

European Union-25 Sugar Policy

EU-25 Sugar and Sweeteners Policy Reform

The European Union's (EU-25) sugar program has been scheduled for reform every five years for the last 40 years. However, its success in making sugar one of the most profitable crops in many EU countries has succeeded in delaying reform proposals until recently. The principal causes for reforming the sugar program at this time are threefold: (1) the Common Agricultural Policy (CAP) reforms of 2003/04 (that left sugar as the only major commodity unreformed) provided a mechanism to compensate farmers for income losses due to reform measures; (2) the "Everything But Arms" (EBA) agreement, in which the EU-25 agreed to phase out tariffs by 2009 on imported raw sugar from 48 of the least developed countries; and (3) a World Trade Organization (WTO) Panel ruling that found the EU sugar regime in violation of WTO export commitments. Additionally, the EU-25 offer to eliminate export subsidies in the Doha Round of WTO negotiations played a role in shaping the reform proposal.

These events led to the EU-25 Commission's proposal to drastically reform sugar in June 2005.¹ Intra-EU discussions led to a revised set of proposals in November 2005. The legislative proposals were designed to continue with its recent reforms of the CAP and to meet its international obligations. The basic features of the proposal are:

- Sugar price is reduced by 36 percent from €31.9 to €4.4 per metric ton (mt) over a 4-year phase-in period beginning in 2006/07.
- Minimum sugarbeet price is reduced by 39.5 percent to €6.3/mt over the phase-in period.
- Sugar production quotas are not reduced except through a voluntary 4-year restructuring program where quota can be sold and retired. Payments for quota are €730/mt for 2006/07 and 2007/08; €625/mt for 2008/09 and €520/mt for 2009/10.
- Restructuring is financed by quota levies on producers and processors who do not sell quota. Total value of the restructuring fund is projected at €7.04 billion.
- Compensation is available to farmers at an average of 64.2 percent of the price cut. The aid is included in the Single Farm Payment and is linked to payments for compliance with environmental and land management standards.
- Establishment of a prohibitive super levy to be applied to over-quota production (similar to dairy).

Other features essential to the proposed reform include phasing out of sugar intervention; merging A and B quotas and eliminating over-quota sugar exports; elimination of re-exports of sugar imported under preferential terms; institution of storage and carryover schemes; a method of transferring some quota from high-cost regions to low-cost regions; provision of funds to assist high-cost developing countries with preferential agreements for loss of sugar export revenue; and an increase in the EU-25 isoglucose quota.² Table 8 provides a more complete listing of the EU-25 sugar reform proposals.

¹ The European Commission proposed a set of reforms in 2004, but the measures contained therein were not sufficient to reduce EU-25 exports to comply with the WTO Panel ruling.

² Isoglucose is the EU-25 term for High Fructose Syrup.

Table 8 – Elements of European Union sugar reform proposal made on November 24, 2005

- A 36 percent support price cut over four years beginning in 2006/07 to ensure sustainable market balance, -20 percent in year one, -25 percent in year two, -30 percent in year three and -36 percent in year four.
- Compensation to farmers at an average of 64.2 percent of the price cut. Inclusion of this aid in the Single Farm Payment and linking of payments to respect environmental and land management standards.
- In those countries giving up at least 50 percent of their quota, the possibility of an additional coupled payment of 30 percent of the income loss for a maximum of five years, plus possible limited national aid.
- Validity of the new regime, including extension of the sugar quota system, until 2014/15. No review clause.
- Merging of A and B quota into a single production quota. There are no quota cuts. Any quota reduction results from sales of quota into a voluntary restructuring buy-up scheme.
- Abolition of the intervention system after a four-year phase-out period and the replacement of the intervention price by a reference price. During the transition, the intervention price will be 80 percent of the reference price of the following year. Only 600,000 metric tons (mt) can be sold into intervention each year.
- Introduction of a private storage system as a safety net in case the market price falls below the reference price.
- Voluntary restructuring scheme lasting 4 years for EU sugar factories, and isoglucose and inulin syrup producers, consisting of a payment to encourage factory closure and the renunciation of quota as well to cope with the social and environmental impact of the restructuring process. This payment will be €730/mt in years one and two, falling to €625 in year three, and €520 in the final year. There is the possibility to use some of this fund to compensate beet producers affected by the closure of factories.
- An additional diversification fund for Member States where quota retirement is larger than expected.
- Both these payments will be financed by a levy on holders of quota, lasting three years. The first year levy is equal to €126.4/mt; second year levy, €173.8/mt; and third year levy, €113.0/mt. The isoglucose levy is fixed at 50 percent of these rates.
- Sugarbeets qualify for set-aside payments when grown as a non-food crop and also be eligible for the energy crop aid of €45/hectare.
- To maintain a certain production in the current C-sugar producing countries, an additional amount of 1.1 million mt will be made available against a one-off payment corresponding to the amount of restructuring aid per metric ton in the first year.
- Sugar for the chemical and pharmaceutical industries and for the production of bio-ethanol will be excluded from production quotas.
- Increase of Isoglucose quota of 300,000 mt for the existing producer companies phased in over three years with an increase of 100,000 mt each year.
- Possibility to purchase extra isoglucose quota in Italy (60,000 mt), Sweden (35,000 mt) and Lithuania (8,000 mt) at the restructuring aid price.

Source: European Commission.

