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Aspects of Economic Efficiency of the Sugar Industry and Agribusiness Sugar Beet Cultivation in the Period of Changing Technological Modes

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Abstract: In the study presented deep holistic perspective description methodically aspects of the efficiency of the sugar industry and sugar beet cultivation spheres of agroindustrial complex in the period of changing technological modes and build the bioeconomy the case of Russia, the countries of the European Union and Brazil. The researchersr produce analysis according to the current status of volumes elaborate sugar in sugar beet and sugar cane in the country and in the world as well as making recommendations on how to make the production of this product in our country more competitive on the world market.

Key words: Agriculture, sugar, bioenergetics, bioeconomy, sugar beets, sugar cane, efficiency

INTRODUCTION

Modern development of the world economy want it not different heads of State and major companies, already densely entered into a process of deep transformation. According to the wording of S. Glazeva a new economic order will be referred 6th technological way. The essence of the transformation of the author of the concept today formulates as follows "assuming a cyclical patterns of long-term economic development, everything looks quite predictably and even somewhat orderly. What we see today, a typical manifestation of change of Kondratiev's waves which are connected with substitution of the dominant technological modes in facing us today the period for completion of the process of changing technological modes. But the technological adjustment period only starts on a global scale. Phase of the birth of a new technological way release on growth path is always accompanied by very serious surge in the global economic system, the sharp jump energy prices. This leap in energy prices due to the fact that overbeing phase of the previous technological way dominant in the system are able to ramp up the price monopoly, using stiffness technological structure. And for the rest it is a signal that the traditional technological trajectory are exhausted to look for new technological solutions" (Glazyev, 2015). According to the events of the last year as a sharp drop in energy prices, the process of transition to a new technological way has passed its "Equator". One of the main guides in the development of this way of life according to the majority of professionals would be and already is in many respects, biotechnology industry including food and bioenergy. Some researchers have called in a whole new way of technology (Tatuev *et al*., 2015a, b). At the same time, the development of biotechnology industry in Russia, despite having huge reserves formed in 1980-IES which were partially resuscitated in 2000-e, currently radically lagged behind similar development in countries such as the United States, Japan, China and the European Union (especially in the face of the Federal Republic of Germany) (Lyzhin, 2014; Zharashueva, 2015).

Changing this phenomenon must happen not only through capital infusions and domestic, intra-and intraregional subsidization within the Biotechnology Programme 2020 "specialized national technology platforms (Popov, 2012; Legonkova, 2012) although, this is definitely important but also in customary harmonize basic philosophy development principles from leading experts including decision makers by industry, region and

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at the macro level and this unfortunately today there are big problems. In this study the author tried to holistically consider sensitive understanding of economic efficiency in the economy, the sugar industry in the period of changing technological modes at the macro level but also at the sectoral and regional meso levels as proof of the articulated issues with recommendations on a possible way out of the situation.

LITERATURE REVIEW

Within the framework of the survey seems interesting review scientific article leading expert Institute for agricultural market studies (Ivanov, 2008). "Sugar Industry of Russia to the year 2014 (forecast Analytics" published in the scientific journal "sugar beet" in August 2008. Of course criticize the person making predictions for the future in 6 year and articulating it literally a month before the start of the global financial crisis which in many ways began the transformation of the economic order, probably would not be quite right but it's worth noting that this study thought based on the opinions and feelings of officially prescribed directives leading experts and industry leaders, the essence of which was at the time the pursuit of increased competitiveness of the sugar industry in the world market in anticipation of the entry of Russia into the world trade the organization.

