



# Economic Impacts of the U.S. Sugar Corporation in Florida: Implications of the Purchase by the State of Florida<sup>1</sup>

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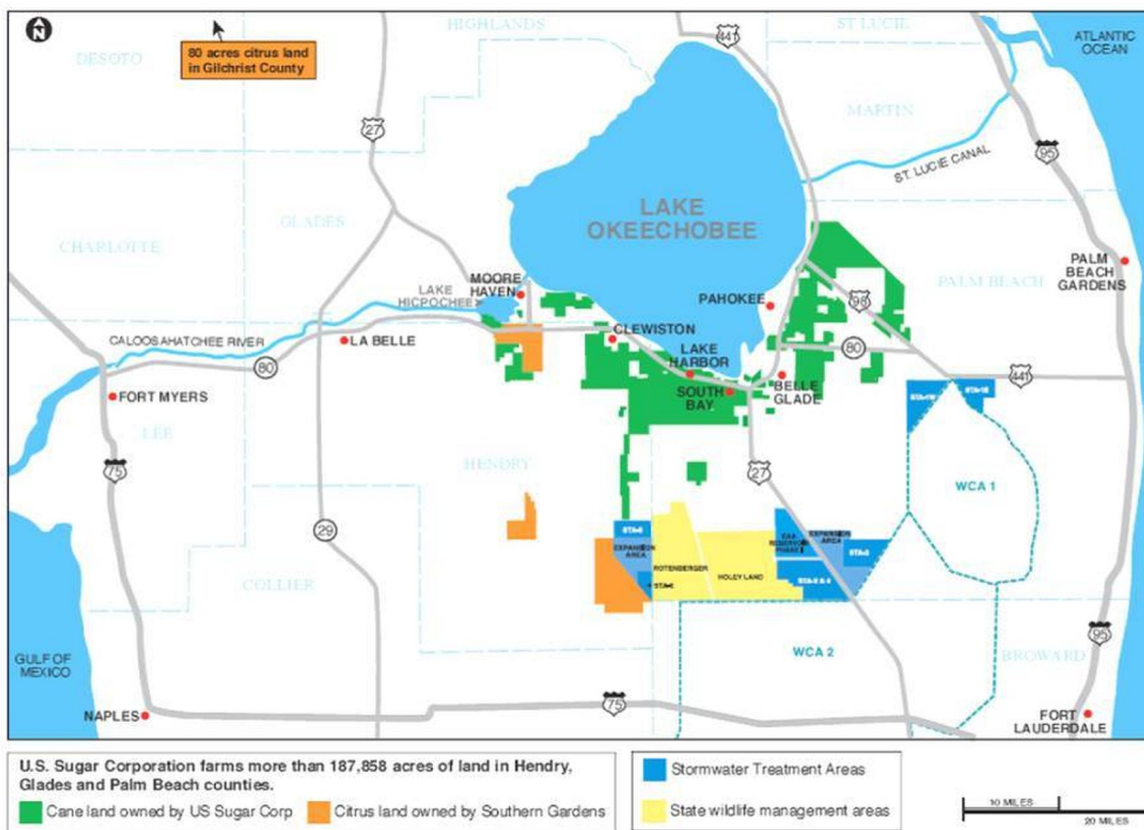
## Introduction

On June 24, 2008, Florida Governor Charlie Crist announced an agreement for the State of Florida to purchase all assets of the U.S. Sugar Corporation (USSC) for purposes of environmental conservation and restoration of the Everglades ecosystem. The transaction would include over 187,000 acres (292 square miles) of land located in Palm Beach, Hendry, Glades, and Gilchrist Counties, as well as the sugar mill/refinery; citrus processing plant; short line railroad; and associated machinery, buildings, and fixtures (Figure 1). The property would be owned and managed by the South Florida Water Management District. The asset purchase, valued at \$1.75 billion, would be financed through general revenues and certificates of participation. The buyout is scheduled to be finalized by November 2008, subject to due diligence appraisals and approvals; however, the agreement would allow the company to continue operations for up to six years, and may be extended further under certain conditions.

