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**Formation of Competition in  
Russian Regional Food Markets.  
Saratov Region Case**

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## Abstract

The extent of development of competition in the regional food market as well as the influence of monopolism on economic condition of agro-industrial complex's branches and on welfare of consumers have been analysed in this work. There were considered possibilities of utilising modern microeconomic models of assessment of quantitative parameters of development of competition.

Establishing of competition and overcoming of high level of monopolism in food markets is an important aspect that determines food market equilibrium. Level of concentration of production is different for various food sectors of food market that requires different approaches to regulating of these markets.

To analyse the extent of development of competitive environment in the sphere of foodstuff production of the region HHI and the total share of the four largest producers of foodstuffs were calculated. The computation has shown that, for example, in the Saratov region the markets of milk products and sunflower oil can be considered as highly concentrated, the market of butter is poorly concentrated.

Despite the big influence of concentration of production on creation of competitive environment, anti-monopolistic control should not be limited to de-enlargement of producers. Such an approach, to our mind, leads to establishing of ineffective productions. Price formation mechanisms should correspond to competitiveness of economic environment when it is traditionally possible to drop the price in order to achieve competitive advantage in the market.

Besides the traditional approach to analysis of the extent of monopolism in branches of the food industry from the stand point of agricultural producers, there have been analysed socio-economic consequences of the monopolism from the stand point of consumers. We tried to quantify the portion of consumer's income, which he/she loses in the Saratov region's food market as a result of monopolisation of food industry. The method of computation is based on evaluation of function of market demand and consumer's welfare change versus change of prices. To estimate of welfare losses the model that is described by V.Requillart, P.Lavergne, V.Simioni (1996) was used.

In the work there have been proposed some measures to form the competitive environment in the regional food market such as development of vertical and horizontal integration in agro-industrial complex and development of small business.

In the theory and practice of the development of market relations the formation of a market environment is an issue of paramount importance. The Russian monopolism makes the development of the forms and methods of competition and the system of anti-monopolist measures a burning task. This is first and foremost related to the food market.

One of the most significant features of the centrally planned economy was that the producers and consumers were rather closely connected with each other. The production and supply in the agricultural sphere have always been an object of government regulation. A collective or a state farm had to supply a certain amount of its output to a certain procurer at a fixed price. Little by little the production became concentrated at large processing enterprises

which circumstance enabled to most effectively regulate their activities. As a result, by the time the Russian reforms began, the food processing industry was potentially monopolized.

In the early reform period the most significant factor that influenced the economic position and behavior of both the agricultural producers and the processing companies was the decline of the effective demand of the population and the shrinkage of the traditional food sales markets.

The drop of the effective demand for food could not but negatively affected the level of prices of raw materials. For some time the regional authorities succeeded in keeping the situation under control by applying fixed purchase prices but in the course of time the administrative methods of management became no longer effective and by the middle of 1993 the purchase prices were released almost everywhere. That meant that the farmers have lost any protection from the demand limitations and that their position became even worse.

The further seclusion of the local markets was another factor that was in no way advantageous to the producers or raw agricultural products. The increased transportation costs, underdeveloped communication networks, administrative restrictions on the export of farm products from the regions, introduction of local export taxes. All these made the farmers dependent on their traditional purchasers and deprived them of the opportunity to choose more beneficial ways of realization of their products.

The ineffective system of subsidies and compensations applied in the agriculture and other branches of the food complex to a certain extent contributed to the weakening of the agricultural commodity producers position. Instead of being used for the purposes of the branch reconstruction of the food complex, the principal portion of the resources was spent to cover the current costs. Furthermore, the government support measures were usually too slow to keep up with the rapidly changing economic situation. The economic terms and conditions of the regulation of agricultural production were changing very fast, while the promised resources were allotted with delay, such practice arousing no enthusiasm among the producers.

Thus, having hardly begun the economic reform brought about serious changes in the agricultural producers position.

