UNITED STATES INTERNATIONAL TRADE COMMISSION

SUGAR:

Report to the President
on Investigation No. TA-201-16
Under Section 201 of the Trade Act of 1974

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UNITED STATES INTERNATIONAL TRADE COMMISSION

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Note.--The whole of the Commission's report to the President may not be made public since it contains certain information that would result in the disclosure of the operations of individual concerns. This published report is the same as the report to the President, except that the above-mentioned information has been omitted. Such omissions are indicated by asterisks.

REPORT TO THE PRESIDENT

United States International Trade Commission
March 17, 1977

To the President:

In accordance with section 201(d)(1) of the Trade Act of 1974 (Trade Act), the United States International Trade Commission herein reports the results of an investigation relating to sugar.

The investigation (Inv. No. TA-201-16) was undertaken to determine whether sugar beets and sugar cane; sugars, sirups, and molasses, derived from sugar cane or sugar beets; and sugars, sirups, and molasses, described in subpart A of part 10 of schedule 1 of the Tariff Schedules of the United States (TSUS), flavored; and sirups, flavored or unflavored, consisting of blends of any of the products described in aforementioned subpart A; all the foregoing provided for in items 155.10 through 155.31, inclusive, and item 155.75 of the TSUS, are being imported into the United States in such increased quantities as to be a substantial cause of serious injury, or the threat thereof, to the domestic industry producing an article like or directly competitive with the imported article.

The Commission instituted the investigation, under the authority of section 201(b)(1) of the Trade Act, on September 21, 1976, following receipt, on September 17, 1976, of a resolution of the Committee on Finance of the United States Senate. Notice of the institution of the investigation and of the public hearings was issued on September 28, 1976, and notice of the time and places of the hearings was issued October 26, 1976. The notices were posted at the Commission's offices in Washington, D.C., and New York City and were published in the Federal Registers of October 1,

1976 (41 F.R. 43474), and October 29, 1976 (41 F.R. 47604), respectively. Public hearings were held beginning on November 4, 1976, in Washington, D.C.; November 18 in New Orleans, La.; and November 30 in San Francisco, Calif. A transcript of the hearings and copies of briefs submitted by interested parties in connection with the investigation are attached. 1/

On September 22, 1976, the Commission received a letter from the President urging the Commission to make its investigation promptly and requesting that the Commission expedite its investigation and submit its report as quickly as possible. The Commission conducted its investigation on an expedited basis and had hoped to report to the President as early as mid-January. On February 14, 1977, however, with great reluctance, the Commission informed the President and the Committee on Finance that it would be unable to make its report prior to the statutory deadline of March 17, 1977. Because of difficulties encountered in obtaining certain information from corn sweetener producers, the Commission was unable to submit its report prior to the statutory deadline of March 17, 1977. 2/

The information for this report was obtained at the public hearings; from written briefs submitted by interested parties; through interviews by members of the Commission's staff with sugar growers, processors, millers, refiners, and importers, and customs officials; from other

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1/ Attached to the original report sent to the President, and available for inspection at the U.S. International Trade Commission, except for material submitted in confidence.

2/ Commissioners Leonard and Ablondi further state that the difficulty encountered was a refusal of the corn sweetener producers to provide certain information except under court order issued by the U.S. District Court for the District of Columbia on February 8, 1977. Despite direction of the court to provide the information, the original information that was submitted was in error and required further extensive revision and rectification.

Federal agencies, State agencies, and State universities; from responses to questionnaires sent to domestic sugar growers, processors, millers, refiners, and importers, and saccharin producers; and from court ordered responses of certain information from corn sweetener producers.

DETERMINATIONS, FINDINGS, AND RECOMMENDATIONS OF THE COMMISSION

Determinations

On the basis of its investigation, the Commission determines that sugars, sirups, and molasses, derived from sugar cane or sugar beets, provided for in items 155.20 and 155.30 of the Tariff Schedules of the United States (TSUS), are being imported into the United States in such increased quantities as to be a substantial cause of the threat of serious injury to the domestic industry producing articles like or directly competitive with the imported articles. 1/ 2/

The Commission determines that sugar beets and sugar cane, provided for in items 155.10, 155.12, and 155.15 of the TSUS; sugars, sirups, and molasses, flavored, described in subpart A of part 10 of schedule 1 of the TSUS; and sirups, flavored or unflavored, consisting of blends of any of the products described in aforementioned subpart A; all the foregoing, provided for in item 155.75 of the TSUS, are not being imported into the

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1/ Commissioner Ablondi determines that the articles provided for under items 155.20 and 155.30 of the TSUS are being imported into the United States in such increased quantities as to be a substantial cause of serious injury to the domestic industry producing articles like or directly competitive with the imported articles.

2/ Chairman Minchew determines that the articles provided for under items 155.20 and 155.30 of the TSUS are not being imported into the United States in such increased quantities as to be a substantial cause of serious injury, or the threat thereof, to the domestic industry producing articles like or directly competitive with the imported articles.

United States in such increased quantities as to be a substantial cause of serious injury, or the threat thereof, to the domestic industry producing articles like or directly competitive with the imported articles. 1/

The Commission makes no determination with respect to sugars, sirups, and molasses, the products of Cuba, provided for in items 155.21 and 155.31 of the TSUS. 2/ 3/

1/ Commissioner Ablondi makes no determination with respect to articles provided for in items 155.10, 155.12, 155.15, or 155.75 of the TSUS.

2/ Chairman Minchew determines that sugars, sirups, and molasses, derived from sugar cane or sugar beets, the products of Cuba, provided for in items 155.21 and 155.31 of the TSUS, are not being imported into the United States in such increased quantities as to be a substantial cause of serious injury, or the threat thereof, to the domestic industry producing articles like or directly competitive with the imported articles.

3/ Vice Chairman Parker and Commissioners Moore and Bedell make no determination in view of the fact that in Proclamation 3447 dated February 3, 1962, the President, acting under authority of section 620(a) of the Foreign Assistance Act of 1961 (75 Stat. 445), prohibited the importation into the United States of all goods of Cuban origin; and further, by virtue of section 401 of the Tariff Classification Act of 1962, these items are suspended and Cuban sugars, sirups, and molasses would, if the embargo were lifted, be subject to the rates of duty in rate column numbered 2 items 155.20 and 155.30.

Findings and Recommendations

Commissioners Parker, Moore and Bedell find and recommend that, to prevent the threat of serious injury found to exist, a quantitative restriction in the aggregate amount of 4,275,000 short tons, raw value, should be established on sugars, sirups and molasses provided for in items 155.20 and 155.30 of the TSUS, for calendar year 1977, and for each calendar year thereafter, up to and including 1981.

We recommend that such annual quota be allocated among supplying countries on a basis determined by the President to be equitable.

Commissioners Leonard and Ablondi find and recommend that--

(1) the quantitative limitations hereinafter specified are necessary to prevent or remedy the serious injury 1/ or threat of serious injury 2/ they determine to exist;

(2) whenever, in any 12-month period beginning (date) 3/ in any year, up to and including 1979, the aggregate quantity of 4,400,000 short tons, raw value, of sugars, sirups, and molasses, derived from sugar cane or sugar beets, provided for in items 155.20 and 155.30 of the TSUS, has been entered, no additional quantity of such articles may be entered during the remainder of such 12-month period;

1/ Commissioner Ablondi, having found serious injury to exist, finds and recommends relief necessary to remedy such injury.

2/ Commissioner Leonard, having found the threat of serious injury, finds and recommends relief necessary to prevent such injury.

3/ The date would be the effective date of the President's proclamation, e.g., June 30.

(3) the annual aggregate quantity specified in (2), above, should be allocated on the basis of non-transferable import licenses to be auctioned by the Secretary of Agriculture from time to time as appropriate under such regulations as the Secretary of Agriculture shall prescribe, such regulations to provide for the equitable distribution of the imports among importers.

Commissioner Minchew finds and recommends that to prevent or remedy the injury found by the majority of the Commission to exist, it is necessary to impose a quota system for the ensuing five-year period applying to sugar imports covered under the Commission's notice of investigation, specifically under items 155.20 and 155.30 of the TSUS , so that whenever, in a 12-month period beginning January 1 in the year of the President's proclamation, up to and including 1981, the aggregate quantity of 4,400,000 short tons, raw value, of the above-mentioned sugars, sirups and molasses has been entered, no additional quantity of such articles may be entered during the remainder of such calendar year. Further, that the aggregate quota be allocated on a country-by-country basis based on historical supply of the average of the years 1972-76 which he considers to be the most representative period for such an allocation. The country-by-country allocation will be allocated for the first year in the following manner:

Philippines	996,814	
Dominican Republic	711,813	
Brazil	397,892	
Mexico	326,914	
Peru	324,411	
Australia	295,416	
West Indies 1/	171,519	
Guatemala	109,941	
India	109,807	
Colombia	88,046	
Republic of China	85,689	
Argentina	84,387	
Republic of South Africa	75,995	
Nicaragua	75,824	
El Salvador	75,343	
Costa Rica	67,258	
Panama	61,830	
Ecuador	56,497	
Thailand	45,184	
Belize	36,828	
Swaziland	32,467	
Mauritius	31,272	
Fiji	23,958	
Venezuela	17,903	
Canada	16,050	
Haiti	13,053	
Malawi	12,294	
Bolivia	12,229	
Malagasy Republic	11,352	
Mozambique	8,228	
Paraguay	6,498	
Honduras	6,195	
United Kingdom	3,698	
France	2,339	
Republic of Korea	1,998	
Ireland	1,113	
All other	1,925	
Total	4,400,000	short tons

Provided, further, that for countries supplying less than their full quota in a given year, the amount supplied in that year shall become the new quota for that country; the amount of the reduction

1/ West Indies consists of Jamaica, Barbados, Guyana, Trinidad and Tobago, and the Leeward and Windward Islands.

will thereupon be allocated on a pro-rata basis to increase the quota levels of those countries which supplied 100 percent of their quotas in that year.

Views of Vice Chairman Parker and Commissioners Moore and Bedell

On September 17, 1976, the U.S. International Trade Commission received a resolution of the Committee on Finance of the United States Senate requesting that the Commission conduct an investigation under section 201 of the Trade Act of 1974 with respect to imports of sugar. On September 21, 1976, the Commission instituted an investigation (No. TA-201-16) to determine whether sugar beets and sugar cane; sugars, sirups, and molasses, derived from sugar cane or sugar beets; and sugars, sirups, and molasses, described in subpart A of part 10 of schedule 1 of the Tariff Schedules of the United States (TSUS), flavored; and sirups, flavored or unflavored, consisting of blends of any of the products described in aforementioned subpart A; all the foregoing provided for in items 155.10 through 155.31, inclusive, and item 155.75 of the TSUS, are being imported into the United States in such increased quantities as to be a substantial cause of serious injury, or the threat thereof, to the domestic industry producing an article like or directly competitive with the imported article.

The Trade Act requires that each of the following conditions be met before an affirmative determination can be made:

(1) There are increased imports (either actual or relative to domestic production) of an article into the United States;

(2) The domestic industry producing an article like or directly competitive with the imported article is being seriously injured, or threatened with serious injury; and

(3) Such increased imports of an article are a substantial cause of serious injury, or the threat thereof, to the domestic industry producing an article like or directly competitive with the imported article.

Determination

On the basis of information obtained in the investigation, we determine, for the reasons set forth below, that sugars, sirups, and molasses, derived from sugar cane or sugar beets, provided for in items 155.20 and 155.30 of the TSUS, are being imported into the United States in such increased quantities as to be a substantial cause of the threat of serious injury to the domestic industry producing articles like or directly competitive with the imported articles.

We determine that sugar beets and sugar cane, provided for in items 155.10, 155.12, and 155.15 of the TSUS; sugars, sirups, and molasses, flavored, described in subpart A of part 10 of schedule 1 of the TSUS; and sirups, flavored or unflavored, consisting of blends of any of the products described in aforementioned subpart A; all the foregoing, provided for in item 155.75 of the TSUS, are not being imported into the United States in such increased quantities as to be a substantial cause of serious injury, or the threat thereof, to the domestic industry producing articles like or directly competitive with the imported articles. 1/

1/ Imports of sugar beets and sugar cane, provided for in items 155.10, 155.12, and 155.15 of the TSUS, are negligible or nil, and imports of sugars, sirups, and molasses, flavored, and sirup blends, flavored or unflavored, provided for in item 155.75, are insignificant relative to total sugar imports and domestic sugar consumption and, therefore, are not a substantial cause of serious injury, or the threat thereof, to the domestic sugar industry. These articles are not further discussed in these views.

We make no determination with respect to sugars, sirups, and molasses, the products of Cuba, provided for in items 155.21 and 155.31 of the TSUS. 2/

The domestic industry

The domestic industry threatened with serious injury by the imported articles (hereinafter referred to as sugar imports) described in the first paragraph of our determination consists of the facilities in the United States devoted to the production of sugar cane or sugar beets and to the processing, milling, and refining of sugar, sirups, and molasses derived from sugar cane or sugar beets. Even if a more expansive definition of the domestic industry to include other sweeteners were used, our determination would be the same.

Increased imports

To fulfill the first requirement for an affirmative determination, the increase in imports may be either actual or relative to domestic production. As suggested by Senate Report No. 93-1298, at page 120, under normal conditions the time frame for measuring increased imports is that period which begins after the effectiveness of the most recent trade-agreement concessions. The application of this policy to the present case is inappropriate.

1/ In Proclamation 3447, dated Feb. 3, 1962, the President, acting under authority of sec. 620(a) of the Foreign Assistance Act of 1961 (75 Stat. 445), prohibited the importation into the United States of all goods of Cuban origin. Moreover, by virtue of sec. 401 of the Tariff Classification Act of 1962, these items are suspended, and Cuban sugars, sirups, and molasses would, if the embargo was lifted, be subject to the rates of duty in rate col. 2 of items 155.20 and 155.30. These items are not further discussed in these views.

From 1934 until December 31, 1974, U.S. sugar imports were artificially regulated by statute (the various sugar acts of 1934-71). In some years these statutes served to encourage imports that otherwise would not have been destined for the United States, while in other years sugar imports were restricted. Inasmuch as the regulation of sugar imports terminated on December 31, 1974, with the expiration of the Sugar Act of 1948, as amended, we have determined that the appropriate period for measuring increased imports and import penetration is the period since January 1, 1975. 1/

During the period since January 1, 1975, sugar imports have increased both in absolute terms and relative to U.S. production and consumption. In 1976, sugar imports increased to 4.66 million short tons from 3.88 million tons in 1975, or by 20 percent. Moreover, production by the domestic industry decreased on a crop-year basis between 1975/76 and 1976/77. The ratio of U.S. imports to consumption increased by 5 percent between 1976 and 1977, and the ratio of U.S. imports to production increased by 7 percent.

Threat of serious injury

Section 201(b)(2)(B) of the Trade Act of 1974 provides that in considering threat of serious injury the Commission shall take into account all economic factors which it considers relevant, including, but not limited to, a decline in sales, a higher and growing inventory, and a downward trend in production, profits, wages, or employment (or increasing

1/ In prior investigations the Commission excluded periods of time when imports were restricted by governmental action. Stainless Steel and Alloy Tool Steel: Report to the President on Investigation No. TA-201-5 . . ., USITC Publication 756, 1976.

underemployment) in the domestic industry concerned. The reports of the House Ways and Means Committee and the Senate Committee on Finance on the Trade Act indicate that the Commission should also consider that a threat of serious injury exists when serious injury, although not yet existing, is imminent if import trends continue unabated.

The following evaluation of the evidence developed during this investigation supports our conclusion that the domestic industry described above is threatened with serious injury.

Declining sales.--All segments of the domestic sugar industry (defined above) reported a decline in the value of their sales between 1975 and 1976. These are the only years that can be reasonably studied because the termination of the Sugar Act of 1974 ended any meaningful Government regulation and control of U.S. imports and U.S. production of sugar. For the accounting period ended September 30, 1976, the value of net sales of all reporting firms was 30 percent below the value of net sales during the accounting period ended September 30, 1975. Corresponding data for beet sugar processors show a decline of 20 percent, and those for sugar cane refiners, a decline of 32 percent. The value of sales of sugar beet growers declined by 22 percent in the corresponding accounting periods. (Although comparable data on sales of sugar cane by sugar cane growers are not available for 1975 and 1976, all evidence points to a substantial decline in sales for those producers as well.)

Higher and growing inventories.--Nearly all reporting segments of the domestic industry reported inventories on January 1, 1977, to be higher than they were on January 1, 1976. Overall, inventories of the

domestic industry increased by 10 percent between January 1, 1976, and January 1, 1977, when they reached record levels. Most of the increase in inventories was accounted for by the cane sugar refiners, whose inventories of raw sugar rose by 85 percent and whose inventories of refined sugar increased by 5 percent during the period. In addition, beet sugar processors' inventories increased by 8 percent between January 1, 1976, and January 1, 1977. The only portion of the domestic industry reporting a drop in inventories was the mainland cane sugar millers. Sugar beet growers and sugar cane growers did not report inventories because sugar beets and sugar cane are perishable and are generally shipped immediately to processors and millers.

Downward trend in production.--Domestic production of sugar declined by 4 percent between crop year 1975/76 and crop year 1976/77. The production decline was spread among virtually all segments of the domestic industry. Production of cane sugar decreased from 3.2 million short tons in 1975/76 to 3.0 million short tons in 1976/77, or by 7 percent. Production of mainland cane sugar declined by 8 percent. Production of beet sugar dropped from 4.0 million short tons in 1975/76 to 3.9 million short tons in 1976/77, or by 3 percent. Estimates by the Department of Agriculture indicate that acreage to be devoted to sugar beets in 1977 will be reduced. In addition, announcement has been made of the closing of several beet-sugar-processing plants, which will further reduce domestic production in 1977/78.

Decline in net profits.--Since the expiration of the Sugar Act, the profitability of the major sectors of the U.S. sugar industry has deteriorated substantially. For all reporting firms, the net profit before

income taxes or net proceeds payable to members of cooperative organizations decreased by 34 percent between the accounting period ended September 30, 1975, and the accounting period ending September 30, 1976. For beet sugar processors the decline was 66 percent; for reporting sugar cane millers the decrease was 60 percent; and for cane sugar refiners the decline was 14 percent. Cooperative cane sugar refiners, which are closely associated with U.S. growers, reported a net decline of 27 percent. In contrast, those refiners that depend heavily on imports moved from a net loss position for the accounting period ended September 30, 1975, to a net profit position for the accounting period ended September 30, 1976.

Decline in employment.--The employment trends in the sugar industry since the termination of the Sugar Act are mixed. Employment in sugar cane operations was lower in 1976 than in 1975. Total employment in sugar-cane-growing and sugar-cane-milling operations dropped by 3 percent between 1975 and 1976, with employment declines of 4 percent reported for growing and milling operations in Florida, Texas, and Louisiana and a 1-percent decline reported for Hawaiian operations.

Between 1975 and 1976, employment in sugar-beet-growing and beet-sugar-processing operations generally increased. It is estimated, however, that such employment is expected to decline in 1977 with the closing of several beet-sugar-processing establishments in the Great Plains States and reductions in sugar beet acreage planted.

Employment in cane sugar refineries increased slightly between 1975 and 1976, but much of the increased employment was related to the refining of increased imports of raw sugar.

In view of the foregoing, we have concluded that the basic criteria for establishing threat of injury to the domestic industry have been met.

Substantial cause

The Trade Act supplies both a definition of the term "substantial cause" and specific guidelines to be considered by the Commission in determining whether increased imports are a substantial cause of the threat of serious injury.

The guidelines to be considered by the Commission with regard to substantial cause are contained in section 201(b)(2)(B) of the Trade Act, which states that in making its determination the Commission shall take into account all economic factors which it considers relevant, including (but not limited to) "an increase in imports (either actual or relative to domestic production) and a decline in the proportion of the domestic market supplied by domestic producers."

These guidelines have been met in this case. From 1975 to 1976 there was an increase in sugar imports, both actual (20 percent) and relative to domestic production (7 percent), and a decline in the proportion of the domestic market supplied by domestic producers (5 percent).

Further, section 201(b)(4) of the Trade Act defines the term "substantial cause" to mean "a cause which is important and not less than any other cause."

During this investigation a number of possible causes of the threat of serious injury to the domestic industry have been suggested. The

evidence supports the conclusion that the most important cause is increasing imports at prices below those of domestically produced sugar. Evidence developed during this investigation indicates that those imports will continue to increase. World production of sugar is expected to increase substantially in 1977 over the 1976 level and again will exceed world consumption requirements. Since the United States is the largest unregulated sugar market in the world, this excess production creates an even greater likelihood that excess supplies will be exported to the U.S. market, particularly since U.S. prices have exceeded world prices during the last 2 years. Increased sugar imports in 1977 and in future years will adversely affect sales, inventory, production, profit, and employment in the domestic industry.

