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## MONOPOLY, GOVERNMENT POLICY AND MILK SHORTAGE IN SERBIA

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### Resume

*The ownership concentration in the processing of fresh milk sector in Serbia, together with a considerable dispersion and fragmentation of the primary production of raw cow's milk has led to insufficient supply and lack of basic dairy products on the market. The shortage phenomena is manifested in the circumstances of depressed and economically unsustainable low prices of production inputs – raw milk, and quantity decrease, accompanied by changes in the structure of the milk products final production.*

*Over the past five years, the Serbian government has led the wrong economic policy of the milk primary production incentives, and thus, the breeding of milk cows. Additionally, the poor economic policy was conducted in the area of ownership structure changes and incentives for the development of new production facilities for the processing of fresh milk for the Serbian market necessities.*

**Key words:** *monopoly, market imbalance, prices growth, insufficient production, and processing.*

### Introduction

The economic cycles in certain industries, particularly in agriculture, due to the effects of market principles acting on profit maximizing, as well as by wicked economical policy, causes the shortage of goods. The insufficient good supply, in this case cooking oil and milk in Serbia was manifested in the second half of 2010. The expressed explanation for this shortage was the existence or action of monopoly in this sector of agro-production. The question is whether this is really so, that is, if the existence of a dominant market participant in processing of raw milk is the only cause of the lack of market supply.

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In the paper we tried to point out the errors in economic policy incentives for cattle breeding, that is milked cows, and the impact of purchase prices of raw materials on market trends. In this paper, we presented some of key quantitative production indicators, number of cattle for the period of 10 years, as well as the nominal movement of purchase prices of raw cow's milk and movement of premium for milk production in last five years. The Government economic policies was focused on support of enlarging the dairy sector through the privatization process of social dairies and their ownership concentration, on the one side, and on reduce of incentives for raw cow's milk production, on the other side. The economic policy is based on the assumption of the perfect market impact on the use of available resources in agriculture, and that the market will perfectly influence both the production of quantities of goods, and the formation of their prices, all together aiming to achieve the social optimum. The current cycle of shortage or reduced supply and solving the lack of the required quantities by importing the milk, shows that the market is not the perfect regulating mean of arranging the supply and demand relationship. The insufficient market milk supply is caused by a reduction in supply and purchase of raw milk for industrial processing due to the decline in production, and, for a long-term period manifested the low purchase prices of raw materials. The shortage of industry processed milk supply was the result of the reduction in the number of suppliers of key raw cow milk's processors. Milk prices are formed freely and in conditions of scarcity, the producers may increase the prices to the level of restrictive purchasing power, only meeting the demand in quantity and structure of those customers who have higher purchasing power. In this way, it is established a new, lower-volume production market equilibrium level, and the shortage is being eliminated. Therefore, the balance in the market can be achieved by reducing the offered quantities and increasing the price of finished products. Thus, the input producers purchase prices level for the primary raw cow milk's producers may remain unchanged. As described above, the companies from the industrial processing milk sectors can generate higher profits with lower productivity levels. The increase in imports of these goods will establish a new market equilibrium, but it will create negative consequences for Serbian economy, which affect their own primary production resources, the outflow of foreign exchange used for importing milk, and the reduction of domestic milk and dairy products consumption per capita.

The problem could be solved in a way that will increase use of domestic primary production resources, which will also provide the increase of domestic production and minimize the need to import milk and dairy products. Before the brief presentation of requirements for the better development of economic policy conduct in this sector, it should be recalled here the problem of some industry cycles, particularly the agricultural production that was long ago theoretically and analytically discussed. Alfred Marshall, a British economist<sup>3</sup> back in 19<sup>th</sup> century pointed out the problem of market imbalance presenting the example of pigs and corn production cycle. "If all the farmers, due to favorable relation between the pigs (pork) prices and the cost of their fattening (corn

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3 A.Marshall (1842-1924), Professor of Economics, Cambridge (1885 – 1908).

prices) at about the same time decide to increase pigs production, as this will be the case in this example. If they all about the same time, come up with the increased pigs supply, it will cause a sudden fall in pork prices (increasing the corn price), which would force many farmers to reduce the production, creating again the favorable conditions which would consequently, lead to a new pig production increase<sup>4</sup>. Something similar is really happening with the cycle of breeding cows and milk production. The economic policy of reducing incentives and the oscillations of the raw milk purchase prices in direction of their stagnation and decline, led this segment of agricultural production in declining cycle.

The positive economic policy would be the one that would have influenced the more favorable market outcomes, which means the maintaining and increasing production of fresh cow's milk in small and large agricultural farms in Serbia together with the stable subsidies policy and stimulation of competitive new processing capacities. The economic policy in Serbia, unfortunately, is not guided in the direction of alleviating severe market cycles.

