

## The Russian Federation – Specifics of the Sugar Market

L. Smutka<sup>1</sup>, M. Maitah<sup>1</sup>, E. A. Zhuravleva<sup>2</sup>

<sup>1</sup> Faculty of Economics and Management, Czech University of Life Sciences in Prague, Czech Republic

<sup>2</sup> Tax and Taxation at Economics Faculty, Kuban State University, Krasnodar, Russian Federation

### Anotace

Ruská federace představuje významnou sílu v oblasti produkce a spotřeby zejména řepného cukru ve světě. Populace přesahující více než 140 milionů obyvatel konzumuje ročně přes 5,6 mil. tun čistého cukru a objem spotřeby trvale roste. Po dlouhé době stagnace ruského cukrovarnictví (Cukrovarnictví nebylo schopné zejména v období transformace ekonomiky uspokojit domácí poptávku, a Rusko se tak stalo silně závislé na importech jak rafinovaného, tak i surového cukru.), se Ruská federace v posledních deseti letech zaměřila na prosazování plánů spojených s obnovením produkčních kapacit jak v oblasti cukrové řepy, tak i v oblasti výroby cukru. Vládní program prosazovaný jak na federální, tak regionální úrovni velmi výrazně posílil produkční potenciál a snížil závislost Ruska na importech cukru. Cílem článku je identifikovat nejvýznamnější trendy a tendence ovlivňující vývoj ruského cukrovarnictví v posledních dvou dekadách. Z níže provedené analýzy následně vyplývá, že období let 1992 – 2000 znamenalo pro ruské cukrovarnictví velmi kritické období, kdy došlo k propadu jeho vlastních pěstitelských a zpracovatelských kapacit. Došlo k výraznému úpadku nejen v oblasti kvantitativních, ale i kvalitativních charakteristik ruského cukrovarnictví. V důsledku výše uvedeného došlo k poklesu konkurenceschopnosti a výraznému nárůstu závislosti na importech. V období let 2000 – 2012, pak naopak došlo k resuscitaci ruského trhu a hospodářství. Toto se projevilo jak v oblasti růstu produkce cukrové řepy, tak i v oblasti růstu vlastní produkce cukru. Závislost Ruska na importech cukru ze zahraničí výrazně poklesla a změnila se i struktura obchodovaného cukr obsahujícího zboží. V důsledku řady reforem došlo i k posílení konkurenceschopnosti ruského cukrovarnictví a to zejména ve vztahu k zemím se kterými má Rusko uzavřeny dohody o celní unii, či zóně volného obchodu.

### Klíčová slova

Ruská federace, cukrová řepa, rafinovaný cukr, surový cukr, produkce, factory, obchod, konkurenceschopnost, struktura

### Abstract

The Russian Federation represents a significant force in the global production and consumption of beet sugar. Its population which is in excess of more than 140 million people consumes over 5.6 million net tons of sugar annually, and the amount is steadily growing. The Russian sugar industry was unable to meet the domestic demand, especially during the economic transformation period (sugar beet and sugar production are very sensitive in relation to changes in economic, political, production and consumption environment (Špička, Janotová, 2013), and Russia has thus become heavily dependent on imports of both refined and raw sugar. After a long period of stagnation the Russian Federation has over the past decade focused on promoting plans for restoring the production capacities of both the sugar beet growing and sugar manufacture.

The government programme promoted at both the federal and regional levels has very significantly boosted the production potential and reduced Russia's dependence on imports of sugar. This article aims to identify major trends and directions affecting the development of the Russian sugar industry in the past two decades. From the analysis outlined below it follows that the period of 1992 - 2000 was a very critical time for the Russian sugar industry during which there was a downswing in its cultivation and processing capacities. There was a significant decline not only in the quantitative but also qualitative characteristics of the Russian sugar industry.

As a consequence, there has been a fall in competitiveness and a significant increase in import dependency. In the period 2000 - 2012, then was contrary to resuscitate the Russian market and the economy. This was reflected in the growth of sugar beet production, as well as in the growth of its own sugar production.

Russia's dependence on imports of sugar from abroad dropped significantly and changed the structure of traded goods containing sugar. Due to a series of reforms, and to strengthen the competitiveness of Russian sugar industry, especially in relation to countries with which Russia has signed an agreement on customs union or free trade area.

## **Key words**

Russian Federation, sugar beet, refined sugar, raw sugar, production, factory, competitiveness.

## **Introduction**

The Russian Federation represents a specific phenomenon of the European and world market of sugar and sugar producing crops – especially sugar beet. Following a long period of stagnation in the Russian sugar production the Russian sugar market has stabilized (Rylko, 2008) and the Russian Federation is gradually moving to the forefront of the world's sugar beet and beet sugar producers (Rezbova, Belova, Skubna, 2013; Reinbergr, 2012).

In recent years a very dynamic growth was recorded especially in the cultivation of sugar beet and subsequently also in the production of both raw and refined sugar. The production growth was also logically reflected in the strengthening of the position of the Russian sugar industry both on the domestic and regional markets (the European and Asian markets, and especially the market of CIS countries) (Ivanov, 2011). In this respect, the actual Russian market is a very important sugar outlet (Smrčka, Höning, Hromádko, 2012) - for about 140 million Russians consume an annual average of about 40 kg of sugar per person.

The following text deals with selected aspects of the Russian sugar market development from the perspective of the 1992 – 2012 period. This study has monitored the developments in the production of sugar beet and sugar and then also in the trade with sugar and sugar-containing products. The aim was to evaluate the general developmental trends and define the further development of the Russian sugar market with emphasis on the identification of developments in the areas of comparative advantage, both in relation to the global and regional markets and in relation to the most important trade partners of Russia.

The article identifies particularly the current position of Russia in the sugar market and highlights the prospects of its further development. In this respect some of the historical consequences

of the Russian sugar industry development are also mentioned. Apart from the historical development with an emphasis on the developments in the 1990's of the 20<sup>th</sup> century, its current development is analyzed in more detail, with emphasis on the past ten years, when the production of sugar beet and sugar manufacture was restored in the Russian Federation.