While it is true that the volume of corn sweeteners in the market has increased, the bulk of the increase has gone to industrial segments of the market which make primary use of sugar in liquid form. The growth of such sweeteners in the domestic market, however, in no way minimizes the threat of serious injury to the domestic sugar industry from increased imports. In fact, as the total market for sugar is reduced by substitutes, the more the disruptive effect of increased imports is enhanced.

The evidence developed during this investigation shows that increased imports are a substantial cause of the threat of serious injury to the domestic industry.

Conclusion

On the basis of the foregoing considerations, we have concluded that the statutory criteria have been met, and, therefore, we have made an affirmative determination in this investigation.

Views of Vice Chairman Parker and Commissioners Moore and Bedell With Respect to Import Relief

In order to prevent the threat of serious injury which we found to exist, we have recommended the imposition of a quantitative restriction which will limit the aggregate amount of sugar [1/] which may be imported annually into the United States in the next 5 years to 4,275,000 short tons beginning January 1, 1977. [2/] This recommendation is made pursuant to the provisions of section 201(d)(1) of the Trade Act of 1974. Under that section, the Commission is directed, whenever it finds serious injury, or threat of injury, to find the amount of the increase in, or imposition of, any duty or import restriction on the imported article which is necessary to prevent or remedy such injury, unless it determines that adjustment assistance can effectively remedy the injury.

The conditions affecting the U.S. sugar industry today are not completely dissimilar to the conditions which resulted in import regulations established under the sugar legislation which was in effect for almost 40 years. World production is now outpacing world consumption requirements, with the excess supplies creating a downward pressure on world prices which in turn forces domestic prices below the cost of production if the excess supplies are permitted unlimited access to the U.S. market.

The development of this remedy recommendation is different and, in some respects, more complex than usual. Sugar is a deficit crop and the production is insufficient to meet domestic requirements.

1/ The sugars, sirups, and molasses, provided for in items 155.20 and 155.30 of the TSUS.

2/ In our view it is not feasible at this time to recommend a phasing down of relief during the 5 year period.

Hence, the remedy must serve a dual function. It is essential that it restrict the total quantity of sugar which may be imported into the United States so that lower priced, foreign-produced sugar will not enter the United States in such quantities as to force domestic price levels below the cost of production. In addition, the quota must permit and assure the entry of a quantity of sugar which, when added to domestic production, is sufficient to meet consumer needs.

The quota of 4,275,000 million short tons which we have recommended, together with estimated production and carryover stocks, will provide a supply of sugar which will reflect an estimated price of 13.5 cents per pound. In our judgment this price is within the range needed by domestic producers to cover their costs of production. Increased production of high-fructose corn sirup is expected to capture the normal growth in the sweetener market in 1977, as it did in 1976. However, high-fructose corn sirup is not expected to make abnormal inroads in the sugar market with the price of sugar at 13.5 cents per pound.

Thus, in our opinion, the remedy we have recommended will not only provide relief to the domestic industry, but it will also assure a supply of sugar which will meet consumer needs.

We have considered the recent action of the Food and Drug Administration which, unless modified, will ban the sale of saccharin and saccharine food products after July 1, 1977. The facts concerning low-calorie sweeteners are most uncertain at this time, with strong demands being made for continued availability of saccharin. In addition, other low-calorie sweeteners may become

available. Furthermore, large quantities of saccharin are being produced which in all probability will be in consumers' hands by July 1977. Therefore, it is unlikely that the saccharin ban will have a major impact on sugar demand this year.

However, if no low-calorie sweeteners are available in the market and it appears that demand for sugar is being increased, the President has the authority under section 203 of the Trade Act to ask the Commission to review the situation and give advice concerning any need for upward adjustments. At this time we do not have a factual basis on which to recommend an increase above the 4,275,000 million short tons because of the ban on saccharin effective July 1977.

We have recommended that the President allocate the quota among supplying countries on a basis which he determines to be equitable. The record of this investigation contains data on the history of imports for the 40-year period when economic controls were in effect as a result of the sugar acts and on imports during the 2-year period since the expiration of the most recent legislation. We do not believe, however, that the regulated period or the 2-year period can be considered representative for the purposes of quota determination or allocation under the Trade Act.

In addition, our recommendation will provide the President with the flexibility which may be essential to assure the availability of sugar for consumer needs. This recommendation will give the President maximum flexibility to consider the factors set forth in sections 202 and 203 of the Trade Act, including national and international economic interests of the United States.

Views of Commissioner Will E. Leonard With Respect To Eligibility for Relief

The issues before the Commission in this investigation are the same as in other investigations under section 201 of the Trade Act of 1974 (Trade Act). The Commission must initially determine if a U.S. industry is eligible for import relief, 1/ i.e., whether increased imports of an article are a substantial cause of serious injury, or the threat thereof, to the domestic industry producing an article like or directly competitive with the imported article. If so, the Commission must then find the import relief which will remedy or prevent the serious injury, or threat thereof, found to exist.

On the basis of the evidence before the Commission in this investigation, I determine that a domestic industry is eligible for import relief and find that the relief described later in this report in my combined statement with Commissioner Ablondi on the issue of import relief is necessary to prevent the threat of serious injury I determine to exist. The remainder of these views are devoted to a consideration of the issue of the eligibility of the domestic industry for import relief.

Increased imports

The first criterion which must be satisfied for a domestic industry to be eligible for import relief is that the imports concerned in the investigation must be entering the United States in increased quantities, either on an absolute or a relative basis. In previous opinions I have

1/ As used in these views, the term "import relief" includes import restraints as well as adjustment assistance.

explored the meaning of this criterion at length. 1/ Basically, in determining whether imports have increased, it is necessary to find the trend in the level of imports over a sufficient period of time which reflects a realistic picture of present activity in importation, i.e., the realistic present trend.

In this investigation, I find that U.S. imports of sugars, sirups, and molasses, derived from sugar cane or sugar beets, provided for in items 155.20 and 155.30 of the Tariff Schedules of the United States (TSUS), are entering in increased quantities. The realistic present trend in imports of such articles is upward in terms of the import levels for 1975 and 1976 and the projected imports for 1977. U.S. imports rose in 1976 to approximately 4.7 million short tons from approximately 3.9 million short tons in 1975. In 1977, U.S. imports are projected to approach about 5 million short tons, with a world surplus of sugar in that year of nearly 4.4 million short tons over world consumption. 2/

In arriving at this finding, the levels of imports for years preceding 1975 are not considered, because such levels were distorted by the existence of the Sugar Act, and thus not reflective of the present situation of free competition in the U.S. sugar market. Because an individual country's quota under the country-by-country quotas established

1/ Birch Plywood Door Skins: Report to the President on Investigation No. TA-201-1 . . ., USITC Publication 743, 1975, pp. 9-12; and Stainless Steel and Alloy Tool Steel: Report to the President on Investigation No. TA-201-5 . . ., USITC Publication 756, 1976, pp. 19-22.

2/ These projections are made in U.S. Department of Agriculture Sugar and Sweetener Report, February 1977.

under the Sugar Act depended in part on the level of imports from that country in the preceding year, the levels of imports in the years immediately preceding the termination of the Sugar Act at the end of 1974 were probably inflated because exporters supplied sugar to the U.S. market in greater quantities than they would have in the absence of the Sugar Act in order to maintain their quotas at the allocated levels. This distorting effect could not be overcome by considering a longer period of time which would factor out that effect, since that legislation originated in 1934 and a realistic present trend would not result.

In considering 1975-1976, and projections into 1977, I realize that even 1975 probably cannot be considered as reflective of normal market conditions, as there were substantial sugar inventories overhanging the market in 1975, which probably tended to depress the level of imports. However, the increase in imports in 1976 over 1975 was substantial (21 percent), and reflects what may be considered to be the present trend. That this trend is real is confirmed by estimates of import levels in 1977 in the absence of import restraints. It is appropriate to look at such import projections in cases such as the present one, where the finding is of a threat of serious injury. The report of the Senate Committee on Finance on the bill which became the Trade Act of 1974 notes that--

> It is the intention of the Committee that the threat of serious injury exists when serious injury, although not yet existing, is clearly imminent if imports [sic] trends continue unabated. 1/

1/ Trade Reform Act of 1974: Report of the Committee on Finance . . ., S. Rept. No. 93-1298 (93d Cong., 2d Sess.), 1974, p. 121.

Thus, in determining whether increased imports of an article exist when considering whether such imports are a substantial cause of the threat of serious injury to the relevant domestic industry, it is appropriate to consider projected levels of imports in the near future to determine if the rise in levels of imports over several past years is truly a trend of increasing imports. Not to do so would indicate an unnecessarily restrictive reading of the statute and not comport with congressional intent.

It should be noted that my finding with respect to increased imports applies only to a part of the articles included in the Commission's investigation. The other articles are distinct, separate products from the sugars, sirups, and molasses to which my finding pertains, and generally have different applications in the market. Imports of these other products have been negligible or nil in some instances, or an increasing trend has generally not been shown in the levels of such imports in the most recent years and such levels are extremely low in comparison to the levels of imports found to be increasing. 1/

Domestic industry

For the purpose of this investigation, there are at least several industries in the United States which produce articles like or directly

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1/ I make no determination with respect to the sugars, sirups, and molasses, the product of Cuba, provided for in items 155.21 and 155.31 of the TSUS. In Proclamation 3447, dated Feb. 3, 1962, the President, acting under authority of sec. 620(a) of the Foreign Assistance Act of 1961 (75 Stat. 445), prohibited the importation into the United States of all goods of Cuban origin. Moreover, by virtue of sec. 401 of the Tariff Classification Act of 1962, these items are suspended and Cuban sugars, sirups, and molasses would, if the embargo were lifted, be subjected to the rates of duty in rate col. 2 for items 155.20 and 155.30.

competitive with the imported articles which I find to be increasing; hence they could be eligible for relief if the increased imports which have been identified are a substantial cause of serious injury, or the threat thereof, to such industries. 1/ These industries include a growing industry consisting of sugar beet growers and sugar cane growers and millers, and a processing/refining industry consisting of processors of beet sugar and refiners of cane sugar. Both these industries produce a product directly competitive with the vast bulk of imports, which consist of raw sugar (unrefined). The product of the growers is in an earlier stage of processing than such imports within the so-called "vertical" definition of "directly competitive " as found in section 601(5) of the Trade Act of 1974. 2/ The product of the processors and refiners is in a later stage of processing than such imports within the same definition.

The industries are distinct in several respects. The processes, labor, and facilities used to produce each industry's product are completely different. Such products do not compete in the marketplace, since the growers produce a product which is not palatable without the efforts of the processors and refiners. While there is some overlap in

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1/ The issue of what is the proper domestic industry to examine under sec. 201 has been explored in previous cases. Stainless Steel and Alloy Tool Steel: Report to the President on Investigation No. TA-201-5 . . ., USITC Publication 756, 1976, pp. 15-18.

2/ Sec. 601(5) provides as follows:

> An imported article is "directly competitive with" a domestic article at an earlier or later stage of processing, and a domestic article is "directly competitive with" an imported article at an earlier or later stage of processing, if the importation of the article has an economic effect on producers of the domestic article comparable to the effect of importation of articles in the same stage of processing as the domestic article. For purposes of this paragraph, the unprocessed article is at an earlier stage of processing.

ownership of growing and processing/refining establishments, the overlap is not significant enough to make one industry out of the diversity outlined.

It should be noted that other industries in the United States produce articles directly competitive with the articles which I find to be entering in increased quantities. The products of these industries compete with the imported products in the marketplace, and thus come within the so-called "horizontal" definition of "directly competitive" as explained in the statute's legislative history. 1/ However, the Commission has not gathered information on these industries, and thus is not in a position to discuss the impact of increased imports on them. The largest of these industries, the corn sweetener industry, refused to supply all the information as ordered by the Commission, and the federal courts for the most part upheld, in error I believe, this refusal. As a practical matter, the finding made by the Commission in this investigation probably obviates the need for considering the impact of the increased imports on these other industries, as they may receive any needed relief as a result of the relief which will go to the industry most directly affected by the increased imports if import restraints are proclaimed by the President. Thus, these industries will not be considered further herein.

Threat of serious injury

The second criterion which must be satisfied if an industry is to be eligible for relief is that such industry be seriously injured, or threatened with serious injury. This criterion is written in the alternative, and as I find that there is a threat of serious injury to the domestic

1/ See the Report of the Committee on Finance, pp. 121-122.

growing and processing/refining industries, this discussion is devoted to that finding alone. 1/

In section 201(b)(2)(B) of the Trade Act, the Commission is directed in its consideration of threat of serious injury to examine all relevant economic factors, including, but not limited to, a decline in sales, a higher and growing inventory, and a downward trend in production, profits, wages, or employment in the domestic industry concerned. The Report of the Senate Committee on Finance (at p. 121) further stipulated that, if serious injury is clearly imminent should import trends continue unabated, then the threat of serious injury must exist.

I have examined these criteria in terms of the sugar industries being studied and have concluded that the threat of serious injury does exist. There is a practical certainty that import trends will continue unabated and that serious injury will result if this is the case.

Declining sales.--The total value of net sales of all reporting firms in the growing and processing/refining industries declined by 30 percent over the accounting periods January-September 1975 to January-September 1976. This decline in the total resulted because the value of net sales decreased in every reporting subsector of the industries as production decreased and prices fell sharply from 15.4 cents per pound, spot price, delivered at New York, in January 1976, to 10.2 cents per pound in December 1976. Sugar cane millers in Florida and Texas suffered a decrease of 47 percent in net sales. Cane sugar refiners'

1/ For a further discussion of the criterion of serious injury or threat thereof, see Bolts, Nuts, and Screws of Iron or Steel: Report to the President on Investigation No. TA-201-2 . . ., USITC Publication 747, 1975, pp. 5-8.

net sales fell by 32 percent, and those of beet sugar processors, by 20 percent. Sales of sugar beet growers reported as costs of raw materials by beet sugar processors declined by 21 percent.

The availability of data on value of sales for January-September 1975 and January-September 1976 only has limited the above analysis to the least important part of the crop year. Sugar cane growers even found it impossible to report for these periods because they were in the midst of harvest and because end-of-year records were not available. It is evident, however, after further analysis, that the value of sales was down in all instances in crop year 1976/77. This conclusion is based on the information now available on decreased 1976/77 production of sugar beets and sugar cane, down 3 percent and 7 percent, respectively, and the delcline in prices over these periods. Therefore, both direct and derived data on the value of net sales show a decline in sales.

Higher and growing inventories.--Total inventories reached record levels on January 1, 1977, when they exceeded 3 million short tons or almost 30 percent of total distribution. Cane sugar refiners recorded the largest yearly increase as inventories of both raw and refined sugar increased by more than 50 percent. Their inventories of raw sugar alone increased by 85 percent. Inventories of beet sugar processors contributed to the growth in total inventories as their yearly increase in inventories approached 10 percent in 1977. Only mainland sugar cane millers which do no refining reported decreases in inventories. Sugar beets and sugar cane are too perishable to be retained in inventory.

Downward trend in production.--Sugar production declined by more than 300,000 short tons from 1975/76 to 1976/77. Production of mainland cane sugar fell 8 percent as total cane sugar production decreased 7 percent. Beet sugar production decreased by 3 percent. More important, beet sugar production accounted for nearly 70 percent of mainland sugar production in 1976-77, and indications are that the decrease in beet sugar production is accelerating. Surveys of planting intentions for the 1977/78 crop reveal that sugar beet acreage will decrease by 7 percent. Even allowing for withdrawal of marginal acreage, this would represent a significant decrease in production.

Sugar beet producers are more flexible in responding to adverse price expectations than sugar cane producers. There are alternative crops to sugar beets which can be substituted on an annual basis, whereas sugar cane acreage generally has few alternative uses and new sugar cane plantings represent three annual crops. Therefore, sugar beet acreage projections are a more flexible measure of adverse conditions in the growing industry.

Decline in net profits.--Net profits in the processing/refining industry have fallen dramatically. Total net profits for reporting firms or cooperatives decreased by 34 percent from January-September 1975 to January-September 1976. Net profits of reporting beet sugar processors fell by 66 percent, while net profits of reporting cane sugar refiners declined by 14 percent. Those refiners which are closely linked to domestic sugar cane production reported a decline of 27 percent in net profits.

Profit data were not available from most sugar beet and sugar cane growers over the 9-month accounting periods in 1975 and 1976. The unavailability of end-of-year accounts and the timing of the harvest season precluded submission of this information by responding firms. However, costs are not expected to have decreased significantly, and, based on projections of decreased net sales and continued low prices, the profit picture for the growing industry is certainly not very favorable.

Decline in employment.--Employment in the sugar cane portion of the growing industry reflects the deteriorating conditions described in the preceding sections. Both the number of production and related workers and man-hours worked are estimated to have declined in 1976. In Florida, Texas, and Louisiana, the number of workers fell by 4 percent in both growing and milling operations. Man-hours worked in Hawaii declined by 4 percent in growing operations and by 3 percent in milling operations.

Employment in the sugar beet segment of the growing and processing industries generally increased in 1976 over 1975. However, the indicated 7-percent decrease in intended acreage for sugar beet production in 1977/78 will certainly have a significant negative effect on employment for growers and processors because of decreased levels of sugar beet production. This has already been reflected in recently announced closings of several processing plants in western producing States.

Substantial cause

The third criterion which must be met in order for a domestic industry to be eligible for import relief is that the increase in imports found must be a substantial cause of the serious injury, or threat of serious injury, being experienced by the domestic industry. Section 201(b)(4) of the Trade Act defines a substantial cause as a cause which is important and not less than any other cause. The statute further directs the Commission to consider, in deciding whether this criterion is satisfied, "an increase in imports (either actual or relative to domestic production) and a decline in the proportion of the domestic market supplied by domestic producers." 1/

In this investigation, it is not possible to ascertain with any mathematical certainty the contributions of various causes to the threat of serious injury to the relevant domestic industries. However, I am satisfied that the increased imports, projected to continue to increase in 1977, are an important cause and not less than any other cause of the threat of serious injury.

Imports of sugar increased absolutely from approximately 3.9 million short tons in 1975 to 4.7 million short tons in 1976, or by 21 percent. Sugar beet producers have already indicated a reduction in planned acreage of 7 percent. Given the continued recovery in per capita sugar consumption at continued current price levels and taking competition from corn sweeteners at these price levels into account, it

1/ Sec. 201(b)(2)(C) of the Trade Act. For a further discussion of this criterion, see Stainless Steel and Alloy Tool Steel: Report to the President on Investigation No. TA-201-5 . . ., USITC Publication 756, 1976, pp. 25-26.

is apparent that this increasing trend in imports will continue into 1977. Imports are estimated to increase in 1977 by 200,000 to 300,000 short tons.

The share of the domestic market supplied by domestic producers in 1976 has also decreased. The ratio of imports to domestic consumption increased by 11 percent in 1976 over 1975, and the ratio of imports to domestic production increased by 12 percent in the same period. Therefore, all those factors to which the statute specifically refers point to increased imports as being a cause of the threat of serious injury. The trends in these factors will undoubtedly be reflected in a continuing deterioration of the domestic position in 1977.

It is readily apparent from the data on imports, domestic production, and consumption that imports in excess of 4.7 million short tons in 1976 are a highly significant factor in the U.S. market. Imports are equivalent to more than two-thirds of domestic sugar production, and they supply almost half of the domestic market for sugar. These shares represent substantial increases of 12 and 11 percent, respectively, from 1975 to 1976. There is little doubt that these trends will continue into 1977.

It has been argued that imports are a welcomed supplementary source of sugar to the domestic market and that the current low world price of sugar is the cause of injury because the price of U.S. raw sugar is determined on the world market. Such a line of reasoning would result in the entire U.S. market being taken over by imports,

the cessation of U.S. production, and the dissolution of the domestic sugar industry, but through no fault of increased imports. It must be clearly understood that imports are the vehicle by which the effects of low world prices are transmitted to the U.S. industry. Increased imports in particular are the cause of those negative effects previously detailed: Declining sales, higher inventories, and declining production, profits, and employment.

The only other possible important cause of threat of serious injury to the domestic sugar industries is competition from corn sweeteners. In particular, this threat is represented by a recently developed and rapidly growing product, high-fructose corn sirup. It is ultimately possible that this product may capture one-half of the industrial market or one-third of the entire market for sugar, both domestic and imported. However, the current level of penetration by high-fructose corn sirup is too low to be compared with that of imports of sugar. On an absolute basis, high-fructose sirup represents only approximately 6 percent of the sugar and corn sweetener market, while sugar accounts for 75 percent.

Deliveries of high-fructose corn sirup in 1976 increased over those in 1975 by roughly 300,000 short tons sugar equivalent. This was less than had been expected, but nevertheless does not compare with an increase in sugar imports of 800,000 short tons over the same period. Increased imports of sugar were thus at least as important a cause of the threat of serious injury to the sugar industries as were the gains in the market made by the high-fructose corn sirup.

