



Institute for Economic Research and Policy Consulting
Kiev Economics Invest

Policy Paper Series [AgPP No. 33]

Raw sugar toll refining – a sensible policy?

Oleh Nivievskyi
Anna Kuznetsova
Sergiy Kandul
Heinz Strubenhoff

Kyiv, March 2011

About the Institute for Economic Research and Policy Consulting

The Institute for Economic Research and Policy Consulting (IER) is the leading Ukrainian analytical think tank focusing on economic research and policy advice. The IER was founded in October 1999 by top-ranking Ukrainian politicians and the German Advisory Group on Economic Reforms.

The mission of IER is to present an alternative point of view on key problems of social and economic development of Ukraine. In frame of the mission IER aims at providing top quality expertise in the field of economy and economic policy-making; acting as real leader of public opinion through organisation of open public dialog; contributing to the development of economic and political sciences as well as promoting development of Ukrainian research community.

Institute for Economic Research and Policy Consulting

Reytarska 8/5-A,
01034 Kyiv, Ukraine
Tel: +38 044 / 278 63 42
Fax: +38 044 / 278 63 36
institute@ier.kiev.ua
<http://www.ier.kiev.ua>

Kiev Economics Invest

Kiev Economics Invest is dedicated to providing services for agribusiness investors at the highest standards in accordance with the expertise of international and domestic professionals in the sphere of finance, investments, agriculture and efficiency analysis. The services comprise: assistance to get access to international finance for Ukrainian investors, identification of profitable opportunities in Ukraine for international investors, due diligence of investment projects for global commercial banks, feasibility studies for international Finance Institutions, project design and investment preparation, cash flow and business planning, organizational development and training.

Kiev Economics Invest

Reytarska 8/5-A,
01034 Kyiv, Ukraine
Tel: +38 044 / 278 63 42
Fax: +38 044 / 278 63 36
nivievskyi@ier.kiev.ua
strubenhoff@ier.kiev.ua

Acknowledgments

The analytical work presented in this Position paper would not be possible without information assistance and cooperation with leading experts in the field as well as with business representatives. The team gratefully acknowledges the extensive cooperation, information support and assistance from Mr. Serhiy Nalyvka (AAA Consulting Agency, Ukraine), Mr. Volodymyr Lapa (Ukrainian Agribusiness Club, Ukraine), Mr. Ron Lord (Foreign Agricultural Service, USDA, USA), Mr. Evgeniy Ivanov (Institute for Agricultural Market Studies, Russia), Mrs. Justyna Jaroszewska and Dr. Kirchberg (Südzucker AG Mannheim/Ochsenfurt, Germany), Mr. Andriy Tovstopyat (Investment Capital Ukraine LLC, Ukraine). The team also would like to express its gratitude to Dr. Stanislaw Dziedzic (Ukrainian Sugar Company, Ukraine) for his support, insights and guidance during the entire process of undertaking this work.

Table of contents

Executive summary	5
Introduction	7
1. Current and past situation with tolling of raw sugar in Ukraine.....	7
2. International experience with toll refining (processing).....	8
2.1. Raw sugar trade and toll refining in the world: key facts and trends	8
2.2. Refined Sugar Re-Export Program in the USA.....	9
2.3. Inward Processing Relieve in the EU	11
2.4. Russia and Belarus.....	13
3. Economics of tolling	14
3.1. Economic model.....	14
3.2. Quantifying the benefits of toll refining: model calculations.....	16
3.3. Concerns about toll refining	20
4. Conclusions and recommendations	21
5. References.....	23

Executive summary

Raw sugar toll processing has been extensively used in international trade. Under tolling, raw sugar is imported duty free, refined and then re-exported as white sugar or in sugar-containing products. This creates a trade that does not harm the essential interests of domestic producers of similar goods. Raw sugar toll refining is especially pertinent to the countries with highly protected sugar markets, like the USA, EU or Russia. For these countries toll processing is mainly aimed at compensating domestic sugar-contained products producers for high domestic sugar prices resulting from expensive sugar market policies; for sugar producers, though, toll refining facilitates better use of processing capacities mainly after the relatively short campaigns of sugar beet processing.

The current tariff rate quota regime well protects Ukrainian sugar producers from international competition; but at the same it induces high domestic prices. In this setting, raw sugar toll refining well imbeds in a given sugar market organization in Ukraine. Since recently, however, toll processing of the whole range of agricultural and food products including sugar was officially forbidden in Ukraine after the Law №1782 «On Changes to Certain Laws of Ukraine concerning support of agriculture during global financial crisis» as of December 22, 2009 came into force.

In this policy paper we demonstrate that raw sugar toll processing is a sensible policy for Ukraine as it partly compensates for welfare and efficiency losses resulting from the sugar tariff rate quota regime. This is mainly achieved by reducing the fixed costs per unit of output by better use of processing capacities after the sugar beet slicing campaign. Using model calculations we demonstrate that a typical Ukrainian sugar factory could save about **half a million USD** due to toll refining. For about 40 sugar factories in Ukraine that are capable of processing raw cane sugar, this could accumulate to about **20 mln USD** of cost savings. Further potential gains might include: i) additional investments in factory processing facilities/ in sugar beet production; ii) additional benefits to the personnel of a sector in terms of increased salaries; iii) decreased sugar prices; iv) additional local and administrative tax revenues.

Toll refining also might benefit export-oriented sugar-containing goods producers. Purchasing sugar on world markets import duty free, they stay internationally competitive and balance the market during periods of shortage. According to our calculations, although toll refined sugar should have been only marginally if economically interesting at all for export-oriented sugar-containing goods producers until the fall 2009, it could alleviate the 2010 high price shock and help maintaining their production costs at a competitive level. This, however, did not happen as there has been a ban on tolling of the agricultural and food products since the beginning of 2010.

Under certain circumstances, toll refining could open up some export opportunities for Ukrainian sugar. Ukraine lies between two highly regulated sugar markets, Russia and the EU. The restructuring of the EU Sugar Market Regime resulted in an annual structural deficit of about 3 mln tons of sugar. This marketing year, a mixture of adverse weather and high world sugar prices expanded the deficit further by about 1.8mln tons. The EU domestic prices reacted accordingly, whereby the EU is trading at about USD300/t above the Ukrainian price level at this moment. Since the EU has allowed import quotas of 300 000

tons of sugar at 0% duty to alleviate sugar deficits, Ukraine could toll raw sugar and export it into the EU. Also, Ukrainian sugar producers could export white tolled sugar under the Inward Processing Relieve program to the EU. Toll processing of raw sugar would allow Ukrainian sugar producers competing with Russian factories for the Asian export markets. This, in case of oversupply, might help finding export markets even for Ukrainian beet sugar.

Concerns about the negative effects of tolling raw sugar on the domestic sugar beet sector are very unlikely. According to our model calculations, increasing sugar beet yields and extraction rates (especially in vertically integrated structures) make sugar beet processing more competitive vis-à-vis raw sugar refining, especially in the current high raw sugar price environment. Russia's experience supports this, where despite extensive raw sugar refining, sugar beet acreages increase.

Introduction

Tolling or toll processing has been extensively used in international trade. Under tolling contracts, duty is relieved on imports which are processed in a country and re-exported, thus providing a trade that does not harm the essential interests of domestic producers of similar goods. In Ukraine, however, toll processing of agricultural and food products was officially forbidden after the Law №1782 «On Changes to Certain Laws of Ukraine concerning support of agriculture during global financial crisis» as of December 22, 2009 came into force. Although the official justification (described in the explanatory note to the law) was based on the meat, grains, sunseeds and sunoil cases only, nonetheless the whole range of agricultural and food products, including sugar, was excluded from tolling schemes. Moreover, the case was filed based on complaints of malfunctioning\weak enforcement of the system without any references to economic benefits of tolling whatsoever.

