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Conditions and perspectives of Russian sugar market development

Abstract. The article deals with the conditions of the sugar market in the Russian Federation and its regulatory methods. These methods determine the efficiency of the sugar beet growing branch and the sugar industry. To solve the problems of the domestic sugar market it is necessary to improve its organisational and economic mechanisms and pay attention to interbranch relations between all elements of the production chain of the sugar beet subcomplex. The aim of this investigation is to estimate the current condition of the domestic sugar market and reveal effective ways of its development, which will promote good food supply security related to the domestic sugar and sugar-containing production and increase the effectiveness of entities of the sugar beet industry. The investigation shows that the implementation of the national project and various programs in the agricultural sector has reduced the share of produced sugar materials by 10% due to imported raw. Sugar beet production is the most profitable direction in agriculture per 1 ha of agricultural crops. Under the favorable price environment, sugar beet growers can quickly increase their gross yield. However, sugar produced from sugar beet by Russian factories can be competitive due to import duties and direct state support of sugar beet growers. This is due to natural factors determining the advantage of sugar beet at a higher level of productivity and sugar content. The reduction of loss in production contributes to the growth of competiveness of domestic sugar, the improvement of storage and transportation of beet sugar can be done due to the reclamation of material and technical resources of the transport and storage sectors.
The Customs Union enables Russia to increase export potential of sugar and sugar-containing production forming a favuorable price environment for sugar producers by the redevelopment of surplus. Another way to increase the capacity of the sugar market is the intensification of the growth of manufacturing output of sugar-containing products, the share of which is 40% of the sugar consumed in the country. Realisation of investment projects determining the growth of manufacturing output of sugar-containing products should be carried out comprehensively with the modernisation of production infrastructure of the sugar beet subcomplex. The success of this depends on the effective state regulation of innovative and investment processes in terms of setting-up a favorable investment climate for businesses. It includes the preferential level of rate per cent for a period of scientific and production cycle in the branch.
Keywords: Sugar; Sugar Beet Subcomplex; Sugar Beet Growing; Sugar Market; Effectiveness
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Стан і перспективи розвитку ринку цукру Росії

Анотація. У статті досліджуються стан ринку цукру та методи його регулювання, що визначають ефективність функціонування галузі буряківництва та цукрової промисловості. Метою дослідження є оцінка стану вітчизняного ринку цукру та виявлення ефективних напрямів його розвитку, які сприятимуть зміцненню продовольчої безпеки та підвищенню ефективності діяльності суб'єктів цукробурякової промисловості. Активація росту промислового виробництва цукровмісних продуктів, частка якого складає лише 40% споживаного в країні цукру, є резервом для збільшення ємності ринку цукру. Реалізація інвестиційних проектів, що дозволяють наростити потенціал промислового виробництва цукровмісних продуктів, повинна проводитися комплексно разом із модернізацією виробничої інфраструктури цукробурякового підкомплексу. Успіх цього залежить від ефективного регулювання державою інноваційно-інвестиційних процесів на основі створення сприятливого інвестиційного клімату для бізнесу, вираженням якого буде пільговий рівень процентної ставки за кредитами на відповідні терміни тривалості науково-виробничого циклу в галузі.
Ключові слова: цукор; цукробуряковий підкомплекс; буряківництво; ринок цукру; ефективність.

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Состояние и перспективы развития рынка сахара России

Аннотация. В статье исследуются состояние рынка сахара и методы его регулирования, определяющие эффективность функционирования отрасли свекловодства и сахарной промышленности. Целью исследования является оценка состояния отечественного рынка сахара и выявление эффективных направлений его развития, которые будут способствовать укреплению продовольственной безопасности и повышению эффективности субъектов сахаросвекольной промышленности. Активация роста промышленного производства сахаросодержащих продуктов, на долю которого пока приходится только 40% потребляемого сахара в стране, является резервом для повышения емкости рынка сахара. Реализация инвестиционных проектов, позволяющих повысить потенциал промышленного производства сахаросодержащих продуктов, должна проводиться комплексно с модернизацией производственной инфраструктуры сахаросвекольного подкомплекса. Успех этого зависит от эффективного регулирования государством инновационно-инвестиционных процессов на основе создания для бизнеса благоприятного инвестиционного климата, выраженного в предоставлении льготной процентной ставки по кредитам на сроки соответствующие длительности научно-производственного цикла в отрасли.

Ключевые слова: сахар; сахаросвекольный подкомплекс; свекловодство; рынок сахара; эффективность.