WTO Panel Ruling

As mentioned, the substance and timing of the reform were strongly influenced by the WTO Panel ruling. The Panel held that the EU-25 re-exporting of sugar imported from the African, Caribbean, and Pacific (ACP) countries of 1.6 million mt must be counted against the EU-25's export subsidy commitments made as part of the Uruguay Round Agreement on Agriculture (URAA). The WTO Panel also ruled that the EU-25's export of C-sugar is cross-subsidized by the high guaranteed prices for A- and B-quota sugar and therefore fall under the URAA commitments. These commitments limit annual EU-25 subsidized sugar export sales to the lesser of a volume binding of 1.254 million mt or a value binding of €499 million.³

The Effect of the EBA Agreement

The EBA agreement will allow the duty free entry of raw sugar imports into the EU-25 by 2009. The prospect of facing the competition from the EBA countries (along with the WTO ruling against EU-25 exports) was the major factor in the instituting of earlier EU-25 sugar reform proposals in 2004. In spite of reform proposals, there is much uncertainty about the capacity of EBA countries to export significant amounts of sugar to the EU-25. Because of the "SWAPS" provision in the EBA treaty, EBA members would be able to import sugar at world prices and then export locally produced sugar to the EU-25. With the 2005 reform proposals calling for lower institutional sugar prices, some EU member states doubt that the EBA countries will be able to profitably export raw sugar to the EU-25 at the lower proposed institutional prices. Other member states are concerned about control of the program that is supposed to guard against third country imports being brought into the EU-25 under the guise of the EBA treaty.

According to the EU-25 Commission's report on the impact of its proposed reform, the reduction in EU-25 sugar production would be even greater without the proposed reform. Without reform, high guaranteed sugar prices in the EU-25 are likely to attract very quantities of duty-free EBA imports that would cause the high-price EU-25 sugar regime to be undermined. By reducing EU-25 support prices by 36 percent, there will be fewer EBA imports in the EU-25 internal market and this should allow EU-25 producers to be more competitive.

Likely Results of the Sugar Reform

According to the EU-25 Commission estimates, restricting EU-25 sugar exports to comply with the Panel ruling will require EU-25 production to be reduced by around 2 million mt.⁴ Reduction of sugar production in the EU-25 would occur in the relatively high cost regions of the EU-25 while low-cost regions would be able to increase production by virtue of the restructuring components of the proposal. According to EU-25 Commission estimates, the high cost regions of growing and processing sugar beets where drastic reduction in sugar beet production is expected are in Greece, Ireland, Italy, and Portugal; member states where production is expected to be reduced significantly are Czech Republic, Denmark, Finland, Hungary, Spain, Latvia, Lithuania, Slovakia, and Slovenia; and member states where production is expected to fall marginally are Austria, Belgium, France, Germany, Netherlands, Poland, Sweden, and the United

³ One of the issues for the EU-25 is that a surplus of sugar (over 800,000 mt) has built up from previously little used sales into intervention and is now available from public stores for export.

⁴ Commission of the European Communities. Reforming the European Union's Sugar Policy: Update of Impact Assessment {SEC (2003) 1022}. {COM (2005) 263 final}. SEC (2005) 808. Brussels, June 22, 2005.

Kingdom. In each member state, there would be sub-regions that would be affected more severely than others with the final result being that the most profitable regions would maintain, or even increase, production.

According to the EU-25 Commission's report, the member states with the greatest likelihood of increasing production would be those that have been the largest producers of over-quota sugar (i.e., C-sugar). The largest producers of C-sugar have been France, Germany, the Netherlands, Belgium, and the United Kingdom. Nonetheless, there are likely to be regions within these countries where sugar production could decline because of high cost production and/or inefficient processors.

ERS Analysis of the 2005 Reform Proposals: Model Description

The Economic Research Service (ERS) has developed an analytical modeling framework for analyzing changes in world sugar policy parameters and the effect on world sugar supply, utilization, and prices. This framework is described below, with particular attention paid to the EU-25 components. The results of performing a simulation exercise that captures the policy changes of EU-25 sugar and sweetener policy reform are presented.

The ERS sugar model is a dynamic, policy-oriented, partial equilibrium model of production, supply, and demand for sugar and other sweeteners. The model is initialized to a 2003 base and projects out to 2015. The model's primary purpose is to generate a USDA world sugar baseline against which differing policy alternatives of major sugar producers and traders can be analyzed. Model construction is a long term, ongoing project. The intention is to cover 43 distinct sugar producing and consuming regions. The model currently consists of five regions (United States, Mexico, the EU-15, the EU-10 (the 10 new members of the EU-25), and a rest-of-world aggregate (ROW). Each of the specific regions has an extensively developed set of modeled policy instruments.

Besides sugar, the model covers high fructose corn syrup/isoglucose (HFCS) and the primary sugar crops (sugarcane and sugarbeets). Ethanol from sugarcane and non-centrifugal sugars are to be added as regional coverage expands. Unlike other models, the ERS model incorporates cost of production and processing, and allows for asymmetric production responses to sugar price changes. The model captures lagged sugar production responses based on sugarcane ratoon cycles.

The EU-25 components model the intervention/reference price mechanism; sugar and isoglucose production quotas; preferential imports from ACP, EBA, and Balkan regions; URAA commitments on subsidized sugar exports and minimum import access; over-quota sugar imports subject to high-tier tariffs; and alternative uses for C-sugar. Table 9 details model formulation by supply and utilization category.