Sugar markets are usually highly protected in the world, especially in the countries with historical experience of beet sugar production, including Ukraine. For these countries toll refining is mainly aimed at compensating domestic sugar-contained products producers for high domestic sugar prices resulting from expensive sugar market policies; for sugar producers, toll refining aims at better usage of processing capacities mainly after the relatively short seasons of sugar beet processing. In this policy paper we discuss these and some other aspects of toll refining and demonstrate whether raw sugar tolling is a sensible policy for Ukraine.

In the following we describe some background information on tolling of raw sugar in Ukraine. International experience with raw sugar tolling is described in the section 3. Section 4 covers economics of tolling of raw sugar. Conclusions and recommendations wrap up the paper.

1. Current and past situation with tolling of raw sugar in Ukraine

Tolling schemes with agricultural produce in Ukraine could be defined as “internal” and “external”. The former scheme involves contractors as residents of the country, and the latter concerns foreign contractors. No special laws have been developed to regulate internal tolling (separate provisions, however, may regulate certain issues concerning the schemes, i.e., eligibility of tolling for special VAT regime in agriculture).

The main law regulating external tolling is the Law of Ukraine № 327/95-BP «On tolling operations in external economic relations” as of September 15, 1995. According to the Law, the value of imported raw material under tolling should make up at least 20% of the total final output value. The import duties and VAT are relieved¹ if the final product is processed and re-exported within 90 days². In some cases the period can be extended. If the final products are sold in Ukraine (which could be exercised only by subsidiaries of the owner of semi-finished products) import duty and VAT are thus paid through already previously lodged irrevocable financial guarantees with the Customs Authorities. Security or guarantees of tolling operations are instrumented via promissory notes.

¹ Article 204 of the Tax Code of Ukraine №2755 as of December 2, 2012

² All related duties and taxes are paid by promissory notes issued for period needed for processing of semi-finished products. The notes are in turn considered paid if the re-export from Ukraine is properly documented so no actual payments occur.

Since 2010 agricultural and food products are excluded from tolling schemes, after the Law №1782 «On Changes to Certain Laws of Ukraine concerning support of agriculture during the global financial crisis» as of December 22, 2009 came into force.

The legislation on tolling of the raw sugar is complemented in that the sales of the refined sugar on domestic market are prohibited (see the Law of Ukraine "On state regulation of sugar production and marketing"³). Despite this, there have been continuous claims⁴ on speculations with the tolling of raw sugar. There were several ways to infringe the law and market refined sugar domestically. According to authority notes, producers sold the refined sugar under tolling contracts before the start of the season on domestic market and then replenished their sugar stocks with beet sugar from new sugar beet harvest (during the low price phase). Other options registered were re-exporting "empty" wagons of refined sugar or by artificially lowering the extracting coefficient from raw sugar (which is normally 97%) or lowering the import value of the raw sugar.

The amount of raw sugar imported under the tolling schemes is, however, difficult to quantify due to the lack of data. According to Ukragroconsult, the amounts of tolling raw sugar imports into Ukraine were 816 000 tons in 2002/03, 460 000 tons in 2003/04, 47 000 tons in 2004/05, 40 000 tons in 2005/06 and only 20 000 tons in 2006/07 marketing years. According to the sugar balances of Ukraine (in the Table 1), 20 000 tons of the tolling raw sugar was the whole import in the 2006/07 marketing year. For the more recent period the data on toll raw sugar import is, unfortunately, unavailable.

Table 1 Sugar balances, Ukraine

Attribute in 1000 MT	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
Beginning Stocks	144	211	580	379	176	40
Beet sugar production	2 012	2 659	1 827	1 531	1 276	1 540
Import	235	20	72	150	337	255
<i>Including tolling</i>	<i>40</i>	<i>20</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Export	30	10	1	35	0	0
Total Supply	2 361	2 880	2 479	2 026	1 789	1 795
Total Use	2 150	2 300	2 100	1 850	1 750	1 750
Ending Stocks	211	580	379	176	40	45
Sugar beets production*	1 952	2 620	1 860	1 567	1 269	1 540

Source: AAA Consulting Agency; Figures on tolling – Ukragroconsult; Note: * Sugar beets production is given by calendar year

2. International experience with toll refining (processing)

2.1. Raw sugar trade and toll refining in the world: key facts and trends

The share of raw sugar imports in international trade substantially increased over the last two decades and reached about 60% in 2010. Transport of raw sugar in bulk and refining it at a destination is more cost effective than to ship sugar in refined form in bags. The

³ Law of Ukraine #758 "On State Regulation of Sugar Production and Marketing in Ukraine" as of June 17, 1999

⁴ See, for example Letter of Ministry of Agriculture to State Customs Service # N 01-14/431 from September 16, 2002

worldwide experience shows that raw-sugar refining is a high-volume, low-profit operation, which is not justified unless the following three conditions are met (Asadi, 2008, p.547): i) a factory is located close to a waterway/port because transporting raw sugar to an inland factory is costly; ii) the price of raw sugar is reasonable; iii) the production volume is high.

The demand for raw sugar is two-fold. In times of shortages refineries import raw sugar for refining it and sell on a domestic market. In this case, however, tolling schemes are not applied. Some countries where refining capacities are situated in sugar growing regions away from ports, mainly encourage imports of white sugar in times of shortages. So called "toll refiners" (countries with spare refining capacity near ports) import raw sugar to re-export it in refined form thereafter. The volumes are driven by the level of obtained white sugar premium and often by special government tariff policy encouraging imports of raw sugar (Gudishnikov et al, 2004). Refineries have been built all over the world including Algeria, Saudi Arabia, Dubai, Syria, Nigeria and Indonesia. Traditionally they existed in USA, Korea, Malaysia and China.

Expected in 2010 worldwide sugar demand growth influenced plans of the Algeria's biggest sugar producer Cevital to increase its Bejaia's (near port) refinery by 25% in 2011 to refine 2.5 mln t of sugar annually (about half of its output will be exported).⁵ Meanwhile, the world's largest sugar refinery, the Al Khaleej plant in Dubai⁶ was closed until February 25, 2011 and other companies have been cutting back to trim costs while business is slow.⁷ As indicated by the Wall Street Journal, since recently the white/raw sugar price differential has slumped to 60 USD/t, below comfortable operating levels of around 100 USD/t. Sugar toll-refining business is supported by many governments. Refined sugar re-export program exists in the USA and in the EU. An interesting example for Ukraine could be Russia, where raw sugar is refined on an extensive scale.

2.2. Refined Sugar Re-Export Program in the USA⁸

Shortly after the implementation of the tariff quota system (TRQ) in 1982, it was recognized that cane refiners and exporters of sugar-containing products (SCPs) would be uncompetitive on world markets under the high quota prices of raws in the manufacture of their respective products. To assist the cane refining industry in the United States the USDA allows for the import of raw sugar into the US outside the TRQ under three separate re-export programs: 1) The Refined Sugar Re-export program (RSREP); 2) The Sugar-Containing Products Re-export program (SCPREP); 3) The Polyhydric Alcohol Program (PAP).