Conclusion

Based upon the evidence before the Commission in this investigation, I find that sugars, sirups, and molasses, derived from sugar cane or sugar beets, provided for in items 155.20 and 155.30 of the TSUS, are being imported in such increased quantities as to be a substantial cause of the threat of serious injury to the domestic industries identified producing an article like or directly competitive with the imported article.

Views of Commissioner Italo H. Ablondi

On September 17, 1976, the United States International Trade Commission received a resolution of the Committee on Finance of the United States Senate requesting that the Commission conduct an investigation under section 201 of the Trade Act of 1974 with respect to imports of sugar.

Pursuant to the committee resolution, the Commission instituted an investigation on September 21, 1976, to determine whether sugar beets and sugar cane; sugars, sirups, and molasses, derived from sugar cane or sugar beets; and sugar, sirups, and molasses, described in subpart A of part 10 of schedule 1 of the Tariff Schedules of the United States (TSUS), flavored; and sirups, flavored or unflavored, consisting of blends of any of the products described in aforementioned subpart A; all the foregoing provided for in items 155.10 through 155.31, inclusive, and item 155.75 of the TSUS, are being imported into the United States in such increased quantities as to be a substantial cause of serious injury, or the threat thereof, to the domestic industry producing an article like or directly competitive with the imported article.

Section 201(b)(1) of the Trade Act requires that each of the following conditions be met before the Commission can make an affirmative determination:

(1) There are increased imports (either actual or relative to domestic production) of an article into the United States;

(2) The domestic industry producing an article like or directly competitive with the imported article is seriously injured or threatened with serious injury; and

(3) Such increased imports of an article are a substantial cause of serious injury, or the threat thereof, to the domestic industry producing an article like or directly competitive with the imported article.

Determination

After considering all the information received by the Commission during this investigation, I have determined that sugar cane and sugar beets provided for in items 155.20 and 155.30 of the TSUS are being imported into the United States in such increased quantities as to be a substantial cause of serious injury to the domestic industry producing an article like or directly competitive with the imported article. 1/

Domestic industry

In determining that increased imports are a substantial cause of serious injury, I have considered the domestic industry to consist of facilities in the United States devoted to the production of sugar cane and sugar beets and to the milling and processing of sugar, sirups, and molasses derived from sugar cane and sugar beets.

Sugar produced by beet and cane growers is of course in its natural state, whereas the bulk of imported sugar is admitted under items 155.20 and 155.30 in crystalline or dry form and in liquid form, respectively. I have determined that such imported sugar is directly competitive with domestic sugar in its natural or unprocessed state. Section 601(5) of the act defines the term "directly competitive with" in the following manner:

1/ I make no determination with respect to articles provided for in items 155.10, 155.12, 155.15, or 155.75 of the TSUS. I believe that the information available to the Commission with respect to the foregoing articles is insufficient to make a determination.

> An imported article is "directly competitive with" a domestic article at an earlier or later stage of processing, and a domestic article is "directly competitive with" an imported article at an earlier or later stage of processing, if the importation of the article has an economic effect on producers of the domestic article comparable to the effect of importation of articles in the same stage of processing as the domestic article. For purposes of this paragraph, the unprocessed article is at an earlier stage of processing.

Thus, the domestic product in its natural state is an unprocessed article in an earlier stage of processing, and the imported product is an article in a later stage of processing. The availability of the imported product in the domestic market does have a direct bearing on the prices received by sugar beet and sugar cane growers. Similarly, entry of imported sugar affects the amount of sugar produced by U.S. growers. U.S. imports of raw sugar do have an economic effect on producers of unprocessed sugar comparable to the effect of U.S. imports of unprocessed sugar, and, therefore, may properly be considered "directly competitive with" unprocessed domestic sugar.

Increased imports

The threshold requirement of eligibility for import relief is that there be increased imports. That requirement is satisfied both by an absolute increase in import levels and by increases relative to domestic production.

In determining whether increased imports have occurred, the Commission must first select a period over which imports can be measured.1/

1/ For further discussion of the selection of a measuring period, see the opinion of Commissioner Ablondi in Stainless Steel and Alloy Tool Steel: Report to the President on Investigation No. TA-201-5 . . ., USITC publication 756, 1976, pp. 49-54.

Though the act itself does not require that any specific period be considered, the Report of the Senate Finance Committee does indicate that imports should generally be measured during periods occurring since the effective date of the most recent trade-agreement concessions (as of now, the effective date of the Kennedy Round concessions beginning in 1968).1/ Thus, while the Commission should not in the absence of distinctly unusual circumstances select a measuring period prior to 1968, it does have considerable latitude in the selection of periods since that time.

This investigation involves an important historical circumstance which I believe has a decisive bearing on the measuring period to be selected. For many years both imports of sugar into the United States and the domestic sugar industry were strictly regulated under the provisions of the Sugar Act.2/ In addition to regulating domestic sugar production, the Sugar Act limited the aggregate quantity of sugar which could be imported, while allocating specific quota shares to each sugar-supplying country. The Sugar Act expired on December 31, 1974. On January 1, 1975, the President invoked the provisions of headnote 2 to part 10A of schedule 1 of the TSUS and imposed an aggregate global quota of 7 million short tons on imported sugar entering under TSUS items 155.20 and 155.30, and, on September 21, 1976, increased the rate of duty on the same articles to 1.875 cents per pound, raw value. However, neither of the foregoing measures effectively restrained the level of sugar imports, nor

1/ Trade Reform Act of 1974: Report of the Committee on Finance . . ., S. Rept. No. 93-1298 (93d Cong., 2d sess.), 1974, p. 120.
2/ Sugar Act of 1948 (7 U.S.C. 1100; 61 Stat. 922), as amended.

did they in any way result in the type of controlled market environment that existed under the Sugar Act.

Since the expiration of the Sugar Act, imported sugar has entered this country in the complete absence of effective import controls. As a result, domestic sugar prices, no longer controlled by the quantity of sugar allowed to be marketed, have been effectively merged with prices on the world sugar market.

In view of the wholly different circumstances which have prevailed since the expiration of the Sugar Act, I believe that the only relevant period which can be used to measure imports is the period from January 1, 1975, to December 31, 1976. During this period, annual U.S. imports of the subject articles increased from 3.8 million short tons in 1975 to more than 4.6 million short tons in 1976, or by about 20 percent. The ratio of imports to domestic production also increased, rising from 59 percent in 1975 to 66 percent in 1976. Moreover, available data strongly suggest that the level of imports in 1977 will exceed that in 1976 and that this pattern of increasing imports will continue into the foreseeable future. Thus, it can be seen that imports have increased both absolutely and relative to domestic production.

Serious injury

With respect to serious injury, section 201(b)(2)(A) of the act requires the Commission to take into account all economic factors which it considers relevant, including (but not limited to) the significant idling of productive facilities in the industry, the inability of a

significant number of firms to operate at a reasonable level of profit, and significant unemployment or underemployment within the industry. On the basis of the evidence before the Commission, I have determined that the domestic industry as defined above is experiencing serious injury.

Preliminary data with respect to U.S. production for crop year 1976/77 reveal a decline in production levels from the preceding year for both beet and cane sugar. Moreover, the value of U.S. sugar production, excluding that of Hawaii and Puerto Rico, declined sharply from 1.17 billion in 1975/76 to about $836 million in 1976/77--approximately 29 percent.

The number of production and related workers engaged in the production of sugar has also declined in recent years. Between 1975 and 1976, employment in sugar-cane-growing and sugar-cane milling operations fell by 3 percent, and among workers in the states of Florida, Louisiana, and Texas, employment declined by an even greater percentage. During the same period, total man-hours worked by production and related workers in those operations also declined.

Perhaps the most significant indication of the injury which is being suffered by the domestic indistry is the fact that production costs for a substantial number of domestic sugar producers exceed the current price for raw sugar. Recent estimates of production costs for domestic producers indicate that efficient cane producers cannot break even at much less than 13 cents per pound, while sugar beet producers, on the average, face a break-even point of about 13 to 14 cents per pound, raw

sugar equivalent. The latest information received by the Commission reveals that prices for sugar, both in mainland and offshore producing regions, are on the average significantly less than 12.5 cents per pound. In fact, since mid-August 1976, world sugar prices have remained below 10 cents per pound. It is clear that the financial detriment occasioned by such cost-price differentials cannot be sustained.

Although complete financial data for the current crop year are not yet available, responses to the Commission's questionnaire with respect to financial performance in 1976, a period when sugar prices were considerably higher than current levels, reveal the deteriorating condition of the domestic industry. Beet sugar processors reported a decline in profits of 66 percent. Likewise, Florida sugar cane growers and millers have reported substantial declines. All reporting sugar cane growers and millers in Louisiana experienced a total loss in excess of $1 million in 1976. Louisiana millers alone reported losses of over $2 million in 1976. The profit-and-loss experience of reporting Hawaiian grower-millers is similar to that of mainland producing regions, with losses exceeding $8 million in 1976. Completion of the 1976/77 crop year will result in even higher losses.

In my judgment, the foregoing data clearly demonstrate that the second criterion for import relief, that of serious injury, is satisfied.

Substantial cause

Section 201(b)(4) of the act defines "substantial cause" as a "a cause which is important and not less than any other cause." Additional guidance

as to the meaning of the term is included in the Report of the House Ways and Means Committee:

> The Committee intends that a dual test be met--imports must constitute an important cause and be no less important than any other single cause. For example, if imports were just one of many factors of equal weight, imports would meet the test of being "not less than any other cause" but it would be unlikely that any of the causes would be deemed an "important" cause. If there were any other cause more important than imports, then the second test of being "not less than any other cause" would not be met. On the other hand, if imports were one of two factors of equal weight and there were no other factors, both tests would be met.1/

In recent years low-cost competitive sweeteners--particularly (HFCS) 2/--have made significant inroads into the domestic sugar market, capturing virtually all the growth in the sweetener market. HFCS is a nearly perfect substitute for sugar in many industrial uses and can be produced at a lower cost of production than sugar. Sales have nearly doubled every year since the product first appeared on the market in 1971. Production of HFCS increased sharply during 1971-76, rising from 94,000 short tons to approximately 800,000 short tons (dry basis). Currently, corn sweeteners account for nearly a third of the industrial sweetener market; HFCS alone accounts for more than 8 percent. The long-run view is that HFCS may eventually capture from 30 to 50 percent of the total U.S. sugar market. In my judgment, the impact of these products must be viewed as an important cause of serious injury to the domestic industry.

1/ Trade Reform Act of 1973: Report of the Committee on Ways and Means . . ., H. Rept. No 93-571 (93rd Cong., 1st ses.), 1973, pp. 46-47.

2/High-fructose corn sirup.

However, the adverse effect of increased imports of sugar are no less important a cause of serious injury to the domestic industry. Imports of sugar increased by 800,000 short tons, or by 20 percent, from 1975 to 1976. Additional increases of from 200,000 to 300,000 short tons are expected in 1977. During the period 1975 to 1976 the ratio of imports to domestic consumption increased by 11 percent. Imports entering the U.S. market at such increased levels have depressed the price for sugar to the extent that domestic sugar producers are no longer able to recover their costs of production.

Because increased imports are clearly no less important a cause of serious injury than corn sweeteners, they may properly be considered a "substantial cause" of the serious injury which I have found to exist.

Views of Commissioners Leonard and Ablondi

With Respect to Import Relief

Section 201(d)(1) of the Trade Act provides, in part, that if the Commission finds with respect to any article, as a result of its investigation, the serious injury or threat thereof described in section 201(b)(1), it shall--

> (A) find the amount of the increase in, or imposition of, any duty or import restriction on such article which is necessary to prevent or remedy such injury, or
> (B) if it determines that adjustment assistance under chapters 2, 3, and 4 can effectively remedy such injury, recommend the provision of such assistance . . . .

In this investigation, we have determined that the relevant domestic sugar industries are eligible for relief in that increased imports of sugars, sirups, and molasses, derived from sugar cane or sugar beets, provided for in items 155.20 and 155.30 of the Tariff Schedules of the United States (TSUS), are entering in such increased quantities as to be a substantial cause of serious injury, 1/ or the threat thereof, 2/ to such industries. 3/ Thus, we must find and recommend to the President the relief necessary to remedy or prevent the serious injury or threat thereof we find to exist.

We find and recommend to the President that--

(1) the quantitative limitations hereinafter specified are neces-

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1/ Commissioner Ablondi finds the domestic industry is being seriously injured.

2/ Commissioner Leonard finds the domestic industries are threatened with serious injury.

3/ See our separate statements regarding eligibility for relief, which are found earlier in this report.

sary to prevent or remedy the serious injury 1/ or threat of serious injury 2/ we determine to exist;

(2) whenever, in any 12-month period beginning (date) 3/ in any year, up to and including 1979, the aggregate quantity of 4,400,000 short tons, raw value, of sugars, sirups, and molasses, derived from sugar cane or sugar beets, provided for in items 155.20 and 155.30 of the TSUS, has been entered, no additional quantity of such articles may be entered during the remainder of such 12-month period;

(3) the annual aggregate quantity specified in (2) above should be allocated on the basis of nontransferable import licenses to be auctioned by the Secretary of Agriculture from time to time as appropriate under such regulations as the Secretary of Agriculture shall prescribe, such regulations to provide for the equitable distribution of the imports among importers.

What follows is a discussion of our remedy and the reasoning which led to its selection. It should be noted at the outset that while we believe the relief we find and recommend will remedy or prevent the serious injury, or threat thereof, being experienced by the relevant domestic industries, it is perhaps not the best relief which could be provided. The Commission's options under section 201 in this investigation do not provide the flexiblity in fashioning relief which is available

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1/ Commissioner Ablondi, having found serious injury to exist, finds and recommends relief necessary to remedy such injury.

2/ Commissioner Leonard, having found the threat of serious injury to exist, finds and recommends relief necessary to prevent such threat of serious injury.

3/ The date would be the effective date of the Presidential proclamation, e.g., June 30.

under other provisions of law. 1/ The volatility of the sugar market and the problems facing the sugar industry require as flexible an approach to relief as possible in order to avoid rendering too much or too little relief to the sugar industries or inequitably affecting other interests in rendering relief to the industries.

Quotas versus tariffs and other remedies

A quota system has been proposed because, under the options available to the Commission under section 201(d) of the Trade Act, a quota is more likely to achieve the price objective for the domestic industry set out in the next section and to achieve a more stable price for the benefit of consumers. Agricultural products, particularly primary products such as sugar, are subject to wide fluctuations in price as even small changes in supply react with relatively inflexible or inelastic patterns of demand. Moreover, the world free market for sugar, which currently determines the domestic price of sugar, is not a global market. Most sugar is traded in

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1/ Authority available includes the following:

(a) Sec. 301 of the Agricultural Act of 1949 (7 U.S.C. 1447), which authorizes the Secretary of Agriculture to make price support available through loans, purchases, or other operations (other than direct payments). Once a price support program is in effect, quotas could be imposed under sec. 22 of the Agriculture Adjustment Act of 1933 (7 U.S.C. 624) if imports would materially interfere with such a program.

(b) Sec. 201(a)(2) of the Trade Expansion Act of 1962, and headnote 2 of subpart A of part 10 of schedule 1 of the Tariff Schedules of the United States (19 U.S.C. 1202), which permit the President to adjust tariffs on sugar up to a maximum of 50 percent above the existing rates and adjust quotas on either a country or a global basis.

(c) Title V of the Trade Act of 1974, which permits the removal by the President of the duty-free status presently enjoyed by imports of sugar from many developing countries under the Generalized System of Preferences (GSP). If import relief is given by the President pursuant to sec. 203 of the Trade Act after a Commission finding under sec. 201 of the Trade Act, then the duty-free status of imports of sugar under the GSP must be withdrawn.

protected markets, and only a residual supply is freely traded. Therefore, the economic problems of supply and demand patterns for sugar are compounded by government control of fully three-quarters of world trade in sugar.

A tariff, whether specific or ad valorem, will be less likely to achieve the price objective and to increase price stability. This is because the cost of the duty may be shared by both the foreign exporter and the domestic importer. To the extent that the exporter absorbs the cost of the duty, the cost to the importer will be less, and the sought after increase in the domestic price of sugar will fall short of the target price. This effect cannot be accurately forecast and adjusted for by increasing the amount of the specific or ad valorem duty.

A tariff maintains the linkage between the world and U.S. markets for sugar. Therefore, any price fluctuations on the world market are reflected in the domestic price. In fact, an ad valorem tariff would be destabilizing.

If the world price fell, a larger protective effect would be required to achieve the price target, but an ad valorem tariff would have the reverse effect: it would provide a smaller protective effect. Conversely, the tariff would overshoot the mark if the world price increased. For these reasons, a quota system is preferable to a tariff system in trade in agricultural products such as sugar to assure adequate import relief.

Some consideration was given to the possibility of simply providing a subsidy to portions of the sugar industries seriously injured or threatened with serious injury which would permit them to make the adjustment efforts needed to become competitive or to adjust into other areas. In economic

terms, this would be perhaps the least costly relief which could be given. However, there does not appear to be authority under the Trade Act for the provision of such relief. A direct subsidy is not provided for as an alternative form of relief under the Trade Act, and, in fact, it is even doubtful that there is authority under any existing law for such payments. Subsidies through crop loans may also not be available under the instant provisions of law. The adjustment assistance provisions of the Trade Act do provide for the possibility of loans to firms within an industry, but it is questionable that the idea of the traditional crop loan, which in effect is a subsidy, is contemplated in loans under the Trade Act, which are interest bearing.

Quota amount

The quota level of 4.4 million short tons was chosen to achieve a price target which would provide adequate relief for the sugar industries. Cost studies indicate that an average price of 13 to 15 cents per pound for domestic raw cane sugar should provide a fair return for domestic growers of either sugar beets or sugar cane who are of average efficiency. This price target will provide neither blanket coverage for all producers nor excessive profits for the most efficient. A target price of at least 19 cents per pound would be necessary to provide relief for all producers of sugar. Unfortunately, there is no way to guarantee these benefits will be shared by workers except to the extent their jobs are preserved.

High-fructose corn sirup is currently a significant factor in the domestic sweetener market, and, given the fact that costs of production for high-fructose sirup are lower than costs for the most efficient sugar producer, it will become an even more significant factor in the future.

This takeover of the sweetener market will accelerate as domestic sugar prices increase from their present low levels of 11 cents per pound and as increased stability of sugar prices encourages additional investment in high-fructose-sirup-production facilities.

The proposed quota also provides a small adjustment because of the proposed ban on saccharin, a noncaloric sweetener. It has been estimated that approximately 125,000 short tons of sugar could substitute for saccharin in 1977. Therefore, a quota of 4.275 million short tons, which would have provided adequate relief under normal circumstances, has been increased to the proposed quota of 4.4 million short tons because of this abrupt structural change in the sugar market.

Administration of the quota

We have proposed an auction system for the allocation of the quota. Under this system the Secretary of Agriculture would sell the right to import in the form of nontransferable licenses. He could control the timing of these auctions and prescribe whatever additional rules would be necessary to achieve smoothness in execution over the quota period.

The auction system would have certain advantages. The purchase of the license would be a cost to the importer. Theoretically, this cost would be determined in the auction market and would be the protective cost of the quota. The target price for domestic sugar would be achieved, as the auction price would be added to the cost of world sugar along with insurance, freight, and the duty.

After purchasing the license or right to import, the holder would not be constrained in his choice of supplying country. Indeed, it would be to his advantage to purchase the sugar at the lowest cost from the

the most efficient supplier, although this advantage would tend to be reflected in the bidding for the licenses. Therefore, the system would offer continuing flexibility as to sources of supply within the quantity restraint of the quota. Given the current world surplus of sugar, there should be no problem in filling the quota, particularly as problems of individual country supply or willingness to supply are eliminated.

Restricting supply through effective quotas generates an economic rent or premium. Ordinarily this premium is captured by the domestic importer or foreign exporter on the basis of the strength of respective bargaining positions. The protective effect sought by the quota depends on which group captures the premium, which in turn depends on the method of quota allocation.

The first-come-first-served method of allocation of a global quota would tend to reduce the protective effect that the quota is designed to produce. This method of allocation places most of the market power in the hands of importers, which then use this advantage to capture the quota premium. Under normal circumstances the premium would be a windfall gain and become the additional cost necessary to effect the required relief. However, if cane sugar refiners capture the premium, they may choose to use it to hold down their costs to meet the competition from high-fructose corn sirup. This use of the premium will prevent the full upward adjustment of domestic sugar prices, and the protective quota will fall short of achieving the objective--the target price.

