2002 Outlook of the U.S. and World Sugar Markets, 2001-2011

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Abstract

This report evaluates the U.S. and world sugar markets for 2001-2011 by using the Global Sugar Policy Simulation Model. This analysis is based on assumptions about general economic conditions, agricultural policies, population growth, weather conditions, and technological changes.

Both the U.S. and world sugar economies are predicted to improve over the next 10 years after the current over supply is reduced. World demand for sugar is expected to grow faster than world supply, resulting in gradually increasing Carribean sugar prices from 7.81 cents/lb in 2001 to 12.05 cents/lb in 2011. The U.S. wholesale price of sugar is projected to increase from 21.7 cents/lb in 2001 to 25.2 cents/lb in 2011, if the United States maintains its sugar programs. World trade volumes of sugar are expected to expand slightly.

Keywords: sugar, production, exports, consumption, ending stocks.

Highlights

Total world sugar trade is projected to increase by 8.9 percent between 2001 and 2011 from 20.8 million metric tons to 22.0 million metric tons. World sugar prices also are projected to increase from 7.81 cents/lb in 2001 to 12.05 cents/lb in 2011. The U.S. domestic wholesale price is expected to reach the lowest level in 2002 and recover slowly for the 2001-2011 period. Sugar price is projected to be 21.7 cents/lb in 2001 and 25.2 cents/lb in 2011.

U.S. sugar imports are predicted to increase 39.2 percent for the 2001-2011 period due to increased sugar imports from Mexico. U.S. sugar consumption is projected to increase 8.6 percent. Ending stocks also are predicted to increase 11.8 percent.

Canada's production is predicted to increase 3.6 percent from 2001 to 2011. Canada's imports are expected to increase 14.7 percent. Consumption is predicted to increase 17.3 percent, and ending stocks are predicted to decrease 34.9 percent.

Mexico's production is expected to increase 16.9 percent, and exports are expected to increase 32.9 percent for the 2001-2011 period due to increases in exports to the United States under the North American Free Trade Agreement (NAFTA).

The European Union's (EU) exports are predicted to decrease 6.4 percent. Their production and consumption are predicted to decrease slightly.

Production in India is predicted to increase 2.8 percent, while consumption is predicted to increase 17.6 percent for the 2001-2011 period.

Exporting countries, such as Australia, South Africa, and Cuba, are predicted to increase their production and exports during the forecasting period.

Most importing countries, including Algeria, China, Japan, and Korea, are predicted to increase their imports for the 2001-2011 period.

2002 OUTLOOK OF THE U.S. AND WORLD SUGAR MARKETS
Won W. Koo and Richard D. Taylor[*]

INTRODUCTION

Sugar is produced in over 100 countries worldwide. In most years, over 70 percent of world sugar production is consumed domestically, implying that only a small portion of production is traded internationally. A significant share of this trade takes place under bilateral long-term agreements or on preferential terms such as the European Union's (EU) Lome Agreement. Since only a small proportion of world production is traded freely, small changes in production and government policies tend to have large effects on world sugar markets. As a result, sugar prices are very unstable in the world market.

This report evaluates the U.S. and world sugar industry for 2001-2011 by using the Global Sugar Policy Simulation Model developed by Benirschka et al. (1996). The outlook projection is based on an assumption that farm and trade policies adopted by sugar exporting and importing countries remain unchanged.

Sugarcane is a perennial grass that is produced in tropical and subtropical climate zones. It matures in 12 to 16 months. Once the cane is harvested, the sucrose starts breaking down. Thus, sugarcane mills are located close to the cane fields to minimize transport costs and sucrose losses. Mills convert sugarcane into raw sugar which is shipped to refineries for further processing. In contrast to raw sugar producing mills, refineries are unconstrained by seasonal production patterns and operate throughout the year. Unlike sugarcane, sugarbeets are an annual crop of temperate climate zones. Because of disease problems, sugarbeets are always grown in crop rotations. Since sugarbeets are bulky and costly to transport, beet processing facilities are located close to production. In contrast to sugarcane, sugarbeets are directly processed into refined sugar. Raw sugar is produced only from sugarcane.

Raw sugar and refined sugar are two different products. They are traded internationally. Beet sugar producing countries export refined sugar, while cane sugar producing countries export either raw or refined sugar. In recent years, the share of raw sugar in total sugar exports is about 50 percent.

OVERVIEW OF THE WORLD SUGAR INDUSTRY AND SUGAR POLICIES

For the 1997-2001 period, annual global sugar production was approximately 139 million metric tons with 30 percent of production exported from its country of origin. The largest sugar producing region is the EU, followed by India and Brazil (Table 1).

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Table 1. World Sugar Supply and Utilization, 1997 to 2001 Average

Country	Crop[a]	Production	Consumption	Net Exports	Ending Stocks	Per Capita Consumption
		----------------------1,000 metric tons, raw value-----------------------				kg
Algeria	B	9	923	(923)	94	30
Australia	C	5,054	993	3,864	386	53
Brazil	C	16,400	9,040	7,288	790	52
Canada	B	103	1,259	(1,134)	95	41
China	B/C	8,013	8,945	(549)	1,979	7
Cuba	C	3,676	728	3,136	238	65
Egypt	B/C	1,228	1,956	(587)	356	31
European Union	B	23,590	19,790	5,263	3,497	56
Former Soviet Union	B	3,904	10,056	(6,567)	2,764	34
India	C	17,370	16,887	(371)	8,432	16
Indonesia	C	1,802	3,264	(1,557)	911	16
Japan	B/C	807	2,351	(1,556)	162	19
Mexico	C	5,143	4,381	744	667	43
South Africa	C	2,703	1,451	1,235	475	33
South Korea	-	0	1,173	(1,147)	92	25
Thailand	C	4,939	1,756	3,398	471	28
United States	B/C	7,714	9,805	(1,675)	1,713	34
Rest of the World	B/C	30,461	37,305	(8,470)	7,514	18
World Total	B/C	138,915	132,320		30,620	20

[a] B = Sugarbeet; C = Sugarcane.

Source: USDA, *PS&D View*, 2002.

Per capita sugar consumption is highest in Cuba (65 kg), followed by Australia and Brazil. Per capita sugar consumption in the United States is 34 kg, which is above world average per capita consumption (20 kg). Per capita sugar consumption is lowest in China at 7 kg per capita, but that may increase substantially as per capita income increases. Annual global sugar consumption for the 1997-2001 period was 132 million metric tons.

The major sugar exporting countries are the EU, Brazil, Australia, Thailand, Cuba, and Ukraine. These countries accounted for 73 percent of global exports from 1997 to 2001. Relatively few countries dominate world sugar exports, but imports are less concentrated. Major importing countries are the EU, Former Soviet Union, China, the United States, Japan, Korea,

Indonesia, and Canada. Their imports accounted for about 46 percent of all sugar imports from 1997 to 2001. Under the Lome Convention, the EU is required to import sugar under preferential terms from certain African, Caribbean, and Pacific countries.

The Caribbean raw sugar price is usually considered to be the world market price for sugar. Except for years with high world market prices, there is a substantial wedge between the U.S. wholesale price of raw sugar and the world market price. Over the last decade, U.S. wholesale prices fluctuated between $0.22 and $0.29 per pound. World market prices ranged between $0.06 per pound and $0.13 per pound (Figure 1). Both real Caribbean raw sugar prices and U.S. raw sugar import prices have long-term downward trends.

The volatility of world sugar prices could be due to the nature of supply response to price changes stemming from high fixed costs of sugar production. An increase in sugar production in response to rising sugar prices requires significant investments in processing facilities, and it takes some time until new production capacity becomes available. Once the facilities are in place, they tend to be used at full capacity to spread the fixed costs. Thus, when prices fall, production remains at full capacity. Sugar production is relatively unresponsive to price in the short run.

The United States produces both beet and cane sugar. Cane sugar is produced mainly in Florida, Louisiana, Texas, and Hawaii. Beet sugar is produced largely in the Great Lakes region, Upper Midwest, Great Plains, and far western states. U.S. total sugar production increased about 31 percent from 6.9 million metric tons in 1990 to 8.9 million metric tons in 2001. Beet sugar production increased 27 percent for the 1990 to 2001 period, while cane sugar production increased 34 percent (Figure 2).

U.S. consumption of sugar also increased 14 percent from 8.8 million metric tons in 1990 to 10.1 million metric tons in 2001. The balance was imported from more than 40 countries. U.S. sugar imports decreased 71 percent from 4.5 million metric tons annually to 1.3 million metric tons annually for the 1974 to 1987 period and then increased to 1.5 million metric tons annually for the 1988 to 2000 period. Under the North American Free Trade Agreement (NAFTA), Mexico can export 260,000 metric tons of sugar to the United States beginning in October 2000, and its exports to the United States will be unlimited from 2009 when implementation of NAFTA is completed.

U.S. Sugar Programs and Policies

The U.S. sugar program was established by the Food and Agricultural Act of 1981. Several modifications were made by the Food Security Act of 1985; the Food, Agriculture, Conservation, and Trade Act of 1990; the Federal Agriculture Improvement and Reform Act of 1996; and the Farm Security and Rural Investment (FSRI) Act of 2002.

The core policy tools in the program are the loan program and import restrictions. The main purpose of the loan program is to maintain a minimum market price for U.S. producers. Processors use sugar as collateral for loans from the U.S. Department of Agriculture (USDA). The program permits processors to store the sugar rather than sell it for lower than desired prices. Loans can be taken for up to nine months. Processors pay growers for delivered beets and cane, typically about 60 percent of the loan. Final payments are made and the loan is repaid after the sugar has been sold.

Under the FSRI Act, the sugar loan rate is set at 18 cents per pound for raw cane sugar and 22.9 cents per pound for refined beet sugar. Loans under the FSRI Act become recourse loans if the tariff rate quota (TRQ) is at 1.5 million metric tons or below, regardless of the price. When the TRQ is set above 1.5 million metric tons, the loans are nonrecourse. Under the nonrecourse loan, a processor forfeits collateral (sugar) to the Commodity Credit Corporation (CCC) if market prices fall below the loan rates. Processors who obtain a nonrecourse loan must pay farmers an amount for their sugarbeets and sugarcane that is proportional to the loan value of sugar. This is the same as under previous legislation.