The present situation is such that the farmers and processing companies have to operate with free prices of both raw materials and final products. At the same time the structure of their production and, consequently, the structure of costs formed in the pre-reform period are completely out of accordance with the current market conditions.

The increasing disparity between the prices of agricultural products and that of the manufactured goods and services purchased by the agricultural producers manifests the dependent position of the latter, as shown in Table 1.

Table 1

Indices of prices of products sold and purchased by agricultural enterprises  
(% as against the previous year)\*

	1991		1992		1993		1994		1995		1997	
	Agricu ltural	Indust rial	Agricu ltural	Indust rial	Agricul tural	Industr ial	Agricu ltural	Industr ial	Agricu ltural	Indu strial	Agricul tural	Indus trial
Saratov Oblast	133.4	190.7	1218.4	1305. 5	665.0	984.9	280.0	400.0	340.0	380. 0	n/a	n/a
Russia	160.0	192.8	863.0	1623. 0	812.0	1069.0	325.1	519.5	335.0	322. 0	112.0	121.0

\*Calculated based on the data obtained from the Saratov Oblast Department of Statistics and the Statistical Compilation Prices in the Russian Federation, Moscow, 1995, p.204.

In the pre-reform period the ratio of the public sector in agricultural production was significant in the Saratov Oblast (if compared with the Russian average), being 70% in 1990. Then came the enlargement of the private sector (up to 4% in 1993). Currently the balance between the two sectors remains unchanged. At the same time the agricultural enterprises of the Oblast and Russia, in general, demonstrate a drop of production. It is shown in Figure 1 that the fall of production in the public sector is to some extent off-set by the growth of production in other sectors.

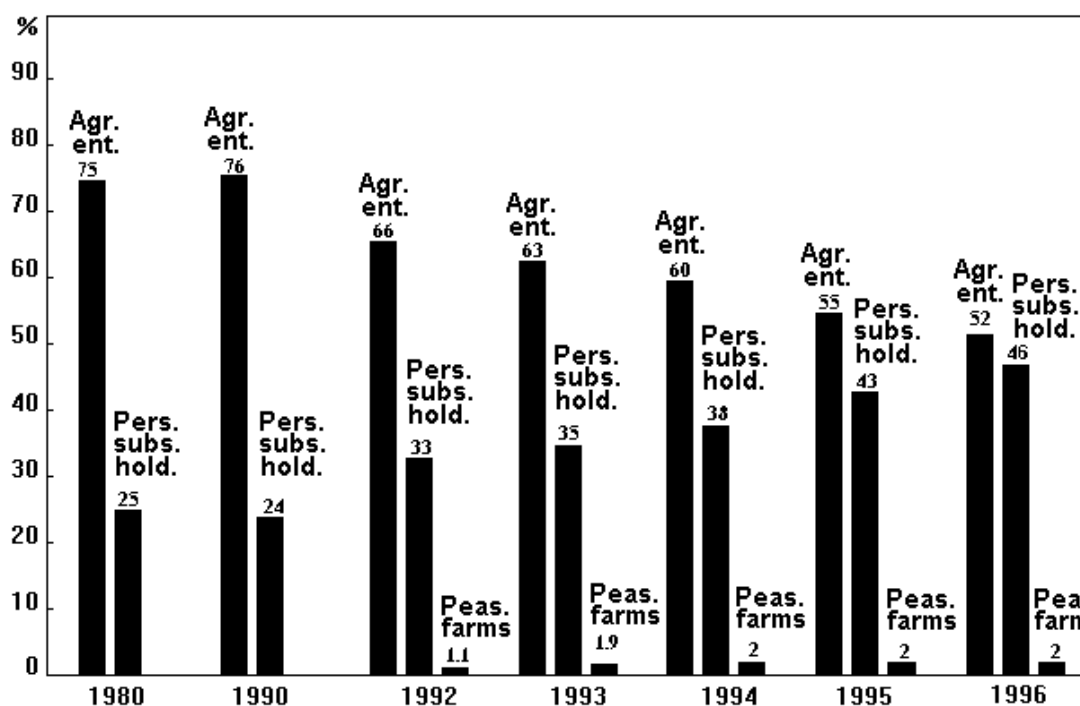


Figure 1: Agricultural production structure by farm category in the Russian Federation.