The country-by-country basis of allocation would provide the necessary protective effect because this method gives the market advantage to foreign

exporters, which are effectively organized to capture the quota premium. The premium becomes a direct cost to domestic importers and the protective effect is achieved. However, the protective effect would only be achieved at the cost of using the most inflexible and restrictive of all forms of quota allocation.

A quota system based on an auction of licenses such as we have proposed also generates a premium because of scarcity. However, in that system the premium is captured by the sale of the licenses. The proceeds pass into the public treasury as revenue which will offset some of the costs incurred by the general public because of the increase in the price of sugar. It has been estimated that these revenues could amount to $250 million.

Quota period

The recommended quota period is 3 years. The quota of 4.4 million short tons would substitute during this period for the 7-million-short-ton quota which is currently in place. The current quota was established by Presidential proclamation under authority provided by a specially negotiated provision for sugar in the Tariff Schedules of the United States. There is no time limit on this quota. Therefore, it would continue after the termination of the proposed quota and would be the only quantitative restriction in force after the 3 year period.

Problems of a quota

The quota remedy provided for in section 201 of the Trade Act is extremely rigid and inflexible. In particular, there appears to be no provision for tightening the quota. Even to relax the quota would first require the President to request the advice of the Commission, which would

have to hold hearings and make a formal report. Given the uncertainty of world and domestic production of sugar for even the coming year, the design of a relatively inflexible quota under section 201 to provide for the uncertainties of future years presents a virtually insurmountable problem of forecasting future market developments.

Another problem is competition from corn sweeteners, particularly high-fructose corn sirup. Even revised projections indicate a domestic market for high-fructose sirup of 2 million to 3 million short tons by 1980. This product was always competitively priced below sugar, even during the period of lowest prices of last year. Increased prices for sugar will only complicate this situation as the competitive advantage of high-fructose sirup is increased. Uncertainty concerning sugar production even at constant prices is less than the uncertainty concerning the competitive position of high-fructose sirup. The break-even point in this market depends not only on the forthcoming crops of corn, but on the markets for important byproducts of production such as corn gluten for feed and meal and corn oil.

Given the limited types of remedies which this Commission is authorized to recommend under the act, we believe that the foregoing quota proposal offers the best prospect for providing some measure of relief to the domestic industry. However, we do not suggest that ours is the only solution, or that it is necessarily the most efficacious. In fact, we are concerned that any relief provided under section 201 may well prove to be too inflexible to respond adequately to the changing economic circumstances which seem to characterize the markets for primary agricultural commodities such as sugar. For instance, under the

act, adjustments in quota levels may only be made after the President has received the advice of the Commission with respect to the probable economic effect of the proposed action. Such a procedure involves a substantial amount of time--time which we may ill afford to take given the need for a quick response.

The necessity for some flexibility in quota size because of changing world conditions was demonstrated by actions taken during the last years of the Sugar Act. Sugar requirements were changed six times in 1971, seven times in 1972, and six times in 1973. Allocations were adjusted six times in 1971, 14 times in 1972, and 14 times in 1973.

The 3-year auction system which we have recommended provides a measure of administrative flexibility which may to some degree offset the disadvantages of a fixed, long-term quota. However, the long-range solution to the sugar problem clearly lies beyond the authority of this Commission to fashion. We are hopeful that during the temporary relief period recommended herein, a comprehensive national sugar policy will be developed--a policy encompassing the needs and interests of the domestic industry and its workers, sugar-supplying countries, and the American consumer.

Additional considerations

The Commission, pursuant to its statutory authority in investigations such as the subject one, is to find the relief necessary to prevent or remedy serious injury, or the threat thereof, which it determines to exist in the domestic industry. The statutory focus of the Commission's efforts regarding appropriate relief is the domestic industry and what is appropriate to make it healthy again and to permit it to adjust to import competition. However, when the Commission's findings on remedy are sent to the President, the President may consider many other policy issues in determining what should actually be the relief provided to the subject industry, if any. A list of such considerations is found in section 202(c) of the Trade Act. The following are comments upon some of these considerations for the purpose of aiding the President in determining what relief should ultimately be issued.

Adjustment possible.--One consideration for the President to take into account is whether successful adjustment to import competition will occur as a result of import relief. Of course, successful adjustment is tied to many considerations, not the least of which is the actual relief granted and its adequacy in deflecting competition to permit adjustment. Assuming adequate relief, there is evidence that the relevant domestic industries will make adjustments.

The U.S. sugar industries are generally considered to be the most technologically efficient in the world. U.S. growers, millers, processors, and refiners have generally been fairly quick to adopt new technologies and

methods in an effort to become more competitive. However, there are instances in which plant modernization and further consolidation of production units into larger size units would lead to greater economic efficiency. Further, the U.S. industries give every indication that they will continue to concentrate efforts on holding down costs of production, although such costs will continue to be higher than those in many exporting countries.

Some adjustment will also occur as the least efficient firms leave the industries. The import relief recommended will provide a return to the industries sufficient for this adjustment to be made in an orderly, successful manner. Processors and refiners have large fixed costs with a heavy capital commitment. Sugar cane growers also generally have high fixed costs, and the general practice is to achieve three annual crops from a single planting of cane. Sugar beet growers also have substantial fixed costs, but are more flexible in moving into other crops, as another crop can be substituted for sugar beets on an annual basis. Thus, relief extending for a period of 3 years at a level to provide an adequate return to the industries will probably permit some significant, successful adjustments.

Effect on consumers and competition.--With respect to the cost of various quotas proposed to the U.S. consumer, in general, the greater the degree of relief provided to the industry, the higher the cost will be to U.S. consumers. The quota of 4.4 million short tons, raw value, we have proposed is intended to raise the price of raw sugar for domestic producers

from an average of 11 cents per pound to about 13.5 cents per pound, an increase of 2.5 cents per pound assuming a ban on saccharin in July 1977. Since only a small proportion of the approximately 11 million short tons of sugar consumed annually in the United States reaches the consumer in the form of refined sugar, with the bulk of U.S. consumption being in the form of sugar-containing products, it is difficult to assess the impact of this price increase on the retail consumer. 1/

Assuming that the increase of 2.5 cents per pound for raw sugar has the effect of raising the cost of sugar consumption of 3 cents per pound to the consumer, the direct cost to the consumer would be about $660 million. However, the increase in price for sugar will also result in increases in the prices of other sweeteners. Assuming a similar increase for corn sweeteners, the total cost to the U.S. consumer could reach $870 million. 2/

The impact of a more restrictive quota of 4,275,000 short tons, raw value, on the cost of sweeteners to consumers would be much greater. Assuming a ban on saccharin in July 1977, the total sweetener cost of such a remedy would be approximately $1.45 billion. 3/

1/ Over 60 percent of the sugar consumed in the United States is in the form of industrial products containing sugar. For most of these products, the cost of the sugar ingredient is a small share of the total price of the product. This does not mean that producers of such industrial products would not use increased sugar prices as an excuse for price increases.

2/ The direct cost of $660 million results from the increase of 3 cents per pound based on consumption of 11 million short tons or 22 billion pounds. Total sweetener cost of $870 million is the direct cost of $660 million plus a cost of $210 million for a 3-cents-per-pound increase for an estimated 7 billion pounds of corn sweetener consumption.

3/ The assumption is based on calculations that show that the quota of 4,275,000 short tons would result in about a 5-cents-per-pound increase in cost to consumers and a total sweetener consumption of 29 billion pounds.

It should be noted here that the administrative costs of a remedy providing for an auction of import licenses would be much less than for administering a country-by-country quota. In fact, the auction of import licenses would raise significant revenues for the U.S. Treasury, approximately $250 million, well in excess of the costs of administering the auction, whereas country-by-country quotas would reward the foreign suppliers of U.S. sugar imports with part of the higher prices to be paid by U.S. consumers. Thus, the funds coming into the Treasury as a result of the auction will to some extent offset the total cost to society of the quota as reflected in part by the increased cost to consumers.

The levels of the quotas we recommended are such that significant supply problems are unlikely to develop in the 3-year period of the quota. With the surplus of sugar now found in the world market, it is unlikely that the quota would not be filled. With available U.S. inventories and projected production of sugar and high-fructose corn sirup, including the production response expected in future years from the domestic sugar industries as a result of the recommended quota, the supply of sugar would appear adequate. If a shortage should develop, a relaxation of the quota or increased production of high-fructose corn sirup would likely alleviate it.

The major competitor of sugar in the U.S. market is corn sweeteners, particularly high-fructose corn sirup. As mentioned previously, projections indicate a domestic market for high-fructose corn sirup of 2 million to 3 million short tons by 1980 and that eventually such sirup will capture up to one-third of the domestic sugar market. This product was priced competitively below sugar even during the period of lowest prices over the

last year, and apparently can be produced at lower costs than the most efficient sugar producer can produce sugar. As prices for domestic sugar increase, the competitive advantage of high-fructose corn sirup will increase. Thus, as domestic sugar prices increase, high-fructose corn sirup will increase its share of the domestic sweetener market to the detriment of sugar. Significantly increased prices for domestic sugar will only accelerate this process.

International relations.--Another consideration for the President to take into account is the effect of import relief on the international economic interests of the United States. Sugar is a major export item to the United States for many countries. 1/ Throughout the period of the Sugar Act, the allocation of the total quota among U.S. supplying countries had great importance politically and in foreign relations. Any country-by-country allocation under the proposed remedy will have similar import. Indeed, not allocating quotas on a country-by-country basis, such as under the proposed auction system, will also have significance. A country-by-country allocation gives the market advantage to foreign exporters, which are effectively organized to capture the so-called quota premium. This has often been referred to as disguised foreign assistance. They would lose this advantage under the proposed auction system.

Possible compensation to foreign suppliers for imposing more restrictive quotas on U.S. imports of sugar.--The General Agreement on Tariffs and Trade (GATT) contains two reservations or "escape clauses" of

1/ See table 5 in the report following these views, which presents U.S. imports, by all sources and by types, for the years 1972-76.

relevance to the principal imports of sugar involved in investigation No. TA-201-16, i.e., the cane and beet sugars in TSUS items 155.20 and 155.30. The general escape-clause provision is in article XIX of the GATT and is the one usually invoked internationally to modify GATT concessions to permit the President to proclaim temporary increased import restrictions to provide relief to a seriously injured domestic industry. Such international action under article XIX has usually been based upon domestic proceedings under sections 201-203 of the Trade Act of 1974 and predecessor provisions (sec. 301 of the Trade Expansion Act of 1962, and sec. 7 of the Trade Agreements Extension Act of 1951).

When a contracting party invokes article XIX of the GATT to modify a trade concession granted by such party with a view to imposing increased import restrictions thereon, the contracting parties adversely affected by such action are entitled to compensation therefor.

The GATT also has a special provision applicable only to sugar provided for in TSUS items 155.20 and 155.30. This provision (note 1 to Chapter 10, Unit A, Part I to Schedule XX-United States of America), was negotiated in the Kennedy Round. The President, in Proclamation 3822 of December 16, 1967, embodied its provisions in the TSUS as headnote 2 to part 10A of schedule 1. Subsequently, in anticipation of the expiration of the Sugar Act of 1948, the President invoked the provisions of headnote 2 by issuing Proclamation 4334, effective on and after January 1, 1975, continuing the then column 1 rates for TSUS items 155.20 and 155.30 and imposing an aggregate global quota thereon of 7 million short tons.

The President again invoked headnote 2 on September 21, 1976, in Proclamation 4463, to provide increased rates of duty in column 1 for the sugar covered by the two TSUS items, making them the same as the statutory rates in rate column, i.e., tripling them. No change was made in the global quota.

The terms of the U.S. GATT reservation on sugar provide no basis for a claim of compensation.

It would be very speculative to try to describe what compensation might be owed by the United States if action were taken to set an import quota at the level we have recommended. Compensation could be avoided altogether if the President's headnote authority were used. Indeed, even if action were taken under sections 201-203 of the Trade Act, the likelihood of our trading partners pressing a claim for compensation would depend to a large degree upon other factors affecting trade in the U.S. sugar market. For example, if the price in the U.S. market were maintained at a support level significantly above the world price, as was the case for many years when the sugar legislation was in force, participation in that market would remain highly attractive to foreign suppliers under quantitative restrictions with country-by-country allocations, and those suppliers may well not press for compensation for the imposition of such restrictions.

Views of Chairman Daniel Minchew

On September 17, 1976, the United States International Trade Commission (Commission) received a resolution of the Committee on Finance of the United States Senate requesting that the Commission conduct an investigation under section 201 of the Trade Act of 1974 (Trade Act) with respect to imports of sugar.

Following receipt of the resolution, the Commission instituted an investigation on September 21, 1976, to determine whether sugar beets and sugar cane; sugars, sirups, and molasses, derived from sugar cane or sugar beets; and sugars, sirups, and molasses, described in subpart A of part 10 of schedule 1 of the Tariff Schedules of the United States (TSUS), flavored; and sirups, flavored or unflavored, consisting of blends of any of the products described in aforementioned subpart A; all of the foregoing provided for in items 155.10 through 155.31, inclusive, and item 155.75 of the TSUS, are being imported into the United States in such increased quantities as to be a substantial cause of injury, or the threat thereof, to the domestic industry producing an article like or directly competitive with the imported article.

In order for the Commission to find in the affirmative under section 201 of the Trade Act, it is necessary that each of three criteria be met:

(1) that there are increased imports (either actual or relative to domestic production) of an article into the United States;

(2) that a domestic industry producing an article like or directly competitive with the imported article is seriously injured or threatened with serious injury; and

(3) that such increased imports of an article are a substantial cause of serious injury, or the threat thereof, to the domestic industry producing an article like or directly competitive with the imported article

The failure of the facts to satisfy any of the abovementioned criteria necessitates a finding in the negative.

Determination

After considering the evidence obtained by the Commission in this investigation, I have determined that sugar as described in the Commission's Notice of Investigation is not being imported into the United States in such increased quantities as to be a substantial cause of serious injury, or the threat thereof, to the domestic industry producing articles like or directly competitive with the imported articles.

Specifically, I find that the petition fails because the first criterion mentioned above -- that of increased imports -- has not been met. Ordinarily, in discussing my views on eligibility for relief, I would not go beyond the discussion of the criterion which I do not feel was met by the parties seeking relief. However, the other members of the Commission have been able to find that the increased imports criterion has been met and that these increased imports are a substantial cause of serious injury, or the threat thereof, to the domestic industry.

Thus, an affirmative Commission determination requires a second vote by the Commission on the question of remedy. As I feel compelled under the terms of the statute to participate in the vote on remedy, despite my negative determination on eligibility, I will briefly discuss my views on the question of serious injury as it affects my decision on the proper remedy which should be applied in the present case.

The domestic industry

It is my view that the domestic industry in the present investigation consists of facilities in the United States devoted to the production of sugar and sugar products like or directly competitive with the imported products as defined in the Notice of Investigation.

Increased imports

An increase in imports occurs when the increase is "either actual or relative to domestic production" (section 201(b)(2)(C)). Therefore, the Commission can find "increased imports" when the increase is in "actual" or absolute terms or when the level is declining in actual terms, but increasing relative to domestic production. It is my view that, in the absence of extraordinary circumstances, the Commission should look at the trend in imports occurring since the most recent trade concessions, so that the injury considered would be a new and continuing injury from increased imports as opposed to an "old" injury. The Senate Finance Committee Report at page 120 states:

> The increase in imports referred to would generally be such increases as have occurred since the effectiveness of the most recent trade-agreement concessions proclaimed by the President, i.e., as of now the effectiveness of the Kennedy Round concessions beginning in 1968.

I am of the opinion that the Commission should ordinarily look at what has happened over the most recent cycle (such as a 5-year period) or since the President last reviewed the situation (i.e., since the 1968 trade concessions). By considering these time frames, and looking at the trends of imports, I am left with no alternative but to conclude that the increased imports criterion has not been met. For example, while it is true that imports were higher in 1976 than 1975, does this show a trend in increasing imports? I do not think so as imports were at a 10-year low in 1975. It was only logical that imports would climb in 1976. And, at any rate, imports were lower in both 1975 and 1976 than in each of the years from 1972 through 1974.

However, in considering increased imports, the Commission is required to look also at increases in imports relative to domestic production. The trend in imports relative to domestic production is not unlike that of actual imports. In 1972 the ratio of imports to domestic production was 86 percent, in 1973 84 percent, in 1974 it increased to 97 percent, but dropped to 59 percent in 1975. In 1976 the percentage again appeared to be increasing, but the overall trend during both the 1972-1976 period and the 1968-1976 period was downward. For those who would argue that increased imports may be shown by looking at the ratio of imports to domestic consumption, the trend lines over the same periods reflect a similar downward drift.

Given these considerations, I am of the opinion that the criterion of increased imports is not met, and I am therefore required by the strictures of the statute to find in the negative.

The state of the U. S. sugar industry

The United States sugar industry is now in a different situation with costs of production in parts of the country being greater than profits. While there were very significant profits in the sugar industry during the 1974 year due to extremely high prices, we now see the prices at a level which would, without question, force many U. S. producers out of the market.

That I was unable to find affirmatively because of the legal constraints of section 201 does not mean that I do not have sympathy with the domestic sugar industry, which is unquestionably having difficult times. 1/

Additional views of Chairman Daniel Minchew with regard to recommendations of remedy

Section 201(d) of the Trade Act requires that if the Commission makes an affirmative determination of serious injury or the threat thereof, it must find the amount of import relief necessary to prevent or remedy such injury or, if it finds that adjustment assistance can effectively remedy the injury, recommend the provision of such

1/ I generally concur with the statements of my fellow Commissioners with regard to the state of the industry discussed in their opinions under the heading of serious injury, or threat thereof.

assistance.[1] Pursuant to provisions in this section, the remedies which may be recommended are: (1) an increase in, or the imposition of, a duty or import restriction, or (2) adjustment assistance. The purpose of such relief, as stated by the Senate Finance Committee in its report on the bill which became the Trade Act, is to give the domestic industry "sufficient time to adjust to freer international competition."[2] Of the options available to me, I believe that the imposition of a quota allocated on a country-by-country basis as specified in the Commission determination is the most appropriate remedy under the circumstances in this case.

In attempting to arrive at an appropriate remedy, I considered what was, to me, the most severe difficulty the domestic industry was facing -- that of prices depressed to such an extent that the price of sugar was lower than production costs in many areas of the country. Therefore, I feel that, to be effective, the remedy selected must raise the price of sugar and sugar products and give the industry a chance to survive. This basic goal, in my opinion can best be achieved by the imposition of a quota system. I have, then, found it necessary to decide what price levels would provide a marginal profit and I have settled on a level between 13 and 14 cents per pound. The requirement

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1/ For a discussion of the legal issues pertaining to a Commissioner voting in the remedy after a negative injury vote see my views in Asparagus Investigation No. TA-201-4 (USITC Publication 755, January 1976) and Stainless Steel and Alloy Tool Steel Investigation No. TA-201-5 (USITC Publication 756, January 1976).

2/ Trade Reform Act of 1974: Report of the Committee on Finance. . ., S. Rept. No. 93-1298 (93d Cong., 2d. Sess.), 1974, p. 119.

of finding a base level for the price of sugar makes the finding of a representative period impractical, and in this case I do not find a representative period for the setting of an import quota. By calculating the effects of various quota levels and considering the impact of a ban on saccharin, I have concluded that a quota level of 4.4 million short tons per year would raise the price of sugar to somewhere in the 13-14 cent range, which would then achieve the goal of marginal profits in the industry.

Once I had decided on a quota level, I then attempted to find a method of administration which would have the least disruptive affects on U. S. trading partners. I have concluded that an allocation by historical supply would be the most equitable. I have further decided that the period of time I should look to in determining this historic supply should be the period from 1972 through 1976. This would take into consideration trading patterns under the Sugar Act and in the two years following its expiration.[1/]

The five-year time frame was chosen because I felt that anything under three years would not cover the normal planting cycle of some producers, but that five years would give enough security to the producers to embark on long term planting operations. Trying to set any quota arrangements in an agricultural product involves many uncertainties, and I am aware of the provisions of section 201(h)(2) which call for a phasing down of relief granted in excess of five years, when feasible. However, I have concluded that the proper method for any

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1/ Although I found no representative period for the allocation of the quota level, I believe the five year period for allocation is proper.

reductions in the quota level should be determined only after a thorough study of the economic impact of any reductions. Therefore, I have decided to recommend a constant quota over the five-year period and leave the question of reductions open as an option for the President through his authority under section 203(h)(4).