## **Materials and methods**

The article analyzes the development of selected characteristics of the Russian sugar industry with emphasis on the period of 1992 - 2012. The monitored period was divided into two periods: 1992 - 1999, i.e. the transformation of the Russian economy associated with its general decline, and then 2000 – 2012, i.e. a period of consolidation and gradual economic growth (data is analyzed through basic and chain indices – chain indices are summarized through the GEOMEAN calculation). The article analyzes selected characteristics of the development of the sugar industry market in three levels: growing beet sugar, sugar production, and foreign trade in sugar. In relation to the development of the sugar beet production this study has monitored hectare yields, harvest areas, sugar content, and the total volume of production

The actual production of sugar was then monitored separately. Individual characteristics related to the development of production of sugar beet and sugar itself are compared with the European and world average in order to better illustrate the development of the Russian sugar market. The analysis of foreign trade has been processed at two levels - commodity and territorial. In the analysis of the commodity structure of trade the trade is analyzed within the framework of the HS17 aggregation - sugar and sweets (i.e. sugar and sugar containing products). The development of trade implemented within the framework of HS 1701 aggregation, which includes the trade with refined and raw sugar, is then analyzed in more detail.

The changes in the value and volume of exports and imports realized in relation to individual countries and territories have been analyzed. In this regard the selected territories include the Asian market, the Latin American market, North American market, European market, Oceania, OECD countries market, the EU market, with an emphasis on the old (EU15) in the new Member States (EU12) market, and the market of the CIS countries, and finally the Visegrad group market. The analysis also focused on the identification of the current (2012/2013) most important trading partners (individual countries) both in terms of exports and imports.

Finally, the material is also complemented by an analysis of the competitiveness of the Russian sugar in relation to individual regions. The analysis of competitiveness is based on the application of the Lafay index (Lafay, 1992; Qineti, Rajcaniova, Matejkova, 2009). The Lafay index (LFI) is a common tool used for the analysis of specialization and competitiveness in the context of bilateral trade relations. LFI index allows to analyze the situation of a particular product (group of products) within the foreign trade structure a specific analyzed country or groups of countries:

$$LFI_j^i = 100 \left( \frac{x_j^i - m_j^i}{x_j^i + m_j^i} - \frac{\sum_{j=1}^N (x_j^i - m_j^i)}{\sum_{j=1}^N (x_j^i + m_j^i)} \right) \frac{x_j^i + m_j^i}{\sum_{j=1}^N (x_j^i + m_j^i)}$$

where:  $x_j^i$  and  $m_j^i$  represent exports and imports of a product  $j$  implemented by a country or a group of countries in relation to the rest of the world or in relation to a selected business partner or group of partners (partner country/ies) and  $N$  is the number of analyzed items. A positive index of LFI value indicates the existence of comparative advantages within the analyzed traded aggregation, with the higher index value the specialization of a given country grows for a given commodity. A negative value of the LFI index indicates the absence of specialization and, consequently, also of the comparative advantage (Zaghini, 2005).

## Results and discussion

### Production of sugar beet and sugar during the transformation period

During the past 20 years there have been very significant changes in the production of sugar beet. In the 1990's – i.e. a period of transformation of the Russian economy (the transformation period

represented a real shock for the Russian economy and thus also for agriculture (Liefert and Liefert, 2012; Pustovalov, 2004) - including the sugar industry. A number of production and processing capacities had collapsed. The national economy had generally decreased (Sapir, 2001; Robinson, 1999; Ellman and Scharrenborg, 1998) and this decline had also affected the purchasing power not only of individual companies but also of individual consumers.).

There was a very significant reduction in the sugar beet production mainly due to a decrease in harvested area and hectare yields (Table 1).

In the years of 1992 - 1998 there has been a general decline in the harvested area down from 1.4 million ha to about 0.7 million ha (during the monitored period, the size of hectare areas decreased by an average of 11% per year, which was a significantly higher pace compared with the world (about 4% per year) and especially compared to Europe (about 5% per year).

The share of the sugar beet growing areas in the total volume of growing beet areas in the world and especially in Europe (in this respect, it is important to highlight Europe's position as the most important center of production of sugar beet and manufacture of sugar in the world) decreased from 17% to about 10.4% or from about 23% to about 15%. Also, the average yields per hectare declined from about 18 tons to about 15 tons. The average hectare yields then fell to a level of 40% of the average hectare yields in the world and in Europe (Table 2).

The decrease in the area and yields per hectare, which occurred during the transformation period, was logically reflected in the decrease of the total production of sugar beet (Table 3). That decreased from 25.5 million tons to approximately 10.8 million tons during the years 1992 - 1998. Russia's share of the world or European production declined from about 9% to 4% and from 12.5% to 6% respectively. In this regard it should also be stated that during the above-mentioned period the Russian sugar beet production was declining by an average of 14% per year, which was significantly higher in comparison with the general decline in the volume of production of sugar beet which had occurred in the world (1.1% annually) and, in particular, in Europe (2.5% per year).

This development illustrates the generally devastating impact of the transformation on Russia's economy (Sanchez-Andres, Garcia-Testal, 2008) -

in this case the sugar beet production. In this regard, the decline in the value of the gross sugar beet production should be pointed out. It had decreased during the monitored period from about 1 billion international dollars (international accounting unit used by the IMF) to about 460 million international dollars (when the decline is compared with the decline in the value of production in the world and then also in Europe - again, we can see a significant drop on Russia's side due to the transformation).

The general decline in sugar beet production - a key commodity for the production of beet sugar - in the case of the Russian Federation showed a very significant decrease in the production of its own sugar (Table 4). The volume of the production expressed in equivalent raw sugar has declined during the transformation period from 2.5 million tons to less than 1.4 million tons.

The production in the monitored period was decreasing by about 10% per year, which was in stark contrast with the development of the sugar market in the world where the volume of production grew by an average of 2% per year.

(It must be pointed out that the decline in Russia's share in the world sugar production was much more pronounced than was the case in the European market as a whole - which generally on average - in the 1990's of the 20th century had recorded a drop in production. However this decline was much less painful - for illustration it can be noted that in the same period the production on the European market declined by an average of 1% per year.). Russia's share in the world or European sugar production fell from 2.2% to 1.1% and from 9% to 5.4% respectively.

