. The sequential amplitude of price variation (lei/l)
Source: Own calculation and design.

If we analyze the indicator according to the variation amplitude for each reference level (national and regional), the following is shown (Figure 3): total amplitude is equal to the annual amplitude (without the average of the period) of 0.18 lei/l at national level; variations of 0.19 lei/l for the North West Region, total or annual amplitude; amplitudes of 0.36 lei/l (total and yearly) for the Center Region; changes of 0.21 lei/l (total and annual amplitude respectively) in the North-East Region; amplitudes of variation of 0.16 lei/l (including average of the period - total) and 0.10 lei/l (excluding the average - annual) respectively for the South East Region; total amplitude of 0.67 lei/l and annual amplitude of 0.56 lei/l for the South Muntenia Region; changes of 0.29 lei/l in the South West Oltenia Region (total and annual amplitude, respectively).

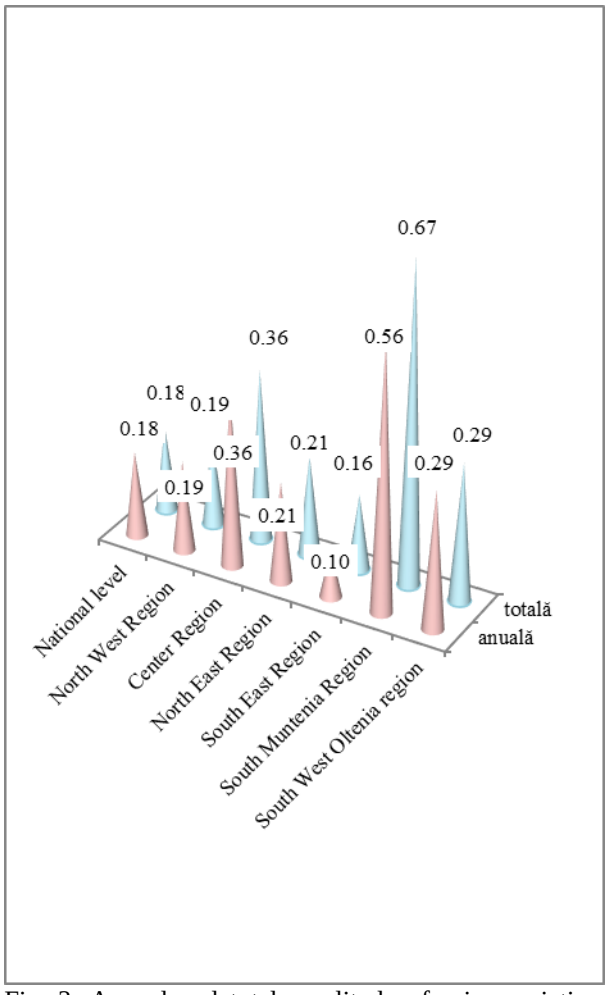

Fig. 3. Annual and total amplitude of price variation (lei/l)
Source: Own calculation and design.

Based on these observations, it can be seen that, in terms of total amplitude, the variation was 0.51 lei/l (difference between 0.67 and 0.16 lei/l for the South Muntenia and South East regions), while at the level of the annual amplitude the variation was 0.46 lei/l (0.56 and 0.10 lei/l for the same development regions as for the total amplitude).

CONCLUSIONS

The milk sales price recorded a national multiannual average of 1.17 lei/l, with extreme values of 0.65 lei/l in 2014 for the South West Oltenia Region and 1.68 lei/l for the year 2015 for South Muntenia Region (amplitude total variation of 1.03 lei/l).

The evolution at national level for the indicator is uneven, increasing for the years 2013 and 2014, decreasing for 2015 and 2016, and with a recovery trend at the average of the period. This state of affairs also appears for the Center Region. If we analyze the situation specific for the remaining regions, there are fluctuating developments with annual disparities as follows: growth in 2013, followed by declines to 2016 and a recovery to the period average in North West; increases in years 2013 and 2014, declines for 2015, increases in year 2016 and for period average in North East; growth in 2013, declining in 2014 year, increases in 2015 and 2016 followed by a decrease for average in South East; increases in 2013, 2014, 2015, declines in 2016 and in average for the South Muntenia region; decreases in 2013 and 2014, increases in 2015 and 2016 followed by decreases in the average for South West Oltenia. This state of affairs shows quite pronounced particularities from one region to another.

At national level, there is a need to implement adequate sequential policies in the territory to support milk-producing establishments to obtain favorable marketing prices through the involvement of competent decision-makers.

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