The production relations between large agricultural enterprises and personal subsidiary holdings of the population (PSH) leave much to be desired. The realization of PSH products, especially milk and meat, is a real problem. Being unable to beneficially sell their own products, the agricultural enterprises refuse to buy the same from the population. In the long run this may lead to PSH becoming less oriented towards commodity production.

The reduction of the share of agriculture in the structure of retail prices of food is considered a clear evidence of the existence of monopolism in the processing industry (see Table 2).

Indeed, the above reduction occurred in 1992 and was the most substantial in respect of meat and milk. Such share of agriculture continued to decrease in the subsequent years, however, for most of the products the decrease was rather gradual. This process is a normal consequence of the elimination of subsidies for agricultural raw products. In 1991 the share of subsidies for milk and beef in the government-fixed retail prices constituted 68% and 83%, respectively. Naturally, the abandonment of the usual system of subsidies made the ratios change. The shield of subsidies which was used to protect the farmers no longer existed, and they became open to the pressure of retail prices and started talking about the monopolist position of the processing companies. The actual cause of that pressure were the price disparities that had for a long time been softened by the strong budget support and that clearly revealed themselves after the abandonment of such support and then became even greater as the economic crisis was growing more and more serious.

Table 2

Structure of retail prices of basic food products

(% of the retail price)\*

	BEEF			MILK		
	1991	1993	1995	1991	1993	1995
Cost of raw material	88.3	56.7	56.1	79.5	62.0	34.5
Value added during processing	10.6	16.0	17.3	16.8	17.0	35.8
Wholesale price	98.9	72.7	73.4	96.3	79.0	70.3
VAT		7.3	8.9		7.9	20.7
Wholesale release price		80.0	82.3		86.9	79.3
Mercantile addition to the price	1.0	20.0	17.7	3.7	13.1	20.7
Retail price	100.0	100.0	100.0	100.0	100.0	100.0
Subsidy	83.1			68.2		

\*Calculated based on the data obtained from the Statistical Compilation “Prices in the Russian Federation”, Moscow, Goskomstat of Russia, 1995, p.110.

The situation is much the same in relation to the prices of production, processing and realization of milk and dairy products in the Saratov Oblast. According to the data provided by the Oblast Department of Statistics, the average purchase price of milk was 708 rubles per ton in 1991, 6000 rubles in 1992 and 800000 rubles in 1995. Thus, in 1995 the above price was 1129 times higher than in 1991 and 133,3 times higher than in 1992. The retail price of milk has changed from 8 rubles in 1992 to 1625 rubles in 1995 or in other words grew 203,1 times.

As we see, the rates of growth of the retail prices outpace that of the purchase prices more than 1,5 times.

According to the results of the selective survey conducted on the whole territory of the Saratov region, the returns from the realization of milk and dairy products in 1994 were distributed in the following way: agricultural enterprises – 25%, processing enterprises – 34%, trade organizations – 32% and the state (VAT and the special tax) – 9%. The costs incurred by the processing enterprises made 20% of the total costs, while their profits equaled 42% of the total amount of profit. For the trade companies and the state the respective figures were 15% and 40%, 5% and 18%. And only the farmers bearing 60% of the total costs suffered 397 rubles of losses per each thousand rubles. A similar situation can be observed in relation to other products of animal breeding.

In the countries with developed market economy the agricultural producers' share in the retail prices of food is rather small. For instance, in the USA the farmers' share in such prices of bread, meat, milk and processed fruit and vegetables constitutes respectively 7%, 58%, 34% and 22% and is constantly decreasing. That is because the costs of agricultural production are relatively low if compared with that incurred at later production stages as a result of diversification and deep processing of food products.

