

## **THE EFFECTS OF TARIFF BARRIERS STUDY CASE: SUGAR MARKET IN ROMANIA**

Mr. Flavius Rovinaru, Lecturer,  
Ms. Mihaela Rovinaru, Lecturer,  
Mr. Liviu Deceanu, MA Student  
Faculty of Economics and Business Administration,  
Babes-Bolyai University,  
Cluj-Napoca, Romania

### Abstract:

Probably the sugar market is not as spectacular as the oil market, but we consider that it is worth a little bit of attention, especially nowadays, in Romania and in Europe. Why do we consider this?

In view of the recent accession of our country to the EU, event that has certainly affected the Romanian trade flows, and also in view of remarkably interesting evolutions of the international profile markets, also recent, our intention is to emphasize the function mode of main mechanism that sizes the sugar demand and supply dimensions, the price level and / or sugar trade flows.

Therefore, we will further analyze the process of sugar price making on international markets, and the particular features of European and Romanian markets for this product. Furthermore, we will try to obtain some pertinent conclusions regarding the impact of the Romanian accession to European Union and of settlement of well-discussed production quotas, and about the possible role of regulator played by Romania. Our country might play this role because of some derogation, concerning the entrance of several quantities of sugar coming from states that are not in the common market, third parties.

Key words: tariff barriers, export quotas, price making, trade creation.

### **2007, Year of Change in the Sugar Market Regulations**

At European level, in 2007 new regulations regarding the sugar market were introduced, with concern to a 9-year period. The main objective of this step is to reach a balance by diminishing the European sugar production and decreasing the sugar price, considering the international engagements of the European Union.

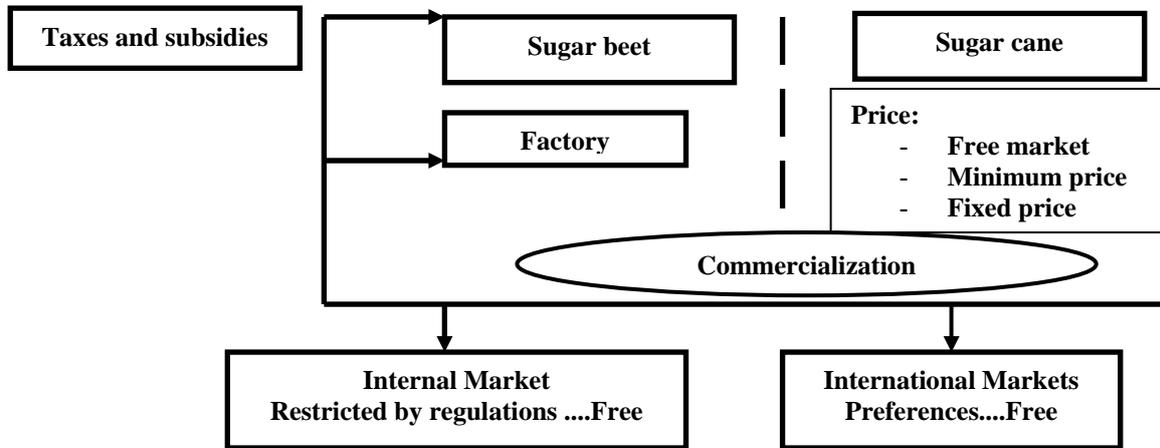
For a period of 4 years after 2007, the price of sugar will drop by 36%, while the price of the sugar beet will fall by 38%. In the same time, the intervention price will be replaced by a reference price.

This series of major modifications<sup>1</sup> follows as a consequence of the World Trade Organization's pressures; in figures, the intervention price of **631.9 €tone** was replaced by a reference price, that will decrease to **404.4 €tone** by 2010.

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<sup>1</sup> "Curierul National", 28 November 2006.