Lands owned by USSC comprise part of the Everglades Agricultural Area adjacent to Lake Okeechobee, and are considered strategic property for the Comprehensive Everglades Restoration Plan (CERP) to provide for additional water storage and treatment areas, and right-of-way for water conveyance to the Everglades National Park. The purchase of USSC would be one of the largest ever public buyouts of a private company for conservation purposes, and would have significant economic and environmental impacts to the South Florida region and the State of Florida. The purpose of this paper is to evaluate the economic impacts of the current operations of USSC and the potential impact under the proposed purchase, based on publicly available information from the company's website (<http://www.ussugar.com>) and other sources. Very little information is currently available on the possible disposition of USSC assets to other commercial entities or restoration activities that would partially mitigate or offset the loss of commercial activity, so these impacts are addressed here only in very general terms.

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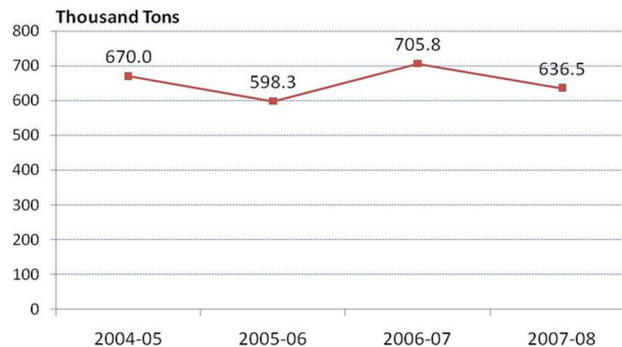


**Figure 1.** Map of U.S. Sugar Corporation lands, state wildlife management areas, stormwater treatment areas, and water conservation areas in South Florida. Source: company website.

### U.S. Sugar Corporation Operations

USSC is a privately held company, founded in 1931, based in Clewiston, Florida. The company currently has approximately 1,700 employees. It is the largest producer of sugarcane and refined cane sugar in the United States, with annual capacity of 700,000 tons of raw sugar, accounting for about 8.3 percent of domestic production of beet and cane sugar. The company's *Southern Gardens* division has extensive citrus operations, including over 30,000 acres of citrus groves, a citrus tree nursery, and a citrus processing plant with an annual capacity of 120 million gallons of juice, making it the largest U.S. supplier of bulk not-from-concentrate orange juice for private label packaging. The company also operates an internal railroad network to transport harvested sugarcane, and an independent, short line railroad, the South Central Florida Express, which provides commercial haulage of bulk commodities over 159 miles of track.

Production of raw sugar by USSC over the past four years ranged from 598,000 to 706,000 tons, averaging 652,600 tons (Figure 2). During this same period, the volume of sugarcane processed averaged 5.96 million tons, while production of molasses, a byproduct of sugar milling, averaged 36.7 million gallons.