	1992	1996	1998	2000	2004	2008	2010	2012	Rate of growth 1992-1998	Rate of growth 1999-2012
Russian	1439	1060	707	747	790	800	924	1102	0.8883	1.0322
World	8468	7646	6784	6012	5474	4273	4700	4884	0.9637	0.9768
Europe	6272	5563	4674	4185	3944	2907	3234	3425	0.9522	0.9780

Source: Faostat, 2014

Table 1: Development of harvest area of sugar beet (in thousands ha).

	1992	1996	1998	2000	2004	2008	2010	2012	Rate of growth 1992-1998	Rate of growth 1999-2012
Russia	17.76	15.25	15.27	18.82	27.65	36.25	24.09	40.89	0.9752	1.0729
World	33.33	34.77	38.79	41.60	45.96	51.76	48.71	55.10	1.0256	1.0254
Europe	32.59	34.75	37.75	40.65	45.79	52.83	46.62	54.99	1.0248	1.0272

Source: Faostat, 2014

Table 2: Development of hectare yields of sugar beet (in t/ha).

	1992	1996	1998	2000	2004	2008	2010	2012	Rate of growth 1992-1998	Rate of growth 1999-2012
Russia	25.5	16.2	10.8	14.1	21.8	29.0	22.3	45.1	0.8663	1.1074
World	282.2	265.9	263.2	250.1	251.6	221.2	228.9	269.1	0.9884	1.0016
Europe	204.4	193.3	176.5	170.1	180.6	153.6	150.8	188.3	0.9758	1.0047

Source: Faostat, 2014

Table 3: Development of the volume of sugar beet production (in mil. tons).

	1992	1996	1998	2000	2004	2008	2010	2012	Rate of growth 1992-1998	Rate of growth 1999-2012
Russia	2.54	1.87	1.38	1.67	2.44	3.48	2.78	4.75	0.90	1.09
World	115.62	126.32	130.23	132.24	145.66	163.34	155.49	170.84	1.02	1.02
Europe	28.21	28.35	25.77	25.72	26.56	21.85	21.46	27.74	0.99	1.01

Source: Faostat, 2014

Table 4: Production of sugar – in raw sugar equivalent (in mil. tons)

### **Production of sugar beet and sugar in a period of stabilization and growth**

The Russian economy during the period of 1999 - 2012 can be assessed relatively positively. After a period of a very wild transformation (Rutland, 2013) there was a gradual stabilization of the economy (Hanson, 2007; Hanson, 2014) and individual sectors of the national economy started to consolidate (the only problem is a period of global financial crisis (2008 - 2011); (Strouhal, Ištvanfyová, 2010)). This consolidation was then also evident in the sugar industry. The volume of production of sugar beet and sugar increased very significantly.

The harvested areas and, in particular, average yields per hectare - also recorded a very significant change. In this respect, it can be said that the volume of the harvested areas increased from about 700 thousand to more than 1.1 million hectares - making Russia's share in the world or European sugar beet crop areas increase to 22% and 32% respectively. The average yields per hectare also recorded an almost miraculous increase from about 15 tons/hectare to almost 41 tonnes/hectare. In the average hectare yield Russia has thus reached about 74% of the world or European average. The Russian beet production in the second development stage achieved significantly better results than was the case in the global and European production.

The Russian production and hectare yields increased on average by 3.2% and 7.3% per year respectively. In this respect it should be mentioned that there was a marked decline in harvested areas in the world and in Europe (about 3% per year on average) and a significantly lower rate of growth of average yields per hectare (2.5% and 2.7% per year respectively). It is important to mention that apart from the quantitative characteristics the qualitative characteristics are also improving in harvested beets. The average weight of one tuber has increased in 2012 to about 511 g and sugar content is currently between 15 - 16.5%.

There has been a very significant increase in the value of the production of sugar beet in Russia. During the above mentioned period it increased from less than half a billion US dollars to more than two billion (the average annual increase of realized value by about 12%), which was significantly more compared with the world (0.3% per year) and European (0.8% per year) average.

Sugar beet production is realized in a number

of regions of the Russian Federation. The following can be found among the most important regions in terms of production: „the Central Federal District“ (55% of harvested area), including Belgorod region (8.3%), Voronezh (11.3%), Kursk (10.4%), Lipetsk (9%), Orel (5%) and Tambov (9.6%). Additionally they also include the „Southern Federal District“ (15.8% of the total harvested area), „North Caucasus federal district“ (5.7% of harvested area), „Volga federal District“ (22.8% of the total harvested area) and „Siberian Federal District“ (2% of the total harvested area). The highest harvest volumes come from „the Central Federal District“ - the average yields per hectare have reached about 35 to 42 tons in the period 2012/2013.

The Russian Federation has (Azrilevich, Gudoshnikov, 1999) at its disposal a high sugar beet production potential - however, insufficient refining capacity limits the further growth. Another weak point is the insufficient storage capacity and the capacity for primary processing of sugar beet. Approximately 15% of the Russian harvested beet production is lost due to poor storage conditions (Sergeev, Seregin, Sushkov, 1997).

Another factor positively influencing the market situation for sugar beet in the Russian Federation is the rise in prices of sugar beet, which does not limit its consumption. The rising prices make the business in the production of sugar beet increasingly promising. In the years of 1999 – 2012 alone there was more than a threefold increase in the price of a tonne of sugar beet (from 16.25 USD to about 51.9 USD).

Significant improvements in sugar beet production were accompanied by an improvement in the situation in Russia's own sugar production. There has been consolidation in the sugar production and an increase in production capacities (so far, in this regard this primarily concerns an increase in the capacity of existing sugar mills, and a restart of some sugar mills, which were previously closed. Unfortunately, since the 1980's of the 20<sup>th</sup> century no new modern refineries have been built in Russia).

However, the current sugar market in Russia is becoming increasingly more attractive, especially over the past 5 years. The volume of investment going into the sugar industry has multiplied at the moment the Russian government launched the „State programme of sugar beet and sugar production“.

On the basis of this project in 2011 alone investments worth 4.5 billion rubles were made to support further growth of the analyzed sector.

Furthermore, the state resources released more than 1 billion rubles in order to support more than a dozen projects aiming at the construction of new facilities and especially at the reconstruction of existing capacities. In this respect, it is still important to highlight the government support for investments in the capacity building aimed at the production of seed.