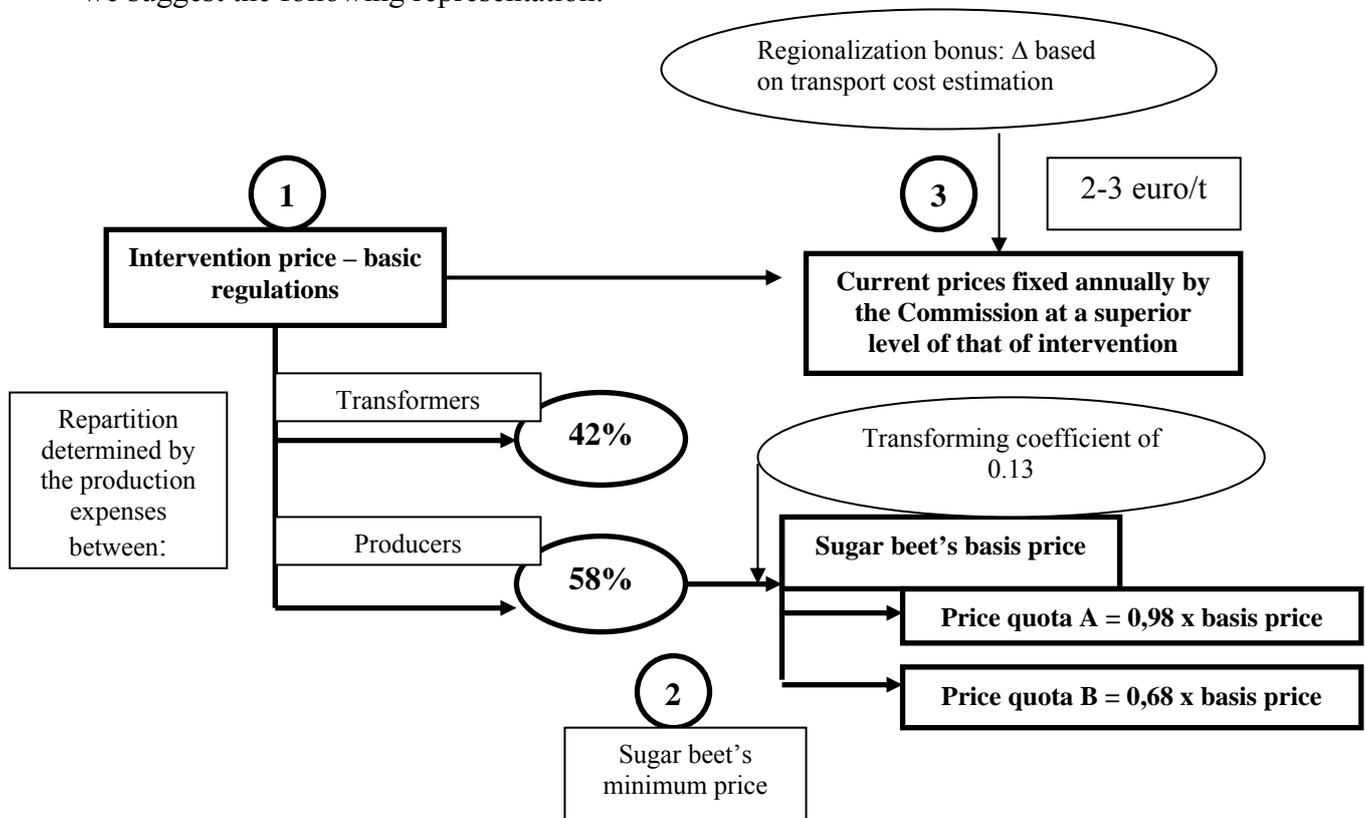
Regarding the price-making mechanism, we can observe the atypical structure influenced by the preferential agreements; fact that generates a series of differences concerning the price-making mechanism in the case of other base products. Schematically, the price-making mechanism for sugar on the international markets can be illustrated as shown below:



Source: UNCTAD (modeling after specified description)

The price-making process is definitely influenced by the special regimes and preference engagements. In this context the prices are generally pre-fixed and do not vary throughout the year.

A vivid example of preferential regime is the European Union itself. In the case of the common market, the price-making process is influenced by the organization of the internal sugar market that isolates the European trading course of the international one. Graphically, we suggest the following representation:



Source: UNCTAD (modeling after specified description)

Distinctly, the intervention price represents a security element that guarantees a minimum course for the European economic agents. This mechanism determines the minimum price that intervention organisms must use in order to acquire sugar on the internal market. From the early 90's, this price levels up to 631.9 euro per tone for white sugar and 523.7 euro per tone for the raw sugar. The intervention mechanism was used only once during the last 30 years, in 1986, for acquiring 15000 tones of sugar.

Considering the minimum acquisition price of sugar beet, this can be defined as a fixed price that the sugar producers must pay in order to buy the sugar beet from the cultivators in case the course drops below the threshold price. The minimum price depends on the basis price, calculated using a transforming coefficient of 0.13.

### World market's coordinates

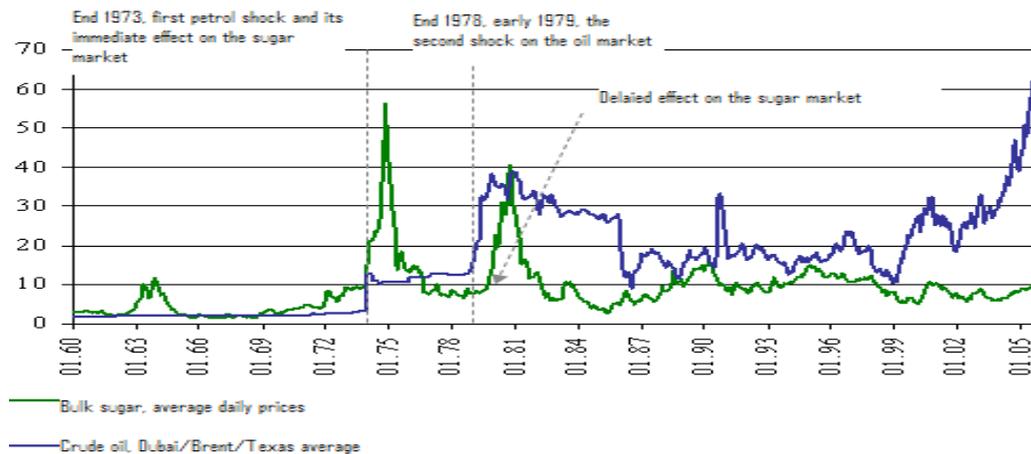
At world level, the price of sugar varies significantly from one country to another. A document presented by the World Association of Sugar Beet and Sugar Cane Producers in 2006, emphasizes the following price levels:

Country	Price/tonne paid at producers'	Retail price per tone	Transportation cost in charge of the:
France	36,00 euro	1200 euro	producer
Belgium	43,68 euro	980 euro	producer
Holland	55,00 euro	940 euro	
Germany	52,00 euro	890 euro	
Spain	49,87 euro	960 euro	cultivator
Ireland	50,00 euro	1050 euro	cultivator
<b>Romania</b>	<b>28,97 euro</b>	<b>429 euro</b>	<b>producer</b>
United States	38,00 USD	690 USD	producer
Australia	15,00 USD	647 USD	producer
South Africa	16 USD	400 USD	cultivator
Swaziland	17 USD	400 USD	cultivator
Mauritius	42 USD	172 USD	cultivator
Columbia	14 USD	380 USD	producer

Source: World Bulletin of sugar beet and sugar cane producers, March 2006

The evolution of sugar price on the international market was profoundly influenced by the dynamics of other markets (like, for instance, the oil market), as well as by the general economic context.

Comparing, for instance, the price of sugar on the world market with the price of oil between the years 1960 and 2005, we can outline the overdue effect of price variations of petrol upon the price of sugar:



Source: UNCTAD, using statistical data from the Monthly Price Bulletin

Despite the numerous international agreements regarding sugar, (these even fixed a fluctuation limit border of sugar price), two major crises took place during 1975 and in early 80's. These were caused mainly by the methods used to control the prices, based on export contingencies that tend to delay the reaction to the shocks on the oil market.

For instance, as the previous graphic shows, the petroleum shocks from 1973 and 1979 had a significant impact on the majority of basic products' markets, therefore also on the sugar market. This interaction between the markets is explainable by the fact that oil is necessary for the transportation of commodities.

Thus, the volatility of the oil course has contaminated other markets, of which the sugar market, which registered a price increase of **454%** between 1973 and 1974. In comparison with the **220%** growth of the petroleum price during the same period, this evolution may seem exaggerated, spectacular. The image of this market can be completed by the effect of the human variable in the sense of amplifying the phenomenon; we can therefore talk about the *scarcity effect*. Practically, following an important increase of the price level, consumers reacted by buying and stocking basic aliments such as sugar, flour, oil, etc., and determining this way a scarcity situation and a new price increase.

Other factors that put pressure on the world price of sugar can be mentioned in this context: the apparition of new producer countries, due to the artificially increased price level of sugar; the apparition of substitute products that determined the reduction of sugar consumption; the unexpected variations of the sugar beet and sugar cane production (Cuba, Russia), etc.

In the following paragraphs, we will direct our attention towards the European and Romanian sugar market, occasion that we will use to approach a series of figure examples and we will also underline the atypical characteristics of the market that are due especially to the implementation of the Common Agricultural Policy.

### **The coordinates of the Romanian and European market**

About the European Union, we have to mention the fact that it is the third largest sugar producer in the world, after India and Brazil. The internal production of the European Union varies between 16.5 billion tones and 18 billion tones, from which 280000 tones of sugar is produced out of sugar cane originating from Spain and overseas territories. France and Germany totalize over 50% of the European total sugar production.

Concerning consumption at European level, it reaches 12.9 billion tones annually, representing an annual average of 34 kg per inhabitant. In addition, we notice that the EU consumption confirms the world trend of growth (+3.5% in 2007), the historical average being around +2%. Of course, there are some significant disparities in consumption, this being higher in the northern European countries. Despite the existence of surplus productions in comparison with the consumption, the European Union, due to historical and economical reasons (traditional supply in United Kingdom), as well as political reasons (aid for producer countries from Africa, Caribbean and Pacific), continues to import every year approximately 1.8 billion tones of sugar, out of which 1.7 billion under preferential regime with no or very little custom taxes.

The common organization of the sugar market implies guaranteeing a minimum price that is assigned to the producers within a certain quantity limit (quota). On an average, the sugar surplus production of the European Union reaches annually 2.5 billion tones, which are exported. For these quantities guaranteeing the minimum price means providing an aid, that covers the difference between the fixed price and the world sugar price, obviously smaller. The production that exceeds the quotas is also exported, but is not price protected and is traded at the international price level.