**Figure 2.** USSC raw sugar production, 2004/05 to 2007/08. Source: Sugar Journal 2008.

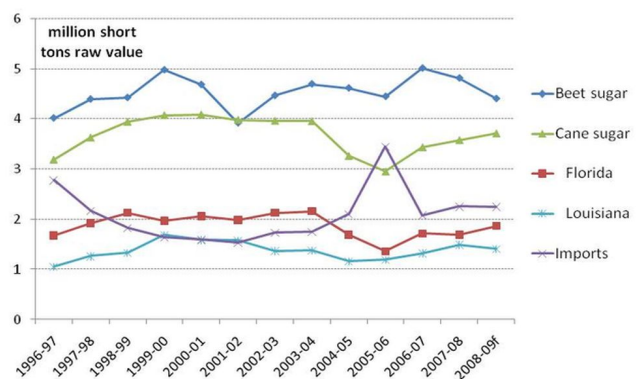
## U.S. Sugar Corporation Revenues

Current annual revenues of U.S. Sugar Corporation were estimated at nearly \$604 million (M), including sugar operations (\$361.6M), citrus operations (\$231.4M), and commercial rail freight (\$10.6M), as shown in Table 1. Based on average raw sugar production over the past four years (652,600 tons) and typical refining yields of 95.2 percent (USDA-ERS), refined sugar production by USSC was estimated at 621,314 tons annually. According to the company, bulk sales of refined sugar constitute 75 percent of its output, while packaged sales for retail distribution represent 25 percent. Bulk sales were valued at the U.S. average wholesale price for 2007 (\$0.2506 per pound), and packaged sugar sales were valued at \$0.369 per pound, based on the average retail price of \$0.5148 (USDA-ERS), less an average retail gross margin for food stores of 28.4 percent (USDOC). Molasses is a by-product of sugar milling marketed for animal feed; its value was estimated based on an average production of 36.7 million gallons and a price of \$0.384 per gallon (USDA-AMS). Wholesale bulk orange juice sales were valued at \$1.845 per gallon, based on the 2002-07 average futures price for not-from-concentrate orange juice (ICE), and a conversion factor of 1.029 pounds solids per gallon (FDOC). The value of citrus by-products, such as pulp, meal, molasses, and essential oils, was estimated at 4.5 percent of juice sales, based on a previous study of the Florida citrus industry (Spreen et al. 2006). Railroad revenues reported for 1998 were expressed in current (2008) dollars using the GDP implicit price deflator (USDOC-BEAb).

## U.S. and World Sugar Markets

Although USSC is the largest U.S. producer of sugar, even the complete cessation of its production activities would not likely cause any significant shift in the domestic sugar market in the short run, due to the controlling effect of the federal sugar program, which indirectly regulates supplies and prices, through a combination of commodity loans, import quotas, and tariffs. Domestic productions of cane and beet sugar have fluctuated markedly over the past 12 years, primarily reflecting weather conditions (Figure 3). However, overall supplies of sugar in the United

States have remained fairly stable at around 12 million tons, including carryover stocks. The State of Florida is the leading producer of cane sugar, averaging 1.87 million tons, followed by Louisiana at 1.37 million tons. Cane sugar represents an average of about 36 percent of annual supplies of sugar in the United States, 18 percent of which is produced in Florida; beet sugar accounts for 44 percent; and imports make up 20 percent. Imports of sugar have increased under the Central American Free Trade Agreement (CAFTA), as well as “non-program” imports from Mexico, which are driven by free market conditions, rather than quotas.



**Figure 3.** Supply of sugar in the United States from sugarcane, sugarbeets, and imports, and production from Florida and Louisiana, 1996/97 to 2008/09 (forecast).

Since 1982, domestic U.S. raw sugar prices have trended downward steadily in inflation-adjusted terms from around 40 cents to 21 cents per pound currently, while world raw sugar prices have fluctuated between 8 cents and 20 cents per pound (Figure 4). Prices in the United States are stabilized and kept well above world prices under the control of the federal sugar program, although it appears that U.S. and world prices are converging over time.

## Economic Impact Analysis

The regional economic impacts of the current operations of USSC were estimated using the *Implan Professional* software and associated datasets for Florida (MIG, Inc. 2007). This economic input-output modeling system accounts for commodity production, input purchases, employment, personal income, transfer payments, taxes, regional trade flows, and capital investment among over 500 industry sectors, resident



**Figure 4.** Raw sugar prices in the United States and world, 1982 to 2007. Source: USDA–ERS, Sugar and Sweeteners Outlook, 2008. Prices states in constant 2007 U.S. dollars based on the GDP implicit price deflator, USDOC-BEAb.

households, and state and local governments for any region of the United States. This modeling framework assumes that changes in final demand for a product or service result in proportional (linear) changes in related economic sectors, which prevailing technologies hold that there is no adjustment in market prices or volumes and that any changes in final demand are relatively small in relation to overall regional economic activity. To the extent that any of these assumptions may be vitiated in this case, the impact estimates must be viewed with caution.

Economic models were constructed with default parameters for the State of Florida and for the south-central Florida region of Palm Beach, Hendry, and Glades Counties that encompass the principal activities of USSC. Economic multipliers derived from the model reflect the additional economic activity created (lost) through supply chain purchases from other Florida businesses (indirect effects) and industry employee household consumer spending (induced effects), as well as the direct effect of company revenues. The multipliers for sugar manufacturing and citrus processing capture the backward linkages to sugarcane farming, citrus groves, and nursery operations. In this analysis, it was assumed that all output (revenues) for USSC was subject to the indirect and induced multiplier effects, since virtually all product sales occur outside the local area, and any lost production would likely be replaced by imports.