Support for the sugar industry comes not only at the government level, but investments aimed at sugar beet and sugar production are also implemented at regional level - the initiative in this regard comes particularly the administrations of the Voronezh Region, Stavropol Region and Rostov Region). An increase in the state support and stabilization of the internal and external (CIS market) markets have contributed to a very significant restart of the production of sugar beet and sugar).

At present, sugar production and processing are executed in sugar 78 mills - 41 of which are located in the „Central Federal District“, 15 of them in the „South Federal District“, another 15 is located in the „Volga Federal District“ (however, in reality only half of them are functional), 3 sugar factories are also located in the „North Caucasus federal district“ and one sugar factory can be found in Siberia.

Sugar production in the Russian Federation increased very significantly in the post-transformation period. It must be noted, however, that a very large share of the resulting production comes from sugar cane - which is imported in bulk into Russia in raw state and there it is subsequently refined (Gudoshnikov, 2009). In the period of 1999 - 2012 the Russian sugar production increased from about 1.4 million tonnes to more than 5.5 million tons.

During the monitored period, there has been a very significant growth - about 9% per year - which exceeded the growth rate of the production of sugar in the world (2% per year) and especially also in Europe (1% per year). Russia's share in the world production of sugar (including sugar cane) has grown from 1.1% to 2.8%. Its share in European production has increased even more significantly - from 5.4% to more than 17%.

In respect to the further development of the Russian sugar industry market, it is important to highlight the important role of the „Russian national agricultural programme for the period of 2013 - 2014“. The aim of this programme is to increase the proportion in the total sugar beet supply,

including reserves, to the level of about 93.2% by the end of 2020. The production of sugar beet should generally exceed 41 million tons (this goal, however, has been already broken - Russia currently produces more than 45 million tons of sugar beet per year) and the degree of self-sufficiency of the Russian sugar market should reach at least 80%.

Part of this programme is to support both the production and processing of sugar, and the cultivation and processing of sugar beet. The programme, which focuses not only on the sugar industry, but also on other sectors of agricultural production, contains a number of very effective support tools based on grants, subsidies, soft loans, price support for purchases of fuel, fertilizers and energy, including tax breaks such as zero tax income for farmers.

An important factor influencing the development of Russian sugar market is its high price, which has a relatively low impact on its consumption. The rising prices make business in the production of sugar very interesting. In the years of 1999 – 2012 alone there has been more than a threefold increase in the price of one kilogram of sugar (from 0.38 USD to about 1.13 USD). In this respect the Russian market is characterized by a distinct difference existing between the average retail and wholesale prices of sugar. For example, at the turn of 2012/2013 the price of one kilogram of sugar in wholesale trade was around about 0.81 USD, in retail the average price was at the level of the above mentioned 1.13 USD (the retail price of sugar has a tendency to significantly oscillate over time).

#### **Development of the Russian foreign trade with sugar and sugar containing products**

Despite the considerable production capacities, which Russia has at its disposal in the area of sugar production, the Russian Federation is unable to ensure full self-sufficiency (Gudoshnikov, 2008) in sugar consumption. The Russian Federation's foreign trade balance in sugar and sugar-containing products is continually negative. The value of the sales implemented within the HS17 - Sugar and confectionery commodity aggregation was characterized by a very dynamic drop in the value of exports and, vice versa, by a very dynamic growth in the value of imports, particularly in the 1990's of the 20th century. The worst situation in this respect was in 1998 - when the Russian exports implemented in the framework of the above

aggregation amounted to only about 45 million USD and vice versa imports ranged between 1.3 to 1.4 billion USD (Table 5).

A significant turning point in the development of the implemented foreign trade value occurred in the 2000 – 2012 period. With the steady increase in Russia’s own sugar production, the growth in the volume and value of imports started to gradually cease and it actually even managed to strengthen Russia’s export position, especially in relation to the CIS countries. In relation to the performance of the foreign trade value in the HS17 aggregation it can be stated that throughout the entire observed period a positive trend prevailed in the growth of the export proceeds value (average annual growth rate reached about 14%). By contrast, in the case of imports, the observed period can be characterized by a gradual decrease in realized value (the average rate of decline in value of available imports reached about 5%).

The key share in the transactions carried out within the framework of the HS17 aggregation is played mainly by sugar - both in the refined and raw forms. While in the realized exports of sugar the refined sugar is overwhelmingly predominant over raw sugar, in the case of imports the raw sugar dominates over the refined form.

In this respect it should be stressed that most imports of raw sugar do not come from sugar beet but it is sugarcane sugar imported mainly from Latin America and Southeast Asia (which

are the largest producer in the world (Svatos, Maitah, Belova, 2013)) for further processing in refineries located on the territory of the Russian Federation (Gudoshnikov, 2001). In this regard, it is important to mention the importance of imports of raw cane sugar and particularly the improvement in the productivity of Russian sugar refineries, in which the raw cane sugar currently allows them to produce even during the period of the year when they do not get sugar beet.

As the Russian market gradually develops, its gradual transformation also occurs. While in the 1990’s sugar (either refined or in raw state) contributed to the total exports and imports by about 71% or about 90% respectively, over the years there has been a transformation of the market and the share of trade with pure sugar in the total trade in sugar and sweets has dynamically decreased.

In the case of exports, the share of sugar in the resulting value realized in the framework of the HS17 aggregation reduced to about 17.5%, in the case of imports, there was a reduction of about 52%. In this respect, it can be said that the Russian export focused more on exports with higher added value, with an emphasis on sweets and vice versa in the case of imports, there was a limit in the growth in imports of raw sugar, which is no longer needed to such a large extent as it was in the 1990’s, when the Russian production capacity in the cultivation of sugar beet and subsequently in processing of the sugar producing crops was significantly reduced.

HS17	1996	1998	2000	2002	2004	2006	2008	2009	2010	2012	Rate of growth 1996-2012
Export mil. USD	141.0	44.7	63.6	78.5	78.8	124.6	137.5	135.7	97.6	278.3	1.139552
Import mil. USD	1447.6	1333.8	895.4	997.3	727.0	1279.1	1228.9	777.9	1505.6	667.2	0.951733
Balance mil. USD	-1306.6	-1289.1	-831.8	-918.8	-648.2	-1154.4	-1091.4	-642.2	-1408.0	-388.9	0.917971

Source: Faostat, 2014

Table 5: Development of the value of the Russian foreign trade implemented within the HS17 aggregation – Sugar and sweets.