Although a series of mechanisms were introduced with the purpose of rising the sugar import price from third countries in Europe, we have to state that the majority of these countries are beneficiaries of preference agreements. Therefore, following the *Sugar Protocol* of *Lomé Convention*, several ACP countries (Asia, Caribbean, Pacific) and India, benefit of an annual delivery levy in the EU of 1.3 billion tones of sugar at a price that equals the intervention price without custom tariffs. In this case, we refer mostly to raw sugar destined to the 4 member states that have a great refinement capacity (United Kingdom, France, Portugal and Finland).

For the next period, a series of major modifications with impact on the European market need to be taken into account: the minimum reference price of white sugar will drop from 630 euro/tonne to 385 euro/tonne in 2010. After the pressures of the World Trade Organization, the European Commission took into consideration the complaints the South-African countries that are major sugar producers, and decided to reform the Common agricultural Policy in the way that the minimum reference price will decrease by 39% in the case of sugar and by 42.6% in the case of sugar beet.

To compensate this measure the European Commission proposed a redemption scheme in order to purchase the annual production from those who voluntarily want to give it up; the payments will be spread over a 4-year period: I<sup>st</sup> year : 730 euro/t, II<sup>nd</sup> year: 625 euro/t, III<sup>rd</sup> year: 520 euro/t, IV<sup>th</sup> year: 420 euro/t.

Within the European Union, the price of sugar that is about 1 euro/kg is approximately 3 times higher than the one outside the EU, showing the cost of the Common Agricultural Policy that is beard by the European consumers.

The analysis of the Romanian sugar market entails to stress the idea that our country is dependent in proportion of 90% of the imports of raw sugar. For this reason, the rise of the sugar price (particularly on the New York stock exchange) influences directly the price on the internal market. The price increases from 2005 and 2006 were therefore closely bound to the fact that the New York and London stock exchanges were displaying the highest sugar prices in the last 25 years (after Brazil's announcement of redirecting an additional part of its sugar cane production towards the production of bio-fuel).

Annually in Romania there are imported between 450 and 500 thousand tones of raw sugar. Now, the ex-works price is of approximately 0.5 euro per kilogram. The fact that our country has joined the European Union had a significant impact on the sugar market in the sense that it led to an increase of this product's price, to the European price level (following

the incidence of the Common Agricultural Policy). Thereby, according to the prevision of the chief executive director of the sugar employers, Gheorghe Bejan<sup>2</sup>, in the following period the price of sugar could reach 1 euro/kg, the European average. *Therefore, here is how, after joining the European Union, unlike on the other free markets (like beer, wine, etc.), in the case of the sugar market, this event does not reduce the price level following the disappearance of the custom tariffs, but it leads to its rise.* Another atypical phenomenon is linked to the increase of imports in the context of higher European price; in this context, we have to take into consideration the issue of the so-called production quotas. Following the negotiations with the European Union on the agricultural chapter, *Romania had received a production quota of 109164 tones of sugar out of sugar beet and of 329636 tones of sugar obtained from refining raw sugar*, originating from imports.

The different press<sup>3</sup> articles bring on foreground in this context a delicate problem: the allocation of small production quotas to some producers than do not have any production at the time or to some producers that do not comply with the environment standards imposed by the European Union. Now, there are some technologically streamlined factories at Liești, Luduș, Buzău, Roman and Oradea.

In our country, on the sugar market we have the following economic agents: Zahăr Cristal Oradea, Arad si Carei- Cristal (France) and Pfeifer und Lungen (Germany), Danubiana Roman, Zahăr Buzău - Agrana Zucker (Austria), Zahăr Timișoara - European Drinks, Zahăr Luduș Zamur Mureș Société Franco-Roumaine de Sucrierie, Zahăr Liești-Lemarc (France), Zahăr Urziceni - Marr Sugar (Russia), Zahăr Călărași.

Further, we will present a series of key-data from the Romanian sugar market, completed with graphs obtained using relevant statistical data from the Romanian Statistical Year Book.

**Internal sugar production – (thousand tones) and Average annual sugar consumption per inhabitant – kg/inhabitant (EU average – 34 kg):**

Year	'95	'96	'97	'98	'99	'00	'01	'02	'03	'04	'05
<b>Production</b>	266	396	243	321	246	476	493	514	460	506	539
<b>Consumption</b>	23,5	24,8	19,9	20,5	20,9	23	24	23,5	24,3	25,6	27,4

Source: Statistical Year Book, Chapter IV

Regarding the imports and exports of sugar, sweets and honey, there are available the following statistical figures:

**International trade of Romania with sugar (thousand euros):**

Year	2000	2001	2002	2003	2004	2005
<b>FOB Exports</b>	12	13	18	26	22	18
<b>CIF Imports</b>	124	170	110	120	117	135

Source: Statistical Year Book, Chapter IV

Besides, we remark an important decline in the sugar beet production, due mainly to the significant reduction of the area under grain crops or tillage ground.