The Uruguay Round Agreement (URA) on agriculture made minor adjustments for sugar trade. U.S. import quotas on sugar were converted into TRQs, implying that a specified amount of sugar can be imported at the lower of two alternative duty rates. The amount of raw cane sugar subject to the lower duty rate must be no less than 1,117,195 metric tons in a fiscal year. The minimum low-duty import of refined sugar is 22,000 metric tons. The minimum low-duty imports for raw and refined sugar add up to 1.256 million metric short tons raw value of sugar per year. The high duty (about 15.82 cents per pound) is imposed on the amount of sugar imported over the import quota. The first-tier duty ranges from zero to 0.625 cents per pound.

The second tier-duty for raw cane sugar was reduced from 17.62 cents per pound in 1995 to 15.82 cents per pound in 2000 under the URA. The duty for refined sugar was reduced from 18.6 cents per pound in 1995 to 16.21 cents per pound in 2000. The quota was the same level for the 1995 to 2000 period.

The sugar quota has been allocated among more than 40 quota-holding countries, allowing imports of specific quantities of sugar at first-tier duty rates. The quota allocation is based on historical exports to the United States for the 1975 to 1985 period.

NAFTA allows a rapid reduction in the second-tier duty for Mexican sugar over the next several years. The second-tier duty for Mexican sugar will be reduced from 16.11 cents per pound in 1995 to zero in 2008. Duties for most countries will remain at 15.36 cents for raw cane sugar and 16.21 cents for refined sugar. This implies that Mexico is in a unique position to increase its exports of sugar to the United States above the allocated quota. Mexico produced 5.1 million metric tons of sugar in 1998 and consumed 4.24 million metric tons in the same year. Its exports were 0.87 million metric tons in 1998. If Mexico starts to use High Fructose Corn Sweetener (HFCS) for beverages, more of its sugar could be exported to the United States.

Domestic and Export Subsidies in the EU, South Africa, and Mexico

The basic tools of the EU's sugar policies are (1) import restrictions with limited free access for certain suppliers; (2) internal support prices that ensure returns to producers for fixed quantities of production and permit the maintenance of refining capacity; and (3) export subsidies for a quantity of domestically produced sugar.

EU member states allocate an "A" quota and a "B" quota to each sugar producing operation, each isoglucose producing operation, and each inulin syrup producing operation established in their territory. Current quota levels have been placed since the accession of Austria, Sweden, and Finland to the EU and are currently legislated at these levels until 2000/01.

The total EU sugar production quotas for A and B sugar are 11.98 million metric tons and 2.61 million metric tons, respectively. Any sugar that is produced by any member of the EU in excess of its yearly quota is considered "C-sugar." A and B sugar production is used for domestic consumption and for subsidized exports. C-sugar must be exported into the world market without subsidy or carried over into the next marketing year. In general, the EU's target price for white sugar is about 30 cents (Euro) per pound, and its intervention price is 28.72 cents (Euro) per pound. The EU's internal support is about 30 percent higher than that in the United States.

Since marketing year 1995, EU subsidized exports of sugar to third-world countries have been limited, in volume and value, under the URA commitments of the EU. However, the EU did not make an export subsidy commitment on its subsidized exports of a quantity of sugar equal to its preferential imports under the Lome Convention.

South Africa has both internal price supports and export subsidies. South Africa reduced its subsidized exports by 200,000 tons to 702,208 tons by the year 2000 under the URA. Mexico also has subsidized exports and is subsidizing raw sugar storage.

State Trading Enterprises in Australia, China, and India

Australia's sugar exports are handled by the Queensland Sugar Corporation (QSC), a statutory authority established under the Sugar Industry Act 1991. The QSC is responsible for the domestic marketing and export of 100 percent of the raw sugar produced in the state of Queensland, which produces 95 percent of the sugar produced in Australia. The QSC supports domestic producers through buyer-seller arrangements, marketing quotas, dual pricing arrangements, and other quasi-government mechanisms that isolate domestic producers from foreign competition. State trading enterprises (STEs) were not included in the URA. Other countries, including China and India, handle their sugar trade through STEs similar to the QSC.

AN ECONOMETRIC SIMULATION MODEL

The Global Sugar Policy Simulation Model was developed by dividing sugar into beet and cane sugar. This model includes 17 sugar producing and consuming countries. Some of these countries are beet sugar producing countries [Algeria, Canada, the EU, and the Former Soviet Union (FSU)] and some are cane sugar producing countries (Australia, Brazil, Cuba, India, Indonesia, Mexico, South Africa, and Thailand). The remaining countries (China, Egypt, Japan, and the United States) produce both beet and cane sugar. These two sugars are perfectly substitutable in consumption, but are differentiated in the production process.

Sugar production, consumption, and carry-over stock equations in major producing and consuming countries are estimated with time series data by using econometric techniques. The estimated equations are linked under a partial equilibrium condition in the world sugar industry. The market clearing condition requires that the sum of all countries' excess demand for sugar, which depends on the world price of sugar, is zero. This aggregate excess demand equation is solved for the equilibrium price.

Model Structure and Development

Area and yield equations determine the supply of sugar. Since sugar is divided into two classes (cane sugar and beet sugar), two separate supply equations are estimated in the United States, Egypt, Japan, and China, which produce both sugar classes. Other countries have either sugarcane or sugarbeet equations.

Sugar area depends upon expected prices of sugar and alternative crops. As a proxy for price expectations, lagged prices are used in the area equation. In addition to commodity prices, the lagged area variable is included to capture dynamics associated with producers' planting decisions. Area harvested is a function of lagged area, lagged prices of sugar and alternative crops, and government policies as follows:

$$a_{i,t}^s = f(a_{i,t-1}^s, \; p_{i,t-1}^s, \; p_{t-1}^c, \; g_t) \tag{1}$$

where a^s is the sugar area harvested, p^s is the world market price or domestic price of sugar, p^c represents the prices of alternative crops, g is policy parameters, and i represents index for sugar type (i=1 for cane sugar and i=2 for beet sugar).

Since sugarcane and sugarbeets are not competing directly for land, area of each type is a function of price of the corresponding crop. Competing crops are cotton in sugarcane producing regions, and wheat, barley, and oilseed crops in sugarbeet producing regions.

Assuming that sugar yields depend upon production practices and advancements in technology, the total quantity of sugar produced (qp) is the product of the area harvested and yield per hectare:

$$qp_{i,t}^s = a_{i,t}^s \cdot y_{i,t}^s \tag{2}$$

Per capita sugar consumption is a function of the price of sugar, income, and a time trend representing changes in consumers' tastes and preferences:

$$fd_t^s = f(p_t^s, \; cy_t, \; t) \tag{3}$$

where fd^s is per capita demand for sugar, p^s is the domestic price of sugar, cy is per capita disposable income, and t is a trend.

Total consumption of sugar is calculated by multiplying the per capita consumption by population in the country as

$$qd_t^s = fd_t^s * pop_t \tag{4}$$

where qd is the total demand for sugar and pop represents population.

Carry-out stocks (qs^s) are a precaution against unexpected shortfalls in production. These stocks, therefore, are likely related to the level of domestic production. However, since the opportunity cost of holding sugar stocks depends on the price of sugar, the stocks should respond to price changes as

$$qs_t^s = f(qs_{t-1}^s, \; qp_t^s, \; p_t^s) \tag{5}$$

Net exports (qx^s) are the difference between domestic supply (domestic production plus carry-in stocks) and demand (domestic consumption plus carry-out stocks):

$$qx_t^s = qs_{t-1}^s + qp_{t-1}^s - qd_t^s - qs_t^s \qquad (6)$$

If net export (qx^s) in a country is positive, the country is an exporting country. On the other hand, if net export (qx^s) in a country is negative, the country is an importing country.

A market equilibrium condition is expressed as

$$\sum_{n=1}^{n} qx_t^{s,n} = 0 \qquad (7)$$

The equilibrium condition is solved to determine market clearing prices of sugar. The equilibrium world price of sugar ($pm^{s,w}$) obtained from Equation 7 is converted into domestic prices ($pm^{s,n}$) using the official exchange rates (er^n) as follows:

$$pm_t^{s,n} = pm_t^{s,w} * er_t^n \qquad (8)$$

Assumptions and Data Collection

The baseline simulation reported in this report is grounded in a series of assumptions about general economy, agricultural policies, and technological changes in exporting and importing countries for the simulation period (2001-2011). Macro assumptions are based on forecasts prepared by the WEFA group and Project Link. Some of the macro variables are Gross Domestic Product growth rates, interest rates, exchange rates, and inflation rates in the countries. It is generally assumed that current agricultural policy will be continued in all countries in the baseline simulation. Average weather conditions and historical rates of technological change also are assumed in this simulation. The price of sugar in individual countries and the world market is endogenous, while the prices of other crops are exogenous. Thus, the baseline simulation is based on the forecasted world prices of other crops which have substitute and complementary relationships with sugarbeets and sugarcane. The forecasted prices were obtained from the Food and Agricultural Policy Institute (FAPRI) baseline solution.

OUTLOOK FOR THE WORLD SUGAR INDUSTRY

Total world sugar trade is projected to increase 8.9 percent from 20.5 to 22.0 million metric tons. Except for the EU and India, trade of sugar in most countries increases for 2001-2011. Sugar consumption in the EU and India is expected to increase faster than production.