HS17	1996	1998	2000	2002	2004	2006	2008	2009	2010	2012	Rate of growth 1996-2012
	1701	1701	1701	1701	1701	1701	1701	1701	1701	1701	1701
Export mil. USD	100.3	18.VIII	37.8	49.3	33.1	74.2	25.III	56.7	10.V	48.6	1.070
Export ths. tonnes	225.1	44.4	155.3	214.0	121.3	167.5	53.5	133.7	15.V	67.9	1.031
Import mil. USD	1275.9	1210.2	765.7	893.1	610.0	1118.7	974.0	560.4	1233.7	349.1	0.915
Import ths. tonnes	3149.5	4060.2	4821.0	4604.4	2783.2	2743.4	2485.0	1352.0	2184.8	590.9	0.871
Balance mil. USD	-1175.6	-1191.4	-727.9	-843.8	-576.8	-1044.5	-948.7	-503.7	-1223.2	-300.5	0.906
Balance ths. tonnes	-2924.4	-4015.8	-4665.6	-4390.4	-2661.9	-2575.9	-2431.5	-1218.3	-2169.3	-523.0	0.865

Source: Faostat, 2014

Table 6: Development of the Russian foreign trade implemented in the HS 1701 aggregation.

The Table 6 shows a very significant reduction on the part of imports of sugar, both at the level of realized value and volume. This caused a significant reduction in the development of a negative trade balance. The entire analyzed period can be summarized through the development value of the average rate of growth both on the export side, and on the side of imports follows.

The average annual growth in the value and volume of exports reached the level of 7% or 3.1% respectively, in the case of imports, then there was a decline in the growth rates in the realized value and volume by an average of 8.5% and 12.9% respectively. These developments have had a very positive impact on the situation in the foreign trade balance, when the amount of negative balance in the period tended to gradually reduce (by about 10% per year) and the volume of the negative balance also tended to reduce (about 13.5% per year).

However, when we consider the evolution of the value and volume of the foreign trade in sugar for the Russian Federation, it is clear that the realized values tend to oscillate dramatically over time. This is mainly due to the fact that during the transformation, the Russian sugar market developed very chaotically. Only the recent actions of the Russian government which had defined very ambitious plans for the achievable level of self-sufficiency in the Russian market, had contributed to its gradual stabilization.

According to these plans, the Russian market

should achieve a minimum level of self-sufficiency at least at the level of 80% in the basic commodities - sugar and sugar beet. Achieving this goal was then and still is supported by massive interventions both in promoting the cultivation of sugar beet and, especially, in building the processing capacity - since it is the processing capacities which are the Achilles heel of the Russian sugar industry because their volume is not able to handle the potential production of sugar beet.

#### **Territorial structure and competitiveness of the Russian foreign trade in sugar and sweets**

A very specific aspect of the Russian foreign trade in sugar is its competitiveness and territorial structure. As previously mentioned, the Russian foreign trade implemented within the HS17 aggregation is characterized by a negative foreign trade balance and by an overwhelming predominance of imports over exports. The most important trade partners of Russia are on the side of imports, especially Latin America, Europe and Asia (Table 7). By contrast, the major part of exports regions comprises Asia and Europe – in this respect, the member countries of the CIS possess a particularly high degree of dominance.

As mentioned above, within the HS17 aggregation sugar (HS 1701) represents about 18% of the exports or about 50% of the imports. In this regard, it should be noted that most of the exports go to Asian member countries of the CIS (93% of the total value or 94% of the total realized amount). In relation to the imports it can then be stated that most of the sugar imports (represented

<b>Export - HS 17 - 2012</b>	<b>Trade Value – mil. USD</b>	<b>Import - HS 17 - 2012</b>	<b>Trade Value – mil. USD</b>
Africa	2.4	Africa	10.7
Asia	176.5	Asia	130.3
CIS	199.6	CIS	104.4
EU12	12.1	EU12	71.2
EU15	19.4	EU15	88.9
EU27	31.6	EU27	160.1
Europe	97.1	Europe	254.2
Latin America	0.0	Latin America	226.7
North America	1.9	North America	12.8
Oceania	0.4	Oceania	0.0
OECD	45.7	OECD	169.2
Visegrad Group	1.4	Visegrad Group	46.9
World (Aggregate)	278.3	World (Aggregate)	667.2

Source: UN Comtrade, author's data

Table 7: Territorial structure of the Russian foreign trade realized within the HS17 aggregation in 2012.

by raw sugar in more than three-quarters) goes to Russia from the countries of Latin America (63% of the value of imports, or 66% of total realized imports) – for details see Table 8).

Other important regions that export sugar to Russia are Asia (11%) and Europe (14% - with a high predominance of exports from EU countries). Regarding the final balance, it can be stated that the Russian Federation reaches a positive balance only in relation to the CIS and Asian countries. In relation to other regions the balance of sugar trade is highly negative. In this respect, the huge share of Latin America in the resulting negative balance of trade in sugar must be highlighted (although it must also be emphasized that Russia's negative balance of trade in sugar gradually decreases in line with the gradual expansion of its production capacities).

The results shown above indicate that, in general, the Russian Federation does not have comparative advantages in the sugar trade. If it is able to obtain comparative advantages - it can do so only within a range of selected segments of the countries with which Russia is linked through a network of special governing trade agreements (Bodin and Gudoshnikov, 2010; 2011; 2012) - in particular the CIS countries market.

The following Table 9 provides an overview of the distribution of comparative advantages of Russian exports of sugar in relation to individual regions. The results presented in the table show that Russian sugar does not have comparative

advantages in relation to the overwhelming majority of the analyzed regions. The only group of countries to which Russia can implement comparative advantages is the CIS countries.

When we focus on the current commodity structure of the Russian trade in sugar and sugar-containing products, it can be stated that at present the Russian Federation implements the HS 17 commodity aggregation export operations with 61 countries and import transactions are realized with as many as 69 countries. However, it should be noted that the territorial structure is highly concentrated.