⁵<http://www.bloomberg.com/news/2010-10-21/cevital-to-boost-sugar-refining-capacity-25-as-demand-climbs.html> (Accessed 20 March, 2011)

⁶ Al Khaleej sugar refinery plant has the capacity of 5 thd t/day. During economic slowdowns it can operate on 60% and lower as it was in 2009. It has a storage capacity for 1 mln t of sugar. Al Khaleej plant sells refined sugar to regional market countries such as Iraq, Gulf countries and Pakistan; in 2009 the volumes of refined sugar sales to the EU were significantly increased yoy. Currently it buys raw sugar in Brazil (the world largest sugar exporter) since India shifted from being a leading exporter to large importer of sugar. Further details see at <http://www.arabianbusiness.com/credit-crisis-erodes-dubai-sugar-refinery-s-capacity-80091> (Accessed 20 March, 2011)

⁷ <http://online.wsj.com/article/BT-CO-20110222-709970.html> (Accessed 20 March, 2011)

⁸ This section is mainly based on the information contained in: Jenkins (2004); USDA sources on re-export programs available at <http://www.fas.usda.gov/info/fr/1999/021299.html> and <http://www.fas.usda.gov/itp/imports/Sugar/sugarreexport.asp>; the data is available at http://www.fas.usda.gov/smi_arc.asp; NCA (2007)

None of these programs allow for the import of sugar for human consumption within the US, but rather for subsequent re-export or for non-food use within the confines of the United States.

Refiners must first attain a re-export license from the USDA through the department's licensing authority. No individual, Partnership Corporation, association or other business enterprise may apply for or hold more than one license. At present there are 200 qualifying companies in the US.

The RSREP license allows a refiner to enter raw cane sugar under subheading 1701.11.20 of the US HTS and export an equivalent amount of refined sugar onto the world market or transfer a like amount of refined sugar to licensees under the SCPREP or the PAP. In any case, such export or transfer must take place within 90 days of the raw sugar's entry under the program. The initial importation of raw sugar results in a positive license balance for the licensee (credit occurs), and the subsequent export or transfer of refined sugar results in negative license balance (charge occurs) and reduces or eliminates the licensee's positive balance. A licensee must establish a bond or letter of credit in favor of the USDA to charge program sugar in anticipation of the export of refined sugar. Cane refiners are allowed under the program to export refined sugar in anticipation of eventual imports. A cane refiner's license balance for the sum of all charges and credits shall not exceed 50 000 short tons⁹ raw value. Sugars considered under the program are fungible, i.e. the sugars transferred or exported need not be the same sugar produced by refining raw sugar entered under the program. All refining must take place in US customs territory.

The SCPREP license allows a manufacturer of SCPs receiving transfers of refined sugar from licensed cane refiners and export an equivalent amount of sugar as an ingredient in sugar-containing products (e.g. in ethanol or confectionary). As with the RSREP, a licensee must establish a bond or letter of credit in favor of the USDA to charge program sugar in anticipation of the export of sugar in sugar-containing products. A licensed manufacturer must complete the export leg of the re-export transaction within 18 months of the transfer of refined sugar from the licensed refiner. A manufacturer can not exceed a license balance in excess of 10 000 short tons refined value. Unlike the RSREP, a person or corporation who owns one or more wholly-owned subsidiary corporations manufacturing SCPs is eligible for a consolidated license covering the transactions of both parent and subsidiary. In such cases, the manufacturer's consolidated balance cannot exceed 25 000 short tons refined value. All SCP manufacture must be accomplished in the US customs territory.

The PAP license allows for the importation of sugar outside of the TRQ for the manufacture of a variety of non-food items. There is no export requirement under this program, though there are strict reporting requirements to ensure that the imported sugar is not diverted for food use, subverting the aims of the broader sugar program. License parameters with regard to corporate structure and license balance are identical to the SCPREP regulations.

Table 2 below demonstrates, the volumes of the raw sugar under re-export programs is far too few compared to the total imports and total supply to make any significant impact on the domestic sugar market conditions in the US.

⁹ 1 short ton = 907.18474 kg

Table 2 US Sugar balances

Attribute, 1000 MT	2006/07	2007/08	2008/09	2009/10	2010/11
Beginning Stocks	1,540	1,632	1,510	1,392	1,454
Beet Sugar Production	4,543	4,283	3,823	4,105	4,436
Cane Sugar Production	3,119	3,113	3,010	3,103	3,171
Total Sugar Production	7,662	7,396	6,833	7,208	7,607
Raw Imports	1,473	1,864	2,517	2,535	1,786
<i>Re-export program imports (Raw Val)</i>	<i>414</i>	<i>513</i>	<i>279</i>	<i>408</i>	<i>272</i>
Total Imports	1,887	2,377	2,796	2,943	2,058
Total Supply	11,089	11,405	11,139	11,543	11,119
<i>Re-export program exports (Raw Val)</i>	<i>383</i>	<i>184</i>	<i>123</i>	<i>191</i>	<i>136</i>
Total Exports	383	184	123	191	136
Human Dom. Consumption	8,993	9,590	9,473	9,684	9,866
Other Disappearance	81	121	151	214	167
Total Use	9,074	9,711	9,624	9,898	10,033
Ending Stocks	1,632	1,510	1,392	1,454	950
Total Distribution	11,089	11,405	11,139	11,543	11,119

Source: USDA

2.3. Inward Processing Relieve in the EU¹⁰

Due to the Sugar Market reform in the EU, its corresponding export refund system has been suspended for both sugar and sugar-contained products as of 26 September 2008. And since October 2008 European food processors can no longer apply for export refunds to compensate the higher internal European sugar prices. Instead the only alternative left for food processors who export their products to the world market is so-called Inward Processing Relief (IPR). Generally, the IPR is not related to sugar sector only, although some parts of the regulation are sugar-specific. According to IPR, the European food processor may use sugar from the world market, without paying import duties, in their products with the restriction that the end-product is exported to the world market. The IPR is meant to maintain the competitiveness of the sugar processing industry when no export refunds are available and functionally it reminds the US Sugar Re-export programs.

IPR can be of two types: suspension and drawback. Under the suspension, all import duties are suspended when the goods are declared to IPR. Under the drawback, import duty and VAT are paid when goods come into the EU. Traders/manufactures can reclaim the duty

¹⁰ This section is mainly based on the information contained in: a general description of the Inward processing relief schemes is available at http://customs.hmrc.gov.uk/channelsPortalWebApp/channelsPortalWebApp.portal? nfpb=true& pageLabel=pag eVAT_ShowContent&id=HMCE_CL_000229&propertyType=document (Accessed March 20, 2011); Sugar specific regulations are available at http://ec.europa.eu/taxation_customs/resources/documents/customs/procedural_aspects/imports/inward_processing/taxud%282009%292033_en.pdf (Accessed March 20, 2011) and at http://customs.hmrc.gov.uk/channelsPortalWebApp/channelsPortalWebApp.portal? nfpb=true& pageLabel=pag eLibrary_PublicNoticesAndInfoSheets&propertyType=document&columns=1&id=HMCE_PROD1_029866 (Accessed March 20, 2011);

when they export the goods¹¹. In the following we will be describing the key pieces of IPR regulation concerning sugar.

In order to claim relief, one needs to be authorized to import or receive goods under IPR. An authorization for inward processing can only be granted where the essential interests of the EU producers are not adversely affected. These are the 'economic conditions' that should be checked, i.e. undergone 'economic test'. No further economic testing is required if an application falls under one of the following categories: i) goods of a non-commercial nature, ii) a job processing contract or usual form of handling, iii) goods obtained under a previous authorization granted after and examination of the economic conditions, iv) the aggregate value of imports per applicant and per calendar year for each per 8 digit CN code does not exceed 150 000 EUR, v) an applicant holds a certificate permitting the entry for sugar supply balance arrangements. If none of the conditions above is fulfilled, an applicant should undergo an examination with respect of the following economic conditions of *Codes*.