World sugar prices, referred to as the Caribbean price of sugar, are projected to increase about 54.3 percent, from 7.81 cents/lb in 2001 to 12.05 cents/lb in 2011 (Figure 1), because of expected strong demand for sugar for the period. However, the price of sugar in 2011 is 23 percent higher than the average price for the 1997-2000 period. The domestic wholesale price of U.S. sugar is projected to increase 16.1% from 21.7 cents/lb in 2001 to 25.2 cents/lb in 2011. Slower increase in U.S. sugar price for the period, compared to world sugar prices, is due mainly to substantial increases in U.S. sugar imports from Mexico under NAFTA. The expected increases in U.S. sugar imports tend to reduce the gap between world and U.S. wholesale prices.
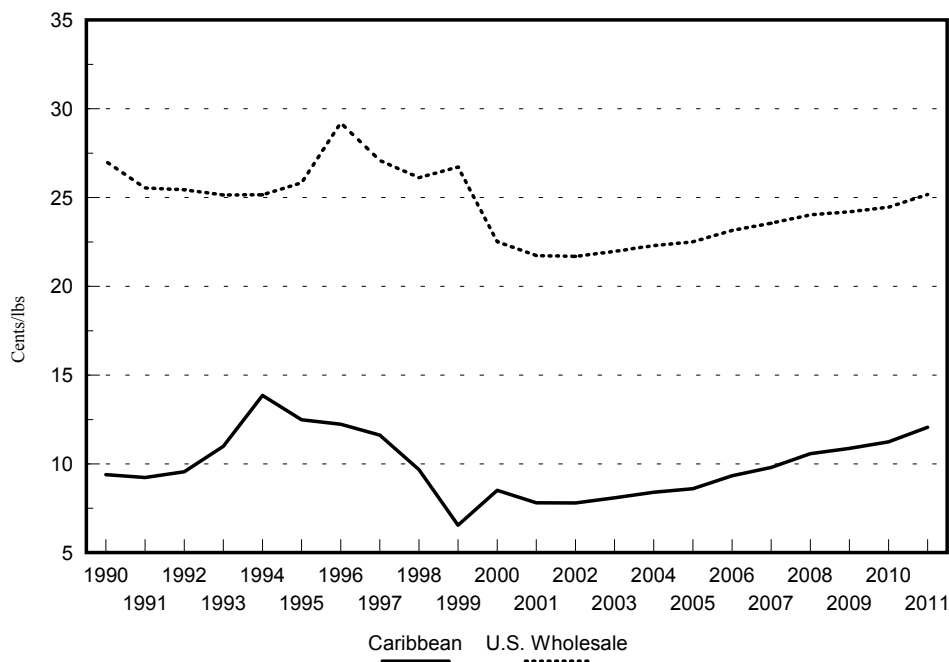
Figure 1. U.S. and World Sugar Price

United States

Table 2 shows production, consumption, imports, and ending stocks of sugar for the United States. U.S. sugar production is predicted to increase to 8.6 million metric tons from 2001 to 2011 (Figure 2). Imports are predicted to increase 39.2 percent, from 1.6 million metric tons in 2001 to 2.2 million metric tons in 2011, under an assumption that Mexico increases its exports to the United States at NAFTA levels (Figure 3).

Table 2. U.S. Sugar Production, Consumption, Exports, and Carry-over Stocks, Various Years

	Average (1999-2001)	2001	2011	% Change (2001-2011)
	-------thousand metric tons-------			
Production	8,030	8,289	8,576	3.4
Beet Sugar	4,503	4,128	4,327	4.8
Cane Sugar	4,147	4,160	4,249	2.1
Net Imports	1,600	1,609	2,242	39.2
Per Capita Consumption (kg)	33.9	33.1	33.0	-0.3
Consumption	10,081	10,107	10,982	8.6
Carry-over Stocks	1,897	2,194	2,453	11.8

Figure 2. United States Beet and Cane Sugar Production

Figure 3. United States Sugar Production and Imports

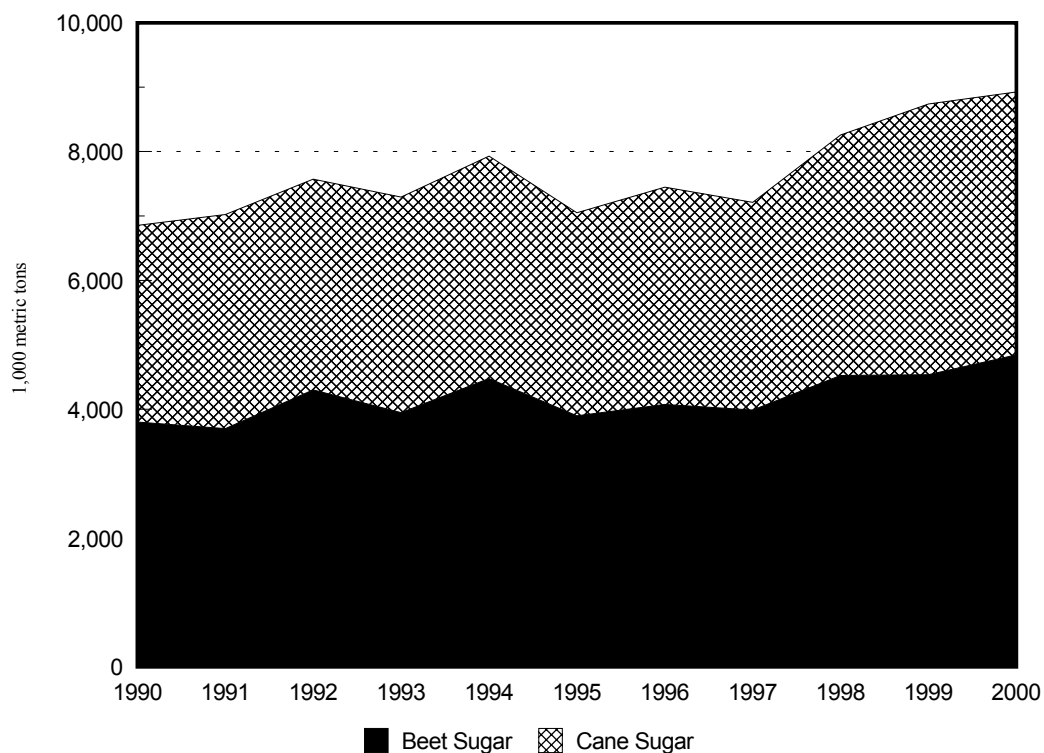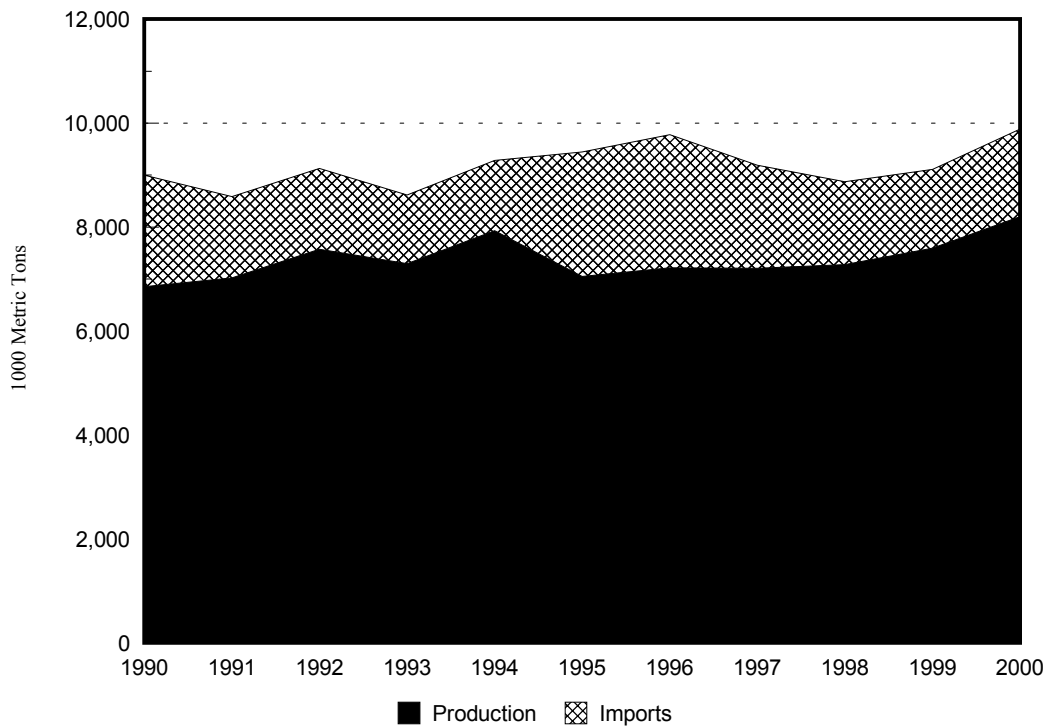The domestic wholesale price for U.S. sugar is projected to increase from 21.7 cents/lb in 2001 to 25.2 cents/lb in 2011. The United States will increase imports to over 20 percent of its domestic sugar consumption. U.S. sugar consumption is predicted to increase 8.6 percent from 10.1 million metric tons in 2001 to 10.9 million metric tons in 2011. Ending stocks are also predicted to increase 11.8 percent (Figure 4).

Exporters

The EU's exports are predicted to decrease 11.9 percent from 5.9 million metric tons in 2001 to 5.2 million metric tons in 2011 (Figure 5). Sugar production in the EU is predicted to decrease slightly, and consumption to decrease from 19.1 million metric tons in 2001 to 16.1 million tons in 2011 (Table 3).

Brazil's production is predicted to increase 8.7 percent from 17.1 million metric tons in 2001 to 18.6 million metric tons in 2011 (Table 3). Brazil's exports are predicted to increase 11.0 percent from 7.7 million metric tons in 2001 to 8.5 million metric tons in 2011, and consumption is predicted to increase 8.7 percent from 9.3 million metric tons in 2001 to 10.0 million metric tons in 2011.