INFORMATION OBTAINED IN THE INVESTIGATION

Introduction

On September 17, 1976, the United States International Trade Commission received a resolution of the Committee on Finance of the United States Senate requesting that the Commission conduct an investigation under section 201 of the Trade Act of 1974 (Trade Act) with respect to imports of sugar. 1/

Following receipt of the resolution, and in accordance with the provisions of section 201(b)(1) of the Trade Act, the U. S. International Trade Commission instituted an investigation on September 21, 1976, to determine whether sugar beets and sugar cane; sugars, sirups, and molasses, derived from sugar cane or sugar beets; and sugars, sirups, and molasses, described in subpart A of part 10 of schedule 1 of the Tariff Schedules of the United States (TSUS), flavored; and sirups, flavored or unflavored, consisting of blends of any of the products described in aforementioned subpart A; all the foregoing provided for in items 155.10 through 155.31, inclusive, and item 155.75 of the TSUS, are being imported into the United States in such increased quantities as to be a substantial cause of serious injury, or the threat thereof, to the domestic industry producing an article like or directly competitive with the imported article.

Notice of the institution of the investigation and of the public hearings was issued on September 28, 1976, and notice of the times and places of the hearing was issued October 26, 1976. The notices were posted at the Commission's offices in Washington, D.C., and New York City

1/ A copy of the Finance Committee resolution and the transmittal letter from Senator Russell B. Long are reproduced in appendix A of this report.

and were published in the Federal Registers of October 1, 1976 (41 F.R. 43474), and October 29, 1976 (41 F.R. 47604), respectively. Hearings were held beginning on November 4 in Washington, D.C.; November 18 in New Orleans, La.; and November 30 in San Francisco, Calif. All interested parties were afforded an opportunity to be present, to produce evidence, and to be heard. The Trade Act of 1974 directs the Commission to complete investigations under section 201 within 6 months--in this case by March 17, 1977.

On September 22, 1976, the Commission received a letter from the President urging the Commission to make such an investigation promptly and requesting that the Commission expedite its investigation and submit its report as quickly as possible. 1/2/

The information for this report was obtained at the public hearings; from written briefs submitted by interested parties; through interviews by members of the Commission's staff with sugar growers, processors, refiners, importers, and customs officials; from other Federal agencies, State agencies, and State universities; and from responses to questionnaires sent to domestic sugar growers, processors, refiners, importers, and saccharin producers.

1/ A copy of the letter from the President is presented in appendix B of this report.

2/ The Commission conducted the investigation on an expedited basis and had hoped to report to the President as early as mid-January. However, it advised the President and the Senate Finance Committee, in February 1977, that it was unable to complete its investigation on an expedited basis. The delay in reporting was caused by the refusal of certain corn sweetener producers to supply certain relevant data and by the fact that the U.S. District Court, for reasons with which we disagree, declined to enforce, for the most part, Commission orders issued to the corn sweetener producers.

Summary

Description and uses

Sugar is produced from the juice of sugar cane and sugar beets. Most sugar is marketed to consumers in a refined form as pure granulated or powdered sucrose. Substantial quantities also reach consumers as liquid sugar, brown sugar, and invert sugar sirup. In the United States, about one-third of the sugar consumed goes to household users and two-thirds goes to industrial users, principally beverage producers and bakery, cereal, and allied products producers. About 55 percent of the sugar consumed annually in the United States comes from domestic sources (30 percent from sugar beets and 25 percent from sugar cane) and 45 percent comes from foreign sources, virtually all cane.

U.S. production, consumption, and trade

The United States accounted for about 8 percent of the 90.2 million short tons, raw value, of world sugar production in crop year 1975/76 and was the third largest producer, following the European Community and the U.S.S.R. Other major producers are Brazil, Cuba, India, Australia, the Philippines, and Mexico.

The U.S. sugar-producing industry can be divided into two groups: sugar beet producers and sugar cane producers. Sugar beets are produced commercially in 18 States by 11,000-15,000 farmers. Ten States accounted for 89 percent of the 4.0 million short tons, raw value, of the domestic beet sugar produced in 1975/76. 1/ Sugar cane is produced in Florida, Louisiana, Texas, Hawaii, and Puerto Rico by approximately 5,000 farmers.

1/ The principal producing States in 1975/76 were California, Minnesota, Idaho, Colorado, Washington, North Dakota, Michigan, Nebraska, Wyoming, and Montana.

In conjunction with the sugar beet and sugar cane producers, there are 58 beet-sugar-processing factories, 76 sugar cane mills, and 22 mainland cane sugar refiners.

Since 1971/72, annual U.S. production levels on a crop-year basis have varied substantially. Production increased from 6.3 million short tons, raw value, in 1971/72, to 6.7 million tons in 1972/73 and then declined steadily to 5.7 million tons in 1974/75. In 1975/76, however, production jumped to 7.3 million tons, and output in 1976/77 is estimated at 6.9 million tons. 1/

Annual U.S. imports of sugar on a calendar-year basis have varied considerably in recent years. In 1971, imports amounted to 5.6 million short tons, raw value, declined slightly to 5.3 million tons in 1973, and then increased to 5.8 million tons in 1974. 2/ In 1975, imports declined to 3.9 million tons, the lowest level since 1965. Imports in 1976 totaled 4.7 million short tons, raw value. 3/ Despite the increase in imports from 1975 to 1976, imports during 1976 were lower than imports in 1971, 1972, 1973, and 1974. Important foreign suppliers are the Dominican Republic, Australia, the Philippines, the West Indies, Peru, Brazil, and Central America. U.S. cane sugar refiners, it must be noted, depend upon raw sugar from foreign as well as domestic sources as the raw material for their sugar-refining operations.

1/ Crop-year production differs significantly from calendar-year production.

2/ Imports of sugar in TSUS items 155.20 and 155.30 only.

3/ Pursuant to Presidential Proclamation No. 4334, of Nov.16, 1974, U.S. imports of sugar provided for under TSUS items 155.20 and 155.30 are subject to an annual quota limitation of 7 million short tons, raw value.

The ratio of imports to domestic production decreased irregularly from 91 percent in 1971 to 59 percent in 1975. It is estimated that the 1976 import-to-consumption ratio will be higher than the 1975 ratio, however. Annual domestic production on a calendar-year basis fluctuated little during 1971-75, ranging from 6.0 million to 6.6 million short tons, raw value, when compared with import levels, which ranged from 3.9 million to 5.8 million tons. The ratio of imports to U.S. consumption also decreased irregularly, from 48 percent in 1971 to 38 percent in 1975. The import-to-consumption ratio for 1976 is estimated at 42 percent.

Annual U.S. exports of sugar on a calendar-year basis have been negligible, not exceeding 150,000 short tons, raw value, during 1960-75. Most of the exports are of refined sugar or sugar-containing products.

During the period 1971/72 through 1976/77, annual world production of sugar on a crop-year basis rose from 77.8 million to 95.9 million short tons, raw value, an increase of 23 percent. During the same period, consumption increased from 82.5 million to 91.5 million tons. During this period, world consumption exceeded world production in every year but 1973, 1975, and 1976. International trade in sugar amounts to less than one-fourth of world production.

The Sugar Acts

On June 6, 1974, the House of Representatives rejected amendments to extend the Sugar Act of 1948 (Sugar Act) as proposed by the House Agriculture Committee. Thus, most of the provisions of the 1948 legislation expired on December 31, 1974.

Beginning in 1934, the United States substituted quotas in preference to the tariff as the effective instrument of national policy

with respect to imports of sugar. The shift to a quota system was accompanied by a large reduction in the preferential tariff on sugar from Cuba, the principal foreign supplier at the time. This isolated the sugar markets of the United States and Cuba from the highly unstable world market.

Through the years since 1934 there were changes in the specifics of the U.S. sugar acts. Under the most recent Sugar Act, the Secretary of Agriculture estimated the annual quantity of sugar that could be consumed in the United States at a prescribed price objective. This price objective during 1972-74 was the price for raw sugar that would maintain the same ratio to the average of the parity and wholesale price indexes as prevailed during the period September 1970 through August 1971. The parity index was an index of farm expenses. The act specified mandatory changes in quotas in an effort to attain the price objective if raw sugar prices varied from the price objective by more than a few percentage points. Many quota adjustments were necessary.

After the Secretary of Agriculture estimated the annual quantity of sugar (known as the domestic consumption requirement) that could be consumed at the price objective under the Sugar Act, this quantity was allocated by statutory formula among domestic and foreign suppliers of sugar. The statutory formula under the 1971 amendment allocated about 62 percent of the initial basic quota of 11.2 million short tons, raw value, to domestic areas, about 10 percent to the Philippines, and the remaining 28 percent to Cuba and 32 other countries. When the quota for Cuba was withheld (effective July 6, 1960), it was prorated to

other countries in the Western Hemisphere and to the Philippines. Any increase in the domestic consumption requirement over the initial basic quota was allocated on the basis of 65 percent to domestic areas other than Hawaii and Puerto Rico and 35 percent to foreign countries. Hawaii and Puerto Rico had their own quotas for sugar, which were increased automatically if production exceeded the quota level.

Employment and man-hours

Two points of importance in studying employment and wages are that employment in the sugar industry is highly seasonal, especially in sugar cane growing and milling, sugar beet growing, and beet sugar processing, 1/ and that productivity has increased in the sugar industry because of mechanization, and employment has fallen. For example, employment in 1973 in the beet sugar industry was less than half the employment in 1963, while production was about 3 percent higher.

According to data from the Commission's questionnaires, total employment in the sugar industry has increased in recent years. 2/ Increased employment in the cane sugar sector outweighed decreased employment by beet sugar processors in the 1972-74 period; employment by each group increased in 1975; and increased employment by beet sugar processors outweighed decreases in employment in the cane sugar sector in 1976.

Total man-hours in the sugar industry increased in every year during the period 1972-76, except in 1974, as did man-hours worked by

1/ The Hawaiian cane industry excepted, employment is expanded during the planting and harvesting season.

2/ The employment totals do not include statistics on sugar beet growers.

beet sugar processors. Total man-hours worked in the cane sugar sector increased in every year during the period 1972-75, but decreased in 1976.

Profit-and-loss experience

All segments of the sugar industry--growing, milling, processing, and refining--enjoyed a dramatic increase in net sales during the 1972-74 period. The sugar industry, with the exception of proprietary cane sugar refining, also enjoyed an increase in profits for proprietary firms and an increase in payments to members of cooperatives during the 1972-74 period. Profits, payments, and net sales declined in 1975--a period of declining sugar prices--for most segments of the industry.

Total net sales for the entire sugar industry increased from $2.7 billion in 1972 to $6.9 billion in 1974 before declining to $5.4 billion in 1975. Seventeen members of the industry--mainly processors and refiners--submitted profit-and-loss data for interim periods commencing with the beginning of their 1975 and 1976 accounting years and ended September 30, 1975, and September 30, 1976. Total net sales for the 17 members declined from $1.8 billion to $1.3 billion during this period, or by 28 percent. At this rate of decline, total net sales for the total sugar industry could decline to about $4.0 billion in 1976, although this represents a 48 percent increase over net sales in 1972.

Combined profits and payments by cooperatives increased for the total sugar industry from $279 million in 1972 to $1.5 billion in 1974 and then declined to $1.0 billion in 1975. Total interim profits or payments for the 17 members who furnished such data declined from $378 million in 1975 to $248 million in 1976, or by 34 percent. The combined

profit-and-loss data and cooperative payment data are compiled together solely for the purpose of establishing an overall trend for the sugar industry. The data should not be construed as a return on total net sales.

The sugar-refining segment is the largest component of the total sugar industry as far as sales and profits are concerned. It must be noted that the proprietary refiners also refine imported raw sugar.

A sugar policy study, prepared in March 1976 under the auspices of the Council on International Economic Policy (CIEP), provides a basis for making some broad generalizations about the effects of sugar prices on profitability in the domestic sugar-beet-growing, sugar-cane-growing, and sugar-cane-milling industries.

According to this study, world sugar prices of 10 cents per pound for any sustained period would result in negative returns in all U.S. sugar-cane-producing States and in all but two sugar-beet-producing regions. 1/ Since mid-August 1976, world sugar prices have been below 10 cents per pound and early in 1977 were around 8 or 9 cents per pound. On September 21, 1976, the President raised the rate of duty on 100° sugar by 1.325 cents per pound to the current level of 1.9875 cents per pound which, along with freight and insurance costs, should be added to the world sugar price when comparing it to U.S. sugar producers' costs. The study indicates that world sugar prices of 12.5 cents per pound would result in positive returns for all sugar-beet-growing regions and all

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1/ * * *

but two sugar cane regions. A price of 20 cents per pound would be required for all U.S. sugar-producing regions to have positive returns.

U.S. consumption of sugar and other sweeteners

During the period 1960-73, annual U.S. consumption of sugar increased gradually from 9.5 million to 11.8 million short tons, raw value. However, the rapid increase in prices to record levels toward the end of 1974, followed by continued high prices during much of 1975, caused total U.S. sugar consumption to fall in each of those years, to 11.5 million tons in 1974 and then sharply to 10.2 million tons in 1975. Preliminary indications are that total sugar consumption will recover somewhat in 1976 as prices have declined sharply since reaching a peak in late 1974.

Inasmuch as sugar is only one of many sweeteners available for direct consumption or for use in prepared foods, it is necessary to evaluate the competitive effect that other sweeteners have on sugar. Corn sweeteners follow sugar in importance, accounting for the bulk of the nonsugar sweeteners consumed in the United States.

From 1971 to 1975, corn sweetener consumption increased from 2.0 million to 2.9 million short tons. Corn sweetener consumption in 1976 is estimated to have totaled 3.2 million tons. In recent years, the principal expansion of corn sweetener consumption has come from high-fructose sirups, which increased from 94,000 short tons in 1971 to 502,000 tons in 1975. Consumption in 1976 is estimated at 764,000 tons.

Annual U.S. per capita consumption of all sweeteners rose from 119 pounds per person in 1965 to 133 pounds in 1973. In 1974, per capita consumption of all sweeteners fell to 132 pounds, and in 1975 it fell to 128 pounds. In 1976, per capita consumption of all sweeteners is estimated at 136 pounds.

Annual per capita consumption of sugar was relatively stable over the period 1965-72, rising slowly from 97 pounds per person in 1965 to 103 pounds in 1972. However, in 1973 per capita consumption of sugar fell to 102 pounds, and in 1974 it fell to 97 pounds. High prices appear to have led to a further drop to 90 pounds per person in 1975. Low prices in 1976 enabled per capita consumption to recover to an estimated 95 pounds, still well below the per capita consumption levels of 1972.

Per capita consumption of corn sweeteners rose annually, without setbacks, from 15 pounds per person in 1965 to approximately 30 pounds in 1976. The 53-percent increase between 1971 and 1976 largely reflects a substantial rise in the per capita use of corn sirup and the introduction in the market and the rapid acceptance of high-fructose sirup.

Data on per capita consumption indicate that high sugar prices in 1974 and 1975 resulted in significant substitution of other sweeteners (e.g., corn sirup and saccharin) for sugar.

Sugar prices

The prices of raw sugar on the world and U.S. markets increased dramatically in 1974 and then declined as abruptly as they had risen. The price of raw sugar delivered in New York averaged 10 cents per

pound in 1973, peaked in November 1974 at an average of 57 cents per pound, fell to just below 10 cents per pound in September 1976, and, since the threefold tariff increase of 1.325 cents per pound for 100° sugar, has remained in the 10-cents per-pound range through 1976.

In the 1950's and 1960's the annual delivered price of raw sugar in New York averaged 6.6 cents per pound and exceeded 8 cents per pound only in 1963. The world price averaged less than 4 cents per pound over the same period and, although somewhat more volatile, it never exceeded 8.5 cents per pound during the period.

The termination of the U.S. Sugar Act and its effective system of import restrictions on December 31, 1974, marked the end of separate world and U.S. prices of raw sugar. The old quota premium or discount between these prices has been eliminated because after allowance for insurance, freight, and duty the two prices are effectively the same. If the prices of sugar in the world and U.S. markets are not equal, the markets will not be cleared, and market forces will act to eliminate any difference between these prices.

The world and U.S. markets for sugar are interrelated and economic conditions in both markets may have been factors in causing recent high and low world and U.S. prices of sugar. Among the factors causing the recent low prices may be increased sugar production in both the United States and the world in response to previous high prices, and decreased levels of demand in both the United States and the world in response to previous high prices and competition from alternative sweeteners.

Description and Uses

Description

Sugar is derived from the juice of sugar cane or sugar beets. It is present in these plants in the form of dissolved sucrose. Most sugar is marketed to consumers in a refined form as pure granulated or powdered sucrose. Substantial quantities also reach consumers as liquid sugar (sucrose dissolved in water), in forms not chemically pure, such as brown sugar and invert sugar sirup, 1/ or as blends of sucrose with simpler sugars, such as dextrose and levulose.

Sugar cane is a perennial subtropical plant which is cut and milled to obtain sugar cane juice. Through a process of filtering, evaporating, and centrifuging this juice, a product consisting of large sucrose crystals coated with molasses, called raw sugar, is produced. Raw sugar derived from sugar cane is the principal "sugar" actually shipped in world trade. Raw sugar is generally refined near consumption centers through additional processes of melting, filtering, evaporating, and centrifuging to yield the refined white sugar of commerce.

Sugar beets are annual temperate-zone plants usually grown in rotation with other crops (to avoid disease and pest problems from growing two beet crops successively in the same field). Most sugar beets, including those grown in the United States, are converted directly into refined sugar; sugar beets grown in some countries, however, are used to produce raw beet sugar. The refined sugar product derived from sugar beets is not distinguishable from that of sugar cane inasmuch as both are virtually chemically pure sucrose.

1/ See glossary in appendix F.

Raw sugar is sold commercially and both raw sugar and refined sugar are generally measured for duty purposes (and in the United States for quota purposes) on the basis of recoverable sucrose content in the case of solid or crystalline sugar. For liquid sugars or sirups, the measurement is on the basis of the total sugars content (the sum of sucrose and and any invert or reducing sugars 1/ present). The approximate recoverable sucrose content in solid or crystalline sugar is determined by polariscopic testing; the total sugars content in liquid sugars or sirups is determined by chemical testing. Raw sugar is generally referred to in world trade as testing 96° by polariscopic test even though in actual practice most raw sugar now tests between 97° and 99°. 1/ Nevertheless, market quotations for raw sugar and statistics for both raw sugar and refined sugar are usually given in terms of 96° "raw value."

Uses

The overwhelming use of sugar in the United States is for human consumption, although some is used in specialty livestock feeds and in the production of alcohol. Sugar is primarily a caloric sweetening agent, but it also has preservative uses. In the United States, about one-third of the sugar consumed goes to household users and two-thirds goes to industrial users. In 1974, the principal industrial users were beverage producers (with their share of the total sugar consumed domestically amounting to 22 percent); bakery, cereal, and allied products

1/ See glossary.

producers (14 percent); confectionery producers (10 percent); fruit and vegetable processors (9 percent); and dairy product and other food and nonfood producers, the remainder (12 percent).

The flavored sirups are used in soft drinks, for dessert toppings, ice cream, fountain use, and the making of home beverages. The flavored sugars (including powders and pastes) are used in dessert powders, dry soft drink bases, dry ice cream mixes, and similar products. The blended flavored or unflavored sirups, usually of sugar and maple sirup, or sugar, corn sirup, and sugar refiners' sirup, are largely for table use; specific blends of sugar and corn sirup are also made for industrial use.

There is presently little nonfood use of sugar in the United States and even less, proportionately, in the rest of the world. Sugar is a renewable resource with a fairly basic hydrocarbon structure. Thus, it has a potential in industrial use as a raw material for making some organic chemicals that are now made from petroleum-based products.

Alternative sweeteners

The principal alternatives to sugar in sweetener markets are corn-based sweeteners. Other caloric sweeteners include molasses, maple sirup, honey, sorghum sirup, lactose, and levulose. Noncaloric sweeteners include saccharin, cyclamates, and aspartic-acid-based sweeteners.

Corn sweeteners are derived from corn starch by hydrolysis, usually with enzyme processes. The products of this process include dextrose anhydrous and monohydrate, and glucose sirups (including a new product called high-fructose sirup, also known as isomerized corn sirup).

Corn sweeteners have generally been cheaper than sugar. Because their glucose (dextrose) base is less sweet than sucrose, their application has been limited. However, the new product--high-fructose sirup--contains about half fructose (levulose) and half glucose; it is believed to be equivalent to invert sugar sirup and superior to sucrose liquid sugar in sweetening power and may be a perfect substitute for invert sugar sirup. High-fructose sirup has become very competitive with sugar in certain uses, and the corn sweetener industry is rapidly expanding its capacity to produce it. Corn sirup is marketed almost entirely for industrial use, and, in general, is used in mixtures with sugar sirups in specific formulation for the intended product.

A byproduct of sugar production--molasses--has some sweetening power owing to its unrecovered sucrose and invert sugar content. It is used, mostly for its carbohydrate content, in livestock feeds. Molasses also acts as a binder, and its sweetening effect improves the palatability of mixed livestock feeds. Some specialty molasses is used for human consumption, largely for its flavoring characteristics. Molasses is also used in rum production and as a bacterial culture medium.