The U.S. component models adjustments to the following set of policy instruments: tariff-rate quota, including minimum import access commitments and the high-tier sugar tariff; NAFTA provisions relating to trade in sugar and HFCS; the U.S. marketing allotment program; and the nonrecourse sugar loan program.

Table 9--European Union component of ERS world sugar model

Supply, Utilization, and Pricing components	Variable	Function of:	Notes
Production	Area planted	Lagged area harvested, relative producer return.	Portion of cane area planted depends on ratoon cycle; specification allows for lagged cane response to price changes.
	Area harvested	Area planted, processing capacity.	Capacity acts as a supply curve shift variable.
	Processing capacity	Minimum of: previous period's capacity or logistic function of producer return relative to variable cost of production.	Processing capacity reductions are irreversible - closed factories do not re-open; if producer return=variable cost, capacity is 50 percent of base-period capacity.
	Crop yield	Trend, producer return	
	Sugar yield	Crop yield, trend	
Producer return	Production	Product of sugar yield and area harvested.	
	Producer price	Blend of within-quota sales (domestic consumption and quota exports), and export sales of C-sugar at world price; less producer levies to cover cost of export subsidies.	
	Production quotas	Export subsidies, imports from EBA countries.	Base quotas are fixed, but can be adjusted downward to comply with Uruguay Round export subsidy commitments, and to compensate for above-threshold imports from EBA countries.
Consumption	Sweetener demand	Population, per capita income, price of sugar.	Sweetener demand includes sugar and isoglucose.
	Isoglucose production	Isoglucose quota, isoglucose cost of production.	Isoglucose price is assumed to be a fixed fraction of the sugar price. All produced isoglucose is consumed as long as it is priced below sugar price. Base period isoglucose capacity is equal to quota; capacity is logistic function of isoglucose price relative to the cost of producing isoglucose.
Exports	Sugar demand	Sweetener consumption less isoglucose.	
	Quota exports (receive subsidies)	The lesser of production or quota minus domestic consumption.	Quotas can be decreased to assure compliance with Uruguay Round value and volume limits - involves the use of "Declassification coefficients" as specified by the EU Commission.
	C-sugar exports	Fixed fraction of over-quota production.	C-exports can be used to reduce excessive sugar stocks in order to bring domestic sugar price up to the intervention price level. WTO panel determined these exports to be incompatible with Uruguay Round commitments.
	Re-export of imported ACP sugar.	ACP quota, EU cane sugar refining capacity.	Maximum Supply Needs (MSN) of refining industry equals ACP imports and balance of Special Preferential sugar (SPS) and imports from EBA countries. This sugar is exported with EU subsidy - WTO panel determined these exports to be incompatible with Uruguay Round commitments.
Imports	ACP quota sugar	Fixed quota, with additional amounts (SPS) allowed to fulfill Maximum Supply Needs (MSN).	SPS is displaced by imports from EBA countries.
	EBA sugar	Quotas until 2009; declining over-quota tariff in 2007 and 2008; no restrictions after 2008.	EBA imports initially displace SPS from ACP countries; after SPS is totally displaced, then EBA imports reduce EU quotas on one-to-one basis.
Stocks	Other quota sugar	Balkans quota, MFN quota.	
	High-tier tariff sugar	High-tier tariff, special safeguard duties.	
	Carryover stocks	Domestic sugar use, sugar price.	Because EU sugar prices are bounded (maximum = world price+duties+margins, and minimum=intervention price), stocks, as well as consumption levels, are bounded from below and above. Limits on stockholding and consumption can potentially determine high-tier tariff imports or C-sugar exports.
Pricing equilibrium	Consumption price	Internal supply and demand balance, subject to limits implied by intervention price (lower limit) and high-tier tariff and safeguard (upper limit).	

Source: Economic Research Service, USDA.

The Mexican component models sugar import controls; NAFTA provisions for trade in sugar and HFCS; consumption tax on beverages that use HFCS; domestic marketing quotas; and government-set payments to sugarcane growers.

The ROW component includes price-dependent production, consumption, and stockholding. ROW sugar trade adjusts passively to developments in the other model regions where the direction and magnitude of trade are determined by modeled policy specifications and policy parameter levels. The ROW price is based on a world average selling price of sugar calculated by LMC International and adjusted for regions whose sugar prices are already explicitly modeled. The difference between the ROW sugar price and the world raw sugar price is interpreted as a measure of aggregate market price support afforded to ROW producers. World price equilibrium is achieved through the world sugar price balancing ROW supply (beginning stocks, production, and imports) with ROW demand (exports, disappearance, and ending stocks).

Table 10 shows model elasticities for the EU-25 and ROW regions. The EU-25 is characterized by inelastic responses to sugar price changes for both area planted and sweetener consumption. With production quotas and high prices, EU-25 area planted to sugarbeets has been relatively stable. With the large price changes expected with the reform, the most important factor affecting production is expected to be covering the variable cost of producing sugar in the EU-25 member states. When these costs cannot be covered by the lower sugar prices, processing capacity exits and area devoted to that capacity exits as well.

In the ROW region, sweetener consumption is assumed more elastic than in the EU.⁵ The EU-25 represents a mature economy that is less subject to food consumption variability resulting from price changes. On the other hand, the ROW encompasses the diversity of emerging economies where food choices are expanding and the choices made (by final consumers and by food manufacturers for product ingredients) are more based on a comparison of prices.