Thailand's exports are predicted to increase 17.4 percent from 3.6 million metric tons in 2001 to 4.2 million metric tons in 2011 (Table 3). Consumption increases from 1.7 million metric tons in 2001 to 2.0 million metric tons in 2011. Sugar production in the country also is predicted to increase 21.3 percent from 5.1 million metric tons in 2001 to 6.2 million metric tons in 2011.
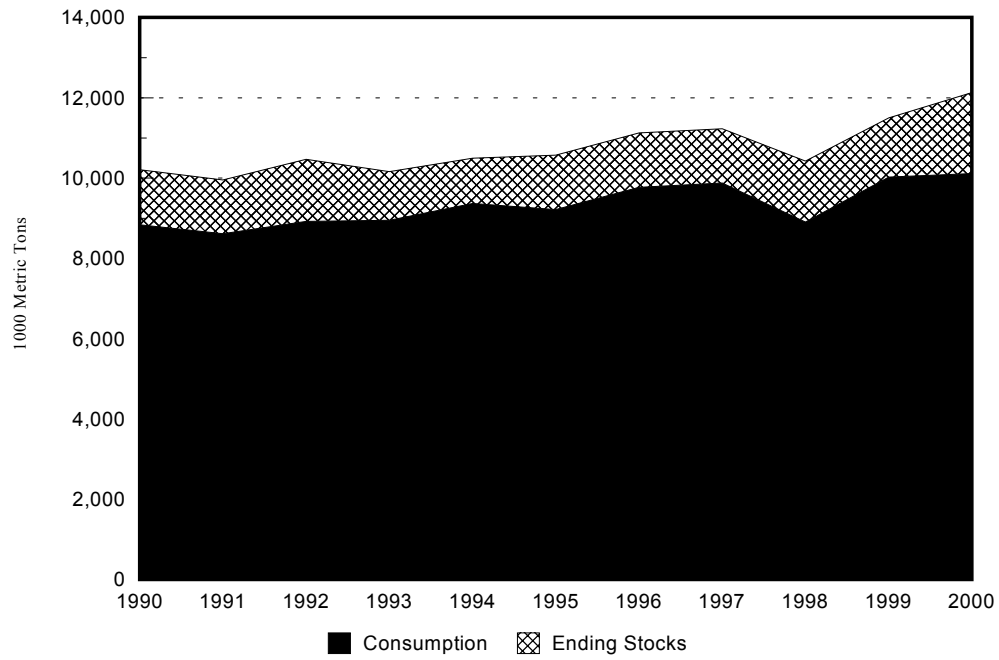
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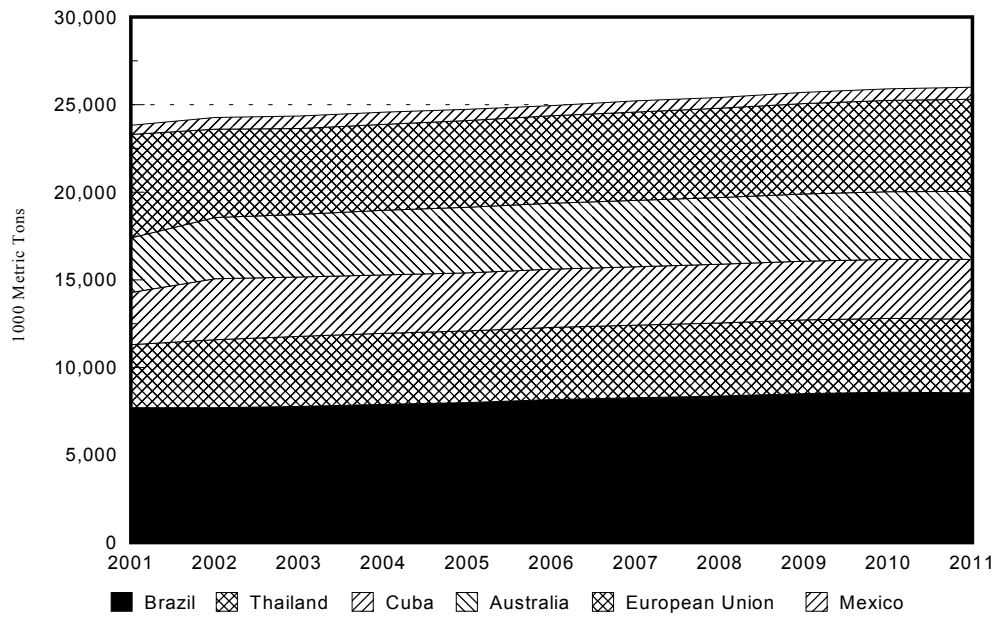Figure 4. United States Consumption and Ending Stocks

Figure 5. World Sugar Exports by Country

Table 3. Sugar Production, Consumption, Exports, and Carry-over Stocks in Exporting Countries

	Average (1999-2001)	2001	2011	% Change (2001-2011)
	---------thousand metric tons------------			
European Union				
Production	21,426	23,771	21,329	-10.2
Net Exports	4,844	5,916	5,261	-11.9
Consumption	18,997	19,078	16,070	-15.8
Carry-over Stocks	3,570	3,407	3,565	4.6
Brazil				
Production	16,933	17,100	18,594	8.7
Net Exports	7,550	7,700	8,544	11.0
Consumption	9,200	9,250	10,062	8.7
Carry-over Stocks	843	860	912	6.0
Thailand				
Production	5,410	5,122	6,211	21.3
Net Exports	3,684	3,600	4,227	17.4
Consumption	1,792	1,700	1,971	15.9
Carry-over Stocks	501	415	485	16.8
Australia				
Production	4,587	4,163	5,033	20.9
Net Exports	3,510	3,112	3,878	24.4
Consumption	995	995	1,155	16.1
Carry-over Stocks	515	573	400	-30.2
Cuba				
Production	3,760	3,500	4,218	20.5
Net Exports	3,027	2,980	3,400	14.1
Consumption	727	720	835	16.0
Carry-over Stocks	216	318	386	21.4
Mexico				
Production	5,058	5,213	6,094	16.9
Net Exports	562	520	691	32.9
Consumption	4,475	4,543	5,390	18.6
Carry-over Stocks	680	790	804	1.8
South Africa				
Production	2,785	2,863	3,071	7.3
Net Exports	1,323	1,320	1,562	18.3
Consumption	1,465	1,650	1,514	-8.2
Carry-over Stocks	512	455	532	16.9

Australia's exports are predicted to increase 24.4 percent from 3.1 million metric tons in 2001 to 3.9 million metric tons in 2011 (Table 3), due mainly to increased sugar production, which is predicted to increase 20.9 percent from 4.2 million metric tons in 2001 to 5.0 million metric tons in 2011. Sugar consumption also is expected to increase 16.1 percent from 1.0 million metric tons in 2001 to 1.2 million metric tons in 2011.

Cuba's exports are predicted to increase 14.1 percent from 3.0 million metric tons in 2001 to 3.4 million metric tons in 2011 (Table 3). It is predicted that Cuba will increase its sugar production from 3.5 million metric tons in 2001 to 4.2 million metric tons in 2011. Cuba's consumption is predicted to increase 16.0 percent from 0.72 million metric tons in 2001 to 0.84 million metric tons in 2011.

Mexico's production is predicted to increase 16.9 percent from 5.2 million metric tons in 2001 to 6.1 million metric tons in 2011. Mexico's exports are predicted to increase 32.9 percent from 0.5 million metric tons in 2001 to 0.7 million metric tons in 2011, due mainly to its exports to the United States under NAFTA. Sugar consumption is predicted to increase 18.6 percent from 4.5 million metric tons in 2001 to 5.4 million metric tons in 2011. Ending stocks are predicted to increase 1.8 percent. If Mexico replaces the sugar that is used in soft drinks with HFCS, the excess sugar will likely be exported into the United States under NAFTA.

South Africa's production is predicted to increase 7.3 percent from 2.9 million metric tons in 2001 to 3.1 million metric tons in 2011. South Africa's exports are predicted to increase 18.3 percent from 1.3 million metric tons in 2001 to 1.6 million metric tons in 2011, due mainly to increased production. Sugar consumption is predicted to decrease 8.2 percent. Ending stocks are predicted to increase 16.9 percent.

Importers

Figures 6 through 8 show sugar imports by the major sugar importing countries. Sugar imports of selected Asian and African countries are expected to increase 3 percent and 26 percent, respectively, for the 2001 to 2011 period. The FSU is the largest importer, followed by Japan and Indonesia for the period.

Canada's production is predicted to increase 3.6 percent between 2001 and 2011 and consumption is predicted to increase from 1.2 million metric tons in 2001 to 1.5 million metric tons in 2011 (Table 4). As a result, Canada's imports are predicted to increase 14.7 percent from 1.2 million metric tons in 2001 to 1.3 million metric tons in 2011.