In the case of exports - trade flows implemented in relation to the first thirty partners represent approximately 99.4% of the total value of exports. Export in this regard is extremely concentrated in terms of looking at the share of TOP 10 (82.3%) or TOP 5 (65.3%) partners. Table 10 shows that the most important partners include the CIS member states - or countries of the former Soviet Union, which are linked to Russia by very strong economic, political and other bonds.

The most important partners in this regard are Kazakhstan, Ukraine, Azerbaijan, Belarus, Tajikistan, Kyrgyzstan and Turkmenistan. Among the TOP 10 export markets, apart from the former post-Soviet countries, there are also Turkey, Vietnam and Germany. Not only the territorial structure of Russian exports is highly concentrated. A high level of concentration is also exhibited by the territorial structure of the Russian import implemented within the HS17.

Export - HS 1701- 2012	Trade value in mil. USD	Net weight 1000 tonnes	Import - HS 1701- 2012	Trade value in mil. USD	Net weight 1000 tonnes
Africa	1.82	2.48	Africa	9.91	6.76
Asia	45.40	64.04	Asia	36.80	62.97
CIS	45.27	64.16	CIS	8.75	12.34
EU12	0.00	0.00	EU12	34.38	53.40
EU15	0.00	0.00	EU15	4.69	2.42
EU27	0.00	0.00	EU27	39.07	55.82
Europe	0.93	1.12	Europe	47.82	68.15
Latin America	0.00	0.00	Latin America	221.33	391.13
North America	0.47	0.30	North America	0.96	0.46
Oceania	0.00	0.00	Oceania	0.00	0.00
OECD	0.48	0.30	OECD	27.60	36.79
Visegrad Group	0.00	0.00	Visegrad Group	21.90	33.90
World (Aggregate)	48.62	67.94	World (Aggregate)	349.13	590.95

Source: UN Comtrade, author's data

Tabulka 8: Territorial structure of the Russian foreign trade realized within the HS1701 aggregation in 2012.

1701	2012	LFI
Africa	-0.044567	-4.456792
Asia	-0.012296	-1.229678
CIS	0.064468	6.446821
EU12	-0.119980	-11.998093
EU15	-0.015517	-1.551777
EU27	-0.067102	-6.710224
Europe	-0.071426	-7.142604
Latin America	N/A (import from Latin America to Russia)	N/A (import from Latin America to Russia)
North America	-0.0390145	- 3.901459
Oceania	0 – no trade	0 – no trade
OECD	-0.051145	-5.114574
Visegrad Group	-0.026353	-2.635381
World (Aggregate)	-0.144789	-14.478974

Source: UN Comtrade, author's data

Table 9: Competitiveness of the Russian sugar export (HS 1701 aggregation) in relation to selected territories (LFI Index values).

Period	Trade Flow	Partner	Trade value in USD	Trade Flow	Partner	Trade value in USD
2012	Export	World	278 306 731	Import	World	667 247 744
2012	Export	Kazakhstan	79 317 693	Import	Brazil	221 648 417
2012	Export	Ukraine	43 359 435	Import	Ukraine	81 434 762
2012	Export	Turkey	21 010 470	Import	China	56 258 758
2012	Export	Azerbaijan	19 382 683	Import	Cuba	32 392 399
2012	Export	Belarus	18 734 812	Import	Poland	29 770 037
2012	Export	Viet Nam	11 010 731	Import	Thailand	26 475 216
2012	Export	Tajikistan	10 868 349	Import	Lithuania	21 947 752
2012	Export	Germany	9 433 786	Import	Germany	21 864 570
2012	Export	Kyrgyzstan	8 040 190	Import	France	19 019 300
2012	Export	Turkmenistan	7 927 573	Import	Turkey	17 824 966
2012	Export	Mongolia	7 826 337	Import	India	12 933 692
2012	Export	Netherlands	5 906 767	Import	USA	12 120 462

Source: UN Comtrade, author's data

Table 10: List of countries – partners of the Russian agrarian trade realized within the framework of the HS 17 aggregation in 2012.

About 98.2% or 79.2% and 63% of the total value of imports heading to Russia are implemented within the framework of TOP 30 or TOP 10 and TOP 5 respectively.

The dominant partners in this regard are particularly Brazil, Ukraine, China and Cuba whose share in total imports represents about 60%. Other major import partners are Poland, Thailand, Lithuania, Germany, France and Turkey. In relation to trade in sugar (HS1701), which accounts for about twenty percent of exports or fifty percent of imports implemented within the HS 17 aggregation. It can then be stated that Russia implements export operations

with 31 countries, while its imports come from about 41 countries.

Sugar trade includes both refined sugar and raw sugar. Refined sugar dominates in Russian exports, while its imports are dominated by raw sugar - imported especially from Latin America and Southeast Asia. The territorial structure of trade in sugar is more concentrated than in the case of aggregated across the HS17 group. About 99% and 92% of the value of total exports is implemented within the TOP 10 or TOP 5 exporters respectively (Table 11).

Period	Export	Commodity Code	Trade value in USD	Net weight in 1000 tonnes	Import	Trade value in USD	Net weight in 1000 tonnes
2012	World	H4-1701	48 617 371	67.94	World	349 133 309	590.95
2012	Kazakhstan	H4-1701	31 316 726	44.45	Brazil	218 227 316	387.83
2012	Tajikistan	H4-1701	4 396 778	6.27	Cuba	32 301 765	61.46
2012	Turkmenistan	H4-1701	3 640 225	5.47	Thailand	26 457 389	43.90
2012	Kyrgyzstan	H4-1701	3 482 530	4.98	Poland	21 365 236	33.08
2012	Montenegro	H4-1701	1 809 225	2.48	Lithuania	12 474 607	19.51
2012	Georgia	H4-1701	1 308 034	1.73	India	10 204 646	18.96
2012	Mongolia	H4-1701	953 909	0.85	Mauritius	9 895 818	6.76
2012	Moldova	H4-1701	664 608	1.00	Belarus	5 895 678	8.72
2012	USA	H4-1701	470 137	0.29	Colombia	3 095 819	3.30
2012	Ukraine	H4-1701	194 537	0.052	Moldova	2 808 502	3.57
2012	Azerbaijan	H4-1701	131 729	0.094	Germany	1 727 653	0.75
2012	Afghanistan	H4-1701	82 594	0.135	Finland	1 115 822	0.62
2012	Belarus	H4-1701	64 692	0.062	USA	955 843	0.46

Source: UN Comtrade, author's data

Table 11: List of countries – partners of the Russian agrarian trade realized within the framework of the HS 1701 aggregation in 2012.