The ROW supply response is less predictable. The ROW encompasses both low and high-cost producing areas, and national policies limit the effect of world price changes on domestic production. The choice made for this modeling exercise is to specify two alternative supply responses. The first assumes a muted production response to world price changes. This response is called case A and specifies an area planted elasticity equal to 0.10. The second response assumes greater price responsiveness and is termed case B. The corresponding elasticity equals 0.50.

Table 10--Model elasticities for the European Union and Rest-of-World regions

Region	Area planted	Consumption	Ending stocks
European Union (EU) - 15	0.15	-0.10	-1.00
EU - New Member States	0.15	-0.10	-1.00
Rest-of-World - case A	0.10	-0.25	-1.00
Rest-of-World - case B	0.50	-0.25	-1.00

Source: Economic Research Service.

⁵ Although not shown, the ROW sweetener consumption is sensitive to income changes (not an endogenous model variable), whereas EU-25 sweetener consumption is not.

ERS Analysis of the 2005 Reform Proposal: Preliminary Results for the EU-25

As discussed above, there are many aspects of the EU sugar reform proposal. While the effect of all reform measures cannot be directly analyzed through this modeling exercise, the effects of the most far reaching proposals can be (table 11). The most important reform measures for this study are domestic price support reformulation (elimination of the intervention buying mechanism and large reductions in the support price) and termination of the program that allows subsidized sugar exports equal to the imports from the ACP countries. Support price reduction implies less production available for export, and therefore serves the goal of complying with the WTO Panel's ruling on C-sugar exports being subject to URAA export restrictions. A secondary reform measure is the increase in the isoglucose quota. Although restrictions on production are relaxed, the sector faces more competition from lower-priced sugar.⁶ Another important aspect is the effect that reform has on EBA sugar imports. For this exercise, it is assumed that these imports grow to 1.5 million mt at the end of the projections period. Although it is expected that lower EU prices would make the EU a less attractive destination for imports from these countries and also have a negative effect on investment in those countries' sugar sectors, this aspect of the analysis is deferred until a later time.

Table 12 shows EU results for production, consumption, exports, imports, and producer prices. The upper and lower panels show very similar results from varying the assumption about ROW production responsiveness. (This result is not surprising given that the EU retains its tariff-rate quota system on third-country imports and is not assumed to lower its high-tier tariff in this analysis.)

The largest direct effect is the lowering of EU domestic production. Producer prices reach their lowest point in 2009, and the effect on production is fully realized in 2010 (model assumes a 1-period lag for beet sugar adjustments to producer price changes). At that time, production is only 67 percent of its baseline value. Production continues decreasing and is below 60 percent of the baseline level in 2015. As suggested earlier, the cause of the precipitous production decline is the loss of processing capacity (fig. 9). Lowered producer prices fall below variable production costs and signal the exit of capacity whose costs can no longer be covered. Retired capacity remains retired.

EU sugar consumption increases; however, with relatively inelastic demand, the increase is only about 600,000 mt a year, or about 3.5 percent. Increased sugar consumption is helped somewhat by a substitution away from isoglucose. Although the isoglucose quota increases by 300,000 mt, the growth in consumption is only between 107,000 – 126,000 mt in 2015. With lower sugar prices implying lower isoglucose prices, not all of the quota increase can be translated into higher, profitable isoglucose production.

EU-25 sugar exports fall to insignificant levels by 2010 and remain at or below URAA commitment levels through the end of the projections period. In the modeling scenario, there was no provision made for the EU-25 to comply with its URAA commitments until production declines warrant it. Adopting the URAA

⁶ Also noteworthy is that, whereas EU-25 sugar processors will see a reduction in the costs of acquiring sugarbeets, isoglucose producers receive no equivalent benefit of lower product input prices. Also, isoglucose quota increases are probably not large enough to permit the capture of significant economies of scale.

Table 11--European Union sugar reform modeling assumptions

Year	Reference/Intervention price		Restructuring tax		Ref/Intv price for producers		Proportion of ACP imports re-exported		Isoglucose quota		EBA imports		
	-----Euros/mt,wh.val.-----												
	No reform		Reform		No reform		Reform		proportion		1,000 mt, dry wt.		1,000 mt,wh.val.
2007	631.1	631.1	0.0	126.4	631.1	504.7	1.0	0.0	506	641	500	500	
2008	631.1	631.1	0.0	173.8	631.1	457.3	1.0	0.0	506	707	750	750	
2009	631.1	524.0	0.0	113.3	631.1	410.7	1.0	0.0	506	806	1,000	1,000	
2010	631.1	404.4	0.0	0.0	631.1	404.4	1.0	0.0	506	806	1,100	1,100	
2011	631.1	404.4	0.0	0.0	631.1	404.4	1.0	0.0	506	806	1,200	1,200	
2012	631.1	404.4	0.0	0.0	631.1	404.4	1.0	0.0	506	806	1,300	1,300	
2013	631.1	404.4	0.0	0.0	631.1	404.4	1.0	0.0	506	806	1,400	1,400	
2014	631.1	404.4	0.0	0.0	631.1	404.4	1.0	0.0	506	806	1,500	1,500	
2015	631.1	404.4	0.0	0.0	631.1	404.4	1.0	0.0	506	806	1,500	1,500	

Source: Economic Research Service.