And so, in this study the researcher formulates as follows "from the existing 80 in 2007 g sugar factories (nominally-93) left ~60 with actual power ~15 businesses to put up 6-10 thousand tons of sugar beet processing per day 30~4500 companies; ~15-3000 k tons. The remaining factories dismantled including the remainder of the oil refinery at Tula. The average length of sugar beet processing season exceeded 140 day, compared with 104 me days in 2007 g. carriages, oil, manual Mills <3000 t of beet processing per day that were uploaded <90 days, not survived competition amid growing costs. Now a days everything a little differently. From 2008-2012 timeframe. number of operating plants accounted for 78 pieces, 2013-75, the average production capacity by region to the year 2013 ranged from 1.5-1.75 thous. t per day in the Republic of Chechnya and Bryansk region to 5.46-6.0 in Krasnodar region, Republic of Mordovia, Tambov region. Dismantling of plants during this time period, almost no instead were only processes the preservation or reconstruction of production capacity of some low-power plants. General "capacity building refineries in 2013. increased compared to 2008, 16.8%. Power plants in Tula region though were reduced by >2 time with 4.63 thous. t. to 2.0th. t. beet processing per day but continue to exist (2011, 2012-data on production capacities for processing beet to Tula region were absent). Moreover, some of the authors of modern scientific literature is formulating capacity development programme for sugar production in this region (Mansurov, 2015). The average length of sugar beet processing season in 2011 year really reached 135 day, however, after a radical transition to import substitution of raw materials 2012 year amounted to 121 and in 2013-116 days. In subsequent years the dynamics for the better. And finally-plants with a capacity of <3000 tons per day in processing these years worked in Bryansk, Tula, Ryazan, Saratov oblasts, the Republic of Chechnya.

THE MAIN PART

Status of sugar industry: If we consider the history of the development of the economy, the sugar industry as a whole it eventually Continental the economic blockade of Napoleon at the beginning 19th century, food security issues for countries of the European continent, including Russia, at least in the field of supply of sugar began to take precedence over issues of economic efficiency of production of sugar from sugar beets on that continent was initially less profitable than similar production of Latin American sugar cane or even export the final product with the same region (Kalinicheva, 2010; Sklyarenko, 2013). For two hundred years, the overall situation has not changed that is what it remains today (Fig. 1).

It is necessary to admit that the situation has not changed nor after 2012 which ends the analysis on Fig. 1 wasn't she a and up to the year 2000 from which to start thecomparison of indicators in this figure. A number of domestic authors, apparently as part of a desire to specify its patriotic position including on the economics of the industry, saying that sugar from sugar beets can be economically beneficial in the global arena, pointing to the peak growth of prices for sugar occurred there in 2011 but still if you look the truth in the face, i.e., a sober look at the timetable demand for sugar on the world stock exchange over a long period of time and the prices and compare it with the dynamics of price growth proposals then you can make unambiguous conclusions (Fig. 2).

In recent years, the overall situation has not changed. In this connection, it is worth to formulate that and today manufacturers of sugar from sugar beet sugar production for the world market is rather uncompetetive appendage than a real player, however having nowadays a significant proportion of the sugar common market (Fig. 3).