<sup>2</sup> "Gardianul", November 2006

<sup>3</sup> "Gardianul", "Ziarul Financiar"

Likewise, in order to complete the picture of the Romanian sugar market, we present the following information:

2006 – 35% increase of the price of sugar compared with the previous year; upward trend aiming 1 euro/kg – the EU average price

Brazilian sugar price, other third countries – 0.2-0.3 euro/kg

Prices of sugar in Romania: 2005.....1.75 RON; 2006.....2.4 RON; 2007.....2.6 RON (0.72 euro).

Consumption<sub>2007</sub> = 570 000 tones; Quota<sub>2007</sub> = 110 000 tones; Quota<sub>2007-refinement</sub> = 330 000 tones; Consumption<sub>2006</sub> = 550 000 tones; Production<sub>2007</sub> = 440 000 tones; Production<sub>2006</sub> = 500 000 tones.

Price of raw sugar: Brazil: 266 euro/tonne; Romania: 440 euro/tonne; EU 620 euro/tonne.

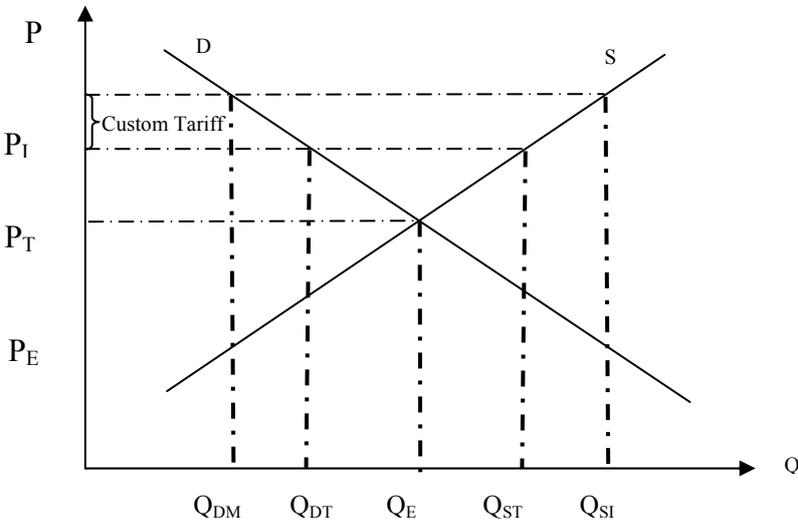
The preferential regime applied to the sugar from Brazil is conserved another 2 years after 2007; **consequently, after 1<sup>st</sup> of January 2007 when Romania joined the European Union and the customs tariffs for the intra-european trade were suppressed, our country could start playing a “valve” role on the market: the sugar from third countries such as Brazil could enter the European market through Romania (trade creation phenomenon) – scenario no.3.**

After 1<sup>st</sup> January 2007..... custom tariffs applied to imports from EU = 0; deliveries outside EU.....Union’s custom system; in the case of some quotas, the tariffs remain low for Romania: 2006-2007: 247 227 tones; 2007-2008, 2008-2009: 329 636 tones (Source: Brazil and Cuba).

Hereinafter, we will suggest a series of 3 scenarios, the first two being of fictitious nature with the purpose of underlining the effect of having import and export custom tariffs. The third will emphasize the presumed phenomenon of trade creation within the two year period that our country benefits of as an exception to the European tariff system, for the sugar coming from third countries (for some contingents).

**1. Export custom tariffs – The relationship with the EU member states before January 2007**

Beginning with the following graphic representation, we will analyze the situation of the Romanian sugar market, taking like scenario a balanced market with free trade and an export tariff custom introduced.



We will begin with explaining the notations and presenting the data – adjusted for the clarity of the model (and therefore modify reality).

- The internal sugar production = 500 000 tones/year
- Average international (European) price in the year of reference = 620 euro/tonne;
- $P_E$  – Internal price when free trade, balance price (400 euro/tonne);
- $Q_E$  – The quantity traded at the international price of 400 euro/tonne (350 000 tones/year);
- $P_I$  – International (European) price (620 euro/tonne);
- $Q_{DI}$  – The requested quantity at the European price level (150 000 tones/year);
- $Q_{SI}$  – The supplied quantity at the European price level (500 000 tones/year);
- $P_T$  – Price after introducing the custom tariff;
- $Q_{DT}$  – Demanded quantity after introducing the custom tariff;
- $Q_{ST}$  – Supplied quantity after introducing the custom tariff.