Table 12--Projections of European Union sugar supply, utilization, and prices, with and without November 2005 EU reforms

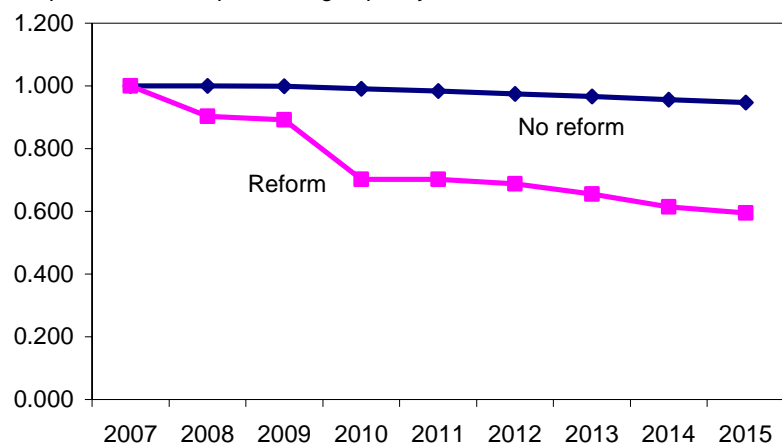
Year	Production		Consumption		Exports		Imports		Producer prices		Isoglucose consumption	
	-----1,000 metric tons, white value-----											
	No reform		Reform		No reform		Reform		Euro/mt (wh.val.)		1,000 mt - dry weight	
Case A = low (0.1) world supply elasticity												
2007	21,210	21,210	16,151	16,051	7,199	7,321	2,284	2,284	522.8	436.0	506	606
2008	21,432	18,653	16,170	16,015	7,617	5,006	2,534	2,534	519.8	437.8	505	660
2009	21,618	18,546	16,187	16,254	8,040	4,006	2,784	2,698	514.5	395.4	504	745
2010	21,614	14,507	16,203	16,661	8,121	207	2,884	4,080	515.9	438.1	501	652
2011	21,673	14,705	16,216	16,734	8,268	697	2,984	3,400	515.6	409.8	499	726
2012	21,644	14,598	16,228	16,827	8,329	1,153	3,084	3,463	518.2	409.8	496	643
2013	21,651	14,036	16,237	16,854	8,428	669	3,184	3,538	520.4	409.8	494	623
2014	21,608	13,256	16,244	16,833	8,479	420	3,284	3,816	523.8	413.9	491	603
2015	21,564	12,862	16,250	16,755	8,429	601	3,284	4,110	528.0	436.3	489	596
Case B = high (0.5) world supply elasticity												
2007	21,227	21,227	16,151	16,051	7,218	7,341	2,284	2,120	526.0	440.6	507	607
2008	21,457	18,897	16,169	16,010	7,645	5,258	2,534	2,387	522.3	436.1	506	665
2009	21,638	18,438	16,186	16,256	8,060	3,893	2,784	3,015	515.1	396.4	504	743
2010	21,627	14,613	16,203	16,673	8,133	185	2,884	4,027	514.8	434.3	501	654
2011	21,646	14,809	16,216	16,741	8,240	767	2,984	3,311	514.6	409.8	499	719
2012	21,617	14,630	16,228	16,827	8,300	1,055	3,084	3,330	515.8	409.8	496	643
2013	21,573	14,028	16,238	16,854	8,346	503	3,184	3,379	516.8	408.6	493	623
2014	21,476	13,118	16,246	16,813	8,342	203	3,284	3,599	518.8	419.9	490	600
2015	21,366	13,003	16,252	16,746	8,224	231	3,284	3,740	523.0	434.2	487	613

Source: Economic Research Service.

Figure 9

Modeling scenario: Effect of reform on EU processing capacity

Proportion of 2003 processing capacity



Source: ERS, USDA.

commitments immediately in 2007 would imply larger stocks and reduced EU-25 prices. In order to comply with the URAA commitment, EU-25 restructuring, i.e., selling quota to the EU-25 as provided in the EU-25 reform proposal (not directly here modeled) could be instrumental in retiring production before the time horizon implied by this current analysis.

EU-25 imports originally were to be held constant in this analysis. However, model experiments showed that the supply reductions in the New Member States were sufficiently large to imply sharply higher consumption prices to ration demand. Also, EU-25 subsidized exports within the URAA limits contributed to reduced supplies for consumption. Therefore, an increase in imports was accommodated in order to equalize prices across the EU-15 and the New Member States. Imports over baseline levels averaged between 300,000 and 400,000 mt a year.

ERS Analysis of the 2005 Reform Proposals: Implications for World Sugar

Rest-of-world (ROW) excess demand for sugar increases as a consequence of EU-25 sugar policy reform. Inflows to the ROW from the EU-25 fall from the 7.0-8.0 million mt range to generally less than 1.0 million mt. a year. Implications for the world price of sugar depend on underlying adjustments that occur in the ROW. As mentioned above, the degree to which ROW production can adjust to world price movements influence the course of world prices. In table 13, modeling results for ROW supply, utilization, and prices are shown under differing assumptions regarding world supply response. Case A results correspond to the low ROW supply elasticity, and Case B results correspond to the higher ROW supply elasticity. Not only do post-reform results differ between the cases but so do the

Table 13--Projections of rest-of-world supply, utilization, and prices, with and without EU Nov. 2005 reforms