- Code 10: unavailability. An applicant has to prove that the goods referred to in the application are not available in the EC;
- Code 11: price case. An applicant has to prove that although there are comparable goods in the EC, their price makes the proposed operation economically unviable; because of the wedge between the EC and world sugar market prices, applications under this category/code are the most common.
 - ✓ Case 1: EC raw beet sugar under the CN Code 1701 12 90 is at least €50 per ton more expensive than non-EC raw sugar under the CN Code 1701 11 90 (raw sugar not for refining),
 - ✓ Case 2: EC white sugar under the CN Code 1701 99 10 is at least €50 per ton more expensive than non-EC white sugar under the CN Code 1701 99 10,
 - ✓ Case 3: if price difference described above is less than €50 per ton, but an applicant can prove that the usage of the EC sugar would result in a zero profit margin or a loss,
 - ✓ Case 4: if price difference described above is less than €50 per ton and an applicant does not want to disclose information to qualify under the case 3, he/she can use other means to prove that the usage of the EC sugar would result in a zero profit margin or a loss.
- Code 12: comparable goods. An applicant has to prove that a contract with a third country customer stipulates that the compensating products must be manufactured from specific import goods to comply with provisions concerning the protection of industrial or commercial property rights.
- Code 99: economic conditions to be fulfilled for other reasons.

An authorization involving sugar includes the following: i) custom authorities should communicate a decision on and IPR application at the latest within 30 days of the date of receipt of an application, ii) the period of validity of the authorization will be set at 6 months, iii) the period of discharge (through-put) will be set at 6 months, iv) where prior

¹¹ The law on IPR is published in the Official Journal of the European Community under Council Regulation (EEC) No 2913/92 establishing the Community Customs Code and Commission Regulation (EEC) No 2454/93 which lays down provisions for its implementation. EC law on import VAT relief is contained in the 6th VAT Directive which is interpreted into UK law in the Value Added Tax Act 1994 under which authority for the Value Added Tax Regulations 1995 were made. Other National provisions and VAT Directives may also apply.

export equivalence is authorized, the import (replacement) goods must be declared with 3 months of the export of the equivalent goods.

To cover any potential custom debts that may arise, security in a form of cash deposits or bank guaranties might be required. Normally it is not required unless certain conditions are met. One such a condition is when the movement of certain goods considered to bear increased risks, and cane or beet sugar fall in this category. This includes the movement of such goods to/from the port, to/from premises where processing takes place and between sites and operators approved within the same authorization. In the case of sugar there is no minimum rate of guarantee, but it is taken on basis of the actual customs charges that may become due. The cash deposit is provided with the declaration to IPR and will be repaid when the compensating products or unaltered goods have been re-exported from the EC or have been put to another eligible disposal. If a regular importer/exporter is required to give security as a part of an authorization, it may wish to lodge a single guarantee which will be adjusted accordingly to goods declared to IPR.

According to the USDA information¹² the EU sugar imports under the IPR in 2008/09 marketing year were around 300 000 tons of raw sugar equivalent compared to 213 000 tons in 2007/08. These volumes, as in the US case, are negligible to make any significant impact on the EU-27 sugar market.

Table 3 EU-27 Sugar balances

Attribute, 1000 MT	2006/07	2007/08	2008/09	2009/10	2010/11
Beginning Stocks	5,088	2,720	3,130	2,232	2,375
Beet Sugar Production	17,450	15,350	13,758	16,400	14,500
Cane Sugar Production	307	264	256	430	300
Total Sugar Production	17,757	15,614	14,014	16,830	14,800
Raw Imports	2,995	2,451	2,611	2,100	3,000
Refined Imp.(Raw Val)	535	597	569	520	575
Total Imports	3,530	2,948	3,180	2,620	3,575
Total Supply	26,375	21,282	20,324	21,682	20,750
Raw Exports	5	11	8	7	10
Refined Exp.(Raw Val)	2,434	1,645	1,324	2,400	1,450
Total Exports	2,439	1,656	1,332	2,407	1,460
Human Dom. Consumption	19,816	16,496	16,760	16,900	17,000
Other Disappearance	1,400	0	0	0	0
Total Use	21,216	16,496	16,760	16,900	17,000
Ending Stocks	2,720	3,130	2,232	2,375	2,290
Total Distribution	26,375	21,282	20,324	21,682	20,750

Source: USDA

2.4. Russia and Belarus

About 40% of sugar in Russia is produced from imported raw sugar. In 2010 Russian raw sugar imports have increased 66.7% yoy (to 2.1 mln t).¹³ Raw sugar imported under tolling schemes makes up less than 5% of the total Russian raw sugar imports. There is no a special law on tolling in external economic activities in Russia (as it is in the US, or Ukraine). Instead it is embedded in the Customs Code of Russian Federation (see, e.g.

¹² EU-27 Sugar Annual 2010. GAIN Report N E50033. USDA Foreign Agricultural Service

¹³ UkrAgroConsult: <http://www.ukragroconsult.com/>.

chapter 19, 31)¹⁴ and is called 'Processing on the custom territory' (in Russian, *pererabotka na tomozhennoy territorii*). Other laws that regulate toll processing are the Civil Code (chapter 37)¹⁵ and Tax Code (chapters 21, 22)¹⁶. According to the Customs Code, raw materials that are imported and processed in Russia with the obligation of further re-export within the fixed period of time (defined in advance) are free of any taxes and custom duties (article 179). There are no pre-defined periods for re-export, but it should correspond to the processing cycle of the imported product. Economic agents should be authorized to import or receive goods under this custom regime. Security for covering any potential customs debts that may arise is not needed if due customs' duties and payments make up less than 20 000 RUB (709 USD). In all other cases a security may take a form of: i) collateral of goods, ii) bank guaranties, iii) cash deposits, iv) guaranties.

Raw sugar tolling is well developed in Belarus. From the beginning of the current decade and until 2007 the industry processed on average nearly 0.5 million tones of raw sugar. The bulk of this sugar was exported tax-free to Russia. In 2007 Russia introduced a quota for Belarus' sugar, which was 150 000 tons in 2009 and in 2010. Belarus exports refined sugar to the FSU countries (Ukraine, Moldova and the Baltics), Central Asia and Transcaucasia. In 2010 production of refined sugar from the imported raw cane sugar has increased by 68.2% yoy and reached 394 900 tones (48% of total Belarusian refined sugar production).¹⁷

3. Economics of tolling

3.1. Economic model

The Sugar Market in Ukraine (as well as in the US) might be described by a simple model demonstrated in the Figure 1. The sugar market operates under a Tariff rate quota regime (see TRQ in the Figure 1), for simplicity (and without losing a generality) we omit the effect of the domestic sugar production quota here. In the framework of arrangements with the WTO, Ukraine has been applying a TRQ on raw sugar imports at the level of 260 000 MT, with within quota import duty (WQT) of 2% (see WQT in the Figure 1) and 50% (see AQT in the Figure 1) for over quota volume¹⁸.

In the Figure 1a) SS and D represent the sugar supply and demand curves, correspondingly. The effect of the TRQ on prices is that it drives a wedge between the world market price (P_W) and domestic market price (P_D). In the current Ukrainian sugar market case this wedge is the above-quota tariff (50%). This is particularly seen in Panel (b), which shows the import demand curve, MD. In this panel, domestic market price (P_D) is equal to the world market price (P_W) plus the above-quota tariff. Domestic consumption under the TRQ is at Q_{D1} , domestic production is at Q_{S1} , and total imports are ($Q_{D1} - Q_{S1}$). The TRQ allows the first MQ units of imports to enter the domestic market at the within-quota tariff of WQT, but the remainder enters at the above-quota tariff of AQT.