1. Introduction

Sugar is a valuable and rather cheap source of calories. Its high level of transportability and its suitability for long-term storage determine the possibility of its export potential, which enables to create food reserves. The sugar market, as well as the sugar beet market, has one of the main positions in the structure of regional market of the agro-industrial complex of the Russian Federation. As a result, this market becomes an issue relevant to the national strategic interests. The condition of the sugar market and its regulatory methods have a great impact on the functioning of the sugar beet growing branch and the sugar industry by means of realisation of its economic interests or, in other words, bringing the consumer the final product.

The increase of wholesale prices for sugar in 2014-2015 has raised the profitability of sugar production and cultivation of sugar beet, determining crop growth under this cultivation. However, prices for sugar have a high level of volatility, seasonal dependence on changes in correlation of demand and supply. According to the existing system of the sugar market, we can expect that its stability will be a factor of development of the sugar beet subcomplex. In the short term, it is necessary to solve recent organizational and economic problems of the market and to start creating new facilities paying attention to the modernisation of the existing sugar mills and industrial enterprises which produce sugar-containing products.

Taking into consideration the high level of dependence of subcomplex on the prices for sugar, another top target is to broaden capacities of sugar-containing production. Even prices fixed at the level of 2015-2016 will provide a stable and rather high level of profitability as for sugar producers and for producers of sugar beet. The price for sugar beet depends on the price for sugar. Consequently, the solution of the problems of the domestic sugar market requires the improvement of the economic management mechanism and the development of interbranch relations between all elements of the production chain of the sugar beet subcomplex.

2. Brief Literature Review

Both developing and developed countries try to increase the growth of their exports by providing a high level of processing, creating a huge amount of gross value added. As a result, developed countries may face tough competition from the part of developing countries due to the increasing of the quality level of their sugar export and its derived products [1]. According to C. Bonnet and V. Requillart, the reform of the EU sugar market has led to a significant reduction in prices for sugar [2]. In such a case, more developed countries use their possibilities in terms of WTO regulations to protect the domestic market and to support domestic producers (75-80% of the global sugar market is subject to state regulation and limitations). In the United Kingdom, they use quota redistribution and support with regard to prices for products of their sugar producers. In such a case, the research carried out by C. R. Giha, A. Renwick and M. Reader shows that such a «sugar strategy» enables to support more effective British producers and to pay for sugar beet more mitigating effects of the reform [3].

Producers of sugar and sugar cane also suffer from financial pressure of monopolies, thus income diversification can be considered to be one of the ways to improve their vitality [4]. In particular, in 2008 year there was a program introduced to support businesses in the U.S.A. which convert sugar into ethanol. According to this program, surplus in the sugar market will be sold to producers of ethanol [5]. This program shows that the government of the USA is ready to compensate for the costs of sugar overproduction. Public limitation of consumption of imported sugar-containing production is another form of support. It is presented as a tax on sweeteners. At the same time the government protects a healthy lifestyle and healthy eating [6]. As a result, imports of products which contain sugar, will decrease, in particular the import of confectionery, although the domestic demand will increase greatly (by 5-6 million tons of raw sugar), and the growth of prices in the global sugar market will be insignificant (approximately 1 cent per pound) [7].

At the same time such programs in developed countries aimed to support domestic sugar producers have a negative impact on farmers of developing countries. The econometric investigation done by S. Mittal and J. J. Reimer shows that prices for sugar in India depend on the world prices, which is why Indian farmers pay attention to price signals of the markets in developed countries in medium and long term [8]. Putting a gradual stop to preferential prices in the EU and a reduction in quotas leads to crises in the sugar branch in many developing countries. In their investigation, the authors presented a model concerning a 30% reduction in sugar production for the economy of Fiji. It shows that the reduction of gross domestic product of the country was by 2.3-2.5% [9]. According to the linear programming model, used in the research by Y. M. Hamada (2014) [10], in the growing season in Upper Egypt and Middle Egypt the cultivated land of sugar cane and beet sugar will decrease by 7.26%, having the optimal structure of sowing and at the same time Egyptian sugar export will decrease by 130 million US dollars. Allocation of export quota for sugar in the EU is also an important factor preventing effective development of the sugar beet industry in Ukraine. This problem is also relevant to other directions of agricultural production, determining the problems of land tenure and at the same time preventing the realisation of the great agricultural potential of the country (Moskalenko A., 2015) [11].