## Statewide Economic Impacts of U.S. Sugar Corporation

The estimated annual economic impacts of the U.S. Sugar Corporation to the State of Florida are shown in Table 2. Total employment impacts are 9,924 jobs (full-time and part-time). Total output/revenue impacts are \$1.511 billion (B), including the direct impact of sales by USSC (\$604M), plus indirect impacts of \$425M for lost sales by input suppliers and induced impacts of \$483M for consumption expenditures by employee households. Value added impacts of \$633M represent personal income and business net income, while labor income impacts of \$399M represent wages, salaries, employee benefits, and business owner profits. Other property income impacts of \$188M include rents, dividends, and interest income. Indirect business tax impacts of \$46M include most taxes paid to local, state, and federal governments, such as property, motor fuel, and excise taxes, but not federal income taxes. The impacts are considerably higher for the company's sugar operations than for its citrus operations, both for employment (6,742 jobs versus 3,025 jobs) and for value added (\$378M versus \$241M). To put these results in perspective, the total value added impact (\$633M) represents approximately 0.09 percent of the Gross Domestic Product of Florida in 2007 (\$735B, USDOC-BEAA).

Statewide total impacts of USSC by economic sector are shown in Table 3. Naturally, the greatest impacts occur in the agricultural and manufacturing sectors, where the direct activities of USSC take place. Agricultural sector impacts include 2,390 jobs and \$36M in value added, while the manufacturing sector accounts for 1,471 jobs and \$148M in value added. In addition, other sectors of the Florida economy are significantly affected, with employment of at least 400 jobs in construction, transportation/warehousing, retail trade, professional/scientific/technical services, health/social services, accommodation/food services, and government.

## South Florida Region Economic Impacts of U.S. Sugar Corporation

The impacts of U.S. Sugar Corporation occur mainly in the south-central Florida region of Palm Beach, Hendry, and Glades Counties, where most of the economic activity is located. Based on a regional model for these three counties, the estimated impacts include 8,278 jobs; \$1.321 billion in output; \$549M in value added; \$338M in labor income; \$169M in other property income; \$507M in total personal income; and \$41M in indirect business taxes (Table 4). These impacts represent 87 to 90 percent of the statewide impacts, and indicate a high level of local economic integration in this region, with most inputs purchased from other businesses in the area. The total personal income impact, including labor income and other property income, represents approximately 0.71 percent of total personal income of \$71.15 billion in this region in 2007 (USDOC-BEAA). However, this result may be misleading because the vast majority (98.4%) of income in the region is in Palm Beach County, while the sugar mill and citrus processing plant operations of USSC are based in Hendry County. Assuming that one-half of the overall impacts occur in Hendry and Glades Counties, this represents about 25 percent of total personal income in those counties. This estimate is highly uncertain because of the extensive economic linkages between the urban and rural areas of this region.

## Fiscal Impacts of U.S. Sugar Corporation

Another important aspect of the U.S. Sugar Corporation is its fiscal impacts on local, state, and federal government tax revenues. The estimated total annual tax revenues generated from the local area by USSC are about \$123M, including \$81M to the federal government and \$42M to state and local governments (Table 5). Of note among the state and local government taxes are \$12.9M in property taxes and \$17.6M in sales taxes, which would represent a substantial portion of the local tax base in the two rural counties.

## Implication of the U.S. Sugar Corporation Purchase

The economic impact estimates presented above represent the ongoing operations of USSC. Under the terms of the state purchase agreement, the company may continue operations for up to six years, which would reduce the economic losses in current dollar terms by about 13 percent, based on industry-specific discount factors.

Discussions with local leaders in the region indicate a likely scenario that the approximately 120,000 acres of land purchased from USSC would be permanently removed from agricultural production and converted to water storage or treatment areas, while the sugar mill/refinery, citrus plant, and railroad would be resold or leased to other commercial entities to continue operations. Assuming that the sugar mill/refinery would operate at one-third of capacity and the citrus processing plant would operate at 80 percent of capacity, the net impact of the purchase would be reduced to 5,100 jobs, \$749M in output, and \$300M in value added, which would represent a 49 to 53 percent reduction in the estimated impacts (Table 6).