Russia is specific in that the agricultural producers' share in the retail prices is reducing accompanied by a decline in the processing industry. The dynamics of prices of food, presented in Figure 2, manifests that the purchase prices were significantly lagging behind the retail and wholesale prices, and the wholesale prices were growing the fastest.

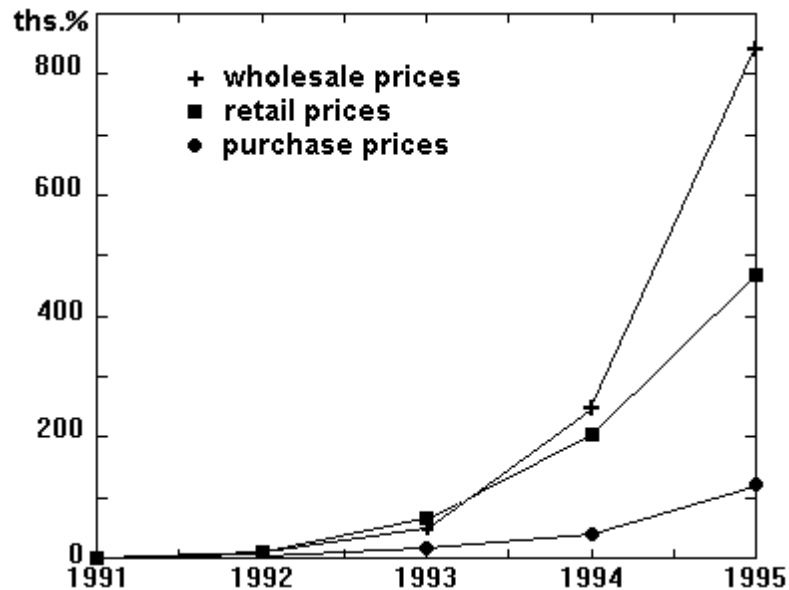


Figure 2: Dynamics of prices of food, per cent as against 1990.

The volume of output of the processing industry is constantly falling since 1990. There is practically not a single branch today, except for the sugar and tobacco branches that managed to avoid the recession. Thus, in 1995 the volume of processing of meat and milk dropped respectively 70-80% and 70-85% as against 1989. The present economic environment is unfavorable for the processing industry branches owing to several factors among which we should mention the current taxation system, the multiple rise of the price of food products in the course of delivery of such products from the producer to the consumer, the increasing price disparity making the internal consumption of own products preferential, the insufficiency of raw materials on the one hand and the decreasing effective demand on the other hand.

The priority development of the branches of the second sphere which used to receive the major part of the funds allocated to the complex were not balanced with the development of the sphere of production and realization of final products. As a result, practically all of the processing branches demonstrate low rates of growth and sensitivity to innovations, weak structural dynamics and ineffective relations with consumers.

Today the food industry with its obsolete technologies is involved in the investment crisis. Judging by the present situation, we can confidently predict that the participation of the government in the financing of investments will become even more modest in the future.



So, just like the agricultural sector, the food processing industry is in a grave crisis at the time. In view of this it would probably be more appropriate if we shift the laments about the processing industry's monopolist position in relation to the agricultural producers to the background and rather dream of large processing companies that would on the one hand satisfy the effective demand, quickly react to any changes at the market and be worthy competitors to foreign producers, and would on the other hand be powerful integrators in respect of the domestic agricultural producers, revive the raw material production by introducing advanced technologies and reconstruct the agricultural sector in accordance with the market requirements.

The Saratov region has good biological and climatic conditions for the production of vegetables, wheat, sunflower and development of animal breeding, but its further stages of food processing and realization are underdeveloped, although deeper processing of the available agricultural raw materials could bring about a considerable increase in the amount of the oblast AIC's final output.