Maple sirup, produced from the sap of maple trees, is sold at premium prices for its flavoring characteristics. Honey, produced by bees from the nectar of flowers, is also sold at premium prices for its flavoring characteristics. Most maple sirup and honey are sold for table use, with only small quantities going to industrial users. Lactose, also known as milk sugar, is derived from milk. Levulose, or fruit sugar, is fructose derived in recent years primarily from invert sugar. Both of

these products have high production costs and are primarily used for pharmaceutical purposes. They are marketed on the basis of their characteristics and are not particularly competitive with other sweeteners.

Noncaloric alternatives to sugar consist of such sweeteners as saccharin, cyclamates, and aspartic-acid-based sweeteners. These sweeteners command a premium price for their noncaloric characteristics and are generally more powerful sweeteners per pound than sucrose by a large order of magnitude. 1/ However, producers of noncaloric sweeteners have had difficulty in obtaining and maintaining clearance from the U.S. Food and Drug Administration (FDA) for the use of such sweeteners for human consumption. Saccharin is the only sweetener currently approved for food use in the United States; however, it has only limited potential because of its slightly bitter aftertaste. Because noncaloric sweeteners generally have much more complex formulations than the saccharides, they are alleged to be hazardous to human health, in particular as carcinogenic agents. 2/

The U.S. Sweetener Industry

About 55 percent of the sugar consumed annually in the United States comes from domestic sources (30 percent from sugar beets and 25 percent from sugar cane) and 45 percent comes from foreign sources (virtually all cane). In the 1975/76 crop year, domestic production totaled nearly 7.3 million short tons, raw value, and was comprised of mainland beet

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1/ Measuring sweetening power is not an exact science since sweetness can only be measured by subjective tests rather than objective tests. However, saccharin has been estimated in various experiments to be from 200 to 700 times as sweet as sucrose.

2/ See appendix IJ for information on the ban on saccharin for food use announced on March 9, 1977.

sugar (4.0 million short tons), mainland cane sugar (1.8 million short tons), Hawaiian cane sugar (1.1 million short tons), and Puerto Rican cane sugar (0.3 million short tons).

During the period 1971/72 to 1975/76, domestic production of beet and cane sugar increased irregularly from 6.3 million to 7.3 million short tons, raw value; output in 1976/77 is estimated to amount to 6.9 million tons (table 1). In the same period, beet sugar output decreased from 3.6 million short tons in 1971/72 and 1972/73 to 2.9 million short tons in 1974/75; it then increased to 4.0 million tons in 1975/76 before declining to 3.9 million tons in 1976/77. Mainland cane sugar output increased from 1.2 million short tons in 1971/72 to 1.8 million tons in 1975/76. In 1976/77 mainland cane production declined to 1.7 million tons. Offshore production of cane sugar (i.e., in Hawaii and Puerto Rico) declined from 1.6 million short tons in 1971/72 to about 1.4 million tons in 1976/77, owing to declines in cane production in both areas.

U.S. sugar beet growers and beet sugar processors

Sugar beets are currently produced in 18 States. The 10 leading producing States are California, Minnesota, Idaho, Colorado, North Dakota, Washington, Nebraska, Michigan, Wyoming, and Montana (table 2). In 1976/77, these 10 States accounted for 90 percent of the 1.5 million acres of sugar beets harvested and for 90 percent of the 29.4 million tons of sugar beets produced. The number of farms producing sugar beets in 1976/77 has most likely increased from the 12,400 farms producing such beets in 1973/74 (the last year for which official statistics are available).

Table 1.--Sugar: U.S. production, by producing areas, crop years 1971/72 to 1976/77

(In thousands of short tons, raw value)

Source	Crop year 1/					
	1971/72	1972/73	1973/74	1974/75	1975/76	1976/77 2/
Cane sugar:						
Florida	635	961	824	803	1,061	900
Louisiana	571	660	558	594	640	650
Texas	-	-	38	74	126	131
Total, mainland	1,206	1,621	1,420	1,471	1,827	1,681
Hawaii	1,230	1,119	1,129	1,041	1,107	1,050
Puerto Rico	324	298	255	291	302	303
Total, offshore	1,554	1,417	1,384	1,332	1,409	1,353
Total, cane	2,760	3,038	2,804	2,803	3,236	3,034
Beet sugar	3,552	3,624	3,200	2,916	4,019	3,906
Total sugar, cane and beet	6,312	6,662	6,004	5,719	7,255	6,934

1/ The crop year for beet sugar begins in September in all States except California and lowland areas of Arizona where it begins in March and April, respectively. The Louisiana cane sugar crop year begins in October, that in Florida and Texas begins in November, that in Puerto Rico begins in December, and that in Hawaii, in January.
2/ Preliminary.

Source: Compiled from official statistics of the U.S. Department of Agriculture.

Table 2.--Sugar beets: U.S. acres harvested, yield per harvested acre, and production, by principal States, crop years 1971/72 to 1976/77

Crop year 1/	California	Minnesota	Idaho	Colorado	North Dakota	Washington	Nebraska	Michigan	Wyoming	Montana	All other	Total
	Acres harvested (1,000 acres)											
1971/72	348.8	111.5	163.8	138.9	73.7	78.2	77.7	82.6	61.7	46.7	158.3	1,341.9
1972/73	324.6	111.9	172.7	133.8	73.9	91.6	82.1	86.6	57.2	45.2	149.1	1,328.7
1973/74	262.6	131.2	144.3	113.7	79.3	91.7	74.4	86.7	54.1	44.6	134.9	1,217.5
1974/75	230.0	182.7	90.8	125.7	139.9	63.3	75.5	80.4	53.5	43.9	126.9	1,212.6
1975/76	326.3	196.0	158.3	154.9	130.9	82.4	96.0	91.4	57.7	48.5	174.2	1,516.6
1976/77 2/	312.0	248.0	139.4	121.0	150.0	76.5	84.5	91.4	56.4	46.1	155.2	1,480.5
	Yield per acre (short tons)											
1971/72	23.6	15.9	19.5	18.0	16.3	25.3	18.3	17.1	20.0	19.6	20.5	20.2
1972/73	27.8	14.0	20.5	19.4	13.6	25.5	20.1	14.0	20.0	18.6	20.5	21.4
1973/74	24.6	16.5	20.2	16.3	16.2	27.0	19.9	16.5	18.2	19.8	18.4	20.1
1974/75	25.9	11.6	20.3	18.0	11.2	24.5	18.3	17.0	18.4	18.7	18.0	18.2
1975/76	27.3	14.2	18.6	17.2	13.9	26.0	18.5	19.2	18.4	17.1	17.5	19.6
1976/77 2/	28.5	12.2	20.7	19.1	13.8	24.5	20.0	16.8	20.7	21.0	19.5	19.9
	Production (1,000 short tons)											
1971/72	8,217	1,774	3,197	2,501	1,204	1,975	1,425	1,415	1,234	916	3,238	27,096
1972/73	9,031	1,568	3,543	2,594	1,008	2,337	1,650	1,638	1,146	842	3,053	28,410
1973/74	6,447	2,169	2,921	1,851	1,284	2,476	1,482	1,524	985	883	2,477	24,499
1974/75	5,948	2,116	1,845	2,261	1,562	1,554	1,382	1,364	983	820	2,288	22,123
1975/76	8,892	2,783	2,942	2,661	1,820	2,142	1,776	1,755	1,060	829	3,044	29,704
1976/77 2/	8,892	3,026	2,879	2,303	2,070	1,874	1,690	1,536	1,167	968	3,022	29,427

1/ The crop year begins in September in all States except California and lowland areas of Arizona, where it begins in March and April, respectively.

2/ Preliminary

Source: Compiled from official statistics of the U.S. Department of Agriculture.

Sugar beets are grown by farmers under contract to beet sugar processors. The contracts generally call for growers to deliver to processors beets from a given acreage and for processors to reimburse the growers on a basis which includes a percentage of the returns processors receive from the sale of the refined sugar. There are 58 beet sugar factories owned by 13 companies or cooperatives scattered throughout the sugar-beet-producing regions in the United States. The 58 factories have a daily processing capacity of about 200,000 tons of sugar beets. The capital investment in the factories was about $550 million in 1973.

Hawaiian sugar cane growers and millers

Hawaii is noted for having the highest yield of sugar cane per acre in the world. In the period 1971-76, Hawaiian sugar cane yields ranged from 88.6 short tons to 94.8 short tons per acre and averaged 91.1 short tons (the equivalent of 10.5 short tons of sugar, raw value), compared with the average U.S. mainland sugar cane yield of 27.5 short tons (2.7 short tons, raw value) per acre. There were over 500 farms in Hawaii harvesting 105,000 acres of sugar cane in 1975, compared with over 700 farms harvesting 116,000 acres of sugar cane in 1971. About half of the acreage is irrigated, and it produces two-thirds of the sugar cane harvested each year in Hawaii. Sugar cane production declined from 10.7 million short tons (1.2 million short tons, raw value) in 1971 to 8.7 million tons (1.1 million tons, raw value) in 1976 (table 3). Five large corporations, often called the five factors, 1/ account for the

1/ The five factors are C. Brewer & Co., Ltd.; Castle & Cooke, Inc.; Amfac, Inc.; Alexander & Baldwin, Inc; and Theodore H. Davies & Co., Ltd.

Table 3.--Sugar cane: U.S. acres harvested, yield per harvested acre, and production, by States, crop years 1971/72 to 1976/77

Crop year 1/	Florida	Louisiana	Texas	Hawaii	Puerto Rico	Total
	Acres harvested (1,000 acres)					
1971/72	189.9	301.0	-	115.8	153.4	760.1
1972/73	243.8	311.0	-	108.5	152.4	815.7
1973/74	257.6	319.0	18.2	108.2	132.1	835.1
1974/75	258.4	308.0	27.7	95.8	121.6	811.6
1975/76	287.5	308.0	35.0	105.1	2/ 131.5	867.1
1976/77 3/	260.0	290.0	35.8	98.4	2/ 126.8	811.0
	Yield per harvested acre (short tons)					
1971/72	31.7	21.4	-	92.3	29.9	36.5
1972/73	38.1	25.8	-	91.6	28.7	38.8
1973/74	31.4	20.6	34.1	89.1	27.4	34.2
1974/75	27.8	21.3	32.4	94.8	29.5	33.6
1975/76	35.7	21.0	35.3	90.2	2/ 26.9	35.7
1976/77 3/	32.7	25.0	37.7	88.6	2/ 28.6	36.3
	Production (1,000 short tons)					
1971/72	6,022	6,438	-	10,685	4,582	27,727
1972/73	9,289	8,022	-	9,929	4,382	31,622
1973/74	8,089	6,570	620	9,645	3,621	28,545
1974/75	7,184	6,558	898	9,081	3,585	27,305
1975/76	10,264	6,468	1,236	9,485	2/ 3,533	30,986
1976/77 3/	8,500	7,250	1,350	8,718	2/ 3,630	29,448

1/ The crop year in Louisiana begins in October, that in Florida and Texas begins in November, that in Puerto Rico begins in December, and that in Hawaii begins in January.

2/ As reported by the Government of Puerto Rico.

3/ Preliminary--due to the recent freeze, Florida crop data has been adjusted downward to reflect a preliminary assessment of the impact of the freeze.

Source: Compiled from official statistics of the U.S. Department of Agriculture, except as noted.

vast bulk of the acreage and production of Hawaiian sugar cane through their subsidiary producing and/or milling companies.

Over 95 percent of the raw sugar produced in Hawaii is refined on the U.S. mainland by the California & Hawaiian Sugar Co., a cooperative agricultural marketing association. The refining company is owned by 16 Hawaiian raw-sugar-producing and/or raw-sugar-milling companies, whose equity holdings are distributed substantially in the same proportions as the tonnages of raw sugar each markets through the association. These 16 companies own 18 factories in Hawaii, with a daily processing capacity of about 60,000 short tons of sugar cane. The California & Hawaiian Sugar Co. also serves as the refining and marketing agency for independent non-member sugar cane farmers in Hawaii.

Mainland sugar cane growers and millers

Louisiana, Florida, and Texas are the principal mainland States producing sugar cane. From 1971/72 to 1975/76, production of sugar cane in these States increased more than 44 percent, from 12.5 million to 18.0 million short tons. In 1976/77 production declined to 17.1 million short tons. Production of sugar cane increased in Louisiana and Texas in 1976/77, but the estimated decline in Florida production, caused by the extended January 1977 frost, is responsible for the overall decrease in mainland production in 1976/77.

The mainland cane-milling industry takes sugar cane from growers and processes it into raw sugar. Because the ability to recover sucrose from sugar cane deteriorates rapidly once it has been cut, the cane mills are located close to the producing areas. In 1975/76, the 40 mainland cane-milling companies produced about 1.8 million short tons of raw sugar and several byproducts, such as blackstrap molasses and bagasse.

Louisiana.--Sugar cane in Louisiana is grown on the flood plains of the bayous (mostly streams in the Mississippi River Delta) which, because of the silt deposited by flooding, are higher than the surrounding swampy terrain. Hence, the acreage that can be devoted to sugar cane in the Louisiana cane area is limited, and any expansion in production will probably be accomplished by increasing yields. It is estimated by the U.S. Department of Agriculture that sugar cane was harvested from 290,000 acres in Louisiana in 1976/77, compared with the annual average of 306,120 acres during the period 1971/72 to 1976/77 (table 3). The number of farms producing sugar cane has most likely declined slightly from the 1,290 farms producing cane in 1973/74 (the last year for which official statistics are available).

The production of sugar cane in Louisiana increased from 6.4 million short tons in 1971/72 to 8.0 million tons in 1972/73. Production declined steadily to 6.5 million tons in 1975/76 and then increased to 7.3 million tons in 1976/77. The yield per harvested acre of sugar cane in Louisiana has followed the general trend of production. The yield per harvested acre was 21.4 short tons (1.9 short tons, raw value) in 1971/72 and increased to 25.8 tons (2.1 tons, raw value) per acre in 1972/73. The yield per harvested acre declined irregularly to 21.0 tons (2.1 tons, raw value) per acre in 1975/76 and then increased to 25.0 tons (2.2 tons, raw value) in 1976/77.

Almost half of the Louisiana crop is grown by owners of processing mills. In 1975/76, 31 companies operated 37 sugar-cane-processing mills. The 37 mills had a daily processing capacity of approximately 135,600 short tons of sugar cane.

Florida.--In Florida, sugar cane production has increased rapidly. Acreage harvested increased steadily from 190,000 acres in 1971/72 to 287,500 acres in 1975/76, then declined to 260,000 acres in 1976/77 (table 3). Production of sugar cane increased irregularly from 6.0 million short tons in 1971/72 to 10.3 million tons in 1975/76. The recent freeze in Florida reduced production in 1976/77 to 8.5 million tons. In 1973/74, there were 136 farms producing sugar cane in Florida (the last year for which official statistics are available), but the bulk of the production comes from a few large farms. Florida surpassed Hawaii in sugar cane production in 1975/76 and thus became the leading producing State. However, it was not until 1976/77 that sugar production (in terms of raw value) in Florida equaled Hawaii's production, because Hawaiian sugar

cane has a higher yield of raw sugar per ton than cane grown elsewhere. Yield per harvested acre of sugar cane in Florida varied considerably in the period 1971/72 to 1976/77. Yield peaked in 1972/73 at 38.1 short tons (3.9 tons, raw value) per acre, then declined irregularly to 32.7 tons (3.0 tons, raw value) in 1976/77.

The land devoted to sugar cane in Florida is concentrated in the vicinity of Lake Okeechobee, and the soil consists of organic materials deposited over the centuries. As sugar cane crops are taken from this high-yielding base, the level of the organic material drops. Hence, sugar cane growing in Florida is, in a sense, a mining operation, and eventually, when the organic material runs out, production may cease. 1/ Most of the sugar cane in Florida is produced by owners of sugar cane mills, of which there were eight in 1975/76. These mills have a daily sugar-cane-processing capacity of 82,000 short tons. One company in Florida that is both a processor and grower, the United States Sugar Corporation, is the largest grower of sugar cane in the United States.

Texas.--The Texas sugar cane industry began production in southern Texas in 1973/74. In that year, 18,200 acres were harvested, and 620,000 short tons (38,000 short tons, raw value) of sugar cane were produced (table 3). In 1976/77, 35,800 acres were harvested, and 1.4 million tons (131,000 tons, raw value) were produced. Acreage yields of sugar cane in Texas increased from 34.1 tons (2.1 tons, raw value) in 1973/74 to 37.7 tons (3.7 tons, raw value) in 1976/77. The number of farms producing sugar cane in Texas has most likely increased

1/ Enough organic material is believed to be available to sustain production into the middle of the 21st century.

significantly from the 93 farms producing in 1973/74 (the last year for which official statistics are available). In 1975/76, one sugar-cane-processing mill operated in Texas, with a daily capacity of 8,500 short tons of sugar cane.

Puerto Rican sugar cane growers and millers

In the last decade, Puerto Rico has had a severe decline in the number of farms producing sugar cane and in their output. The number of farms declined from 11,608 in 1963/64 to 2,551 in 1973/74 (the last year for which official statistics are available). In the same period, there was a concurrent decline in production from 9.8 million short tons (989,000 short tons, raw value) to 3.6 million tons (291,000 tons, raw value). Since 1973/74, however, Puerto Rico's production of sugar (raw value) has increased each year, and in 1976/77, it amounted to 303,000 tons. The yield per acre of sugar (raw value) also increased from 1.9 tons in 1973/74 to 2.4 tons in 1976/77.

The bulk of the sugar cane acreage and most of the sugar-cane-processing mills are owned, leased, or contracted for by the Sugar Corp. of Puerto Rico, a quasi-governmental corporation. In 1975/76, 12 sugar processing mills had a daily processing capacity of about 55,000 short tons.

Cane sugar refiners

There are 22 cane sugar refineries in the continental United States, located mainly on the east and gulf coasts; one large refinery is located on the west coast. The 22 cane sugar refineries are operated by 12 cane-sugar-refining companies and 1 cooperative. Traditionally, cane sugar

refiners have provided approximately 70 percent of the sugar consumed in the mainland United States. In 1975, 6.64 million short tons, raw value, of raw sugar (from both domestic and foreign sources) was melted by cane sugar refiners to produce 6.61 million tons, raw value, of refined sugar; this compares with 7.8 million tons, raw value, of refined sugar produced in 1971.

Cane sugar refiners are the principal importers of raw sugar. They obtained about 61 percent of their raw sugar supplies from foreign sources in 1975, compared with 72 percent in 1974.

U.S. importers and sugar operators

Besides the cane sugar refiners, who contract the bulk of U.S. sugar imports, other importers and sugar operators buy supplies of raw, semirefined, and/or refined sugar in areas of surplus production, import the sugar, and arrange for the sale and delivery of the commodity to buyers (refiners in the case of raw sugar). The need for the importers' and sugar operators' services arises from the fact that producers cannot always find refiners willing to buy at the times and locations that producers have sugar to sell and vice versa. The importers' and sugar operators' services consist of financing the transaction, chartering the transportation vessels, and arranging for loading, export documentation, import documentation, and delivery to the buyers' docks. The operators also engage in significant trading in sugar futures markets, and many operate in the world sugar trade outside the U.S. market. In 1974, there were at least 16 importers and sugar operators dealing in raw sugar and an unknown number of importers dealing in refined sugar for direct consumption sales.

Industrial users and other consumers

Industrial users account for nearly two-thirds of the annual deliveries of sugar in the United States (table 4). The largest industrial users include beverage producers; bakery, cereal, and allied products producers; confectionery producers; and fruit and vegetable processors. In 1975, the beverage industry used the largest amount of sugar for industrial purposes, accounting for 35 percent of total industrial use. The bakery, cereal, and allied product producers used the second largest amount, accounting for 21 percent of total industrial sugar use; confectionery producers accounted for 13 percent; and fruit and vegetable processors, for 12 percent. The remaining 19 percent went to a multitude of industrial users.

Nonindustrial users (institutional and retail consumers) accounted for over one-third of total sugar deliveries in 1975; a complete reverse from their two-thirds share in the late 1930's. Indeed, sales of sugar in consumer-size packages (i.e., less than 50 pounds) dropped from 2.6 million short tons in 1971 to 2.4 million tons in 1975 (a decline of 8 percent). The nonindustrial users also depend more heavily on cane sugar than do the industrial users; in 1975 nonindustrial users obtained about three-quarters and one-quarter of their needs from cane sugar refiners and beet sugar processors, respectively.