Since the TRQ induce the increase in the domestic price, this leads to an increase in the producer surplus (revenues) of $a1+b1$ hryvnias as they are able selling their products at higher than otherwise prices. At the same time consumers (population and, in case of

¹⁴ <http://www.tks.ru/codex/1000000019>

¹⁵ <http://base.garant.ru/10164072/37/#2037>

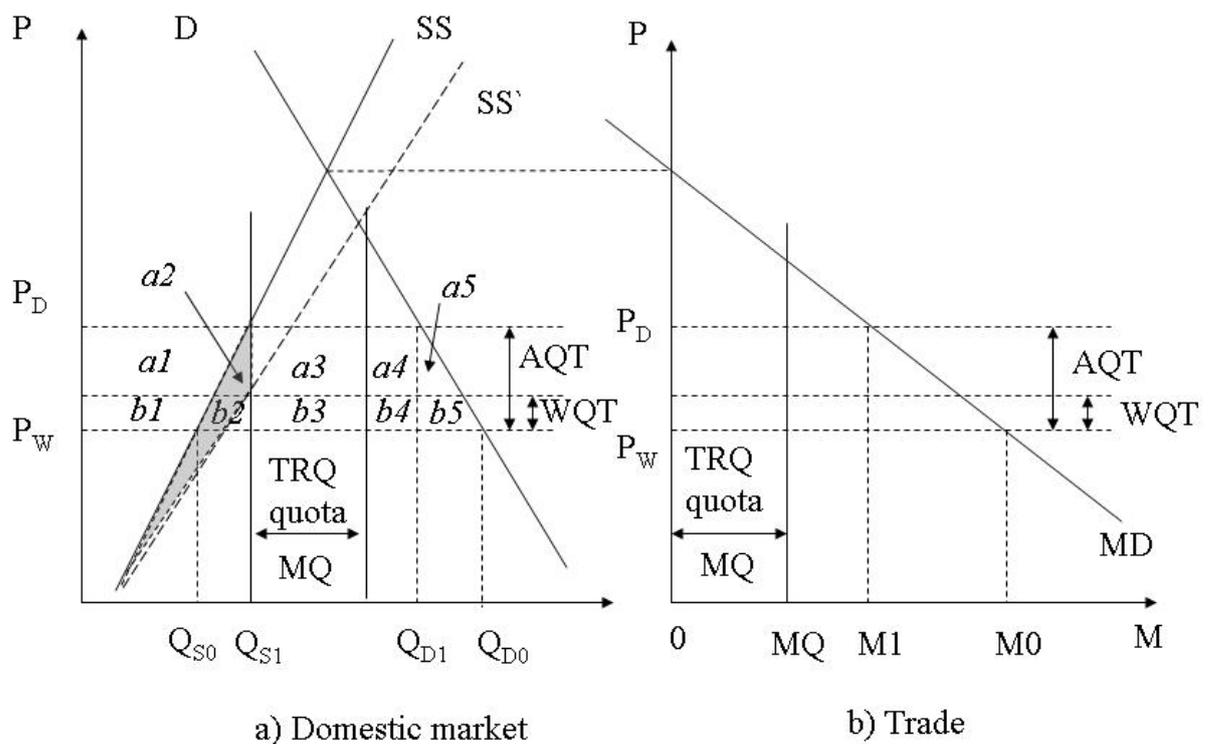
¹⁶ <http://base.garant.ru/10900200/21/#10008>

¹⁷ UkrAgroConsult data: <http://www.ukragroconsult.com/>.

¹⁸ According to WTO obligations, the quota increased to 263.9 thousand tons in 2009 and 267.8 thousand tons from 2010.

sugar, sugar-contained producers) are worse off as they have to purchase the same products at higher price. This is reflected in a reduction of consumer surplus (the monetary value of consumers' satisfaction) by $a1+...+a5+b1+...+b5$ hryvnias. The government collects $b3$ hryvnias in revenue from within-quota and $a4+b4$ hryvnias from the above-quota tariffs. There is an additional $a3$ hryvnias of rents that accrue to the holders of import licenses since they can purchase at P_W on the world market, pay the within-quota tariff of WQT and then sell at P_D on the domestic market. Consequently, there is a loss in total surplus or welfare (dead-weight loss) of $a2+b2+a5+b5$ hryvnias. In other words, although TRQ protects domestic sugar producers from international competition and is beneficial for them, the overall effect of this trade measure for the country is negative. The literature on the losses due to the TRQ regime is plentiful (see, e.g. Koo, 2002). Discussion on the losses of the sugar market policy in Ukraine is available in, for example, Nivievskyi and Strubenhoff (2009), Striwe (2001).

Figure 1 Modeling the Economics of the Sugar Market in Ukraine and the effect of toll refining



Source: Own presentation based on Gaisford and Kerr (2001)

One effect of toll refining of the raw-sugar and its proper implementation is that it allows facilitating better usage of the domestic refining capacities. In other words the toll refining decreases the costs of the fixed assets (and thus overall costs) to the producer per ton of the produced sugar. In terms of the model in the Figure 1a) this is equivalent to a clockwise pivoting of the supply curve SS, as it represents marginal costs of producers. Assume the supply curve SS transforms into SS'. The gray area (triangle) under the original supply curve SS represents the benefits of the toll refining, i.e. it is a difference between the costs of producing domestic output Q_{S1} with and without tolling. Notice, this effect is observed

even when toll refining brings no profit to the producers. The size of the gray triangle depends on different market parameters, but the net effect is clear. Irrespective of the size of the triangle, it allows reducing the size of the overall efficiency/welfare losses due to the TRQ regime. As Figure 1a) shows the gray triangle at least partly compensates for the welfare loss triangle a_2+b_2 .

The other effect that is difficult to show in Figure 1, is that toll refining helps sugar-containing producers stay competitive on world markets under the quota induced high domestic prices of sugar. Export oriented sugar-contained producers can import raw sugar duty free at the world market prices for refining and then re-export it in sugar-containing products.

3.2. Quantifying the benefits of toll refining: model calculations

In this section we try to quantify the benefits of toll refining. In particular, using information from different sources we build a model of a typical or average sugar factory in Ukraine and estimate/simulate the impact of the increased duration of the factory operation cycle (due to using toll refining) on the fixed costs per ton of beet sugar output. Also we look at how the production costs of beet sugar react on better usage of a plant's processing capacities.

In the Table 4 we present the model and some basic assumptions behind it. We assume that a typical sugar plant in Ukraine operates 70 days on average and processes about 190 thousand of sugar beet during this period. This corresponds to a plant of average size of 2700 tons of sugar beet processing per day. The sugar extraction coefficient is assumed at 12% for sugar beets and 97.6% for raw sugar (see, e.g. Nivievskyi and Strubenhoff, 2009). Next we assume that tolling extends the production cycle of the model factory to 270 days, i.e. for further 200 days; and the factory continues producing the same amount of refined sugar from raw sugar per day during further 200 days as during initial 70 days of sugar beet processing.

Another group of assumptions involves beet sugar production cost structure and raw sugar reference price calculations. From different reliable sources we found out that processing costs of a ton of sugar beet (without raws costs) make up UAH 263.8/t (see the line I.2 in the Table 4). We distribute this amount between the variable and fixed costs in a proportion of 89% to 11%¹⁹. The average raw sugar refining costs made up about 75 USD/t (w/o transport and handling costs) in 2010²⁰. Transporting and handling costs are estimated at 20 and 10 USD/t, correspondingly. The import price of raw sugar is calculated from the corresponding NYBOT raw sugar prices (Contract #11 – fob stowed Caribbean port) with 50USD/t sales/freight margin and maximum 3.75% premium for polarization. The choice of the NYBOT raw sugar price is not easy, as they have been extremely dynamic. As Figure 3 demonstrates, raw sugar prices have been skyrocketing since recently, surpassing even the corresponding refined sugar prices. As a reference we take the 2010 average, which equals about 27 cents/lb (actually, by market observers this [average] price is expected also in 2011). Since import of raw sugar for toll refining is generally relieved from import duties and VAT, we do not account it either on the beet sugar production side. Also we do not include a sugar factory premium in calculations for processing sugar beet/ refining raw sugar.