Therefore, the achievement of a balanced development of the spheres of production and realization of final products is a major objective and a most important priority in the Oblast strategy of further development.

In order to analyze the maturity of the competitive environment in the food processing branches we employed the Hirschmann-Herfindel Index of concentration (HHI), that being the sum of the squared shares of the market of all the companies operating within the branch. We have also singled out the aggregate share of the first four largest producers. The smaller the number of companies in the branch and the stronger the influence in this branch of a few large companies, the higher the concentration (see Table 3).

Table 3

Parameters of development of competitive environment in food processing branches in the Saratov region\*

	1994		1995	
	HHI	CR4	HHI	CR4
Meat	1256.0	35.45	1202.85	55.59
Sausage	1530.2	69.79	1637.80	65.33
Milk and dairy products	2065.0	74.94	1928.83	51.46
Butter	781.84	41.57	768.49	39.61
Cheese	1486.25	62.78	1302.38	59.20
Flour	1491.62	65.27	1691.20	67.66
Confectionery	1773.29	69.87	1636.93	70.58
Pasta	8915.0	96.33	7251.59	98.10

Vegetable oil	9651.58	98.24	9393.96	98.55
Bread	1082.43	39.74	992.63	49.73

\*Calculated based on the data obtained from the Statistical Compilation “Economic and Social Development of the Saratov Oblast”, Goskomstat of Russia, Saratov, 1996.

Highly concentrated in the Saratov region are the markets of milk and dairy products – ¾ of the total amount of such products are produced by 4 big companies – and vegetable oil. The least concentrated is the butter market since butter is produced by many small companies scattered throughout the Oblast. The majority of the rest markets are somewhere in the middle of the scale.

If a monopolist controls the market, then there are no incentives to expand and enhance the production, which in turn leads to technical stagnation and monopolist rise in prices. This situation is typical of Russia today. The reduction of production concentration and formation of an appropriate environment facilitating the development of competition are considered to be the most important measures expected to make the Russian economy non-monopolized and highly competitive.

A high level of monopolisation in food industry has a negative side effect on welfare of consumers due to weakening of competition. This evidential fact induced a good deal of research attempting to quantify that effect. It is not only that research data have practical meaning for every consumer, but also they can be effectively used for market demonopolization. Results are very useful for effective market adjustment. For example we can refer to the work of A.Juoquemin, A.Bulgnes, P.Uzcovitz (1989), in which they described effect on welfare of consumer due to weakening of competition on the France food market. Their estimation showed that the consumer losses increase to 7% due to high level of monopolisation in food industry.

We tried to quantify the portion of consumer's income, which he/she losses in the Saratov region's food market as a result of monopolisation of food industry. The method of computation of such analysis is based on evaluation of function of market demand and consumer's welfare change versus change of prices. The estimation of welfare losses the authors used the method, which is described by V.Requillart, P.Lavergne, V.Simioni (1996).

If  $x(p, y)$  is the demand function of considered good,  $p$  - its price and  $y$  - consumer's income, the change from  $p_0$  to  $p_1$  is given by

$$\int_{p_0}^{p_1} x(p, y) dp . \quad (1)$$

Note that in space  $(\mathbf{p}, \mathbf{y})$  there are different ways which connects  $\mathbf{p}_0$  and  $\mathbf{p}_1$ . Therefore there are different methods of detection of consumer surplus.

Hicks (1993) defines the compensating variation of price change from  $\mathbf{p}_0$  to  $\mathbf{p}_1$  as a additional income that consumer must receive to leave its utility unaffected by the price change.

For compensating variation we have

$$\mathbf{CV}(\mathbf{p}_0 \rightarrow \mathbf{p}_1) = \int_{\mathbf{p}_0}^{\mathbf{p}_1} \mathbf{h}(\mathbf{p}, v(\mathbf{p}_0, \mathbf{y})) d\mathbf{p}, \quad (2)$$

where  $h(\mathbf{p}, u)$  is the hicksian demand function.