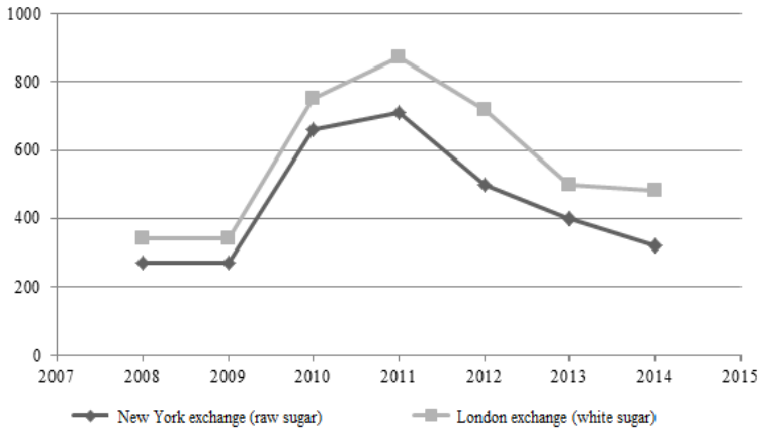

Fig. 1: Compare the price of cane and beet sugar in 2000-2012 biennium

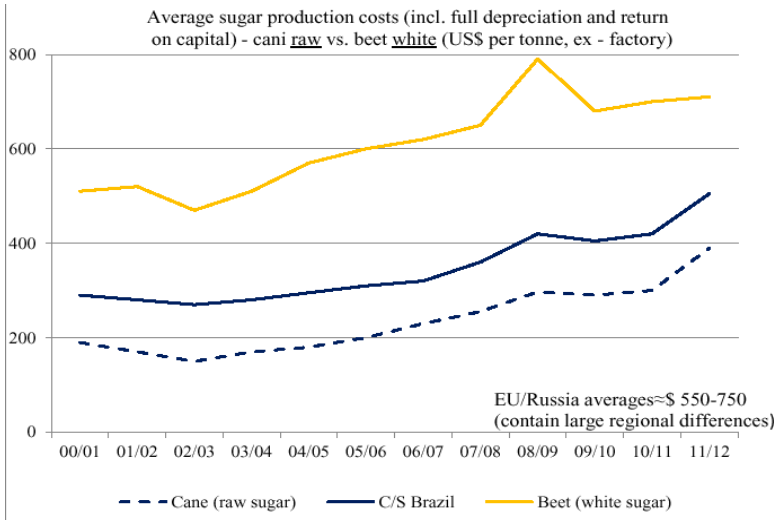

Fig. 2: Price per ton of sugar in United States dollars for 2008-2014 (Gladilina, 2014)

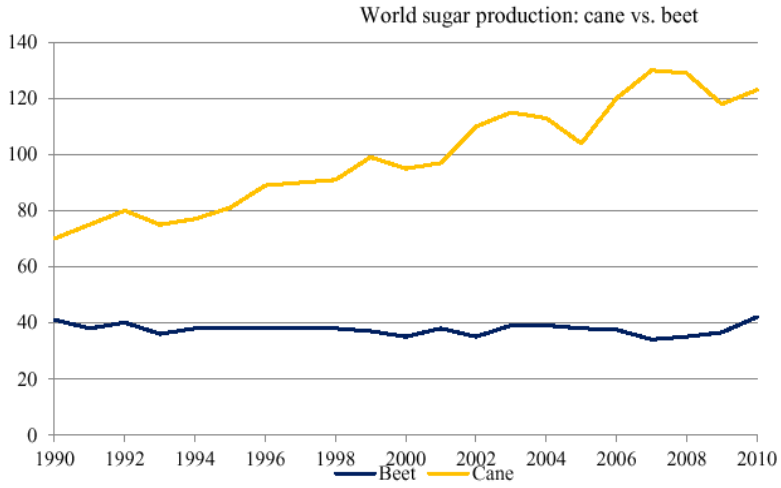

Fig. 3: Sales of sugar from sugar beet and sugar cane in 1990-2010 biennium

According to data taken from the monograph 2015, major producers of sugar beet in the world for the year 2001 were "EU countries (124.1 million tons of which France accounted for 26.8 million tonnes, on Germany -24.7 million tons), United States (23.4 million tons), Ukraine (15.6 million tons), Russia (14.6 million tons). Although not quite correct for the analysis of contemporary development economics data in the form of their filing for 2001, since for example from 200-2015 g. Russia in sugar production increased shareholdings of sugar beet as a commodity product from 25 up-92% and other specified countries (groups of countries) have occurred significant changes in this sector of the economy, the essence remains. Despite the share reduction of sugar beet in total world production over the past decade with 35-37 to 2-24% many leading economies including the United States, China and the EU, even in an era of total globalization, the essence of which lies in reducing costs of uncompetitive product (raw materials) to refuse to completely not collected staying in the positions that the policy product security mode for them is more important than economic efficiency. However, despite the fact that the economic efficiency of the sugar industry in the world economy as we see is secondary, it is not recognized by the totally unnecessary. In most countries where there is a sugar production programs in economic development still exist and regularly of course together with the continuation of the protectionist policies of tariff regulation. In particular, the EU countries the basis for development in this direction in recent decades to build on growth programmes in energy efficiency as well as the consolidation of working enterprises of the branch with the removal of her small and medium-sized factories. Number of plants over the past decade for instance in Italy decreased from 28-5, Poland with 70-10, and so the total number of plants in Europe, at the time of the collapse of the Berlin wall which stood at >500 now <100 and continues to decline. On the market there are only huge plants that economies of scale are trying to reduce the cost of production as possible to the likeness of competition with the price of similar products from Brazil.