### Competition

The simplified definition of competitive market comprises the market which, on the supply side and demand side, involves a large number of separate independent subjects that could affect the quantity of goods and services, on the supply side, while on the demand side does not individually influence the goods' and services' pricing. Thus, in a competitive market the prices and quantities, for each participant will appear as given, i.e. as independent of their individual will.

The monopolistic market structure means that on the supply or demand side there are few or only one participant that affects the quantity and prices of certain goods and services. The oligopoly structure and the formation of cartels imply the behavior on market's supply or demand side whereby more participants agreed on both, the quantity of goods and their prices.

The government, by its normative and regulatory organs affects the market behavior of the participants in order to protect competition. The process of establishing and proving a distortion of competition in the market, with a professional, legal, and, particularly economic aspect is very complex requiring a high level of technical and research skills and knowledge.

The complete information about the structure of production and processing of fresh cow's milk were available for the year 2006, as the reference year in which the production and processing fulfilled the market demand in Serbia.

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4 Joseph Schumpeter, History of Economic Analysis, Volume 2, Informator Zagreb 1975, page 978.

*The total production, processing, and delivery of fresh cow milk with participants' structure in 2006.*

	<b>Quantity liters</b>	<b>% participation</b>
Total production*	1.587.000.000	100
Total subsidized delivery**	739.945.736	46,63
- Danube Foods Group B.V	350.374.975	22,08
- 18 other dairy factories	238.986.107	15,06
- Other 188 dairy factories	150.584.654	9,49
Total non subsidized milk delivery and processing plus market sale	254.000.000	16,00
Other processing	593.054.264	37,37

\* Republic Statistical Agency data for 2006. Statistical Bulletin of the Agency 2008, page 219.

\*\* Total subsidized delivery comprises only state's subsidized delivery.

*Total production – sum of subsidized and non subsidized delivery in 2006*

	<b>Qty. liters</b>	<b>% participation</b>
Total production*	1.587.000.000	100
Total subsidized and non subsidized delivery and processing	1.004.000.000	63,26
- Danube Foods Group B.V**	350.374.975	34,90
- 18 other dairy factories	238.986.107	23,80
- Other 188 dairy factories	150.584.654	15,00
Total non subsidized milk delivery and processing plus market sale	264.054.264	26,30
Other processing	583.000.000	36,74

\* Republic Statistical Agency data for 2006. Statistical Bulletin of the Agency 2008, page 219.

\*\* Participation in total subsidized delivery.

According to dairy factories jointed in the Danube Foods Group B.V participated in total subsidized and subsidized delivery with 34.90%, while their total delivery related to the total production is 23.41%.

*Total number of subsidized producers and the number of producers delivering fresh cow milk to the DF Group in 2006.*

		<b>% participation</b>
Total number of producers	62.679	100
Danube Foods Group B.V	18.956	30,24
- Imlek (N.Sad, Zaječar, Zemun)	16.835	26,86
- Mlekara Subotica	2.121	3,38
Other producers	43.723	69,76

According to the presented tables, the conclusion is that from the 62,679 producers, only 18,956, or 30.24% delivered milk to the DF Group dairies, and 43,723 manufacturers, or 69.76% supplied milk to other customers, or dairies.

Therefore, during those four years prior to the milk shortage, the market of primary products noticed the expressed competition of small and medium-sized cow milk primary producers. The processing sector is characterized by considerable concentration, because one Group has occupied nearly 35% of processing capacities, while other processors are fragmented with small processing capacities.

The tendency to monopolize the processing market is a main characteristic of a dominant processor in the final processing sector distinction. This trend noted one of the first theoreticians of monopoly, the French economist Antoine Augustine Cournot in the 19<sup>th</sup> century. He explains that... "a monopolist who operates several businesses will keep working only those companies which can produce on the most economical way, while competitive companies strive to facilitate production in all plants as long as their work can provide any kind of profit." This process was going on in Serbia in this dairy industry sector. The firms comprising significant market positions and equipment for processing a complete assortment of dairy products, in the last few years, have been detaining "peripheral" production capacities, focusing on the products that deliver the highest profit per unit. Certainly, it is one of the main causes of decreasing milk supply in the Serbian market in 2010.

### **State Economic Policy**

In the past five years, the government led the wrong economic policy in this sector. The first aspect of economic policy relied on the assumption that the privatization of the dairy industry in Serbia would lead to market competition, and therefore to the market equilibrium and to the balanced supply and demand. Unfortunately, this assumption proved to be wrong. Privatization has led to competition weakening, due to incorrectly implemented privatization, which caused the crisis of milk plants in Kragujevac, Nis, Uzice, Pancevo, inducing the market position strengthening of the dairy group in possession of a foreign investment fund – Salford. Another aspect of the wrong economic policy in this sector lies in ignoring the structure of raw material base production. Namely it was ignored the fact that in the total mass of raw milk in Serbia, dominant are small

and very fragmented farms, i.e. small family households. Policy of subsidizing producers kept changing, and in the period 2005-2009, the state permanently kept decreasing the premiums amount paid per liter of fresh cow's milk. From 2005 until the year 2008 the premium for the fresh milk delivered to for industrial processing have declined from 4,5 dinars for a production in hilly and mountainous area to 2.40, while for the plain area production it decreased from 3.8 to 1.4 dinars per liter.