The observation of the interrelationship between  $h(\mathbf{p}, u)$  and such parameters as demand and consumer's incomes is difficult. If we consider a small price change  $\Delta \mathbf{p}$  for a single goods, we can write

$$\mathbf{CV}(\mathbf{p}_0 \rightarrow \mathbf{p}_0 + \Delta \mathbf{p}) \approx \mathbf{h}(\mathbf{p}_0, \mathbf{u}_0) \Delta \mathbf{p} + \frac{1}{2} \frac{\partial \mathbf{h}(\mathbf{p}_0, \mathbf{u}_0)}{\partial \mathbf{p}} (\Delta \mathbf{p})^2 \quad (3)$$

where  $\mathbf{u}_0 = v(\mathbf{p}_0, \mathbf{y}_0)$  ..

To calculate the consumer surplus in the food market of the Saratov region we used data of consumption for food stuffs and data of prices for each food product at the period 1992-1997.

The data set allows for estimation of type of demand function and for calculation the price elasticity for each food product. To define the monopoly power in food market we used the Hershman-Herfindahl index (HHI) for each food product.

To define monopoly power we used the measure of market power by Lerner

$$\mathbf{L} = \frac{\mathbf{P} - \mathbf{MC}}{\mathbf{P}}, \quad (4)$$

where  $p$  - price ,  $MC$  - marginal cost.

If we suggests, that products are homogeneous, firm hold constant marginal cost and complete in quantity, the Lerner index connects with HHI as

$$\mathbf{L} = -\frac{\mathbf{HHI}}{\eta} (1 + \alpha) \quad (5)$$

where  $\eta$  is the price elasticity of industry demand.

HHI is arrived at by summing the squares of the market shares of all the firm, included in a given market. The conjectural variation elasticity  $\alpha$  measures the proportional change in

the output of rivals expected by a typical firm to a proportional change in its own output. we considers the cases  $\alpha=0$ , corresponded to upper bound of co-operative interaction. then the price elasticity of firm demand is  $\eta/N$ , where  $N$  - is the number of firms operating on the given market.

For the theoretical "competitive" price we have  $P^+ = MC$ , where

$$P^+ = P(1 + 1/E_d) = P(1 - \eta/HHI) \quad (6)$$

To estimate the type of demand function  $X = f(p, y)$  we used the simplest model  $X_i = A p_i^{\beta_2} y_i^{\beta_3}$ ,

where  $p_i$  is price of considered food-stuff at the time  $I$ ;  $A, \beta_2, \beta_3$  are coefficients.

The welfare losses due to market power in the food manufacturing in the Saratov region were estimated by the above method. The typical results for the period between 1994-1996 have shown in the table 4.

In fact welfare loses are 2,47% of percaputa income in month, when the consumer buys only 3 food products of consumer basket, containing 19 basic food products.

Table 4

Welfare losses due to monopoly power in food market of the Saratov region

Per capita income - 100%			
	Meat	Sausages	Sunflower oil.
Elasticity	- 0.451	-0.305	-12.803
Hirschman-Herfindahl index	1254	1530	9652
Real price as % of the theoretical competitive price	138.5	200.6	108.2
Welfare losses as %	1.6	0.8	0.07

We estimated that the consumer losses are about 15% of percaputa income when he consumes the set of basic food products due to only high level of monopolisation in food industry.

At the process of the evaluation of market economy in Russia a system of adjustable competition must be formed. Among various measures of decreasing of monoploizm a formation of vertical market structures in the agro-industrial complex in Russia attracts

considerable attention. Then each subject of vertical market structure will take an interest in growth of its partners and will developed from common profitability of all food chain.

There is some experience of creation such food chain in dairy boundary in Saratov region - associations "Levoberezhie" and "Balakovskaya". These associations include farmers, milk plants and shops. The creation of such agro-industrial association lets to stabilize food-stuff production, to consolidate unity of interests of all food chain's links.

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