### ***I. Quantification of the custom tariff***

The data presented above streamlines the fact that the international (European) price is greater than the balanced domestic one ( $P_I > P_E$ ), which constitutes the main premise of export emergence. In this context, the domestic sugar producers will be tempted to sell their production abroad because they will obtain higher revenues than on the internal market. When the price increases from 400 euro/tonne to 620 euro/tonne, the domestic demand will drop from 350 000 to 150 000 tones, while the export supply will rise from 350 000 tones (that was when there were no differences between the national and international price), to 500 000 tones. Based upon these figures we can determine the price elasticity of the demand, respectively of the supply:

$$E_D = (150\,000\,t - 350\,000\,t) / (620\,euros/t - 400\,euros/t) = -910\,t$$

$$E_S = (500\,000\,t - 350\,000\,t) / (620\,euros/t - 400\,euros/t) = 682\,t$$

The two values obtained certify that a price increase of 1 euro will diminish the demand by 910 tones (and vice versa), and in the case of the supply, a price increase of 1 euro generates a supply increase of 682 tones, while a decrease of the price with 1 euro reduces the supplied quantity with 682 tones.

Obviously, a superior international (European) price would encourage greater exports in terms of quantity and value. In this context, guaranteeing an internal supply that responds to the consumption needs (that we estimate at about 300 000 tones), implicates the introduction of a custom tariff. The level of this taxation tool will be determined by using the supply elasticity coefficient; the evolution of the internal consumption will then reach 150 000 tones, obtained after making the subtraction 300 000 t. – 150 000 t.

The price reduction afferent to the decline of the supply with 150 000 tones will be determined starting from the following information: the decrease of the price with 1 euro induces a decline of the supply with 682 tones; the value that we are looking for would determine a decline of 150 000 tones. Therefore, it would be of  $150\,000/682 = 220$  euros.

Consequently, the custom tariff rises up to  $220 \times 100/620 = 35.48\%$ .

Clearly, the tariff will determine the decrease of the revenues for the sugar producers; practically, their net earning will be of  $620 - 220 = 400$  euros/t. Of course, the tendency to export drops significantly in these conditions.

### ***II. The effects of introducing the export custom tariff of 35.48%***

In case the export custom tariff of 35.48% is applied, the domestic price that includes it will be equal to the international price; the value of the tariff revenue will be of 620 euros/tonne  $\times$  35.48%, which equals 220 euros/tonne, and the net income of the producers rising to  $620 - 220 = 400$  euro/tonne.

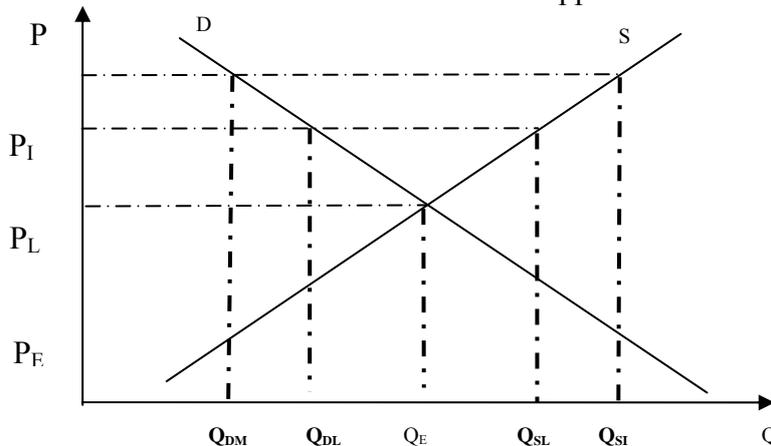
Practically, when exporting the producers will not be able to obtain more than 400 euros/tonne, so they will prefer to sell on the internal market at this price, increasing this way the solvable demand and therefore the consumption.

The effects upon the supply and demand can be calculated using the elasticity that we determined before. If at the price level of 620 euros/tonne the annual consumption reaches 150 000 tonnes, after decreasing the price the demand will rise by  $220 \times 910 = 150\,040$  tonnes, leveling up to  $500\,000 - 150\,040 = 349\,960$  tonnes.

### III. Export tariffs

The set of non-tariff barriers that a state can use includes firstly the quantitative restrictions. This way, we can present here the hypothetical case of imposing export levies. The motivations of such approach can be extremely – favoring the cover of the domestic demand, forming stocks when there are anticipated crisis, etc.

The scenario that we have in view supposes the following graphic presentation:



$P_E$  – Internal price when free trade, balance price (400 euros/tonne);

$Q_E$  – The quantity traded at the international price of 400 euro/tonne (350 000 tonnes/year);

$P_I$  – International (European) price (620 euro/tonne);

$Q_{DI}$  – The requested quantity at the European price level (150 000 tonnes/year);

$Q_{SI}$  – The supplied quantity at the European price level of 620 euros/tonne (500 000 tonnes/year);

$P_L$  – Price after introducing the levy;

$Q_{DL}$  – Demanded quantity after introducing the levy;

$Q_{SL}$  – Supplied quantity after introducing the levy.