According to provisions of Florida Senate Bill 542 enacted in 2008 (<http://flsenate.gov>), in cases where land is removed from local tax roles for conservation purposes in counties with a population of 150,000 or less, the loss of ad valorem taxes by governments would be mitigated by payments from the Conservation and Recreation Lands Trust Fund. In the case of the USSC purchase, the law would apply to the property tax losses in Hendry and Glades Counties. However, property taxes represent only about 10 percent of the total fiscal impacts of USSC in the region. If it is assumed that half of the estimated property tax impacts occur in these two counties, then the net property tax impact would be reduced by about \$6.4M, and the overall fiscal impact of the USSC purchase would be reduced to around \$117M.

New activity for water reservoir construction, environmental restoration work, and ongoing management that will occur on the purchased lands will also offset the project losses in economic activity



for USSC operations. Plans by the South Florida Water Management District for these new lands have not yet been publicly disclosed, so these offsetting impacts cannot be estimated specifically. However, as an indication of the potential value of this activity, a previous study that evaluated the economic impacts for construction of a 14,000-acre water reservoir (CERP project C-43) in western Hendry County indicated total impacts of 6,350 jobs, \$487M in output (2004 dollars), \$282M in value added, and \$13M in indirect business taxes over a three-year period (Mulkey et al. 2005). It is important to keep in mind, however, that impacts of environmental construction projects would be relatively short-term as opposed to ongoing agricultural operations.

## Discussion and Conclusions

The economic impacts of the U.S. Sugar Corporation are very large in magnitude, with total annual statewide impacts exceeding \$1.5B in output (revenues); \$633M in value added; 9,924 jobs; and \$117M in net tax revenues to local, state, and federal governments. These impacts occur predominantly in the south-central Florida region. Impacts in the two rural counties of Hendry and Glades where the milling/processing operations are located may represent about one-quarter of total personal income. The potential economic impacts of the USSC purchase by the State of Florida may be mitigated through retaining some of the USSC assets in commercial use, and through new activity for water reservoir construction and environmental restoration.

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**Table 1.** Estimated current annual revenues of U.S. Sugar Corporation.

Company Operation	U.S. Million Dollars
Sugar operations	361.6
Refined sugar bulk sales	233.6
Refined sugar packaged sales	114.6
Molasses sales (animal feed)	13.4
Citrus operations	231.4
Orange juice bulk sales	221.4
Citrus by-product sales	10.0
Railroad commercial freight	10.6
<b>Total revenues</b>	<b>603.6</b>

**Table 2.** Summary of annual economic impacts of U.S. Sugar Corporation operations in Florida.

Impact Measure	Type*	Impact Level	Sugar Operations	Citrus Operations	Railroad Operations	All Operations
Revenues	M\$		361.6	231.4	10.6	603.6
Employment	Jobs	Total	6,742	3,025	157	9,924
		Direct	570	689	38	1,297
		Indirect	3,597	715	20	4,332
		Induced	2,575	1,621	99	4,295
Output	M\$	Total	967.0	519.7	24.6	1,511.3
		Direct	361.6	231.4	10.6	603.6
		Indirect	316.6	105.5	2.8	424.9
		Induced	288.8	182.7	11.2	482.8
Value Added	M\$	Total	377.5	240.7	14.8	633.0
		Direct	58.3	69.5	6.3	134.2
		Indirect	140.3	58.5	1.6	200.4
		Induced	178.8	112.6	6.9	298.3
Labor Income	M\$	Total	241.7	147.9	9.2	398.7
		Direct	48.4	38.9	3.6	91.0
		Indirect	78.4	36.6	1.2	116.1
		Induced	114.9	72.4	4.4	191.6
Other Property Type Income	M\$	Total	107.1	76.3	4.8	188.2
		Direct	6.9	28.8	2.5	38.2
		Indirect	50.1	16.1	0.3	66.5
		Induced	50.1	31.5	1.9	83.5
Indirect Business Taxes	M\$	Total	28.6	16.5	0.9	46.0
		Direct	3.0	1.8	0.2	5.0
		Indirect	11.8	5.9	0.1	17.8
		Induced	13.9	8.8	0.5	23.2

All values in millions 2008 U.S. dollars; employment impacts represent full-time and part-time jobs.  
\* M\$ = Million dollars