Year	Production		Consumption		Ending stocks		Stocks-to-use		ROW prices		World price	
	-----1,000 metric tons, raw value-----											
	No reform	Reform	No reform	Reform	No reform	Reform	No reform	Reform	No reform	Reform	No reform	Reform
							Ratio		Dollar/mt		Dollar/mt	
Case A = low (0.1) world supply elasticity												
2007	118,146	118,146	121,729	121,777	37,602	37,677	30.9	30.9	340.8	340.2	155.4	154.9
2008	119,554	119,545	123,366	122,209	37,473	35,750	30.4	29.3	346.5	359.8	161.2	174.5
2009	121,049	121,271	124,936	122,636	37,225	33,922	29.8	27.7	353.3	380.6	167.9	195.2
2010	122,607	123,288	126,536	121,107	37,003	29,717	29.2	24.5	360	429	174.6	243.6
2011	124,182	125,728	128,405	122,117	37,148	28,900	28.9	23.7	363.9	444.8	178.5	259.4
2012	125,710	128,051	129,901	123,821	36,730	28,902	28.3	23.3	372.3	451	186.9	265.6
2013	127,273	129,739	131,435	125,300	36,357	28,628	27.7	22.8	380.5	460.7	195.2	275.4
2014	128,908	131,361	132,939	126,504	35,938	28,042	27	22.2	389.4	474.9	204	289.5
2015	130,551	133,078	134,727	127,824	35,894	27,594	26.6	21.6	395.1	487.6	209.8	302.3
Case B = high (0.5) world supply elasticity												
2007	116,267	116,267	120,549	120,527	35,814	35,781	29.7	29.7	354.3	354.6	169	169.2
2008	119,189	119,203	122,453	121,561	36,107	34,811	29.5	28.6	357	367.6	171.6	182.2
2009	121,573	122,161	124,666	122,674	36,824	33,975	29.5	27.7	356.4	380.1	171	194.7
2010	123,450	125,920	126,791	122,295	37,377	31,203	29.5	25.5	357.1	412.6	171.7	227.2
2011	125,016	130,653	128,782	124,808	37,696	32,228	29.3	25.8	359.6	407.7	174.3	222.3
2012	126,840	135,744	130,658	128,444	37,813	34,716	28.9	27	363.7	389.5	178.4	204.1
2013	128,969	135,942	132,660	130,697	38,083	35,348	28.7	27	366.7	389.2	181.3	203.8
2014	131,240	135,586	134,638	131,404	38,294	33,910	28.4	25.8	370.1	407.9	184.7	222.5
2015	133,412	138,224	136,636	132,767	38,510	33,357	28.2	25.1	373.5	419	188.1	233.6

Source: Economic Research Service.

baseline levels of the variables. In this type of situation it is useful to analyze in terms of percentage changes from baseline values.

World sugar production changes take a period of at least 2 to 3 years before showing strong responses to EU-25 liberalization. The primary cause is that because sugarcane is harvested over a multi-year ratoon cycle, increases in area planted generally will only add on a fraction of total area harvested for any given year.⁷ Differences in production responses between the two cases are not much in evidence until 2010 when case A production is 0.6 percent higher than the baseline and case B production is 2.0 percent higher. Figure 10 shows that in 2010 the percentage changes in world prices begin to diverge from each other as well.

In case A, world prices stay between 40 and 50 percent higher than in the baseline through 2015. On a year-to-year comparison basis, case A production is never more than 1.9 percent higher than the baseline level. In case B, on the other hand, growth in production is equal to 4.5 percent in 2011, implying a world price increase of 32.3 percent as compared with the corresponding case A price change of 39.5 percent.

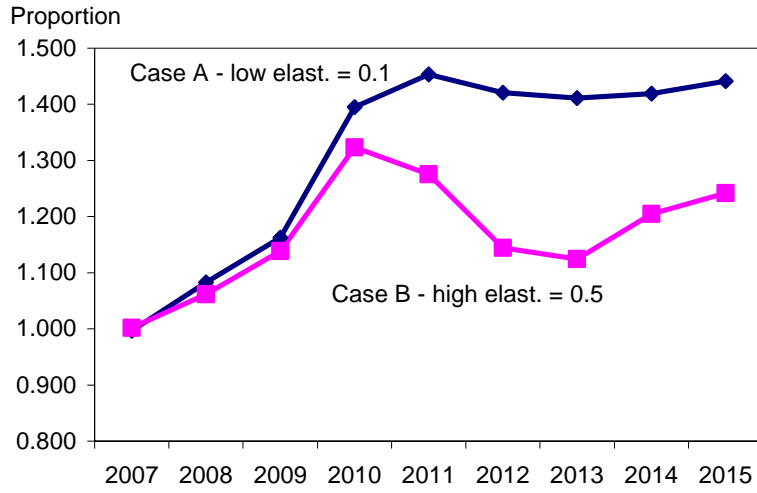
The 2010 case B world price represents a maximum percentage gain over the baseline value. With greater area for planted responsiveness, increases in sugar production limit the upward movement in world sugar prices, an effect not as readily seen in case A. By 2015, the case B world price is 24.2 percent higher than the baseline value. This contrasts with the corresponding case A level of 44.1 percent.

Figure 11 shows ending year stocks-to-use ratios for cases A and B implied by EU-25 sugar policy reforms. These ratios are a direct measure of how much sugar is available at the end of the crop year relative to overall demand. As such, these ratios are the inverse of the world price. For case A, the ratio is lower than 24 percent for all years after 2010; and for case B, the ratio is never lower than 25 percent for the entire projections period. By the end of the projection period, the ratios are about 3.5 percentage points different from each other. In terms of price, this is about \$70 per metric ton.

⁷ Suppose a producer harvests 100 hectares of sugarcane a year on a 5-year ratoon cycle. Assuming that the producer plants 20 hectares a year to new plant cane, a doubling of area planted in any one year increases the area for harvest by only 20 percent. Even then, it may take longer than a 1-year cycle between the time of planting and time of harvesting, thereby stretching out producer response even longer.