 The FSU's production is predicted to increase 13.0 percent from 3.8 million metric tons to 4.3 million metric tons for the 2001-2011 period, and consumption is predicted to increase 4.2 percent from 11.3 million metric tons to 11.8 million metric tons for the same period. Imports are predicted to decrease 0.2 percent and remain in the 7.5 million metric tons level (Table 4).
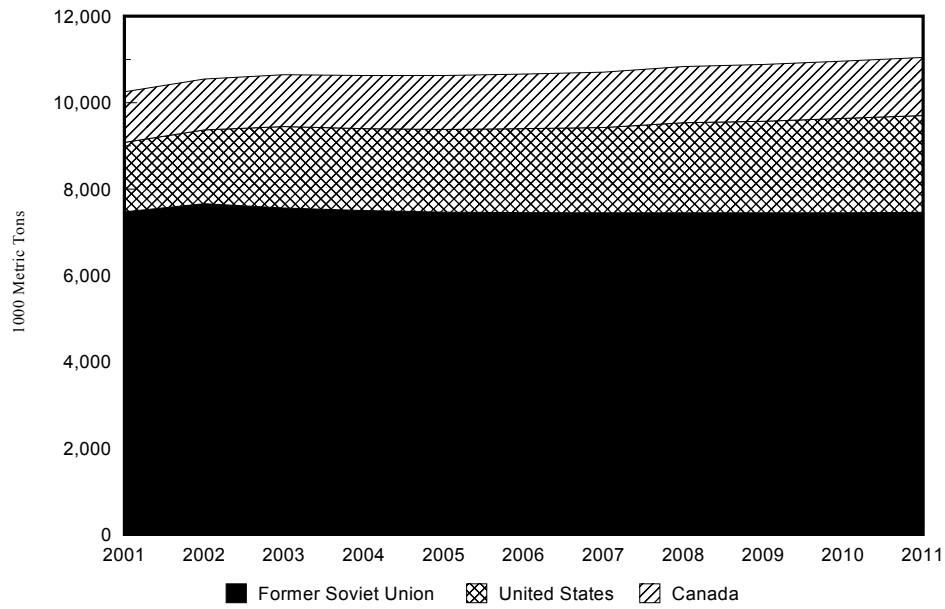
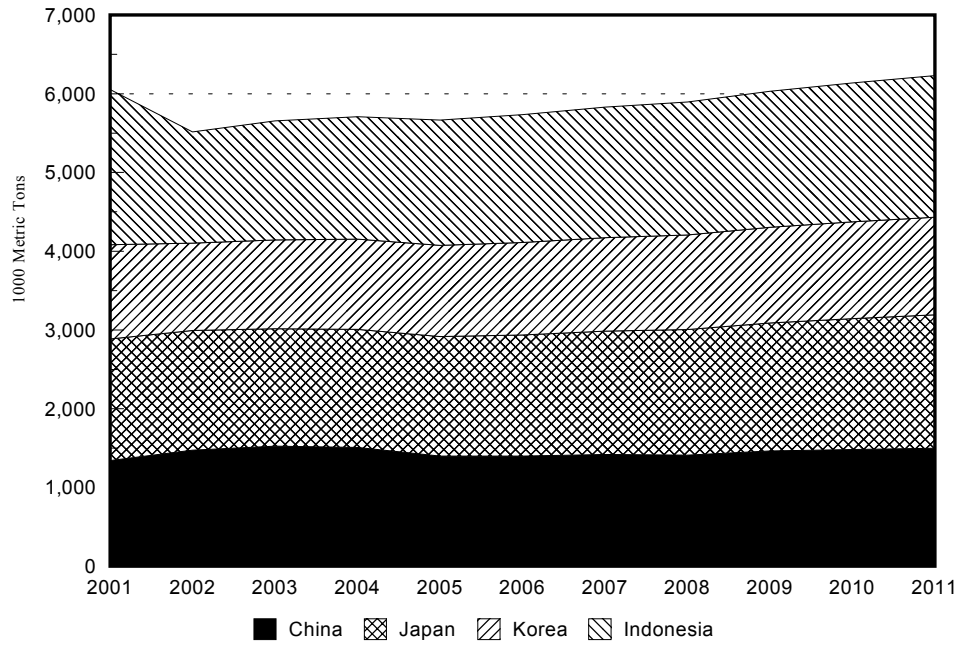Figure 6. World Sugar Imports by Country, Major Importers

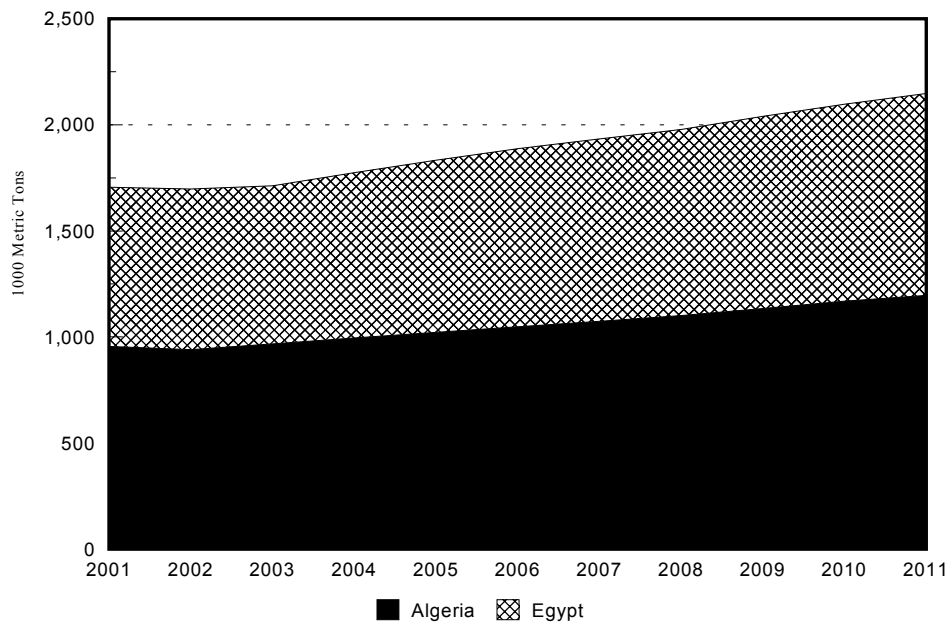Figure 7. World Sugar Imports by Country, Asian Countries

Figure 8. World Sugar Imports by Country, African Countries

China is expected to increase its imports about 11.2 percent from 1.3 million metric tons in 2001 to 1.5 million metric tons in 2011 (Table 4). China's production is predicted to increase 14.1 percent from 6.9 million metric tons in 2001 to 7.9 million metric tons in 2011, and consumption is predicted to increase 7.2 percent from 8.8 million metric tons to 9.4 million metric tons for the period.

India's production is predicted to increase 2.8 percent from 20.4 million metric tons in 2001 to 20.9 million metric tons in 2011. However, India is expected to become a small exporter of sugar in the future.

Japan's imports are predicted to increase 9.6 percent from 1.5 million metric tons in 2001 to 1.7 million metric tons in 2011, due mainly to increased domestic consumption. Consumption is predicted to increase 9.5 percent from 2.3 million metric tons to 2.5 million metric tons for the period (Table 4).

In South Korea, consumption is predicted to increase 4.8 percent for the time period. As a result, South Korea's imports are predicted to increase 3.8 percent for the period.

In Algeria, consumption is predicted to increase 26.8 percent from 1.0 million metric tons in 2001 to 1.2 million metric tons in 2011. This increase in consumption results in increased imports from 1.0 million metric tons in 2001 to 1.2 million metric tons in 2011.

Egypt's imports are predicted to increase 26.9 percent from 0.8 million metric tons in 2001 to 1.0 million metric tons in 2011, due mainly to increased consumption. Consumption is predicted to increase 14.6 percent from 2.0 million metric tons in 2001 to 2.3 million metric tons in 2011.

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Indonesia's imports are predicted to decrease 8.7 percent from 2.0 million metric tons in 2001 to 1.8 million metric tons in 2011. Consumption is predicted to increase 11.1 percent from 3.6 million metric tons in 2001 to 4.0 million metric tons in 2011.

Table 4. Sugar Production, Consumption, Imports, and Carry-over Stocks in Importing Countries

	Average (1999-2001)	2001	2011	% Change (2001-2011)
	--------------thousand metric tons------------------			
Canada				
Production	105	111	115	3.6
Net Imports	1,140	1,170	1,342	14.7
Consumption	1,240	1,240	1,454	17.3
Carry-over Stocks	63	106	69	-34.9
Former Soviet Union				
Production	3,890	3,845	4,345	13.0
Net Imports	7,369	7,470	7,458	-0.2
Consumption	10,545	11,329	11,800	4.2
Carry-over Stocks	3,699	3,744	4,300	14.9
China				
Production	7,610	6,910	7,881	14.1
Net Imports	711	1,342	1,492	11.2
Consumption	8,808	8,774	9,408	7.2
Carry-over Stocks	1,594	1,850	1,293	-30.1
India				
Production	19,342	20,370	20,934	2.8
Net Imports	43	(1,200)	(487)	-59.4
Consumption	17,212	17,480	20,558	17.6
Carry-over Stocks	10,150	12,400	11,921	-3.9
Japan				
Production	809	780	827	6.0
Net Imports	1,549	1,545	1,694	9.6
Consumption	2,306	2,305	2,523	9.5
Carry-over Stocks	211	245	229	-6.5

- Continued -

Table 4. Sugar Production, Consumption, Imports, and Carry-over Stocks in Importing Countries (Continued)

	Average (1999-2001)	2001	2011	% Change (2001-2011)
	---------------thousand metric tons------------------			
South Korea				
Carry-in Stocks	104	83	130	56.6
Net Imports	1,137	1,195	1,240	3.8
Consumption	1,151	1,185	1,242	4.8
Carry-over Stocks	90	95	128	34.7
Algeria				
Production	9	10	11	10.0
Net Imports	923	955	1,195	25.1
Consumption	945	950	1,205	26.8
Carry-over Stocks	96	87	97	11.5
Egypt				
Production	1,252	1,315	1,376	4.6
Net Imports	598	750	952	26.9
Consumption	1,979	2,028	2,324	14.6
Carry-over Stocks	237	108	182	68.5
Indonesia				
Production	1,602	1,802	2,166	20.2
Net Imports	1,755	1,970	1,798	-8.7
Consumption	3,290	3,571	3,967	11.1
Carry-over Stocks	1,054	1,415	1,333	-5.8

CONCLUDING REMARKS

This report provides an overview of the U.S. and world sugar markets for 2001-2011 by using the Global Sugar Policy Simulation Model. The baseline projections are based on a series of assumptions about general economic conditions, agricultural policies, weather conditions, and technological change.

Total world sugar trade is projected to increase by 7.3 percent from 20.5 million metric tons in 2001 to 22.0 million metric tons in 2011. The price of Caribbean sugar also is expected to increase about 54.3 percent from 7.81 cents/lb in 2001 to 12.05 cents/lb in 2011 because of faster growth in world consumption of sugar compared to world production. The wholesale price of U.S. sugar is projected to increase 16.1 percent from 21.7 cents/lb in 2001 to 25.2 cents/lb in 2011.

Exports are predicted to increase for Brazil, Australia, Mexico, South Africa, Thailand, and Cuba, while exports are predicted to decrease for the EU.

Imports from all importing countries except the FSU and Indonesia are predicted to increase over the forecasting period. China's imports are predicted to increase 11.2 percent,

while Japan's imports are predicted to increase only 9.6 percent. South Korea's imports are predicted to increase 3.8 percent and Algeria's imports are predicted to increase 25.1 percent.