¹⁹ Taken from different Investment banking reports

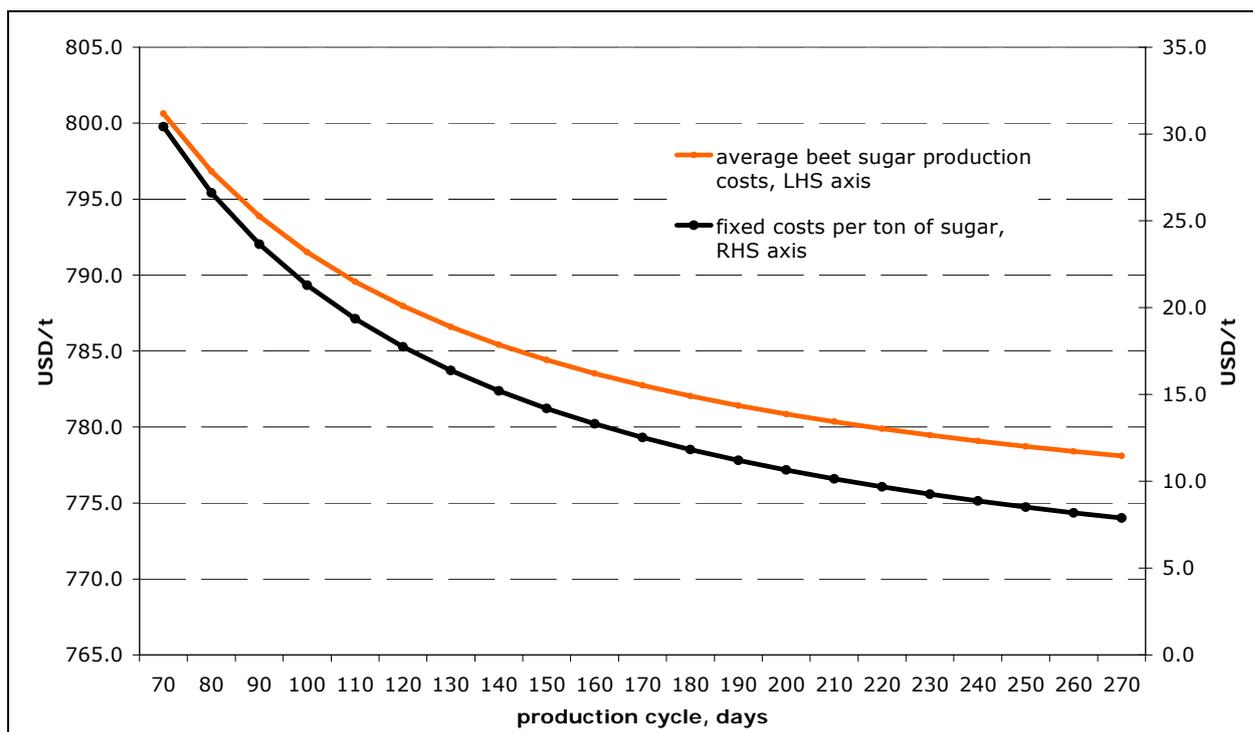
²⁰ Personal communications with representatives of, e.g. AAA Consulting Agency and Südzucker AG Mannheim/Ochsenfurt

Table 4 Model calculations: sugar beet and raw sugar processing

Main assumptions: average 2010 data					
Production cycle:		70 days/year + 200 days of toll refining of the raw sugar			
Sugarbeet processed:		190000 t/season			
Plant capacity:		About 2700 t of sugar beet/day			
Sugar extraction rate from sugarbeet:		0.12			
Sugar extraction rate from raw sugar		0.976			
Scenario I: production cycle 70 days			Scenario II: Scenario I + 200 more days		
Beet sugar production			Raw sugar refining		
I.	per ton of sugar beet	total (70days)	II.	per ton of raw sugar	total (200days)
1) raw materials			1) raw materials		
1a) sugarbeets, quantity, t	1.0	190,000.0	1a) raw sugar, quantity, t: [I.4/70]*200/0.976	1.0	66,744.7*
1b) sugarbeet cost, UAH without VAT	440.0	83,600,000.0	1b) raw sugar costs, USD cif Black Sea	667.6	44,556,989.4
2) processing costs, UAH: I.2a + ...+ I.2d	323.8	61,522,000.0	2) processing costs (w/o fixed): II.2a+...+II.2d	105.0	7,008,196.7
2a) variable processing costs, UAH	234.8	44,608,580.0	2a) variable processing costs, USD	75.0	5,005,854.8
-			2b) handling costs, USD	10.0	667,447.3
2c) transport costs, UAH (within 40 km)	60.0	11,400,000.0	2c) transport costs, USD	20.0	1,334,894.6
2d) fixed processing costs, UAH	29.0	5,513,420.0	2d) fixed processing costs, USD	-	-
3) total costs, UAH: I.1+ I.2	763.8	145,122,000.0	3) total production costs, USD: II.1+II.2	772.6	51,565,186.1
4) sugar output, t: I.1a*extr.rate	0.12	22,800.0	4) sugar output, t: II.1a*extr.rate	0.976	65,142.9
5) Beet sugar costs, UAH, without VAT: I.3/ I.4	6,365.0	6,365.0	5) refined sugar cost, USD, w/o import VAT and duties: II.3/ II.4	791.6	791.6
6) exchange rate, UAH/USD	7.95	7.95	6) exchange rate, UAH/USD	7.95	7.95
7) beet sugar production costs, USD: I.5/ I.6	800.6	800.6	7) refined sugar cost USD: II.5	791.6	791.6
8) fixed costs/sugar output (70days), USD/t: I.2d/I.4/I.6	30.4	30.4			
fixed costs/sugar output (270days), USD/t: (I.2d/I.4)/(I.4+II.4)					7.9

Source: own calculations based on the data from different sources as well as from the AAA Consulting Agency. Note: * we assume the factory continues producing the same amount of refined sugar from raw sugar per day during further 200 days of campaign as during the initial 70 days of beet sugar production.