We will assume in this case that the sugar exports have been submitted to contingencies in such way that their maximum level reaches 400 000 tonnes. The decrease of the export supply is therefore of 100 000 tonnes. Using the values previously determined for the price elasticity of the supply and demand (682 for the supply and -910 for the demand), we further determine the level of the price after the introduction of the quantitative restriction; the fall of the price with 1 euro generates a decrease of the supply with 682 tonnes. For one tonne, the price diminution levels up to  $100\,000 / 682 = 146.6$  euros, so the unit price/tonne will therefore be of  $620 - 146.6 = 473.4$  euros. Naturally, this price reduction determines a decrease of the exporters' revenues, who will register a loss of  $100\,000 \text{ t} \times (620 \text{ euros/t} - 473.4 \text{ euros/t}) = 14\,660\,000$  euros. Analogously, we can determine the solvable demand after applying the levy.

Analyzing the commercial relations with the states that have lower prices for sugar, a new scenario needs to be considered, namely the apparition of imports. The barriers that can be put in front of the commercial flows in this case concern the custom tariffs and the use of

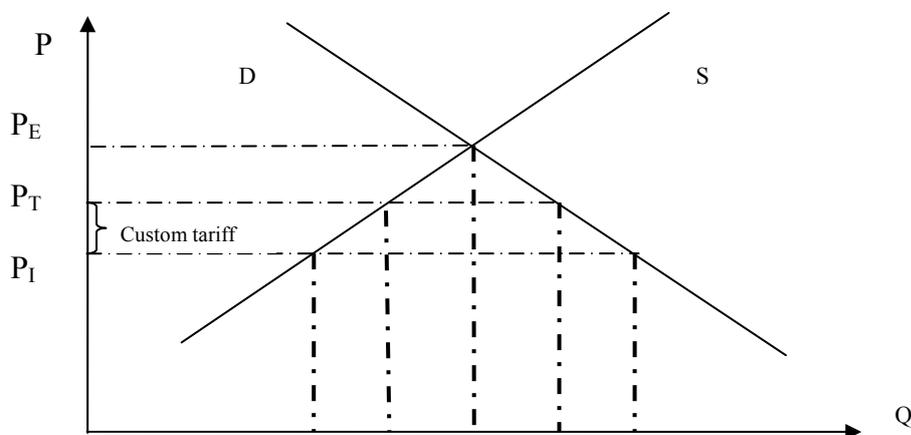
some contingency measures. In the following, we will take into consideration the case of a particular state, such as Cuba or Brazil.

## 2. Import custom tariffs – in relation with third countries (i.e. Brazil)

Generally, the apparition of imports is closely bound to the existence of an international (external) price inferior to the domestic balance price. In the case of sugar, the lowest prices originate from countries such as Brazil, India or Cuba.

In the context of application of the Common Agricultural Policy, the European Union uses specific instruments in order to protect its domestic producers from the strong foreign competition. In the following, we will imagine a scenario in which Romania introduces import custom tariffs for understating the strong commercial flows generated by the low prices from countries like the ones we just mentioned – we assume Romania is exempt from the European tariff regarding third countries.

The graphical representation of the situation that we took into consideration is the following:



The notations  $Q_{SI}$ ,  $Q_{ST}$ ,  $Q_E$ ,  $Q_{DT}$ ,  $Q_{DI}$  are the following ones:

The internal sugar production = 500 000 tones/year;

Average international (European) price in the year of reference = 250 euro/tonne;

$P_E$  – Internal price when free trade, balance price (400 euro/tonne);

$Q_E$  – The quantity traded at the international price of 400 euro/tonne (350 000 tones/year);

$P_I$  – International (European) price (250 euro/tonne);

$Q_{DI}$  – The requested quantity at the European price level of 250 euros/tonne (450 000 tones/year);

$Q_{SI}$  – The supplied quantity at the European price level of 250 euros/tonne (300 000 tones/year);

$P_T$  – Price after introducing the custom tariff;

$Q_{DT}$  – Demanded quantity after introducing the custom tariff;

$Q_{ST}$  – Supplied quantity after introducing the custom tariff.

### I. Quantification of the custom tariff

The reduced level of the international price in comparison with the national balance price is the main factor that favors the emergence of imports. In case price evolves from 400 euros/tonne to 250 euros/tonne, the domestic demand reacts in the way of growing from 350 000 tones to 450 000 tones. An opposite evolution is shown by the supply, which diminishes from 350 000 tones to 300 000 tones annually.