Figure 10

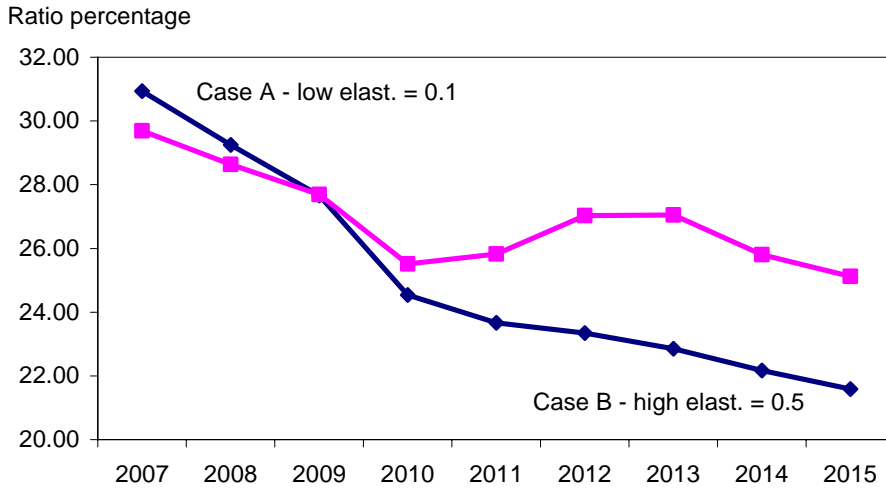
Modeling scenario: Effect of EU sugar policy reform on world price, low versus high world sugar supply elasticity



Source: ERS, USDA.

Figure 11

Modeling scenario: Effect of EU sugar policy reform on rest-of-world ending year stocks-to-use ratio



Source: ERS, USDA.

Side-by-side comparison of elements of sugar policy in the United States and European Union

United States	European Union - current	European Union - proposed Nov. 24, 2005
Program authorization		
Farm Security and Rural Investment Act of 2002, through fiscal year (FY) 2008. Sugar and product TRQs authorized under U.S. note 5(a)(l) to Ch.17 of U.S. Harmonized Tariff Schedule.	Basic Sugar Regulation No. 1260/2001, covering July/June quota years 2001/02 to 2005/06.	Validity of the new regime , including extension of the quota system, will extend out to 2014/15. There is no review clause.
Product coverage		
Sugar, sugarcane, sugarbeets.	Sugar, sugarbeets, sugarcane, isoglucose (high fructose syrup), inulin syrup, molasses, others.	Not affected.
Domestic marketing restrictions		
Flexible, based on projections of sugar deliveries for domestic food and beverage use plus reasonable ending stocks. Overall Allotment Quantity (OAQ) split between refined beet sugar (0.5435) and raw cane sugar (0.4565). Reassignments made by USDA when processors cannot fulfill OAQ allocations.	Not flexible (except to meet certain Uruguay Round Agreement export commitments). Current A and B quota levels are a continuation of those set in 1981/82, plus quotas for inulin syrup and sugar of New Member States(NMS). Quotas assigned to EU member States and cannot be transferred between States, but can be transferred within States, subject to restrictions.	A' and 'B' quotas are merged into a single production quota. There will be a voluntary restructuring scheme lasting 4 years (2006/07-09/10) for EU sugar factories, and isoglucose and inulin syrup producers, consisting of a payment to encourage factory closure and the renunciation of quota as well to cope with social and enviromental impacts of the restructuring process. An additional 1.1 million tons of quota will be made available to a set of over-quota (C-sugar) producing countries.
Public stockholding/price support		
Sugar pledged in exchange for loan at the established loan rate from the Commodity Credit Corporation (CCC) can be forfeited to the CCC in payment in full of loan. Loan Rate = 18 cents for raw cane sugar; = 22.9 cents for refined beet sugar.	Intervention buying by public authorities as buyer of last resort at the established Intervention Price. Rarely used, although there has been buying activity in 2005. Intervention price for white sugar = €631.9, slightly higher in some countries.	Abolition of the intervention system after a 4-year phase out period from 2006/07-2009/10 and the replacement of the intervention price by a reference price. There will be the introduction of a private storage system as a safety net in case the market price falls below the reference price,. Reference price, white value = €404.4 per ton by 2009/10 and beyond.
Open endedness		
Marketing allotment program restricts marketings, but program can be suspended under certain conditions.	Price support restricted to production within quotas. Sugar produced in excess of quota is exported to world market without receiving export refunds. Time-limit is applied for sugar to be exported.	Support restricted within quota. There are a variety of forms of compensation to aid processors and producers making the transition to new regime to be paid out of a Restructuring Fund. The Fund is to be financed by a levy on quota holders for three years.
Surplus disposal		
There is Payment-In-Kind (PIK) authority for the CCC to offer sugar it owns to processors in exchange for the reduction of planting area.	Export restitutions are used to dispose of quota sugar in excess of domestic consumption onto the world market, and also an amount equal to 1.6 million tons of sugar imported at preferential terms from certain African, Caribbean, and Pacific (ACP) countries under Cotonou Agreement and 10,000 mt from India.	Over quota production can no longer be exported as C sugar, but must be carried over to the next marketing year, to be used as the first part of the following year's quota. A sugar "super levy" will be introduced in which over-quota production leads to prohibitive penalties to producers.
Blocked sugar		
Processor-owned sugar in excess of OAQ allocation cannot be marketed within the marketing year.	Non-exported over-quota C-sugar can be carried-over to next marketing year and applied to next year's A-quota; Carry-over cannot be more than 20 percent of processor's A quota allocation..	All sugar in excess of quota must be carried over to the next marketing year.
Budget neutrality		
Sugar Program is to be run, to the maximum extent possible, at "no-net cost" to the Federal Budget. Processors cover cost of holding blocked sugar stocks, and USDA sets OAQ so that prices are high enough to avoid forfeiture of sugar pledged as collateral for CCC loans.	Application of "co-responsibility principle" - production levies cover the cost of export refunds on EU quota sugar to the world market. (Production levies do not cover subsidized ACP re-exports - those subsidies are paid by the EU.)	