Figure 2 Fixed and total beet sugar costs developments due to better usage of the processing capacity of a model plant



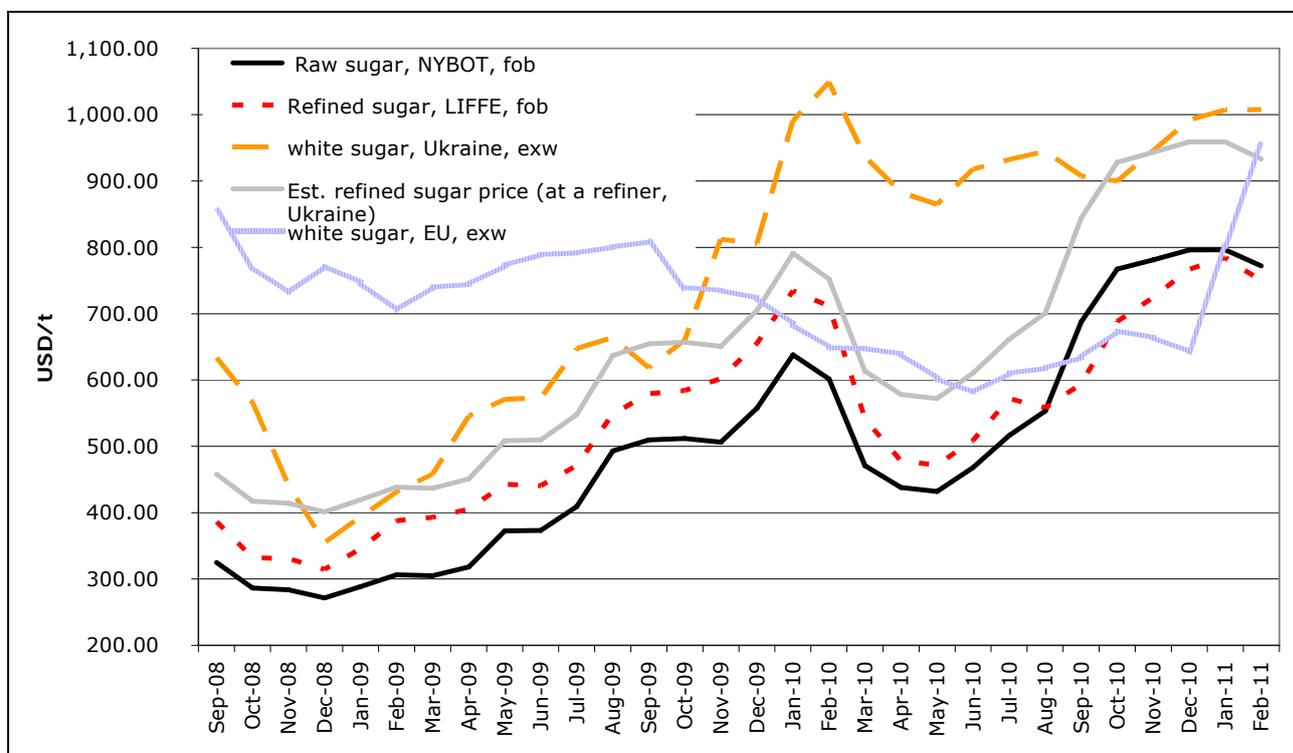
Source: Own presentation; Note: LHS and RHS – left- and right-hand side, respectively.

As the Table 4 demonstrates, after working out all the necessary calculations, we arrive at the corresponding production costs of the beet sugar and toll refined sugar, i.e. 800 USD/t and 792 USD/t, correspondingly. The fixed costs per ton of beet sugar make up 30.4 USD/t if a sugar factory operates 70 days a year, i.e. process sugar beet only. If we allow a sugar factory continue operating and refine raw sugar for further 200 days, the corresponding fixed costs go down to 7.9 USD/t, i.e. 4 times reduction. Figure 2 demonstrates the development of the fixed costs and beet sugar production costs depending on the duration of the production cycle of a sugar factory. As one can see the dependency is non-linear and it is flattening out as the duration of the production cycle increases, i.e. the marginal benefits of operating longer for a sugar factory decrease. For example, increasing production cycle from 70 to 80 days, decreases beet sugar production costs by 3.8 USD/t, while only by 0.3 USD/t if production cycle is increased from 260 to 270 days. Overall, the beet sugar production costs drop by 22.5 USD/t due to increasing production cycle of a sugar factory from 70 to 270 days by allowing refining raw sugar in the post sugar beet processing period. For our model sugar factory this brings cost savings of about **a half a million USD**. Sugar producers association “Ukrtsukor” reports that around 40 sugar factories in Ukraine are capable of processing raw cane sugar. Assuming they all toll process, we come up with the aggregated **20 mln USD** of cost savings due to a better usage of processing capacities in the sector. Further potential gains of such costs savings might include: i) additional investments in factory processing facilities/ in sugar beet production; ii) additional benefits to the personnel of a sector in terms of increased salaries; iii) decreased sugar prices; iv) additional local and administrative tax revenues.

Further benefit, as we mentioned it already above, is that toll refining might help to export-oriented sugar-containing goods (e.g. confectionaries) producers stay competitive on world

markets under the quota induced high domestic prices of sugar. Figure 3 clearly shows that toll refining could balance the market during the periods of shortage. In the Figure 3 we show the estimated refined sugar price that we calculated using the corresponding NYBOT raw sugar price series and adjusted it for polarization premium, freight and processing costs, and for sugar/raw sugar extraction rate. As one may see that toll refining has been only marginally if profitable at all until the fall 2009. Sugar-containing producers should have been indifferent which sugar to purchase, i.e. domestic beet sugar or refined sugar. However, after the sugar beet harvest and slicing began it became clear that Ukrainian sugar beet factories would not receive enough raw materials. Domestic prices have skyrocketed, while the world market prices went down. In this situation, as a margin between Ukrainian exw and estimated refined sugar prices shows, toll refined sugar could have been an option for sugar-containing products [for exports] producers to maintain their production costs at a competitive level. This, however, did not happen as there has been a ban on tolling of the agricultural and food products since the beginning of 2010.

Figure 3 Domestic and world market sugar prices



Source: Own presentation using the data from AAA Consulting; DG Agri (European Commission); <http://www.ers.usda.gov/Briefing/Sugar/Data.htm>

One may also speculate about benefits, if some opportunistic options are realized by the Ukrainian sugar producers. Ukraine lies between two highly regulated sugar markets, Russia and the EU. The restructuring of the EU Sugar Regime (in particular decreasing white sugar reference prices to EUR404/t) cut the EU sugar production from 2006, which has led to a built in structural deficit, typically 3 mln tons per year. It was expected that the missing quantity of sugar would automatically come into the EU from third countries. However, this did not happen as sugar prices elsewhere [world market prices] have been higher than the EU prices (see, e.g. Figure 3). Moreover, a mixture of adverse weather for much of last year in major beet-growing countries cut EU sugar output by 1.8m tonnes, expanding a deficit

further. Domestic prices reacted accordingly, and the EU sugar is traded above EUR900/t (USD1,274/t) in March 2011. This means that the EU is trading at about USD300/t above the Ukraine price today. To alleviate domestic shortages of sugar, the EU has allowed import quota of 300 000 tons of sugar at 0% duty. Since, the white sugar premium to raw sugar is low so processors/ big users will probably buy white sugar. If Ukraine could toll process it could bring in raws, process it and export into EU at the moment (providing they had customers and the right quality). Also, Ukrainian sugar producers could bring in white tolled sugar under IPR for export in products from EU. Also toll processing of raw sugar would allow Ukrainian sugar producers competing with Russian factories for the Asian export markets. This, in case of oversupply, might help finding export markets for Ukrainian beet sugar.

3.3. Concerns about toll refining

In this section we discuss some of the relevant economic concerns about toll refining. This does not include enforcing the effective functioning of the tolling schemes, though. As Figure 3 demonstrates, raw sugar refining might be very competitive vis-à-vis beet sugar production in Ukraine. Especially it was the case in 2010. In the rest it has been only marginally if competitive at all.

First economic concern is referred to a possible substitution of a beet sugar production by refining of raw sugar. Effectively this will translate into reduced sugar beet acreages and effective elimination of the sugar beet production in Ukraine. Two forces act against this argument, however. First is that the worldwide experience shows that raw-sugar refining is a high-volume, low-profit operation²¹, and is mainly driven by the level of white sugar premium [the price advantage of white sugar adjusted for freight and the polarization (purity) of the sugar]. This [white sugar premium], however, is difficult to calculate as there are many dynamic parameters have to be accounted for in calculations (see Table 4 as an example, plus raw sugar has a wide range of polarization depending on the origin and the production process). Raw/white price differential is calculated instead.²² As Figure 3 demonstrates, that sugar prices demonstrate high level of volatility. Raw sugar prices have doubled since May 2010 to 30-year highs due to fears of increasingly tight world supplies; this resulted even in a negative raw/white price differential, making [properly enforced] toll processing economically unviable.