The dominant partners in this respect are especially Kazakhstan, Tajikistan, Turkmenistan and Kyrgyzstan. They are followed by other partners - Montenegro, Georgia, Mongolia, Moldova, Ukraine, Azerbaijan, Afghanistan and Belarus. The only exception - a country with no direct historical ties to Russia – within the framework of the TOP export destinations, is represented by the USA (although their share of realized exports does not exceed 1%).

Just like the territorial structure of exports, that of imports also exhibits a high level of concentration. About 98.2% and 89% of the total value of Russian imports of sugar are implemented within the TOP 10 or TOP 5 import destinations respectively. The territorial structure of Russian imports is dominated by a very narrow segment of Latin American, Asian and European countries. The most dominant positions in this respect are held by Brazil, Cuba, Thailand, Poland, Lithuania, India, Mauritius and Belarus.

The Russian sugar trade has been influenced by many factors in recent years. The most important ones include the existence of a customs union between Russia, Belarus and Kazakhstan, and the free trade zone between Russia and the CIS countries. Imports of sugar from the above countries are burdened with preferential tariffs that are significantly lower compared to the duty on sugar from other countries (duties range around 340 USD / tonne and above).

An exception in this respect is presented by import of raw sugar, which is an important raw material for the production of white - refined sugar (depending on the destination and the world price the duties imposed on raw sugar ranged between 250 and 270 USD / ton). Speaking about the amount of duty it is worth noting that an important role in this respect is played by the season of the year and also by the fact of whether it concerns beet sugar or sugarcane sugar. For example, in the period from 1 January to 30 June, the average duty on imports of beet raw sugar for refining hovered around 250 USD / tonne, while from July to the end of December, the duty ranges around 270 USD / ton.

In the case of raw cane sugar the duty during January to April of last year reached about 160 USD / ton, while from May to late July the duty ranged around 205 USD / ton. However, in relation to the development of market protection, it can be expected that the tariff barriers will gradually decrease as Russia will become increasingly more integrated in the WTO in future years

## Conclusion

Concerning the objectives of this article, on the basis of the above considerations it follows that after a period of strong stagnation in the development of its own sugar market the Russian Federation is again becoming a major

force in the production and consumption of beet sugar in the world. Population in excess of more than 140 million people is a sufficient basis for the development of a domestic sugar industry capacity. The market of the former Soviet Union countries with which the Russian Federation is linked through a network of the customs union or free trade area also represents a very significant potential for the development of the Russian sugar industry.

Currently the Russian Federation consumes more than 5.6 million tons of sugar annually. Its production potential includes millions of hectares of available arable land suitable for the cultivation of sugar beet. The base of nearly eighty sugar mills, many of which are able to process raw sugar beet and raw cane sugar is a very important stage for further growth in sugar production.

After a long period of stagnation of the Russian sugar industry, which had not been able to meet domestic demand, especially during the economic transformation period, and Russia had thus become heavily dependent on imports of the refined as well as raw sugar, the Russian Federation has focused over the past decade on promoting plans associated with recovery of the production capacities in both sugar beet cultivation and the production of sugar. The government programme promoted at both the federal and regional levels significantly boosted the production potential and reduced Russia's dependence on imports of sugar. The growth in the production potential and its own production of sugar beet and sugar has returned the Russian Federation to the leading players in the sugar market. This follows not only from the increase in the volume of production, but it is also demonstrated by the comparison of the growth rates of both of beet and sugar production.

In this respect, the Russian Federation is much more dynamic compared with both the European and especially the world average. An important aspect that contributes to increased productivity and competitiveness of the Russian sugar industry both at the domestic and international levels, is also the increase in the quality indicators associated with the development of the industry. In the Russian Federation the beet yields per hectare have been increasing and its sugar recovery ratio and sugar

content are also on the rise. Another important aspect is the modernization of the existing capacity associated with processing and storage of sugar beet and products derived from it.

This development has subsequently led to the reduction of Russia's dependence on imports of sugar from abroad. Due to a series of reforms, the competitiveness of the Russian sugar industry has strengthened, particularly in relation to the countries with which the Russian Federation has signed an agreement on customs union or free trade area. In the future it can be expected that the Russian sugar industry will boost their capacities and especially their own position both on the domestic market and the market of the CIS countries and East Asia.

Russia is likely to support the efforts of its producers to establish themselves on less traditional markets - however it is expected that the exports pillar will not be sugar itself, but mainly products containing sugar of Russian origin. In this respect, further increase in export opportunities for Russian sugar can be expected, although it will happen indirectly. However, this trend may be much more positive for the Russian economy and trade, as the products containing sugar represent much higher value-added goods and from this subsequently much greater potential benefits will be derived.

It is important to note that the Russian government supports and will support the growth of the sugar industry, both through direct and indirect measures. The entry of the Russian Federation into the WTO will not jeopardize the sugar market as such, since Russia has included sugar among sensitive items - which means only limited or even no liberalization (However, due to general trends an increase in import quotas in respect of certain partners can be expected).