U.S. sugar consumption and ending stocks are predicted to increase for the forecasting period. Imports are predicted to increase 39.3 percent for the period because of increased sugar from Mexico.

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Appendix

World Sugar Policy Simulation Model

2002 Baseline Solution

United States - Nominal Sugar Beet and Sugarcane Farm Prices (dollars/short ton)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Sugar Beets	31.73	31.67	32.06	32.50	32.78	33.64	34.19	34.82	35.05	35.41	36.39
Sugarcane	21.03	20.97	21.31	21.70	21.94	22.70	23.18	23.73	23.93	24.24	25.10

United States - Nominal Sugar Prices (U.S. cents/pound)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Caribbean Price	7.81	7.80	8.09	8.40	8.60	9.32	9.80	10.57	10.87	11.24	12.05
TRQ Status	Quota	Quota	Quota	Quota	Quota	Quota	Quota	Quota	Quota	Quota	Quota
Implicit Tariff	11.96	11.92	11.91	11.91	11.91	11.80	11.71	11.38	11.25	11.13	11.01
Import Price	19.77	19.72	20.00	20.31	20.51	21.12	21.51	21.95	22.12	22.37	23.06
Wholesale Price	21.73	21.68	21.97	22.29	22.50	23.14	23.55	24.02	24.19	24.45	25.17
Retail Price	33.63	33.57	33.96	34.40	34.68	35.55	36.11	36.74	36.97	37.33	38.31

United States - Area Harvested (1000 acres)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Sugar Beets	1331	1330	1332	1334	1336	1341	1347	1346	1337	1331	1336
Sugarcane	975	965	960	957	956	956	957	958	959	960	962
Total Area	2306	2296	2292	2292	2292	2297	2304	2304	2296	2291	2298

United States - Yields (short tons/acre)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Sugar Beets	21.10	21.31	21.52	21.73	21.94	22.15	22.36	22.47	22.55	22.73	22.93
Sugarcane	35.60	35.51	35.53	35.61	35.73	35.86	36.01	36.16	36.31	36.36	36.46

United States - Sugar Beet and Sugarcane Production (1000 short tons)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Sugar Beets	28082	28347	28668	28997	29318	29701	30129	30239	30145	30247	30623
Sugarcane	34699	34280	34111	34091	34159	34288	34449	34632	34823	34925	35083

United States - Sugar Extraction Rates (percent)

Variable	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Sugar Beets	14.70	14.13	14.13	14.13	14.13	14.13	14.13	14.13	14.13	14.13	14.13
Sugarcane	11.99	12.11	12.11	12.11	12.11	12.11	12.11	12.11	12.11	12.11	12.11

United States - Sugar Production (1000 short tons)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Beet Sugar	4128	4005	4051	4097	4143	4197	4257	4273	4259	4274	4327
Cane Sugar	4160	4151	4131	4128	4137	4152	4172	4194	4217	4229	4249
All Sugar	8289	8157	8182	8226	8279	8349	8429	8467	8477	8503	8576

United States - Sugar Import Quotas (1000 short tons, raw value) and Tariffs (U.S. cents/pound, raw sugar, most countries)

Variable	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Tariff Rate Quota	1256	1256	1256	1256	1256	1256	1256	1256	1256	1256	1256
Below Quota Tariff	0	0	0	0	0	0	0	0	0	0	0
Above Quota Tariff	15.36	15.36	15.36	15.36	15.36	15.36	15.36	15.36	15.36	15.36	15.36

United States - Implicit Tariff (U.S. cents/pound) and Sugar Trade (1000 short tons)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
TRQ Status	Quota	Quota	Quota	Quota	Quota	Quota	Quota	Quota	Quota	Quota	Quota
Implicit Tariff	11.96	11.92	11.91	11.91	11.91	11.80	11.71	11.38	11.25	11.13	11.01
Total Imports	1784	1883	2060	2072	2089	2119	2154	2260	2296	2310	2347
Quota-sugar Imports	1384	1483	1532	1544	1561	1591	1626	1860	1896	1910	1947
Other Sugar Imports	400	400	528	528	528	528	528	528	400	400	400
Total Exports	175	175	175	175	175	175	175	175	175	175	175
Net Imports	1609	1708	1885	1897	1914	1944	1979	2085	2121	2135	2172

United States - Sugar Supply and Utilization (1000 short tons, raw value)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Carry-in Stocks	2020	2194	2156	2239	2281	2354	2388	2407	2420	2432	2443
Production	8289	8157	8182	8226	8279	8349	8429	8467	8477	8503	8576
Net Imports	1609	1708	1885	1897	1914	1944	1979	2085	2121	2185	2242
Consumption	10107	10104	10059	10228	10318	10426	10526	10637	10758	10858	10982
Carry-out Stocks	2194	2156	2239	2281	2354	2388	2407	2420	2432	2443	2453

United States - Per Capita Sugar Consumption (pounds) and Stocks to Use Ratio (percent)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Per Capita Consumption	72.78	72.11	71.15	71.72	71.74	71.88	71.97	72.12	72.35	72.43	72.67
Stocks/Consumption	21.70	21.34	22.26	22.31	22.81	22.90	22.86	22.75	22.61	22.50	22.33

Canada - Sugar Beet Area Harvested (1000 hectares), Yield (metric tons/hectare), and Production (1000 metric tons)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Area Harvested	17	20	21	21	21	21	21	21	21	21	21
Yield	57.57	41.51	45.58	45.20	45.80	46.19	46.63	47.05	47.48	47.90	48.33
Production	979	850	965	961	972	977	987	995	1004	1010	1016

Canada - Sugar Beet Exogenous Variables

Variable	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Extraction Rate (%)	11.30	11.30	11.30	11.30	11.30	11.30	11.30	11.30	11.30	11.30	11.30

Canada - Sugar Supply and Utilization (1000 metric tons, raw value)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Carry-in Stocks	39	106	69	56	53	54	56	59	61	64	67
Production	111	96	109	109	110	110	112	112	113	114	115
Net Imports	1170	1175	1202	1228	1249	1266	1283	1298	1313	1327	1342
Imports	1186	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Exports	16	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Consumption	1240	1308	1323	1340	1358	1374	1392	1407	1423	1439	1454
Carry-out Stocks	106	69	56	53	54	56	59	61	64	67	69

Canada - Per Capita Sugar Consumption (kilograms) and Stocks to Use Ratio (percent)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Per Capita Consumption	39.20	40.94	41.03	41.17	41.35	41.46	41.62	41.73	41.85	41.95	42.03
Stocks/Consumption	8.55	5.26	4.26	3.98	3.98	4.08	4.21	4.36	4.50	4.63	4.76

Mexico - Sugarcane Area Harvested (1000 hectares), Yield (metric tons/hectare), and Production (1000 metric tons)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Area Harvested	618	618	621	626	632	639	646	654	661	669	677
Yield	74.00	73.52	73.59	73.81	74.07	74.34	74.61	74.88	75.15	75.42	75.69
Production	45732	45433	45706	46208	46822	47495	48204	48935	49684	50445	51213

Mexico - Sugar Extraction Rates (percent)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Sugarcane	11.40	11.40	11.50	11.50	11.60	11.60	11.70	11.70	11.80	11.80	11.90

Mexico - Sugar Supply and Utilization (1000 metric tons, raw value)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Carry-in Stocks	585	790	838	821	770	752	751	755	765	778	790
Production	5213	5179	5256	5314	5431	5509	5640	5725	5863	5953	6094
Net Imports	-520	-664	-712	-695	-654	-572	-637	-604	-640	-654	-691
Exports	520	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Imports	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Consumption	4543	4468	4561	4670	4796	4938	4999	5111	5210	5286	5390
Carry-out Stocks	790	838	821	770	752	751	755	765	778	790	804

Mexico - Per Capita Sugar Consumption (kilograms) and Stocks to Use Ratio (percent)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Per Capita Consumption	43.24	41.90	42.16	42.57	43.12	43.80	43.77	44.18	44.48	44.58	44.91
Stocks/Consumption	17.39	18.76	18.01	16.49	15.67	15.22	15.11	14.97	14.93	14.95	14.92

Algeria - Sugar Beet Area Harvested (1000 hectares), Yield (metric tons/hectare), and Production (1000 metric tons)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Area Harvested	7	7	7	8	8	8	8	8	8	8	8
Yield	19	19	20	20	20	20	20	20	20	20	20
Production	135	142	146	149	150	151	152	152	153	153	154

Algeria - Sugar Extraction Rates (percent)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Sugarbeet	7.41	7.41	7.41	7.41	7.41	7.41	7.41	7.41	7.41	7.41	7.41

Algeria - Sugar Supply and Utilization (1000 metric tons, raw value)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Carry-in Stocks	107	87	88	89	90	91	92	93	94	95	96
Production	10	11	11	11	11	11	11	11	11	11	11
Net Imports	955	940	968	995	1021	1048	1074	1101	1134	1168	1195
Exports	0	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Imports	955	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Consumption	950	949	978	1005	1031	1059	1084	1111	1144	1178	1205
Carry-out Stocks	87	88	89	90	91	92	93	94	95	96	97

Algeria - Per Capita Sugar Consumption (kilograms) and Stocks to Use Ratio (percent)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Per Capita Consumption	29.18	28.67	29.04	29.37	29.66	29.98	30.24	30.51	30.95	31.40	31.64
Stocks/Consumption	9.16	9.30	9.14	8.99	8.84	8.70	8.58	8.46	8.30	8.14	8.04

Australia - Sugarcane Area Harvested (1000 hectares), Yield (metric tons/hectare), and Production (1000 metric tons)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Area Harvested	385	386	406	415	420	422	425	426	428	430	431
Yield	87	90	91	92	92	92	93	93	93	94	94
Production	33572	34824	37008	38061	38644	39017	39386	39708	40021	40323	40589

Australia - Sugar Extraction Rate (percent)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Sugarcane	12.40	12.40	12.40	12.40	12.40	12.40	12.40	12.40	12.40	12.40	12.40