Alternative sweeteners

In 1975, there were 12 firms in the wet-corn milling industry, 11 of which produced corn sweeteners in 16 plants. Two of the 11 firms also sold sugar. Two firms were producing high-fructose sirup. Capacity for

Table 4.--U.S. deliveries of refined sugar, by uses, by type of packaging, and by source of sugar, 1971-75

(In thousands of short tons)

Year and type	Industrial uses						Total, nonindustrial uses	Total deliveries	Consumer-size-package deliveries 1/	Bulk (unpackaged) deliveries 1/
	Bakery, cereal, and allied products	Confectionery and related products	Beverages	Fruit and vegetable products	Other	Total				
1971:										
Domestic:										
Cane	856	712	1,765	550	719	4,603	2,696	7,299	2,098	1,731
Beet	492	332	596	473	418	2,312	901	3,213	479	1,266
Imported	8	8	2	6	7	31	66	98	33	7
Total	1,356	1,052	2,364	1,029	1,145	6,947	3,663	10,610	2,610	3,004
1972:										
Domestic:										
Cane	877	701	1,838	540	757	4,713	2,651	7,363	2,059	1,781
Beet	562	349	597	442	434	2,384	900	3,284	485	1,509
Imported	11	7	2	4	8	32	41	72	14	2/
Total	1,449	1,057	2,437	987	1,198	7,128	3,592	10,720	2,557	3,290
1973:										
Domestic:										
Cane	917	700	1,882	554	759	4,802	2,617	7,419	2,023	1,863
Beet	528	329	583	478	443	2,361	921	3,282	489	1,554
Imported	9	6	5	3	5	28	42	70	19	1
Total	1,454	1,035	2,469	1,025	1,208	7,191	3,580	10,771	2,530	3,417
1974:										
Domestic:										
Cane	1,006	735	1,822	519	854	4,936	2,723	7,658	2,071	2,103
Beet	428	280	527	428	356	2,019	807	2,826	496	1,217
Imported	9	3	2/	2	4	18	37	55	14	2/
Total	1,423	1,019	2,350	949	1,231	6,972	3,567	10,539	2,581	3,320
1975:										
Domestic:										
Cane	729	519	1,551	355	675	3,829	2,390	6,220	1,949	1,699
Beet	459	247	468	347	365	1,886	847	3,051	460	1,266
Imported	0	0	0	2/	2/	2/	2	2	1	0
Total	1,188	766	2,019	702	1,041	5,716	3,239	9,273	2,410	2,965

1/ Only for reporting firms.
2/ Less than 500 short tons.

Source: Compiled from official statistics of the U.S. Department of Agriculture.

Note.--Because of rounding, figures may not add to totals shown.

this product is expanding and another three firms were planning to produce high-fructose sirup in 1976.

Molasses is a byproduct of sugar production and is produced by the sugar industry. Maple sirup is produced from the sap of maple trees by about 5,000 producers in the United States. The United States imports part of its needs from Canada, the only other major producer or market outside of the United States. Maple sirup is primarily used as a table sirup or in table-sirup blends. Sugar sirups artificially flavored to imitate maple sirups are the principal competitive product with maple sirup. Sugar marketing, therefore, can affect the maple sirup industry, but maple sirup production and marketing have little impact on the sugar industry.

There are about 1,500 commercial beekeepers and about 200,000 part-time and hobbyist beekeepers involved in the production of honey in the United States. Approximately 60 firms process and market most of the commercial honey in the United States, but one firm accounts for nearly 50 percent of the honey processed. The amount of honey sold is too small to have a substantial impact on the U.S. sweeteners market, but sweeteners competitive with honey, notably high-fructose sirup, can affect honey marketing.

Saccharin is the principal noncaloric sweetener currently available on the U.S. sweetener market. One firm accounted for all U.S. production of saccharin in 1975. Saccharin's principal uses are as a sweetener for diabetics and for calorie-conscious consumers. Some saccharin is also used for pharmaceutical purposes. 1/

1/ See appendix IJ for information on the economic effects of the ban on saccharin for food use announced March 9, 1977.

Cyclamates are another major type of noncaloric sweetener; they were used in the U.S. market prior to 1970, when they were banned by FDA for food use. This ban still continues in effect despite appeals made by the major producing firm, which still produces cyclamates for export.

A new sweetener, aspartame (a dipeptide), is being developed for potential marketing by a U.S. producer, but it has not yet received FDA clearance.

U.S. Customs Treatment

Sugar beets and sugar cane

Sugar beets and sugar cane, in their natural states, are classified for tariff purposes in items 155.10 and 155.12, respectively, in the TSUS. 1/ Both the column 1 and column 2 rates of duty are 80 cents per short ton for sugar beets and $2.50 per short ton for sugar cane. These products are too perishable and bulky for any substantial world trade. Thus, U.S. imports have been negligible, and no trade-agreement concessions have been made. The rates of duty cited above are the original statutory rates.

Sugar beets and sugar cane, in other forms suitable for the commercial extraction of sugar, are classified in TSUS item 155.15, dutiable in column 1 at 0.5 cent per pound of total sugars. In the Tariff Act of 1930, these articles were dutiable at 75 percent of the rate applicable to manufactured sugar of like polariscopic testing. The current rates of duty were established, pursuant to the adoption of the TSUS, as

1/ The appropriate pages of the TSUS are reproduced in appendix C of this report. U.S. imports for consumption by TSUS item numbers are also presented in appendix C.

approximately (with some differences due to rounding) equal to the rates on crystalline sugar. World trade in and U.S. imports of these articles have been negligible.

Raw and refined sugar

The TSUS does not attempt to separately identify sugars, sirups, or molasses by name for classification purposes. Rather, products in this group are classified in accordance with their chemical and physical properties, regardless of the name by which a particular product may be called.

Under the description "sugars, sirups, and molasses, derived from sugar cane or sugar beets, principally of crystalline structure or in dry amorphous form" (TSUS item 155.20) are classified all the solid sugars of commerce, including raw and refined sugar, and such specialty sugars as brown sugar, powdered sugar, and sugar cubes.

Since September 21, 1976, the column 1 and column 2 rates of duty for sugar in item 155.20 have been "1.9875 cents per pound less 0.028125 cent per pound for each degree under 100 degrees (and fractions of a degree in proportion) but not less than 1.284375 cents per pound", pursuant to Presidential Proclamation 4463. 1/ The term "degree" in these rates of duty means sugar degree as determined by polariscopic test as noted in headnote 1, subpart A, part 10, schedule 1 of the TSUS.

Currently, all countries exporting sugar to the United States are subject to the same rates of duty except for certain countries eligible for duty-free treatment under the Generalized System of Preferences.

1/See appendix D for recent changes in the sugar tariff.

The rate of duty in column 2 for sugar in item 155.20 is derived from the rate of duty established by Presidential Proclamation 2085, following an investigation made by the United States Tariff Commission (the former name of the U.S. International Trade Commission) under section 336 of the Tariff Act of 1930. This column 2 rate has been in effect as the statutory rate since June 8, 1934. The statutory rate was reduced in column 1 by trade-agreement negotiations to 0.6625 cent per pound less 0.009375 cent per pound for each degree under 100 degrees (and fractions of a degree in proportion) but not less than 0.428125 cent per pound. This column 1 rate resulted from a concession granted under the General Agreement on Tariffs and Trade (GATT) at Torquay, England, and was in effect from June 6, 1951, until September 21, 1976. 1/

TSUS item 155.20 provides a rate formula for duty assessment based on sugar degrees as determined by polariscopic testing. Duty is imposed on the weight of the imported sugar, whether raw or refined. Application of the rate formula based on sugar degrees is intended to yield the same duty per pound of recoverable sucrose content for raw sugar of varying concentrations as is applied to refined sugar (100 percent recoverable sucrose).

1/ The rate of duty for sugar, if products of Cuba, in item 155.21, was derived from preferential rates of duty applicable to Cuban products including sugar, sirups, and molasses, and was suspended May 24, 1962 (Public Law 87-456). Presidential Proclamation 3447 prohibited all imports of Cuban products, effective Feb. 1, 1962.

Under the terms of the Philippine Trade Agreement Revision Act of 1955, Philippine sugar had been dutiable at special preferential rates based on a percentage of the Cuban preferential rate of duty, with the level of preference reduced periodically until products of the Philippines became subject to column 1 rates of duty on July 4, 1974. The staged reductions of preference allowed the rates of duty on Philippine sugar to gradually increase until the Philippines had equivalent tariff status with other countries after many years of duty-free treatment in the U.S. market.

While polarization is not a perfect measure of recoverable sucrose content, the approximation obtained by polariscopic testing is considered adequate enough to be the basis for sugar contracts throughout the international sugar trade. The International Commission on Uniform Methods of Sugar Analysis establishes practices and procedures for polariscopic testing to insure uniform results. 1/

Liquid sugar and other sugar sirups

Sugars, sirups, and molasses, derived from sugar cane or sugar beets, not principally of crystalline structure and not in dry amorphous form, containing soluble nonsugar solids (excluding any foreign substance that may have been added or developed in the product) equal to 6 percent or less by weight of the total soluble solids are classified

1/ U.S. imports of raw sugar are subjected to rather special customs treatment. Before raw sugar can be imported into any port, the U.S. Customs Service must approve the facilities provided for sampling and weighing the sugar. In general, the bulk raw sugar is unloaded and weighed on scales approved and sealed by the Customs Service. A continuous sample of the raw sugar is drawn off during the weighing and the importer is required to maintain adequate facilities for storing the samples. After such sampling and weighing, raw sugar enters the raw sugar warehouse, where it may be comingled with domestic or other foreign merchandise before liquidation. (In some instances, raw sugar may even be refined and sold before liquidation.)

The Customs Service subjects the samples to polariscopic testing under rigorous testing conditions and assesses duty on the results. At the same time samples of the imported raw sugar are drawn off for the Customs Service, samples are also drawn off for testing to provide results for pricing purposes. Three separate polariscopic tests are made on these samples, 1 by the importer, 1 by the exporter, and 1 by the New York Sugar Laboratory (an independent testing laboratory). The mean of the results of the 2 closest polariscopic test results of these 3 tests is generally the basis for measuring quantity of sugar for the sugar price contract.

As a consequence of waiting for the results of these tests, the final price to be paid for raw sugar imports is often not determined until well after the entry has been liquidated. Hence, the statistics provided on sugar entry documents are often inaccurate as to both polariscopic testing and (in particular) value.

for tariff purposes in TSUS item 155.30. Articles imported under this description are primarily liquid sugar and invert sugar sirups. Only high-purity sugar cane sirups can meet the nonsugar solids content requirements of item 155.30. Most sugar cane sirup and all molasses, which is the byproduct of sugar cane milling or cane sugar refining, is classified under TSUS items 155.35 or 155.40, which are discussed later.

Articles classified under item 155.30 are dutiable on total sugars at the rate per pound applicable under item 155.20 to sugar testing 100 degrees.

The column 1 and 2 rates of duty on liquid sugar and other sugar sirups under TSUS item 155.30 reflect increases in duty negotiated under the GATT in 1956, but not made fully effective until August 31, 1963. The rate in column 1 was increased to the same rate as in column 2 by Presidential Proclamation 4463, effective September 21, 1976.

The tariff on liquid sugar and other sugar sirups under TSUS item 155.30 is based on the total sugars in the liquid solution as determined by chemical testing (a different method of measurement from polariscopic testing), which determines the weight of sucrose along with the content of any invert or reducing sugars in solution. The results of this form of testing may differ from that which would result from polariscopic testing, particularly for solutions with a substantial content of invert or reducing sugars.

Flavored or blended sugars and sirups

TSUS item 155.75 covers sugars, sirups, and molasses described in subpart A, part 10, schedule 1 of the TSUS, flavored; and sirups, flavored

or unflavored, consisting of blends of any of the articles described in the aforementioned subpart. Most imports under this description have been specialty sirups and sugars and thick soy sauce, which is classified as a flavored molasses. However, a much larger group of products of this description is commonly produced and marketed within the United States. Most soft drinks are produced from flavored sirups that would match this description. A large portion of industrial usage of sugar is in the form of custom-blended sirups, generally unflavored sugar and corn sirup mixes, although U.S. imports of such blends have been negligible.

The rate of duty for imports under TSUS item 155.75 in column 1 is 15 percent ad valorem and in column 2 is 20 percent ad valorem. The rate of duty in column 1 is the result of a concession granted by the United States in the Kennedy round, which provided for staged annual reductions from 20 percent prior to 1968 to 15 percent in 1972.

Alternative sweeteners

The TSUS also provides for other sweetening agents. The following discussion covers the tariff treatment of molasses, maple sugar products, corn sugar products, honey, and miscellaneous alternative sweeteners.

Molasses.--Sugars, sirups, and molasses, derived from sugar cane or sugar beets, not principally of crystalline structure and not in dry amorphous form, containing soluble nonsugar solids (excluding any foreign substance that may have been added or developed in the product) equal to over 6 percent by weight of the total soluble solids are classified under TSUS items 155.35 and 155.40. 1/ If these articles are imported for

1/ The rates of duty for products of Cuba, TSUS items 155.36 and 155.41, are suspended, and imports from that country are embargoed.

human consumption or for the commercial extraction of sugar, they fall in item 155.35; all other imports are classified under item 155.40. The column 1 rate of duty for item 155.35 is 2.9 cents per gallon, and the column 2 rate is 6.8 cents per gallon. The column 1 rate for item 155.40 is 0.012 cent per pound of total sugars and the column 2 rate is 0.03 cent per pound of total sugars. Because the rate of duty for item 155.40 is nearly negligible in relation to the costs of chemical testing for total sugars, the Customs Service only makes spot checks on the reported total sugars in imports of molasses. The ad valorem equivalents of the rates of duty on molasses are generally very low--in 1976 about 1 percent for item 155.35 and about 0.3 percent for item 155.40.

Maple sugar and maple sirup.--Maple sugar is classified under TSUS item 155.50 and is free of duty in column 1 and dutiable at 6 cents per pound in column 2. Maple sirup is classified under item 155.55 and is free of duty in column 1 and dutiable at 4 cents per pound in column 2.

Dextrose and dextrose sirup.--Dextrose is classified under TSUS item 155.60 and dextrose sirup under item 155.65. The latter covers glucose sirup, including corn sirup, glucose sirup derived from other starch sources, and high-fructose sirup. Items 155.60 and 155.65 both have column 1 rates of duty of 1.6 cents per pound and column 2 rates of 2 cents per pound.

Honey.--Honey is classified under TSUS item 155.70 and is dutiable in column 1 at 1 cent per pound and in column 2 at 3 cents per pound. On June 29, 1976, the Commission reported to the President its determination, findings, and recommendations in an investigation on imports of

honey (investigation No. TA-201-14) under section 201 of the Trade Act. The Commission found that increased imports of honey constituted a threat of serious injury to the domestic honey industry, thereby entitling it to import relief. The Commission recommended to the President import relief in the form of a tariff-rate-quota system which would allow 30 million pounds of honey to be imported each year into the United States at the current tariff of 1 cent per pound. All imports exceeding that amount in any given year would be subject to an additional tariff of 30 percent ad valorem during the first 3 years after the relief becomes effective. During the fourth year, the additional tariff would decrease to 20 percent ad valorem, and during the fifth year it would decrease to 10 percent ad valorem. The relief would terminate at the end of the fifth year.

On August 28, 1976, the President determined that import relief for commercial producers of honey was not in the national economic interest of the United States and reported to Congress his reasons for taking action which differed from the action recommended by the Commission. Section 203(c) of the Trade Act provides that Congress may disapprove of such Presidential action by force of a concurrent resolution approved within 90 days of the Presidential action by a majority of those present and voting in each House. This 90-day period is based on days in which Congress is in session, and as of early January 1977 it had not run out.

Miscellaneous alternative sweeteners.--Lactose is classified under TSUS item 493.65 and is dutiable in column 1 at 10 percent ad valorem and

in column 2 at 50 percent ad valorem. Levulose (fructose) is classified under item 493.66 and is dutiable in column 1 at 20 percent ad valorem and in column 2 at 50 percent ad valorem.

Sugars, sirups, and molasses, derived from sources other than sugar cane or sugar beets (for example, sweet sorghum or palm hearts) are believed to be classifiable under item 798.00. Item 798.00 covers any article, not provided for elsewhere in the TSUS, and requires that that article be chargeable with the same duty as an enumerated article most resembling it as to use. Such articles would be dutiable at the same rates of duty as sugars, sirups, or molasses, derived from sugar cane or sugar beets (Customs Information Exchange 452162, dealing with classification of palm sugar).

Generalized System of Preferences

Sugar classified under items 155.20, 155.30, and 155.75 is eligible for Generalized System of Preferences (GSP) duty-free treatment. 1/ The granting of GSP treatment for sugar under item 155.20 has complicated the U.S. import situation. 2/

Several designated beneficiary countries 3/ exported sugar valued in excess of $25 million to the United States in 1974, and on the basis of the competitive-need criterion, these countries were ineligible for GSP duty-free treatment in January and February of 1976. The competitive-

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1/ * * *

2/ Data for GSP imports are presented in Appendix G of this report.

3/ Argentina, Brazil, Republic of China, Colombia, Costa Rica, Dominican Republic, Guatemala, Guyana, India, Jamaica, Mexico, Peru, and the Philippines.

need criterion was raised to $26.8 million for imports in 1975, and again several designated beneficiary countries 1/ exceeded the criterion in the value of their sugar exports to the United States in 1975 and are thus ineligible for GSP duty-free treatment from March 1, 1976, to February 28, 1977. Several other suppliers of sugar to the United States are not eligible for GSP treatment because they are not designated beneficiary countries. 2/ The competitive-need criterion for GSP eligibility in 1977 has been established at $29.9 million for 1976 imports, and several countries 3/ shipped sugar to the United States in excess of $29.9 million during 1976.

GSP suppliers accounted for less than 10 percent of U.S. sugar imports in 1974 and 1975, but from January to October 1976, imports of GSP duty-free sugar accounted for 17 percent of total U.S. sugar imports.

Other Government Regulations Affecting Sugar

The sugar acts

On June 6, 1974, the House of Representative rejected amendments to extend the Sugar Act of 1948 (Sugar Act) as proposed by the House Agriculture Committee. Thus, most of the provisions of the 1948 legislation expired on December 31, 1974.

Historical background.--Beginning with the Jones-Costigan Act of 1934, the United States substituted quotas in preference to the tariff

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1/ Argentina, Brazil, Republic of China, Colombia, Dominican Republic, El Salvador, Guyana, India, Jamaica, Nicaragua, Panama, Peru, the Philippines, and Thailand. Costa Rica was made eligible retroactive to Mar. 1, 1976, as a result of revaluation of U.S. imports from Costa Rica.

2/ Canada, Australia, South Africa, European Community members, Sweden, People's Republic of China, Ecuador, and Venezuela.

3/ Guatemala, El Salvador, Nicaragua, Dominican Republic, Peru, India, and the Philippines.

as the effective instrument of national policy with respect to imports of sugar. This course followed a recommendation made by the Tariff Commission in an investigation under section 336 of the Tariff Act of 1930. The shift to a quota system was accompanied by a large reduction in the preferential tariff on sugar from Cuba, the principal foreign supplier at the time. This isolated the sugar markets of the United States and Cuba from the highly unstable world market. The limitation of supply, accompanied by a reduction in duty, enabled domestic and Cuban suppliers to the U.S. market to stabilize returns at an "acceptable" (higher price) level.

Through the years since 1934 there were changes in the specifics of the U.S. sugar acts. Most imports under quota came from Cuba until July 6, 1960, when diplomatic relations between the United States and Cuba were suspended and the quota for Cuban sugar was withheld. All trade with Cuba was prohibited by Presidential Proclamation 3447 of February 3, 1962. From July 6, 1960, to December 31, 1974, the Cuban quota was prorated among other foreign suppliers. As a result, quotas were allotted to almost every raw sugar exporter in the world. The material which follows is a brief summary of the specifics of the Sugar Act, as amended in 1971; the act expired on December 31, 1974.

Price objective.--Under the Sugar Act, the Secretary of Agriculture estimated the annual quantity of sugar that could be consumed in the continental United States at a prescribed price objective. This price objective during 1972-74 was the price for raw sugar that would maintain the same ratio to the average of the parity and wholesale price indexes as prevailed during the period September 1970 through August 1971. The parity index is the index of prices paid by farmers for commodities and

services bought for operating farms, family living, interest, taxes, and farm wage rates. The indexes are calculated monthly. The act specified mandatory changes in quotas in an effort to attain the price objective if raw sugar prices varied from the price objective by more than a few percentage points. From November through February the range of acceptable variation was 3 percent, and at other times it was 4 percent. This resulted in a price corridor of acceptable variation of raw sugar prices. 1/

Quotas.--After the Secretary of Agriculture estimated the annual quantity of sugar (known as the domestic consumption requirement) that could be consumed at the price objective under the Sugar Act, this quantity was allocated by statutory formula among domestic and foreign suppliers of sugar. The statutory formula under the 1971 amendment allocated about 62 percent of the initial basic quota of 11.2 million short tons, raw value, to domestic areas, about 10 percent to the Philippines, and the remaining 28 percent to Cuba and 32 other countries. The quota for Cuba was withheld and prorated to other countries in the Western Hemisphere and to the Philippines. Any increase in the domestic consumption requirement over 11.2 million short tons was allocated on the basis of 65 percent to domestic areas other than Hawaii and Puerto Rico and 35 percent to foreign countries. Hawaii and Puerto Rico had their own quotas for sugar, which were increased automatically if production exceeded the quota level.