For Ukraine the differential between the grey solid and dashed red lines in the Figure 3 demonstrates whether toll refining makes economic. Under normal conditions (e.g. in 2008-09) raw sugar refining was only marginally if profitable at all, as the two price lines basically coincide. Only in shortage periods, when sugar beet was undersupplied, raw sugar refining is profitable, as it was in 2010.

A second force is increasing competitiveness of beet sugar in Ukraine, especially in vertically integrated companies, i.e. in agri-holdings. Model calculations of the beet sugar production costs in the Table 4 assume implicitly that a sugar factory purchases sugar beet from farmers. In vertically integrated structures the cost of raw materials (sugar beet) could be substantially reduced. Assuming relatively high yields of 45-55 t/ha the costs of sugar beet

²¹ In general the following general conditions should be met: i) the beet factory is located close to a waterway/port or a raw-sugar factory because transporting raw sugar to an inland factory is costly; ii) the price of raw sugar is reasonable; iii) the production volume is high (Asadi, 2008).

²² Gudishnikov et al (2004)

could be reduced to 200 UAH/t, which is more than twice the sugar beet costs we assumed in the Table 4. At these sugar beet costs, production value of beet sugar goes down to about 550 USD/t (w/o VAT), which is about 220 USD/t below the corresponding refined sugar production value and is even competitive at the current high world sugar market prices (well above 700 USD/t, see Figure 3). So in the current world economic environment and provided current highly protective sugar market organization in Ukraine, the option of substituting beet sugar production by refining raw sugar seems highly unlikely. Moreover, the experience of Russia assures this. As it was already mentioned above, annually about 40% of sugar in Russia is produced from imported raw sugar. This, however, has not destroyed Russian sugar beet sector. On the contrary, Russia has been increasing sugar beet acreages (subject to short-term fluctuations), with continuous yields and extraction rates increase (Bodin and Gudoshnikov, 2010).

4. Conclusions and recommendations

Raw sugar tolling or toll processing has been extensively used in international trade. Raw sugar (over and above that needed to fulfill domestic consumption needs) is imported duty free at the world market prices for refining and then re-exported as white sugar or sugar-containing products. Especially it is pertinent to the countries with highly protected sugar markets. For them countries toll refining is mainly aimed at compensating domestic sugar-contained products producers for high domestic sugar prices resulting from expensive sugar market policies; for sugar producers, though, toll refining aims at better usage of processing capacities mainly after the relatively short seasons of sugar beet processing.

Ukraine also has an expensive sugar market policy with the tariff rate quota induced high domestic prices, so toll refining well imbeds in a given sugar policy environment. Since recently, however, toll processing of the whole range of agricultural and food products [including sugar] was officially forbidden after the Law №1782 «On Changes to Certain Laws of Ukraine concerning support of agriculture during global financial crisis» as of December 22, 2009 came into fore.

Sugar markets are usually highly protected in the world, especially in the countries with historical experience of beet sugar production, including Ukraine.

In this policy paper we argue that toll processing is a sensible policy in a current highly protective sugar market organization. Using theoretical models we demonstrated that toll refining could dampen total country welfare losses resulting from the sugar tariff rate quota regime. This is mainly achieved by reducing the fixed costs of a sector by better usage of processing capacities in the after sugar beet slicing campaign. Using model calculations we demonstrate that a typical sugar factory could save about half a million USD due to toll refining. Translating this onto the whole sector, toll refining could save about 20 mln USD.

Further important benefit, is that toll refining might help to export-oriented sugar-containing goods producers stay competitive on world markets under the quota induced high domestic prices of sugar and/or balance the market during the periods of shortage. According to our calculations, although toll refined sugar should have been only marginally if interesting at all to sugar-containing goods [for export] producers until the fall of 2009, it could have been an option to dampen the 2010 high price shock and help to maintain their production costs at a competitive level. This, however, did not happen as there has been a ban on tolling of the agricultural and food products since the beginning of 2010.

Under certain circumstances, toll refining could open up some export opportunities for Ukrainian sugar. Ukraine lies between two highly regulated sugar markets, Russia and the EU. The restructuring of the EU Sugar Regime resulted in the annual structural deficit of about 3 mln tons of sugar. This marketing year, a mixture of adverse weather and high world sugar prices expanded a deficit further by about 1.8mln tons. The EU domestic prices reacted accordingly, whereby the EU is trading at about USD300/t above the Ukraine's price at the moment. Since the EU has allowed import quota of 300 000 tons of sugar at 0% duty to alleviate sugar deficits, Ukraine could toll process raw sugar and export it into EU at the moment. Also, Ukrainian sugar producers could bring in white tolled sugar under the Inward Processing Relieve program for export in products from EU. Toll processing of raw sugar would allow Ukrainian sugar producers competing with Russian factories for the Asian export markets. This, in case of oversupply, might help finding export markets even for Ukrainian beet sugar.

Concerns about the negative effects of tolling the raw sugar on the domestic sugar beet sector are very unlikely, provided the current protectionist sugar market policy continues to exist. According to our model calculations, increasing sugar beet yields and extraction rates (especially in vertically integrated structures) make sugar beet processing more competitive vis-à-vis raw sugar refining, especially in the current high raw sugar prices environment. Russia's experience supports this, where despite extensive raw sugar refining, sugar beet acreages increase.

And lastly, failure of the government to enforce tolling schemes should in no mean substitute for evident economic benefits of toll refining. Instead the government of Ukraine might follow examples of the US, the EU or Russia on how to instrument and enforce these schemes.

5. References

- Asadi M (2008). *Beet-sugar handbook*. John Wiley & Sons, Inc., Hoboken, New Jersey.
- Gudishnikov S., Jolly L. and Spence D. (2004). The World sugar market. International sugar organization (ISO)
- Jenkins, F. (2004) The United States, Chapter 20. In Kingsman J. (eds) *Sugar Trading Manual*. Second editions. Woodhead Publishing Limited, Abington Hall, Abington.
- National Confectionaries Association (2007) Sugar Re-Export Primer. Available at http://nca.files.cms-plus.com/Sugar_ReExport_Primer.pdf (Accessed 20 March, 2011)
- Gaisford, J.D. and W.A. Kerr (2001). Economic Analysis for International Trade Negotiations. The WTO and Agricultural Trade. Edward Elgar Publishing, Cheltenham UK.
- Won W. Koo Alternative U.S. and EU Sugar Trade Liberalization Policies and Their Implications *Review of Agricultural Economics*, Vol. 24, No. 2, pp. 336-352
- Nivievskyi, O., and H. Strubenhoff (2009) 'Restructuring of the Sugar Sector in Ukraine'. In Strubenhoff H., Burakovskyy I., Movchan V. (eds) (2009) *Agriculture, Bioenergy and Food Policy in Ukraine – Analyses, Conclusions and Recommendations*. ADEF-Ukraine. Kyiv
- Striwe (2001) Who Gains and Loses – Import Tariffs and Tariff Rate Quotas for Sugar and Grain in Ukraine. In von Cramon-Taubadel S., S. Zorya and L. Striwe (eds) *Policies and Agricultural Development in Ukraine*, Germany: Shaker Verlag, pp. 134-143.
- Bodin, A., and S. Gudoshnikov (2010) Belarus, Kazakhstan and Russia: Three countries – one sugar market. *International Sugar Journal*, vol. 112, No 1338