**Table 3.** Annual economic impacts by industry group of the U.S. Sugar Corporation in Florida.

Industry Group*	Employment	Output	Value Added
	(jobs)	(M\$)	(M\$)
Agriculture, Forestry, Fisheries	2,390	88.8	36.0
Mining	8	2.9	0.7
Utilities	30	15.8	11.2
Construction	419	53.4	23.0
Manufacturing	1,471	688.7	148.3
Wholesale Trade	393	70.8	47.7
Transportation & Warehousing	650	79.9	41.1
Retail Trade	733	54.8	36.0
Information	81	23.5	10.7
Finance & Insurance	282	55.7	31.0
Real Estate & Rentals	265	54.6	33.1
Professional, Scientific & Technical Services	421	60.5	31.7
Management of Companies	136	29.4	17.5
Administrative & Waste Services	352	21.9	13.7
Educational Services	90	5.3	3.2
Health & Social Services	581	53.2	32.5
Arts, Entertainment & Recreation	101	6.5	4.0
Accommodation & Food Services	419	26.9	14.5
Other Services	370	22.8	11.7
Government	733	95.9	85.4
Total	9,924	1,511.3	633.0

All values in millions 2008 U.S. dollars; employment impacts represent full-time and part-time jobs.  
\* Industry groups defined according to the North American Industrial Classification System.



**Table 4.** Annual economic impacts of the U.S. Sugar Corporation in Palm Beach, Hendry, and Glades Counties of Florida.

Impact Measure	Type*	Direct	Indirect	Induced	Total
Employment	Jobs	1,262	3,747	3,269	8,278
Output	M\$	603.6	333.2	384.1	1,320.9
Value Added	M\$	141.2	167.9	239.6	548.6
Labor Income	M\$	94.5	94.9	148.8	338.2
Other Property Type Income	M\$	41.5	57.0	70.8	169.4
Total Personal Income	M\$	136.0	152.0	219.6	507.8
Indirect Business Taxes	M\$	5.2	15.9	19.9	41.0

All values in millions 2008 U.S. dollars; employment impacts represent full-time and part-time jobs.  
\* M\$ = Million dollars

**Table 5.** Annual fiscal (tax) impacts to governments of U.S. Sugar Corporation in Palm Beach, Hendry, and Glades Counties in Florida.

Government / Type Tax	1000 dollars
<b>Federal Government</b>	<b>81,110</b>
Corporate Profits Tax	8,426
Customs Duty	656
Excise Taxes	1,768
Federal Non-Taxes	802
Personal Income Tax	32,429
Social Insurance Tax (Employee Contribution)	18,526
Social Insurance Tax (Employer Contribution)	17,504
<b>State / Local Government</b>	<b>41,928</b>
Corporate Profits Tax	1,116
Dividends	1,966
Motor Vehicle Licenses	290
Indirect Business Tax (Other)	4,023
Property Tax	12,851
State / Local Non-Taxes	1,614
Sales Tax	17,648
Severance Tax	42
Motor Vehicle Licenses	425
Fines and Fees	1,390
Fishing / Hunting Licenses	28
Social Insurance Tax (Employee Contribution)	107
Social Insurance Tax (Employer Contribution)	429
<b>Enterprises (Corporations)</b>	<b>297</b>
<b>Total</b>	<b>123,355</b>

All values in thousands 2008 U.S. dollars.

**Table 6.** Net annual economic impacts of the U.S. Sugar Corporation purchase in Florida under alternative scenarios for disposition of assets.

Impact Measure	Type*	All Operations Ceased	Alternative Scenarios				Net Impact with All Alternatives
			Sugar Mill Operated with 1/3 of Cane Lands	Citrus Plant Operated at 80% (without groves)	Railroad Retained	Impact: All Alternatives Combined	
Revenues	M\$	- 603.6	120.5	185.1	10.6	316.3	-287.2
Employment	Jobs	-9,924	2,247	2,420	157	4,825	-5,100
Output	M\$	-1,511.1	322.3	415.7	24.6	762.7	-748.6
Value Added	M\$	-633.0	125.8	192.5	14.8	333.2	-299.8

All values in millions 2008 U.S. dollars.

\* M\$ = Million dollars