Australia - Sugar Supply and Utilization (1000 metric tons, raw value)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Carry-in Stocks	790	573	400	400	400	400	400	400	400	400	400
Production	4163	4318	4589	4720	4792	4838	4884	4924	4963	5000	5033
Net Exports	3112	3490	3572	3685	3739	3768	3796	3818	3840	3861	3878
Exports	3118	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Imports	6	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Consumption	995	1001	1017	1035	1053	1070	1088	1106	1122	1139	1155
Carry-out Stocks	573	400	400	400	400	400	400	400	400	400	400

Australia - Per Capita Sugar Consumption (kilograms) and Stocks to Use Ratio (percent)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Per Capita Consumption	51.99	51.79	52.13	52.56	53.00	53.41	53.85	54.27	54.67	55.05	55.41
Stocks/Consumption	57.59	39.96	39.33	38.65	37.99	37.38	36.77	36.18	35.64	35.12	34.62

Brazil - Sugar Supply and Utilization (1000 metric tons, raw value)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Carry-in Stocks	660	860	933	959	966	968	959	951	938	930	924
Production	17100	17015	17101	17285	17467	17708	17894	18085	18318	18503	18594
Net Exports	7700	7699	7772	7890	7991	8161	8259	8362	8506	8581	8544
Exports	7700	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Imports	0	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Consumption	9250	9242	9303	9388	9475	9555	9643	9736	9820	9928	10062
Carry-out Stocks	860	933	959	966	968	959	951	938	930	924	912

Brazil - Per Capita Sugar Consumption (kilograms) and Stocks to Use Ratio (percent)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Per Capita Consumption	52.14	51.64	51.54	51.58	51.66	51.70	51.81	51.94	52.03	52.27	52.63
Stocks/Consumption	9.30	10.10	10.30	10.29	10.21	10.04	9.86	9.64	9.47	9.30	9.06

China - Area Harvested (1000 hectares)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Sugar Beets	388	384	387	399	403	406	415	416	422	422	427
Sugarcane	1062	1121	1138	1148	1154	1159	1166	1173	1179	1183	1184
Total Area	1449	1505	1525	1547	1557	1565	1582	1589	1600	1605	1611

China - Yields (metric tons/hectare)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Sugar Beets	33.65	33.22	32.85	32.53	32.25	32.01	31.89	31.89	31.97	32.13	32.16
Sugarcane	57.90	58.77	59.35	59.69	59.86	59.90	59.94	59.88	59.94	59.90	59.88

China - Production (1000 metric tons)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Sugar Beets	13039	12762	12728	12979	13001	12981	13241	13249	13477	13552	13719
Sugarcane	61461	65865	67510	68501	69078	69431	69913	70262	70651	70849	70917

China - Sugar Extraction Rates (percent)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Sugarbeets	10.10	10.15	10.15	10.15	10.15	10.15	10.15	10.15	10.15	10.15	10.15
Sugarcane	9.10	9.15	9.15	9.15	9.15	9.15	9.15	9.15	9.15	9.15	9.15

China - Sugar Supply and Utilization (1000 metric tons, raw value)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Carry-in Stocks	1383	850	976	1118	1294	1331	1321	1338	1307	1320	1322
Production	6910	7422	7469	7585	7640	7671	7741	7774	7832	7858	7881
Beet Sugar	1317	1295	1292	1317	1320	1318	1344	1345	1368	1376	1392
Cane Sugar	5593	6027	6177	6268	6321	6353	6397	6429	6465	6483	6489
Net Imports	1342	1474	1524	1507	1398	1397	1418	1409	1464	1483	1497
Exports	126	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Imports	1000	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Consumption	8774	8771	8851	8915	9002	9077	9142	9213	9284	9339	9408
Carry-out Stocks	850	976	1118	1294	1331	1321	1338	1307	1320	1322	1293

China - Per Capita Sugar Consumption (kilograms) and Stocks to Use Ratio (percent)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Per Capita Consumption	6.81	6.75	6.75	6.75	6.76	6.77	6.77	6.78	6.79	6.79	6.80
Stocks/Consumption	9.69	11.12	12.63	14.52	14.78	14.55	14.63	14.19	14.22	14.16	13.74

Cuba - Sugarcane Area Harvested (1000 hectares), Yield (metric tons/hectare), and Production (1000 metric tons)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Area Harvested	1168	1446	1457	1457	1457	1457	1456	1455	1454	1454	1454
Yield	32	29	28	27	27	27	27	28	28	28	28
Production	37201	42114	40617	39875	39645	39676	39819	40030	40264	40525	40793

Cuba - Sugar Extraction Rate (percent)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Sugarcane	10.88	10.34	10.34	10.34	10.34	10.34	10.34	10.34	10.34	10.34	10.34

Cuba - Sugar Supply and Utilization (1000 metric tons, raw value)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Carry-in Stocks	180	318	432	475	485	480	469	454	438	421	403
Production	3500	4355	4200	4123	4099	4103	4117	4139	4163	4190	4218
Net Exports	2980	3480	3386	3332	3313	3317	3327	3345	3359	3377	3400
Consumption	720	761	771	780	791	797	805	811	821	830	835
Carry-out Stocks	318	432	475	485	480	469	454	438	421	403	386

Cuba - Per Capita Sugar Consumption (kilograms) and Stocks to Use Ratio (percent)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Per Capita Consumption	63.53	66.76	67.30	67.82	68.44	68.60	68.97	69.09	69.62	70.09	70.17
Stocks/Consumption	44.17	56.82	61.62	62.14	60.66	58.77	56.34	53.98	51.24	48.55	46.18

Egypt - Area Harvested (1000 hectares)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Sugar Beets	40	39	39	39	40	40	40	40	40	41	41
Sugarcane	128	129	129	129	129	129	130	130	130	131	131
Total Area	168	167	168	168	169	169	170	170	170	171	172

Egypt - Yields (metric tons/hectare)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Sugar Beets	44.90	43.13	44.04	44.17	44.54	44.83	45.15	45.45	45.86	46.15	46.46
Sugarcane	101.00	101.14	101.38	101.72	102.14	102.63	103.17	103.76	104.40	105.07	105.76

Egypt - Production (1000 metric tons)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Sugar Beets	1792	1662	1725	1741	1769	1795	1807	1829	1844	1870	1893
Sugarcane	12956	12999	13055	13121	13196	13279	13369	13465	13587	13712	13839

Egypt - Sugar Extraction Rates (percent)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Sugar Beets	12.65	12.65	12.65	12.65	12.65	12.65	12.65	12.65	12.65	12.65	12.65
Sugarcane	8.40	8.20	8.20	8.20	8.20	8.20	8.20	8.20	8.20	8.20	8.20

Egypt - Sugar Supply and Utilization (1000 metric tons, raw value)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Carry-in Stocks	231	108	160	162	164	167	169	172	174	177	180
Production	1315	1276	1289	1296	1306	1316	1325	1335	1347	1361	1374
Beet Sugar	227	210	218	220	224	227	229	231	233	237	239
Cane Sugar	1088	1066	1070	1076	1082	1089	1096	1104	1114	1124	1135
Net Imports	750	758	745	779	812	839	859	877	905	929	952
Exports	0	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Imports	750	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Consumption	2028	1982	2032	2073	2116	2153	2181	2210	2249	2288	2324
Carry-out Stocks	108	160	162	164	167	169	172	174	177	180	182

Egypt - Per Capita Sugar Consumption (kilograms) and Stocks to Use Ratio (percent)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Per Capita Consumption	30.67	29.48	29.72	29.85	29.99	30.06	30.00	29.96	30.06	30.14	30.19
Stocks/Consumption	5.33	8.09	7.98	7.92	7.87	7.85	7.87	7.88	7.86	7.85	7.85

European Union - Sugar Quota (1000 metric tons, white sugar equivalent)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
A-Quota	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
B-Quota	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
A plus B Quota	13669	13669	13669	13669	13669	13669	13669	13669	13669	13669	13669
Raw Sugar Equivalent	14626	14626	14626	14626	14626	14626	14626	14626	14626	14626	14626

European Union - Sugar Beet Area Harvested (1000 hectares), Yield (metric tons/hectare), and Production (1000 metric tons)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Area Harvested	2600	2419	2397	2394	2394	2395	2397	2399	2402	2403	2404
Yield	57.50	57.55	57.70	57.86	58.02	58.18	58.34	58.50	58.66	58.83	58.99
Production	149500	139215	138296	138509	138889	139347	139835	140345	140900	141388	141817

European Union - Sugar Extraction Rates (percent)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Sugar Beets	15.90	15.04	15.04	15.04	15.04	15.04	15.04	15.04	15.04	15.04	15.04

European Union - Sugar Supply and Utilization (1000 metric tons, raw value)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Carry-in Stocks	3752	3407	3479	3518	3543	3558	3563	3566	3566	3566	3567
Production	23771	20938	20800	20832	20889	20958	21031	21108	21191	21265	21329
Net Exports	5916	5048	4902	4911	4946	4993	5042	5098	5160	5213	5261
Exports	8228	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Imports	2312	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Consumption	19078	15818	15859	15896	15929	15959	15986	16010	16031	16051	16070
Carry-out Stocks	3407	3479	3518	3543	3558	3563	3566	3566	3566	3567	3565

European Union - Per Capita Sugar Consumption (kilograms) and Stocks to Use Ratio (percent)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Per Capita Consumption	53.85	44.55	44.56	44.58	44.59	44.60	44.62	44.63	44.64	44.66	44.67
Stocks/Consumption	17.86	21.99	22.19	22.29	22.33	22.33	22.31	22.27	22.24	22.22	22.18

India - Sugar Supply and Utilization (1000 metric tons, raw value)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Carry-in Stocks	10676	12400	13294	13609	13580	13301	12927	12446	12227	12145	12032
Production	20370	19698	19417	19349	19381	19482	19614	20068	20382	20623	20934
Net Exports	1200	1043	1021	986	958	846	776	659	528	491	487
Exports	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Imports	1200	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Consumption	17480	17760	18081	18393	18702	19011	19319	19628	19936	20245	20558
Carry-out Stocks	12400	13294	13609	13580	13301	12927	12446	12227	12145	12032	11921