THE DYNAMICS OF THE SUGAR INDUSTRY IN RUSSIA

In Russia the situation is somewhat different 18th century, no known works to improve the efficiency of the sugar industry have been detected by the author, if not consider Decrees of Peter I in support of the marketing of products from plants Vestova. However, in this century, sugar production in Russia produced only from imported sugar. The 19th century such works can be considered a translation of major productions with Velikorossii in Ruthenia in places with greater productivity, syndicalism and consolidation of production. During the Soviet period of the 20th century due to the format of the work of the planned economy, the competitive edge of domestic raw materials from the West there was no sense in particular thinking and postupavsij at domestic counters made from Cuban sugar cane this was the question is more political than economic. Responsibly to say which of these products was for Soviet economy economically more beneficial today probably difficult. After the collapse of the COMECON block, Cuban sugar on the world market was recognized economically unviable and quickly went out of the market. Appearing from time to time in print publications on resuscitation of the Cuban sugar industry is rather political than economic. In 1990-2002 year the national economy sugar industry tried to work in the format of a liberal economy with elements of consideration for food security in connection with which the industry plants, though continued to metabolize sugar beets but the volume of processing sugar cane imported from Brazil reached some years 72-74%. Period 2003-2011 for sugarfactor became the period of protectionist policy with elements of the liberal economy, i.e., a period of gradual squeezing of foreign raw materials within reason of simultaneous concern for cost reduction of final products of the industry. Finally, starting with the year 2012 and until the present days happened nobody expected, economically unjustified, a period of almost total exclusion of foreign raw materials market.

More Coming to the events occurred, it is worth noting that Order No. 401 "on approval of the branch target program" Development of the sugar beet processing subcomplex of Russia in 2010-2012 year" from 23.10.2009 to Russian Agriculture Ministry signed by the Minister of Agriculture of the Russian Federation e. Skrynnik was approved by the programme for the development of sugar industry of Russia in the 2010-12 timeframe. Within the sectoral target program, prepared by the leading experts from the Union of sugar producers Russia, has worked out a number of indicative economic items this development in particular on page. The 8 of this program indicate that for the period 2010-2012 biennium due to the complex of measures on which it is stated in the programme, the proportion of from sugar beet should rise from 63-67% (Table 1).

Table 1: Indicators on the impact of the programme for the achievement of the strategic goal of the Russian Ministry of agriculture

	Planning period (Г)		
Main indicators	2010	2011	2012
The proportion of Russian production in shaping the overall resources of sugar (%)	63	65	67

Table 2: Proportion in the production of sugar from sugar beets in Russia for 2010-2012 biennium*

	Planning period (Г)		
Main indicators	2010	2011	2012
The proportion of Russian production in shaping the overall resources of sugar (%)	58.3	66.5	91.7

Table 3: Production of sugar from sugar beet and sugar cane in Russia in 2000-2013 biennium (%)*