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*Corresponding author:*

*Doc. Ing. Mansoor Maitah, Ph.D et Ph.D.*

*Department of Economics, Faculty of Economics and Management,*

*Czech University of Life Sciences in Prague, Kamýcká 129, 165 21 Prague 6 - Suchdol, Czech Republic*

*E-mail: maitah@pef.czu.cz*

## References

- [1] Azrilevich, M., Gudoshnikov, S.: The Russian sugar industry. *International Sugar Journal*. 1999, Vol. 101, No. 1206, pp. 332-334. ISSN: 0020- 8841.
- [2] Bodin, A., Gudoshnikov, S.: Belarus, Kazakhstan and Russia Three countries - one sugar market. *International Sugar Journal*. Vol. 112, No. 1338, 2010, pp. 324-332. ISSN: 0020- 8841.
- [3] Bodin, A., Gudoshnikov, S.: FOCUS: The CIS Customs Union (Belarus, Kazakhstan and Russia) - new advances in the march towards self-sufficiency in sugar. *International Sugar Journal*. 2012, Vol. 114, No. 1362, pp. 390-397. ISSN: 0020- 8841.
- [4] Bodin, A., Gudoshnikov, S.: Sugar market of the Customs Union (Belarus, Kazakhstan and Russia) - perspectives after the first year. *International Sugar Journal*. 2011, Vol. 113, No. 1352, pp. 557-565. ISSN: 0020- 8841.
- [5] Ellman, M., Scharrenborg, R.: The Russian economic crisis. *Economic and Political Weekly*. 1998, Vol. 33, No. 52, pp. 3317-3322. ISSN: 0012-9976.
- [6] Gudoshnikov, S.: Russia - World's leading importer forever? Conference: 10<sup>th</sup> International ISO Seminar on Movers and Shakers - Their Impact on the World Sweeteners Market Location: London. Englabnd, Date: Nov 27-28. 2001. *Zuckerindustrie*. 2001, Vol.126, No. 12, pp. 966-969. ISSN: 0344-8657.
- [7] Gudoshnikov, S.: Russia's march towards self-sufficiency in sugar to continue. *International Sugar Journal*. 2008, Vol. 110, No. 1310, pp. 62-68. ISSN: 0020- 8841.
- [8] Gudoshnikov, S.: Sugar industries of the Former Soviet Union (FSU) countries. *International Sugar Journal*. 2009, Vol. 111, No. 1322, pp. 60-69. ISSN: 0020- 8841.
- [9] Hanson, P.: The Oxford handbook of the Russian economy. *International Affairs*. 2014, Vol. 90, No. 1, pp. 224-226. ISSN: 1468-2346.
- [10] Hanson, P.: The Russian economic puzzle: going forwards. backwards or sideways ? *International Affairs*. 2007, Vol. 83, No. 5, pp. 869-871. ISSN: 1468-2346.
- [11] Ivanov, Y.: Russia - Record sugar output expected in 2011/12. *International Sugar Journal*. 2011, Vol.113, No. 1354, pp. 687-687. ISSN: 0020- 8841.
- [12] Lafay, G.: The Measurement of Revealed Comparative Advantages. in M.G. Dagenais and P. A. Muet eds.. *International Trade Modeling*. Chapman & Hill. London. 1992. ISBN 10: 0412450003 /0-412-45000-3.
- [13] Liefert, W.M., Liefert, O.: Russian Agriculture during Transition: Performance, Global Impact and Outlook. *Applied Economic Perspectives and Policy*. 2012, Vol. 34, No. 1, pp. 37-75. ISSN 2040-5804.
- [14] Pustovalov, S.I.: Agricultural relationships and agrarian policy in contemporary Russia. *Sotsiologicheskie Issledovaniya*. 2004, No. 5, pp. 156-156. ISSN: 0132-1625.
- [15] Qineti, A., Rajcaniova, M., Matejkova, E.: The competitiveness and comparative advantage of the Slovak and the EU agri-food trade with Russia and Ukraine. *Agric. Econ. – Czech*. 2009, Vol. 55, No. 8, pp. 375-383. ISSN 0139-570X.
- [16] Reinbergr, O.: Výroba cukru 2011/2012 – svět, Evropa, Česká republika. *Listy cukrovarnické a řepařské*, 2012, Vol. 127, No. 5/6, pp. 218-222. ISSN: 1805-9708.

- [17] Řezbová, H., Belová, A., Škubna, O.: Sugar beet production in the European Union and their future trends. *Agris On-line Papers in Economics and Informatics*. 2013, Vol. 5, No. 4, pp. 165-178. ISSN 1804-1930.
- [18] Robinson, N.: The global economy. reform and crisis in Russia. *Review of International Political Economy*. 1999, Vol. 6, No. 4, pp. 531-564. ISSN: 1466-4526.
- [19] Rutland, P.: Neoliberalism and the Russian transition. *Review of International Political Economy*. 2013, Vol. 20, No. 2, Special Issue: SI, pp. 332-362. ISSN: 1466-4526.
- [20] Rylko, D.: Russian sugar industry - a brief overview. *International Sugar Journal*. 2008, Vol. 110, No. 1310, pp. 60-60. ISSN: 0020- 8841.
- [21] Sanchez-Andres, A., Garcia-Testal, C.: Post-Soviet studies and the transition: the case of the Russian economy. *Post-Communist Economies*. 2008, Vol. 20, No. 2, pp. 133-157. ISSN: 1465-3958.
- [22] Sapir, J.: The Russian economy: From rebound to rebuilding. *Post-Soviet Affairs*. 2001, Vol. 17, No. 1, pp. 1-22. ISSN 1060-586X.
- [23] Sergeev, V. N., Seregin, S. N., Sushkov, M. D.: The current problems and outlook for the Russian sugar industry. *International Sugar Journal*. 1997, Vol. 99, No. 1183, pp. 345-348. ISSN: 0020- 8841.
- [24] Smrčka, L., Honing, V., Hromádka, J.: Kde je budoucnost cukrovarnictví v České republice. *Listy cukrovarnické a řepářské*, 2012, Vol. 128, No. 5-6, pp. 193-198. ISSN: 1805-9708.
- [25] Strouhal, J., Ištvánfyová, J.: Financial crisis and hedge accounting: Some evidence from Czech market. *International Conference on Financial Theory and Engineering (ICFTE)*, Dubai, 2010, ISBN: 978-1-4244-7757-9.
- [26] Svatoš, M., Maitah, M., Belova, A.: World sugar market-basic development trends and tendencies. *Agris On-line Papers in Economics and Informatics*. 2013, Vol. 5, No. 2, pp. 73-88. ISSN 1804-1930.
- [27] Špička, J., Janotová, B.: Náklady pěstování cukrové řepy v ČR a jejich mezinárodní srovnání. *Listy cukrov. řepář.* 2013, Vol. 129, No. 7/8, pp. 218-222. ISSN: 1805-9708.
- [28] Zaghini, A.: Evolution of trade patterns in the new EU member states. *Economics of Transition*. 2005, Vol. 13, No. 4, pp. 629–658. ISSN 1468-0351.