Developing countries can stand the competition from the part of developed countries following the example of modernization of the sugar branch in Brazil. This modernisation is based on the growth of demand for sugar and ethanol, the two products obtained as a result of processing of sugar cane. The results of the investigation carried out by A. Deuss (2012) [12] reflect to the fact that future sugar cane plantations should be

located in areas capable of generating a higher rate of economic growth. This idea has a practical continuation in our investigations in the context of Russia's social and economic conditions. Firstly, it is essential to estimate innovative susceptibility of agricultural producers able to become «the point of economic growth» in the branch, generating synergies [13]. Secondly, it is necessary to give an estimate of the cultivating competiveness of sugar beet producers, which is determined by a multiplicative estimate of economic and technological efficiency of using arable land by farms [14].

Tab. 1: **The main parameters of development of beet sugar subcomplex of the agro-industrial complex in the Russian Federation in 2005-2015)**

Indicators	Years						Departure from 2015 year
	2005	2011	2012	2013	2014	2015	
Gross yield of sugar beet, thousands of tons	21,420	47,643	45,057	39,321	33,513	39,031	17,611
Sugar beet crops, thousand ha	805	1292	1143	903.8	918.7	1022.2	217.2
Level of yield of sugar beet, dt/ha	282	392	409	442	370	388	106
Sugar recovery, %	13.96	13.00	12.51	12.95	15.09	15.17	1.21
Produced sugar, thousand tons	5,600	7,087	5,308	4,940	5,269	5,743	143
- from sugar beet, thousand tons	2,503	4,722	4,838	4,428	4,604	5,133	2,630
- share, %	44.7	66.6	91.2	89.6	87.4	89.4	44.7
-from sugar cane, thousand tonnes	3,097	2,365	470	512	665	610	-2,487
- share, %	55.3	33.4	8.9	10.4	12.6	10.6	-44.7

Source: Calculated by the authors according to the statistical data by All-Union Association of Sugar Industry

3. The purpose of the article is the investigation of condition within the domestic sugar market of the Russian Federation defining effective directions of its development, which will contribute to strengthening of food supply security in sugar and sugar-containing production and to increasing the efficiency of entities of the beet sugar subcomplex.

4. Results

According to the International Sugar Organization [15], the leading sugar producers in the world are as follows: Brazil - 35 million tons, India - more than 26 million tons, the European Union (with Germany and France being the largest producers) - 18 million tons, China - 12.5 million tons. The Russian Federation with its production of 5.7 million tons is among the top ten countries. Under such conditions, Brazil is the main sugar exporter in the world (68% of its production is exported), whereas China and the European Union are large-size net importers of sugar. However, there exists a dependence on the imports of sugar and sugar-containing products despite the rapid pace of the production growth of sugar beet and production facilities of sugar mills. Brazil and Belorussia are the most important and partners of sugar supplies. The reason of it is that according to the existing production technology wholesale selling price for sugar made from sugar beet by Russian sugar mills (even inclusive of customs duties) cannot compete with the price for imported raw sugar. The cost value of sugar cane and sugar made from sugar cane is lower according to natural factors, which provides a higher level of yield and sugar recovery per 1 kg of raw materials (sugariness), while the duration of the production season in other countries is much longer.

The launching of the national project in agriculture in Russia has contributed to a significant increase in the number of farms cultivating sugar beet (the number is 2,100). The main centres to cultivate sugar beet for manufacturing are situated in the regions of Central Federal District (50-55%), Volga Federal District (20-22%) and Southern Federal District (18-20%). Although a number of producers can reach the level of yield of 60 tons per ha and it is up to the rate of European nations, the average Russia's yield of sugar beet has been much lower for 3 years running and equalled only 40-41 tons per ha (Table 1).

Furthermore, the yield of sugar beet for manufacturing fluctuates greatly from year to year, which leads to rises and falls of production of sugar made from sugar beet, and it determines the volatility of wholesale prices. As a result, there is a low-level of investment attractiveness due to the instability of the profitability of producers of sugar beet for manufacturing and of sugar producers, though this branch is the most profitable per 1 ha of crops, as well as potato farming, in the structure of the agro-industrial complex. For this reason, to achieve indicative the indicator set in the branch program known as «Development of sugar beet subcomplex in Russia in 2013-2015» in terms of the volume of gross yield of sugar beet (more than 37 million tons) and sugar production (more than 4.6 million tons), it is necessary to conduct a thorough estimate according to the analysis of other tasks of the program.