India - Per Capita Sugar Consumption (kilograms) and Stocks to Use Ratio (percent)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Per Capita Consumption	16.00	16.01	16.06	16.10	16.14	16.18	16.22	16.26	16.30	16.34	16.38
Stocks/Consumption	70.94	74.85	75.27	73.83	71.12	68.00	64.42	62.29	60.92	59.43	57.99

Indonesia - Sugarcane Area Harvested (1000 hectares), Yield (metric tons/hectare), and Production (1000 metric tons)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Area Harvested	350	350	352	354	357	361	364	368	371	375	379
Yield	67.20	65.67	66.32	66.97	67.62	68.27	68.92	69.57	70.22	70.87	71.52
Production	22520	22976	23315	23723	24162	24627	25098	25580	26065	26565	27074

Indonesia - Sugar Extraction Rate

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Sugarcane	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00

Indonesia - Sugar Supply and Utilization (1000 metric tons, raw value)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Carry-in Stocks	840	1415	1357	1355	1352	1350	1347	1344	1341	1339	1337
Production	1802	1838	1865	1898	1933	1970	2008	2046	2085	2125	2166
Net Imports	1970	1412	1512	1553	1591	1625	1659	1688	1726	1762	1798
Exports	6	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Imports	1976	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Consumption	3571	3307	3379	3453	3526	3599	3669	3737	3813	3889	3967
Carry-out Stocks	1415	1357	1355	1352	1350	1347	1344	1341	1339	1337	1333

Indonesia - Per Capita Sugar Consumption (kilograms) and Stocks to Use Ratio (percent)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Per Capita Consumption	16.79	15.31	15.40	15.51	15.60	15.70	15.78	15.86	15.97	16.09	16.20
Stocks/Consumption	39.62	41.04	40.09	39.16	38.30	37.43	36.64	35.89	35.11	34.37	33.61

Japan - Area Harvested (1000 hectares)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Sugar Beets	63	63	64	64	64	64	64	63	63	62	61
Sugarcane	21	22	23	23	23	24	24	24	24	24	24
Total Area	84	85	86	87	87	88	88	87	87	86	85

Japan - Yields (metric tons/hectare)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Sugar Beets	53.20	53.16	53.34	53.62	53.96	54.31	54.68	55.05	55.42	55.80	56.17
Sugarcane	57.00	57.43	60.44	60.25	60.31	60.35	60.40	60.44	60.48	60.53	60.57

Japan - Production (1000 metric tons)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Sugar Beets	3352	3360	3389	3421	3447	3467	3480	3485	3481	3469	3448
Sugarcane	1197	1256	1365	1393	1417	1432	1442	1446	1445	1440	1432

Japan - Sugar Extraction Rates (percent)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Sugar Beets	18.94	18.94	18.94	18.94	18.94	18.94	18.94	18.94	18.94	18.94	18.94
Sugarcane	12.13	12.13	12.13	12.13	12.13	12.13	12.13	12.13	12.13	12.13	12.13

Japan - Sugar Supply and Utilization (1000 metric tons, raw value)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Carry-in Stocks	225	245	242	241	240	238	237	236	235	233	231
Production	780	789	807	817	825	830	834	835	835	832	827
Beet Sugar	635	636	642	648	653	657	659	660	659	657	653
Cane Sugar	145	152	166	169	172	174	175	175	175	175	174
Net Imports	1545	1518	1491	1500	1517	1540	1567	1596	1626	1660	1694
Exports	10	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Imports	1555	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Consumption	2305	2310	2299	2318	2344	2372	2403	2433	2462	2494	2523
Carry-out Stocks	245	242	241	240	238	237	236	235	233	231	229

Japan - Per Capita Sugar Consumption (kilograms) and Stocks to Use Ratio (percent)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Per Capita Consumption	18.20	18.20	18.10	18.22	18.41	18.62	18.86	19.10	19.34	19.61	19.86
Stocks/Consumption	10.63	10.48	10.48	10.35	10.18	10.01	9.82	9.65	9.46	9.26	9.10

Korea - Sugar Supply and Utilization (1000 metric tons, raw value)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Carry-in Stocks	83	95	105	114	121	128	130	131	130	130	130
Net Imports	1195	1111	1127	1144	1160	1172	1187	1200	1216	1230	1240
Exports	325	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Imports	1520	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Consumption	1185	1101	1118	1137	1153	1169	1186	1201	1217	1231	1242
Carry-out Stocks	95	105	114	121	128	130	131	130	130	130	128

Korea - Per Capita Sugar Consumption (kilograms) and Stocks to Use Ratio (percent)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Per Capita Consumption	24.91	22.94	23.11	23.30	23.46	23.61	23.78	23.94	24.11	24.24	24.33
Stocks/Consumption	8.02	9.55	10.19	10.68	11.08	11.14	11.07	10.83	10.66	10.53	10.28

South Africa - Sugarcane Area Harvested (1000 hectares), Yield (metric tons/hectare), and Production (1000 metric tons)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Area Harvested	345	338	336	338	340	344	348	353	358	363	369
Yield	74.30	73.46	73.66	73.86	74.06	74.26	74.46	74.66	74.86	75.06	75.26
Production	25634	24852	24785	24929	25200	25546	25945	26372	26823	27278	27738

South Africa - Sugar Extraction Rates (percent)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Sugarcane	11.17	11.07	11.07	11.07	11.07	11.07	11.07	11.07	11.07	11.07	11.07

South Africa - Sugar Supply and Utilization (1000 metric tons, raw value)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Carry-in Stocks	520	455	565	564	561	561	561	549	542	542	537
Production	2863	2751	2744	2760	2790	2828	2872	2919	2969	3020	3071
Net Exports	1320	1076	1190	1215	1232	1258	1351	1399	1438	1502	1562
Exports	1580	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Imports	260	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Consumption	1650	1565	1555	1549	1557	1570	1534	1527	1532	1522	1514
Carry-out Stocks	455	565	564	561	561	561	549	542	542	537	532

South Africa - Per Capita Sugar Consumption (kilograms) and Stocks to Use Ratio (percent)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Per Capita Consumption	37.29	35.32	35.13	35.11	35.50	36.07	35.56	35.76	36.27	36.47	36.73
Stocks/Consumption	27.58	36.12	36.30	36.20	36.05	35.76	35.76	35.50	35.37	35.31	35.13

Former Soviet Union - Sugar Beet Area Harvested (1000 hectares), Yield (metric tons/acre), and Production (1000 metric tons)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Area Harvested	2205	2208	2214	2224	2237	2252	2270	2290	2312	2334	2356
Yield	15.10	15.13	15.19	15.27	15.36	15.46	15.55	15.65	15.75	15.85	15.95
Production	33289	33394	33627	33962	34364	34801	35308	35845	36430	37008	37587

Former Soviet Union - Sugar Extraction Rates (percent)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Sugar Beets	11.55	11.56	11.56	11.56	11.56	11.56	11.56	11.56	11.56	11.56	11.56

Former Soviet Union - Sugar Supply and Utilization (1000 metric tons, raw value)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Carry-in Stocks	3920	3744	3991	4126	4200	4244	4265	4277	4282	4289	4297
Production	3845	3860	3887	3926	3972	4023	4082	4144	4211	4278	4345
Net Imports	7470	7663	7560	7501	7464	7454	7446	7451	7447	7448	7458
Exports	420	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Imports	7890	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Consumption	11329	11277	11312	11352	11393	11456	11516	11590	11652	11718	11800
Carry-out Stocks	3744	3991	4126	4200	4244	4265	4277	4282	4289	4297	4300

Former Soviet Union - Per Capita Sugar Consumption (kilograms) and Stocks to Use Ratio (percent)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Per Capita Consumption	38.37	38.22	38.35	38.49	38.61	38.79	38.95	39.14	39.27	39.41	39.60
Stocks/Consumption	33.05	35.39	36.47	37.00	37.25	37.23	37.15	36.95	36.81	36.67	36.44

Thailand - Sugar Cane Area Harvested (1000 hectares), Yield (metric tons/hectare), and Production (1000 metric tons)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Area Harvested	945	977	982	986	990	993	996	999	1001	1003	1006
Yield	54.20	57.31	58.51	59.12	59.56	59.94	60.31	60.67	61.03	61.39	61.75
Production	51219	56020	57472	58312	58938	59520	60073	60615	61118	61599	62107

Thailand - Sugar Extraction Rates (percent)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Sugarcane	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00

Thailand - Sugar Supply and Utilization (1000 metric tons, raw value)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Carry-in Stocks	430	415	409	410	414	421	430	440	450	461	472
Production	5122	5602	5747	5831	5894	5952	6007	6061	6112	6160	6211
Net Exports	3600	3882	4001	4059	4096	4126	4152	4176	4196	4211	4227
Exports	3600	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Imports	0	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Consumption	1700	1726	1745	1768	1791	1818	1846	1875	1905	1937	1971
Carry-out Stocks	415	409	410	414	421	430	440	450	461	472	485

Thailand - Per Capita Sugar Consumption (kilograms) and Stocks to Use Ratio (percent)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Per Capita Consumption	26.63	26.79	26.86	26.98	27.12	27.30	27.51	27.74	28.00	28.28	28.58
Stocks/Consumption	24.41	23.72	23.49	23.45	23.50	23.64	23.82	24.02	24.20	24.38	24.60

Rest of the World - Sugar Net Exports (1000 metric tons, raw value)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Net Exports	-8342	-8460	-8489	-8576	-8681	-8698	-8717	-8723	-8710	-8703	-8686

World - Sugar Prices (U.S. cents/pound)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
	7.81	7.80	8.09	8.40	8.60	9.32	9.80	10.57	10.87	11.24	12.05
$/ton	172.18	171.96	178.35	185.19	189.60	205.47	216.05	233.03	239.64	247.80	265.65