*Premiums for the milk delivery in Serbia 2005-2009 (dinars per liter)*

	2005	2006	2007	2008	2009
Hilly and mountains regions	4,5	4,0	3,0	2,40	
Plane regions	3,8	3,0	2,0	1,40	
For E class milk					2,0
For 1. class milk					1,0

Drastic deterioration in the position of small raw milk producers occurred in 2009, when they were introduced the criteria of subsidizing only E-extra class, and I – First class milk, and the quarterly quantities of not less than 2,500 liters of milk per producer. This means that the subsidies include only individual producers who deliver annually not less than 10,000 liters of milk. In this way are discriminated all the small farmers who own less than 5 milking cows, because the average production per cow on small farms in Serbia is slightly less than 2,000 liters. Such a policy, together wit a policy of low purchase prices, led to a drastic reduction of cows and considerable decreasing trends of milk production in Serbia.

### **Purchase price of fresh cow' milk**

The average annual purchase prices of fresh milk in Serbia, in the period 2000-2009 was increasing since 2007, and after that year, that is, in the last two years have noticed a drastic drop in prices.

*The average annual price of fresh cow's milk in the period 2000-2009.*

	din/lit	Euro cent/lit
2000	5,13	10,26
2001	10,95	18,42
2002	10,61	17,49
2003	10,85	16,68
2004	12,72	17,53
2005	14,21	17,16
2006	15,18	18,03
2007	35,33	44,17
2008	23,70	29,09
2009	22,00	23,85

*Source: Own calculation based on RSO data base and the data presented by the Ministry of Agriculture of the Republic of Serbia.*

The average purchase price, expressed in Euro cents is calculated based on an average rate of the dinar against the Euro. The presentation of prices in Euro cents is *de facto* deformed by overvalued dinar exchange rate against the Euro.

Graphic presentation of the purchase prices trends clearly indicates the breakpoint that occurred after 2007, which was affecting the reduction of livestock and number of milking cows in Serbia in the observed period.

### Production of raw cow milk and number of cows

Milk production in Serbia recorded growth until 2005, and decline after that period. Data presented in the table below provide a serial overview for the period 2000-2009.

*Production of fresh cow's milk in Serbia*

Year	Total		
	Million liter	Growth Rate	Index
2000	1.567		100
2001	1.576	1%	101
2002	1.580	0%	101
2003	1.577	0%	101
2004	1.579	0%	101
2005	1.602	1%	102
2006	1.587	-1%	101
2007	1.549	-2%	99
2008	1.534	-1%	98
2009	1.478	-4%	94

*Data source: Republic Statistical Agency.*

If taken as a base year 2000 – with the index 100, the presented table shows that the milk production declined in 2009 to 94 index points. In absolute terms, milk production decreased from 1,567 million liters in 2000 to 1,478 million liters in 2009, or 89 million liters. At the same time, farmers have reduced the supply of fresh milk for industrial processing. The number of milking cows and heifers also recorded a drastic fall.

*Number of milking cows and heifers in the period 2000-2009. (in Thousand)*

	Total	index
2000	843	100
2001	787	93
2002	752	89
2003	740	88
2004	742	88
2005	721	86
2006	674	80
2007	648	77
2008	614	73
2009	585	69

Number of cows in this period decreased from 843 thousand in 2000 at 585 thousand in 2009, or on index of 69. Such a drastic drop in the number of cows did not have so drastic consequences on the decline of the fresh cow's milk production, which means that the decline of animals was partly compensated by increasing productivity per head. Therefore, the milk production per cow from 1,859 liters in 2000 has increased in 2009 to 2526 liters per head.

### **Conclusion**

The economic policy in the field of primary agricultural production and processing based on expectations that the market itself would establish the optimal and socially acceptable balance, proved wrong.

The measures of government economic policy applied in this sector over the past five years have resulted in decreasing of production resources, both in primary production and in milk processing. Market disturbances in this sector due to long production cycle could establish the new balance fastest by balancing the supply and demand segments at the lower level increasing at the same time the products' prices whose shortage has been manifested. Missing offer of the agricultural products can be compensated by the import, but it could bring all the long-term negative consequences on the balance of payment together with considerable decrease of use and development of own production resources.

### **Literature**

1. Joseph Schumpeter, History of Economic Analysis, Vol. 1 and 2, Informator Zagreb 1975.
2. Statistical Annual, RSA 2009.
3. Own empirical researches of the primary agricultural milk production and processing on the sample of 18 dairies and 95 farmers in Serbia..
4. Regulations of the Government of the Republic of Serbia on premiums for milk in the period 2005-2009, corresponding Official Gazettes.
5. [www.minpolj.gov.rs](http://www.minpolj.gov.rs)