On the one hand, the needs of the domestic market in sugar production are provided by more than 90% due to the growth of gross yield of sugar beet according to the obvious positive changes (in 2005, 55% of sugar were produced from the purchased sugar cane; by 2015 year its value had reduced to 10%). On the other hand, this program is realised due to the extensive factors, although a variety of problems has not been solved yet. There is still a high level of loss when storing and transporting sugar, as well as when processing it by sugar mills. The development of processing facilities of the sugar industry is very slow. The reasons for this are the following: new factories have not been put into operation for a long time; for the past 5 years the reconstruction and modernisation have helped to increase productive capacity (per 1 factory) only by 14% on average, most of the used equipment does not correspond to the modern technical level. That is why it is impossible to do away with the lag in the capacity of daily processing of sugar beet if compared with European competitors.

Setting-up the Customs Union has given an opportunity to increase export potential of sugar and export potential of confectionery industry to the Union member countries, primarily to Kazakhstan. It will contribute to the reorganisation of the surplus of produced sugar and sugar-containing products in the period of low wholesale prices, reducing the amount of sugar supply in the domestic market and creating a favourable price environment for sugar producers. However, it is necessary to promote logistical support for domestic companies, which should be provided by the necessary quantity of rolling equipment and preferential railway tariffs for the transportation of their products.

At this stage, there is a relatively high level of direct consumption of sugar (35-40 kg per capita) in Russia according to national features and traditions of the domestic sugar cane agriculture. With regard to various estimates, the share of direct consumption reaches 60% on average, although in the last decade there has been a decreasing trend [16]. As a result, less than half of gross output of sugar is used in industry, though this ratio is from 60% to 70% of the sugar production in developed countries used by manufacturing enterprises to produce sugar-containing final products. The basic sugar mass in the domestic economy is used to produce confectioneries (64-67%). The share of the other directions is smaller: soft drinks (11-12%), milk products (8%) and horticultural products (7%). Therefore, the perspectives of the expansion of the domestic sugar market have a significant reserve due to activation of the growth of manufacturing output of sugar-containing products.

5. Conclusions

The country's sugar market plays an important role in strengthening of food security and full import substitution with domestic sugar and sugar-containing production. Therefore, activities for its sustainable development should be aimed at improving conditions for trade operations, enhancement of the efficiency of its members, provision consumers with qualitative and affordable products. It determines the comprehensive modernization of both the sugar beet subcomplex of the agro-industrial complex and those industrial branches which use sugar as a raw material to produce the final product, the result of which will be the enhancement of efficiency of sugar production and the growth of sugar market capacity.

The primacy of the comprehensive modernisation of the industrial infrastructure is determined by the duration of innovative and investment cycle, while sugar beet growers may increase the volumes of production of sugar beet under the conditions of the favourable price environment in a short period. The growth of efficiency of sugar production is determined by the possibilities to increase production capacities due to the introduction of

new sugar mills and the modernisation of functioning sugar mills and it is also done without any prejudice to the deterioration in the quality and the volume of production output to extend the seasonal period of sugar beet processing. The second priority is to improve material and technical resources related to transportation and storage facilities of sugar beet, which will help to reduce the loss of production while storing and transporting sugar.

To realise these directions in terms of the strategy project of the development of the food and pharmaceutical industries in Russia in 2013-2020, it is planned to raise investments in the sugar industry at the rate of 94.2 billion rubles. To build new factories and to perform a reconstruction of 32 sugar mills in the medium term there will be the overall volume of investment of 75.3 billion rubles (which includes 53.7 billion rubles relevant to the originated loans). Nevertheless, we are of the opinion that in the conditions of practically double devaluation of the rouble at the high level of branch import dependence, to realise the program at the fixed time, it will be necessary to attract huge investments. In this case, according to the optimistic script correction should be no less than 20-30% of the planned level (18-27 billion rubles, or 250-370 million euros). Only credit resources can become sources of equalising the difference due to the fact that the investment market in Russia is in the doldrums under the conditions of the imposed financial sanctions. Increasing of the level of refinancing rate in the country determines the growth of credit costs, which means that budget costs are also determined by it when using such an instrument of support as giving subsidies to refund part of interest payments. In the conditions of the structural crisis in the Russian economy there are not any reserves of financing to solve all the above-mentioned problems. This explains why the efficiency of the modernisation of the sugar industry depends on the state ability to control and to provide conditions for solid investment, to instate and guarantee low-percentage loans for a reasonable period for the scientific and production cycle in investment complex. The implementation of economic regulation can be effectively done though the system of state institutions, keeping in mind that the industrial development fund has priority in this system.

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