The quantification of these evolutions enables the determination of the price elasticity of the supply and demand:

$$E_D = (350\,000\,t - 450\,000\,t) / (400\,euros/t - 250\,euros/t) = - 666.6\,t$$

$$E_S = (350\,000\,t - 300\,000\,t) / (400\,euros/t - 250\,euros/t) = 333.3\,t$$

The implications of the results consist in the fact that any price increase of 1 euro generates a reduction of the demand of 666.6 tones; the decrease of the price with the same value induces a climb of the demand with 666.6 tones of sugar. In the case of the supply, the price elasticity is lower; the growth and respectively the reduction of the supply in the case of a 1-euro price variation is of 333.3 tones.

In the situation when the international more competitive price generates massive imports, the domestic producers are helped by the import custom tariff. Let us assume next that the aimed consumption level is of 400 000 tones of sugar. In this terms, the decrease of the internal consumption generated by the importation decline is of  $450\,000 - 400\,000 = 50\,000$  tones of sugar.

The necessary price increase obtained after having introduced the custom tariff levels up to  $50\,000 / 333.3 = 150$  euros/tonne. Consequently, the custom tariff is of  $150 \times 100 / 250 = 60\%$ . Obviously, this taxation level will shrink the activity of the sugar importers; the price will be higher, the solvable demand will drop and the consumer who is directly impacted by this indirect tax has to suffer.

## ***II. Import contingencies***

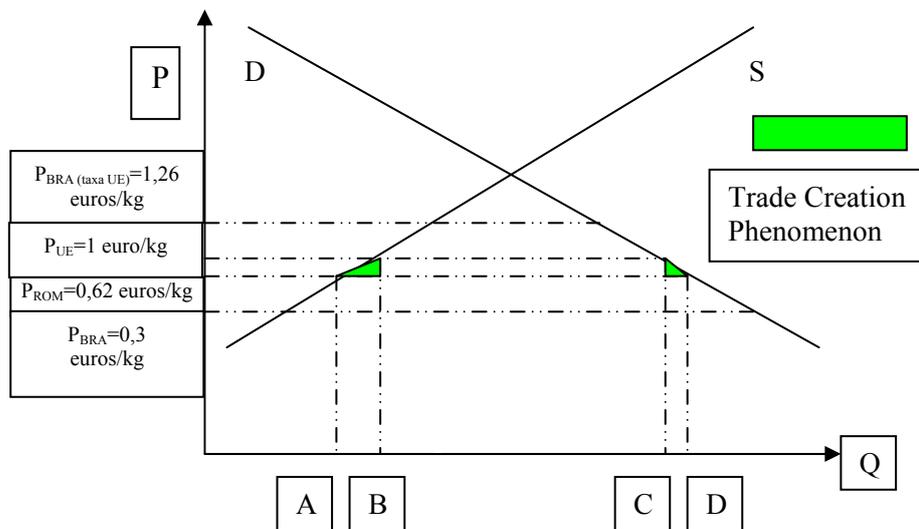
The case of import contingencies on sugar streamlines the way in which the quantitative restriction leads to the reduction of the demanded quantity on the market. This is a measure highly use at European level in order to protect the domestic producers that are not competitive on price. Namely, as we've stated so far in this paper, the import contingencies on sugar coming from Brazil and Cuba is maintained for the next two years, but afterwards it will be replaced by the European tariff which is a lot more prohibitive.

The final scenario brings on foreground the effects that import contingencies can have on commercial trade flows of sugar at international level; it is about a possible effect of trade creation that consists in the entrance of some amounts of sugar from third countries on the European market.

### **3. Trade creation – commercial flows between Brazil and the European member states via Romania – after 1<sup>st</sup> January 2007**

The third hypothesis starts from the real premise that Romania is exempt for two years from the application of the European trade tariff regarding third countries. This situation, although temporary, could lead to the introduction on the European market – via Romania – of sugar from third countries like Brazil or Cuba, that have a very competitive price for this product. The relatively low tax will determine a highly competitive price for the Romanian's sugar that is coming from these countries, and the suppression of the custom tariffs between our country and the European member states after 1<sup>st</sup> January 2007 allows free trade, naturally within some quantitative limits that we have mentioned.

Hereby, an interesting phenomenon of trade creation could appear. Graphically, this situation can be represented this way:



The prices used in the example refer to a kilogram of sugar; the 4 categories are, in the growing order of their dimension: the Brazilian or Cuban price, the price of the sugar imported from these countries on the Romanian market, the price of sugar at European level and the price of sugar in the member states in case of direct import from the two countries without the tariff exemption.

The quantification of the trade creation will be thereby made:

**Trade creation** =  $0.38 \times AB/2 + 0.38 \times CD/2 = 0,38 \times (AB + CD)/2 = 0.19 \times (AB + CD)$  (in kilograms).

The sum  $AB + CD$  expresses the quantitative dimension of the phenomenon (more precisely, how many kilograms of sugar follow the cycle that we described).

In conclusion, even if we talk about tariff barriers, non-tariff barriers or diverse situational circumstances, the trading flows of agricultural products react rapidly and with great sensitivity, modifying their direction or dimension according to these diverse factors.

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