Export-subsidy commitments

---Not applicable---	WTO commitments from the Uruguay Round Agreement on Agriculture (URAA) bind EU15 subsidized export volume to 1.274 million mt and value of subsidized exports to €499 million.	All EU sugar exports, including C-sugar exports and the 1.6 million tons imported from ACP countries and then re-exported, will be counted against the EU's WTO export subsidy commitments.
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Support for sugar crops

U.S. Department of Agriculture (USDA) can set minimum producer prices that processors must pay growers as requirement for participation in non-recourse loan program.	Basic beet price - based on sugar intervention price: A-beet minimum = €46.72/mt, and B-beet minimum = €32.42/mt. Minimum beet price - takes account of unit revenue from export sales of over-quota C-sugar not eligible for price support.	The minimum sugarbeet price will fall to €26.3 per ton over the 4-year phase-in period. Additionally, sugarbeets will qualify for set-aside payments when grown as a non-food crop and will be eligible for the energy crop aid of €45 per hectare.
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Protection against imports

There is a high-tier tariff for a range of sugar products. For raw cane sugar, the high-tier tariff is equal to equal to \$338.70/ton. There are also additional price-based and quantity-based safeguard duties.	There is a high-tier tariff for a range of sugar products. For raw cane sugar imported for refining, the high-tier tariff is equal to €339/ton. There are also additional safeguard duties, calculated with reference to EU sugar Trigger prices.	Not affected.
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Minimum import access

URAA specifies 1,139,195 metric tons - split between raw sugar (1,119,195 mt) and refined sugar (22,000 mt).	URAA specifies 1,304,700 metric tons, satisfied by imports from ACP countries. When EU was enlarged, it took over the New Member States' existing URAA commitment levels.	Not affected.
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In-quota preferential imports

U.S. raw sugar tariff-rate quota (TRQ) allocated to 40 quota countries based on past import trade shares. Provisions of the North American Free Trade Agreement (NAFTA) and the Central American and Dominican Republic FTA provide additional in-quota access under certain conditions.	In-quota preference given to ACP countries under the Cotonou Agreement, plus 10,000 mt to India; also in-quota preferences to "least developed" 49 nations under "Everything-But-Arms" (EBA) Agreement. TRQs totaling 193,000 mt established for sugar from various Balkan countries. There are also agreements covering some imports from Brazil and Cuba.	The minimum price paid for ACP and EBA exports to the EU will be cut over a 4-year period from 2006/07-2009/10. The raw sugar minimum will fall from €523.7 per ton to €335 per ton for ACP countries, and will fall from €495 per ton for EBA countries.
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Over-quota preferential imports

NAFTA high-tier tariff has been slowly declining since 1994 and will reach zero in 2008.	High-tier tariff on EBA sugar imports set to decline in 2006/07. By 2009/10 tariff will reach zero and EBA sugar access will be unlimited.	Same, but EU raw sugar price is reduced, as noted above.
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Refining aid

No direct aid - refiner through-put assisted through Refined Sugar and Sugar-Containing Product Re-export Programs.	€29.2/mt of white sugar, payable to refiners of preferential raw cane sugar imports. ACP and EBA imports of raw sugar restricted to EU sugar refineries.	Refining aid eliminated. Starting in 2010, EU beet sugar processors can compete with refineries for raw sugar imports.
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Sugar-containing products

The Sugar-Containing Products Re-export Program allows the sale of amounts of refined sugar to food manufacturers by refiners who have imported raw sugar at world prices. Food manufacturers are required to export the amount of product for which the sugar was purchased within a certain time frame.	Certain processed products containing sugar covered by the sugar regime are eligible for export refunds covering the difference between the EU intervention price and the world price of sugar contained in the product. The sugar in exported products is counted as part of the EU sugar balance.	
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Subsidized non-food uses of sugar

Import at world prices of sugar for use in production of Polyhydric Alcohol.	Specified use of sugar (and starch) by chemical and pharmaceutical industries that are eligible for production refunds to cover differences between EU and world sugar prices.	Sugar for chemical and pharmaceutical industries are excluded from production quotas and production refunds are eliminated.
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Isoglucose/High Fructose Corn Syrup

No explicit regulation. Source: ERS, FAS, Agra-Net.	Production restricted by quotas totaling 507,680 tons.	There will be three annual increases of 100,000 tons in existing sugar quota, starting in 2006/07. This additional quota can be purchased by Italy, Lithuania, and Sweden during the transition. Also, non-members Romania and Bulgaria can purchase additional quota upon their accession for three years. The isoglucose quota could grow to maximum of 923,691 tons from current level of 507,680 tons.
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