Years	Beet	Sugar cane
2000	26.0	74.0
2001	25.0	75.0
2002	26.0	74.0
2003	33.0	67.0
3004	46.0	64.0
2005	45.0	55.0
2006	55.0	45.0
2007	51.0	49.0
2008	59.0	41.0
2009	65.5	34.5
2010	58.3	41.7
2011	66.5	35.5
2012	91.7	8.3
2013	91.9	8.1

*Compiled by the authors according to the materials of rice. 4-sugar production in Russia

Comparative analysis of Visual indicators in Table 1 and 2 requires drill through to deepen the understanding of such discrepancies between the officially adopted development plan for the 3 year term and its implementation. This analysis after a review of the literature shows that failure to plan 2010 was caused by drought that can be considered in its entirety as a force majeure. The 2011 figures in total almost coincide with planned indicators, results, however, 2012. Radically out of planned. Industry experts talk about what is it is not clear what linked the record (sugar) beet which on some of Russia's regions began to reach 18-19%. Might be possible to accept this explanation, if not the results of subsequent years. For example in the year 2013 the proportion of sugar beet in the total volume of raw materials in the production of sugar in Russia accounted for 91.9%. In 2014-2015 timeframe. The overall situation has not changed.

General history 2000-2013 biennium. For equity participation of raw material from sugar beet and sugar cane in the Russian Federation are presented in Table 3. The person with the protectionist mood may of issues arising from the author of this work, answering the question "what is wrong with that import substitution in each sub-sector surpassed one-third plan. Actually "badness" exceed plans is in this study we will mention just two of the most obvious aspects of the existing.

Financial component. As indicated above industrial production of sugar from sugar beet throughout their 215 year history has always been much less cost-effective than cane. Is not an exception and our days; socio and techno-economic component. The production of sugar from sugar cane does not occur simultaneously with the production of sugar beet and in the order queue "but due to the technical possibilities of delay for January as well as begin before August-sugar beet processing factories for is not feasible. More than a larger amount of processing sugar cane takes place, the greater the amount of time the sugar mill will work up to 11 months a year. If the data is not loaded in the remaining plants 7-10 month of the year, after sugar beet processing, underpaid wages and production itself loses its coefficient of congestion and thus grows as a result, the total cost of production and with it falls and product competitiveness on the world stage.

Summary: In conclusion, based on the parsed, the researcher believes that this program almost full refusal from processing sugar raw sugar mills is a mistake from which to Doubly wrong to go. This denial within similar programs import substitution of raw materials the BRICS-Brazil partner. On the contrary, for author cooperation with Brazil in the economy should strengthen the sugar industry, radically enhance in our days to share successful occurrence in 6th technological way. the Federal Republic of Brazil is not the first decade is successfully working to develop products such as bioethanol and biofuel. If the Russian Federation, decide on the accelerated development of this sector on the basis of the achievements of our partner BRIX-load operating sugar-made plants of the RF can be increased up to 170-230 day a year and sugar production costs through economies of scale will be reduced drastically. The cost of the development of this industry will not be huge on other sold today of federal targeted programmes of development and income including the cumulative effect will be received in the coming years, the implementation of the programme. The only thing with the implementation of this programme in this moment cannot be tightened, defeated in race for bioethanol (and in General for the bioeconomy) on 6th technology the way will leave Russia in the amount of countries-the outsiders (Tatuev *et al*., 2015a-c; Sklyarenko, 2015; Brovkin, 2015).

CONCLUSION

According to the researcherr of this study, not executing in the formulated indicators article, based on an agreed expert opinion and the leaders of the region, occurred largely because of the financial crisis or food and due to the fact that regional authorities strongly largely unwilling to cut sugar beet sown in their regions which in recent years has shown a rapid, unexplained

increases in productivity and at the same time and did not want to close inefficient low-power sugar-made plants that gave some employment for the population, often in depressed regions. Data description and other important aspects of regional policy in Russia at the present stage a number of authors today is represented in the scientific press in sufficient quantities, select only some of them (Uvarov, 2015; Shurdumova, 2014).

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