1/ Beginning in July 1962 and continuing until the expiration of the act in December 1974, the price guideline for quota control was put in terms of raw sugar. Before then the price guideline had been in terms of refined sugar.

When a domestic area or a foreign country in the Western Hemisphere could not fulfill its share of the quota, the deficit was prorated to other countries in the Western Hemisphere and to the Philippines (except in the case of the Central American Common Market, where deficits could be made up by other members). When a country in the Eastern Hemisphere could not fulfill its quota, the deficit was prorated to other countries in the Eastern Hemisphere.

Only small quantities of refined and liquid sugar were allowed to be imported under the Sugar Act. The effect was to allow only imports of raw sugar for further domestic refining. The sugar quotas did not apply to sugar brought into the United States for use in livestock feed, for the distillation of alcohol, or for export or processing for export.

Excise tax and Government payments.--Concurrent with the various sugar acts and amendments thereto, the Internal Revenue Code was amended to impose an excise tax on refined sugar 1/ manufactured in the United States and Puerto Rico (IRC Sec. 4501). During the period August 1963 to June 1975, the tax was 0.53 cent per pound of total sugars (excluding water and impurities). The TSUS had similarly provided a corresponding additional duty on imported refined sugar and on the sugar content of imported articles (such as hard candy) in chief value of manufactured sugar.

The various sugar acts also provided for Government payments to growers of sugar cane and sugar beets, conditional upon the grower's

1/ The Internal Revenue Code uses the term "manufactured sugar," defined as sugar derived from sugar cane or sugar beets which is not to be further refined or otherwise improved in quality.

observance of fair labor standards and production of not more than the farm's proportionate allotment of the particular domestic area's quota, (when acreage allotments were in effect). The payments were made with respect to commercially recoverable sugar in the cane or beets on a sliding scale at a rate of 0.8 cent per pound for farms producing less than 350 short tons of recoverable sugar down to a rate of 0.3 cent per pound for farms producing more than 30,000 tons of recoverable sugar. Payments at the higher rate were received by most sugar beet farms and by most sugar cane farms in Louisiana and Puerto Rico. The very large farms producing sugar cane (located primarily in Hawaii and Florida) received payments at lower rates, but the individual payments were substantial, in some cases in excess of $1 million to a single grower. The limitations placed on payments that applied to most agricultural commodities were not applied in the case of sugar. In recent years prior to 1974, payments to sugar cane and sugar beet growers averaged 10 to 15 percent of their total returns from sugar cane and sugar beets. Payments became a much smaller portion of total returns in 1974 and 1975 because of high sugar prices.

Payments to growers were made from the U.S. Treasury's general revenues. They were often measured against sugar excise tax receipts. During the last few years of the Sugar Act, payments to growers amounted to about $90 million annually, while sugar excise tax receipts amounted to about $115 million. As a result of this comparison, the provisions of the Sugar Act were often called a self-supporting agricultural program.

Labor provisions.--The labor provisions of the Sugar Act resulted in minimum wages for sugar workers, the lowest of which for mainland

producers was $1.90 per hour for certain workers in Louisiana. With no new sugar legislation, sugar workers fell under the Fair Labor Standards Act, which provided a minimum wage of $1.80 per hour. It is possible that the hourly wages of sugar workers, in the aggregate, did not fall much owing to this change. To some extent the Sugar Act was responsible for sugar workers being among the highest paid of all farm workers.

Sugar legislation introduced in 1976

In addition to bills to reestablish sugar programs similar to the Sugar Act just discussed, a bill entitled the Sugar Supply Assurance Act of 1976 was introduced in the 2d session of the 94th Congress (H.R. 15485). This bill was principally authored by Representative Robert Bergland (D-Minn.) and would have provided for a system to protect domestic producers from imported sugar by means of a variable tariff. The proposed legislation provided for a duty that would equalize the difference between the world price for sugar and a computed base domestic price. The base domestic price would be that price that would maintain a ratio between U.S. beet sugar production costs and the average New York spot price for raw sugar in any calendar year on the same basis that existed in crop year 1972. 1/ The base domestic price would be adjusted quarterly to reflect any changes that had occurred in certain economic indexes. The duty to be imposed on imported sugar would equal 97.5 percent of the difference between the foreign purchase price and the base domestic price.

1/ Crop year 1972 was used because that was the last time that the U.S. Department of Agriculture conducted a survey on beet sugar production costs.

This bill would have put a floor on the U.S. price, but it would not have provided for a price ceiling. (The variable levy of the European Community has similar provisions for a floor price, but it also allows import subsidies that can act as a price ceiling).

Application of other agricultural legislation to sugar

Most agricultural legislation dealing with farm programs does not mention sugar since sugar had been covered by the provisions of the Sugar Act. However, most farm legislation does not exclude sugar; thus, the Secretary of Agriculture could implement support programs for sugar if he deems it necessary to protect the domestic sugar production industry.

One provision of law which might bear upon this matter would be section 301 of title III of the Agricultural Act of 1949 (7 U.S.C. 1447), which provides:

> The Secretary is authorized to make available through loans, purchases, or other operations price support to producers for any nonbasic agricultural commodity not designated in [section 1446 of this title] at a level not in excess of 90 per centum of the parity price for the commodity.

This provision could be applied to both sugar beets and sugar cane. However, since these articles are not storable commodities, price supports would probably have to be made in terms of either raw or refined sugar. Such a program is authorized by section 401 of the same act (7 U.S.C. 1421), which allows the application of programs to products of processors as long as the Secretary receives adequate assurance that the benefits of supports will be passed back to the producers of the agricultural commodity. Once a price-support program is implemented by

the Secretary of Agriculture, he could request the imposition of quota or tariff limitations on imports under section 22 of the Agricultural Adjustment Act, as amended (7 U.S.C. 624), which provides powers (including emergency powers) to take such actions if necessary to protect price-support programs.

Section 814 of the Agricultural and Consumer Protection Act of 1973 provides:

> Notwithstanding any other provisions of this Act, the Secretary shall encourage the production of any crop of which the United States is a net importer and for which a price support program is not in effect by permitting the planting of such crop on set-aside acreage with no reduction in the rate of payment for the commodity. (7 U.S.C. 1434)

This provision became applicable to sugar cane and sugar beets on January 1, 1975; however, there were no set-aside programs in 1975 or 1976, and former Secretary of Agriculture Butz announced that there would be none in 1977. The economic impact of such a program on sugar cane and sugar beet growers would probably be minimal since processing capacity is the chief limitation on sugar beet production, and severe natural limitations preclude a large expansion of domestic sugar cane production.

The President has authority under section 204 of the Agricultural Act of 1956 to negotiate with representatives of foreign governments in an effort to obtain agreements limiting exports of an agricultural commodity to the United States.

Sugar cane and sugar beets are excluded from domestic marketing agreements under the Agricultural Marketing Agreement Act of 1937.

The Question of Increased Imports

U.S. imports

The bulk of U.S. imports of sugar are entered as raw sugar in TSUS item 155.20. In addition, TSUS item 155.20 includes substantial quantities of refined sugar. Also important are U.S. imports of liquid sugar and other sugar sirups under TSUS item 155.30. However, before 1975, most imports of refined and liquid sugar were virtually embargoed under the Sugar Act.

Annual U.S. imports of sugar under TSUS items 155.20 and 155.30 have varied considerably in recent years. 1/ In 1971, imports amounted to 5.6 million short tons, raw value. Imports declined to 5.5 million tons in 1972 as a result of Sugar Act amendments to increase the share of domestic sugar supplied by U.S. producers, and further declined to 5.3 million tons in 1973. In 1974, U.S. sugar imports were the highest ever at 5.8 million short tons. In 1975, imports declined to 3.9 million tons, the lowest annual level since 1965. Imports in 1976 totaled 4.7 million short tons, raw value (table 5). Although imports were higher in 1976 than in 1975, they were lower than the imports of 1971, 1972, 1973, and 1974 when the Sugar Act was in force.

1/ Pursuant to Presidential Proclamation No. 4334, of Nov. 16, 1974, U.S. imports of sugar provided for under TSUS items 155.20 and 155.30 are subject to an annual quota limitation of 7 million short tons, raw value (See appendix D).

Table 5.--Sugar: U.S. imports, by all sources and by types, 1972-76

(In short tons, raw value)

Source and type	1972	1973	1974	1975	1976
*Dominican Republic	751,491	745,043	817,728	775,147	971,309
*Philippines	1,431,745	1,454,377	1,472,299	413,034	915,124
Australia	229,696	265,388	241,705	479,172	469,528
*Guatemala	77,337	62,552	95,934	60,606	330,756
*Peru	443,678	407,410	471,145	215,679	312,772
*West Indies 1/	174,271	40, 36	282,146	237,537	243,978
*India	84,104	81,445	84,902	187,624	188,506
*Nicaragua	79,513	76,193	53,254	57,962	165,633
*El Salvador	54,348	59,880	65,127	107,466	143,154
Republic of South Africa	57,681	73,883	69,410	134,082	98,472
*Panama	41,646	52,273	65,525	98,250	95,031
*Argentina	87,843	84,759	109,755	112,318	86,729
*Republic of China	86,080	86,198	90,059	139,963	86,533
*Colombia	78,886	75,055	104,820	159,065	84,454
*Thailand	19,053	19,072	26,220	123,512	70,059
*Costa Rica	84,156	99,705	78,515	56,240	65,075
*Bolivia	0	7,549	5,714	3,507	52,990
Canada	3	0	1	39,990	50,568
*Swaziland	32,067	30,186	41,360	35,795	45,805
*Mozambique	0	0	0	15,090	31,847
*Mauritius	31,723	44,599	45,527	26,741	29,811
Ecuador	94,309	93,156	59,628	46,770	28,440
*Malawi	0	15,615	10,274	26,585	17,659
*Belize	39,577	47,509	62,506	46,155	14,349
*Malagasy Republic	13,119	12,130	13,088	13,022	13,400
France	0	0	0	0	13,340
*Paraguay	7,646	7,398	8,506	3,328	10,187
*Honduras	13,328	0	8,455	6,073	7,483
*Haiti	22,521	15,294	18,807	11,622	6,218
*Uruguay	0	0	0	0	5,229
Netherlands	0	0	0	22	1,501
Belgium	0	0	2	0	1,129
Federal Republic of Germany	0	2	5	1	990
*Republic of Korea	0	0	0	10,615	777
Switzerland	0	0	0	0	745
*Mexico	648,323	636,832	538,131	41,130	551
United Kingdom	15,745	5,247	0	29	82
Austria	0	0	10	0	16
Sweden	10	9	4	3	2
*Brazil	637,330	652,084	783,330	197,131	0
*Netherlands Antilles	0	0	0	1,279	0
Venezuela	70,205	31,901	0	24	0
Denmark	10	0	0	2	0
*Fiji	45,984	44,605	46,083	1	0
Japan	0	0	1	0	0
Ireland	5,357	1,107	0	0	0
*Hong Kong	27	1	0	0	0
Total	5,458,812	5,329,293	5,769,976	3,882,589	4,660,232
Refined imports	35,077	19,355	266	72,689	78,770
Raw imports	5,423,735	5,309,958	5,769,710	3,809,900	4,481,462

1/ West Indies consists of Jamaica, Barbados, Guyana, Trinidad and Tobago, and the Leeward and Windward Islands.

Source: Compiled from official statistics of the U.S. Department of Agriculture.

Note.--Countries preceded by an asterisk (*) are designated beneficiaries under the Generalized System of Preferences.

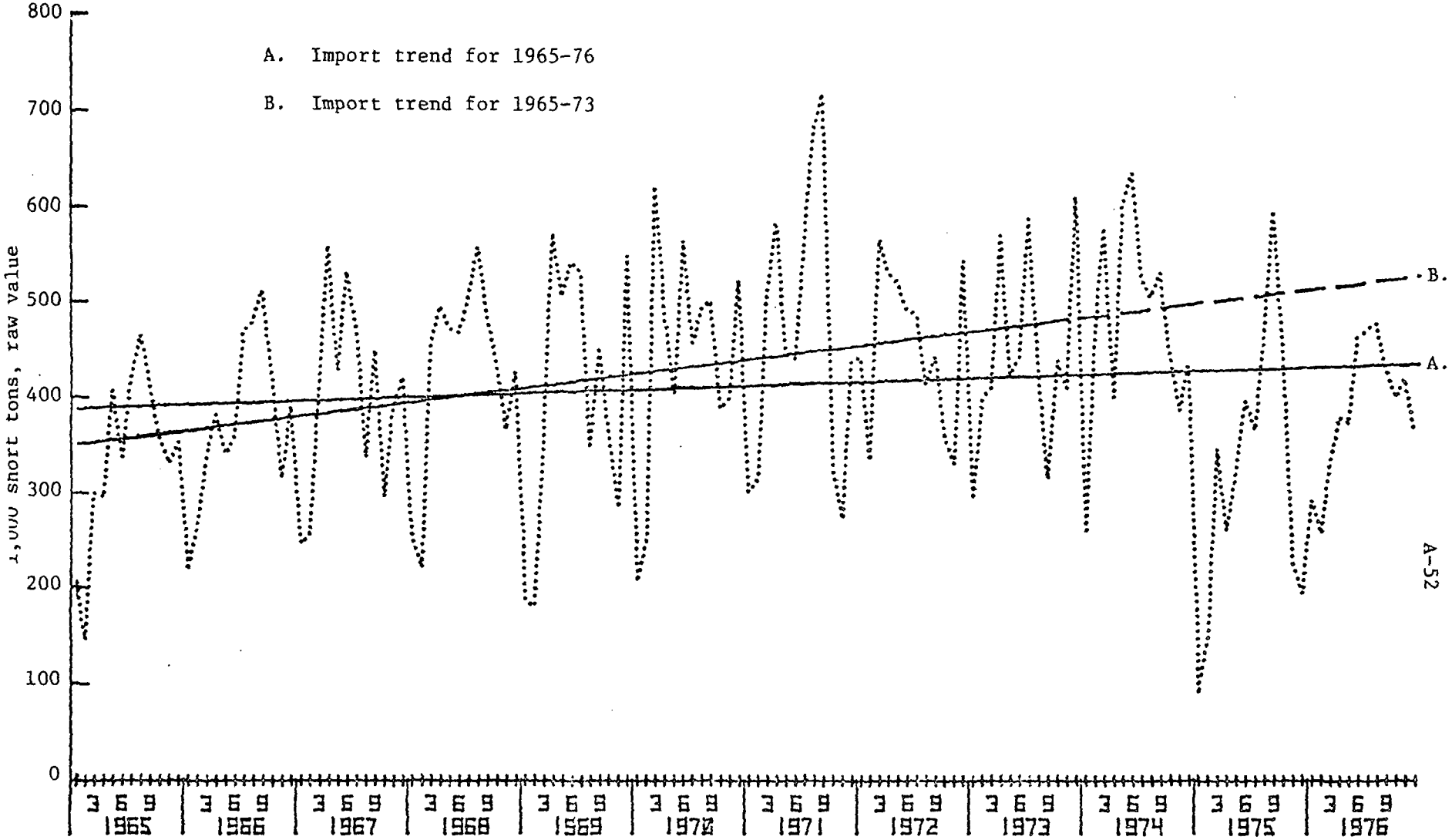
U.S. imports of sugar are seasonal, with lower imports in the first quarter than in the second and third quarters of each year. Fourth quarter imports are generally lower than those in the second and third quarters, except that while the Sugar Act was in effect there were often surges in imports in December as countries attempted to fill their yearly quotas.

The long-term trend in imports of sugar was upward over the period 1965-76. The long-term trend in imports of sugar over the period prior to the expiration of the Sugar Act and the increase in prices of 1974 and 1975 was also upward. The rate of increase of this trend line was significantly greater than that of the trend line over the longer period because it did not include the recent period of historically depressed imports. Figure 1 shows monthly imports from 1965-76 with the 1965-76 and the 1965-73 trend lines.

Short-term trends in imports differ as a result of the choice or length of the periods over which they are calculated. Figure 2 presents two examples of short-term trends in imports over two recent periods and repeats the long-term trend line of the 1965-76 period, which increases at a slower rate than the 1965-73 trend line. The trend in imports for 1973-76 is decreasing, while the trend in imports for 1975-76 is increasing.

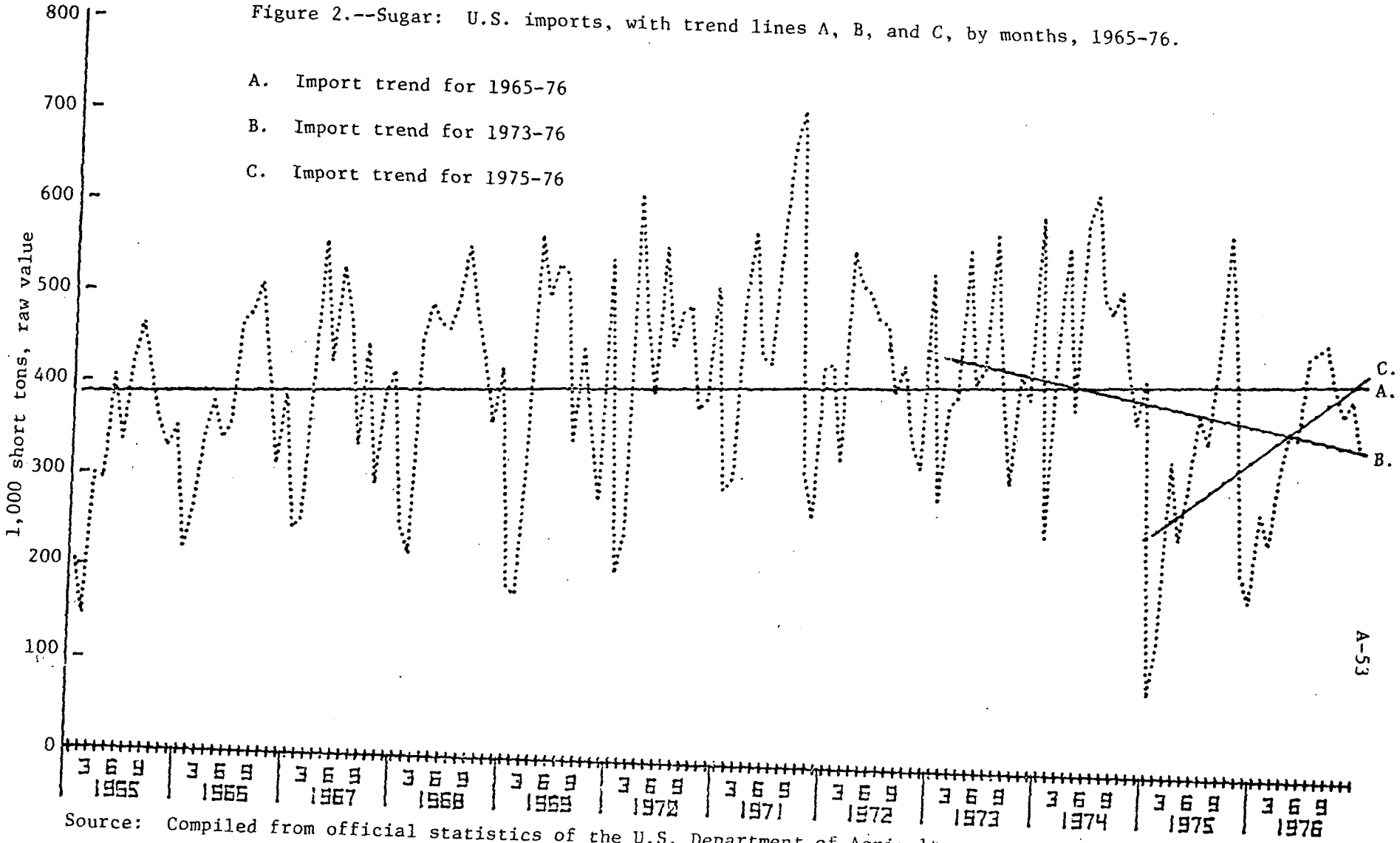
The large degree of short-term cyclical fluctuation in imports of sugar interferes with the interpretation of these trend patterns. These fluctuations in imports have been reduced by use of a 6-month moving average which appears in figure 3. The basic pattern is repeated. Beginning in the latter part of 1974, imports of sugar were generally

Figure 1.--Sugar: U.S. imports, with trend lines A and B, by months, 1965-76.



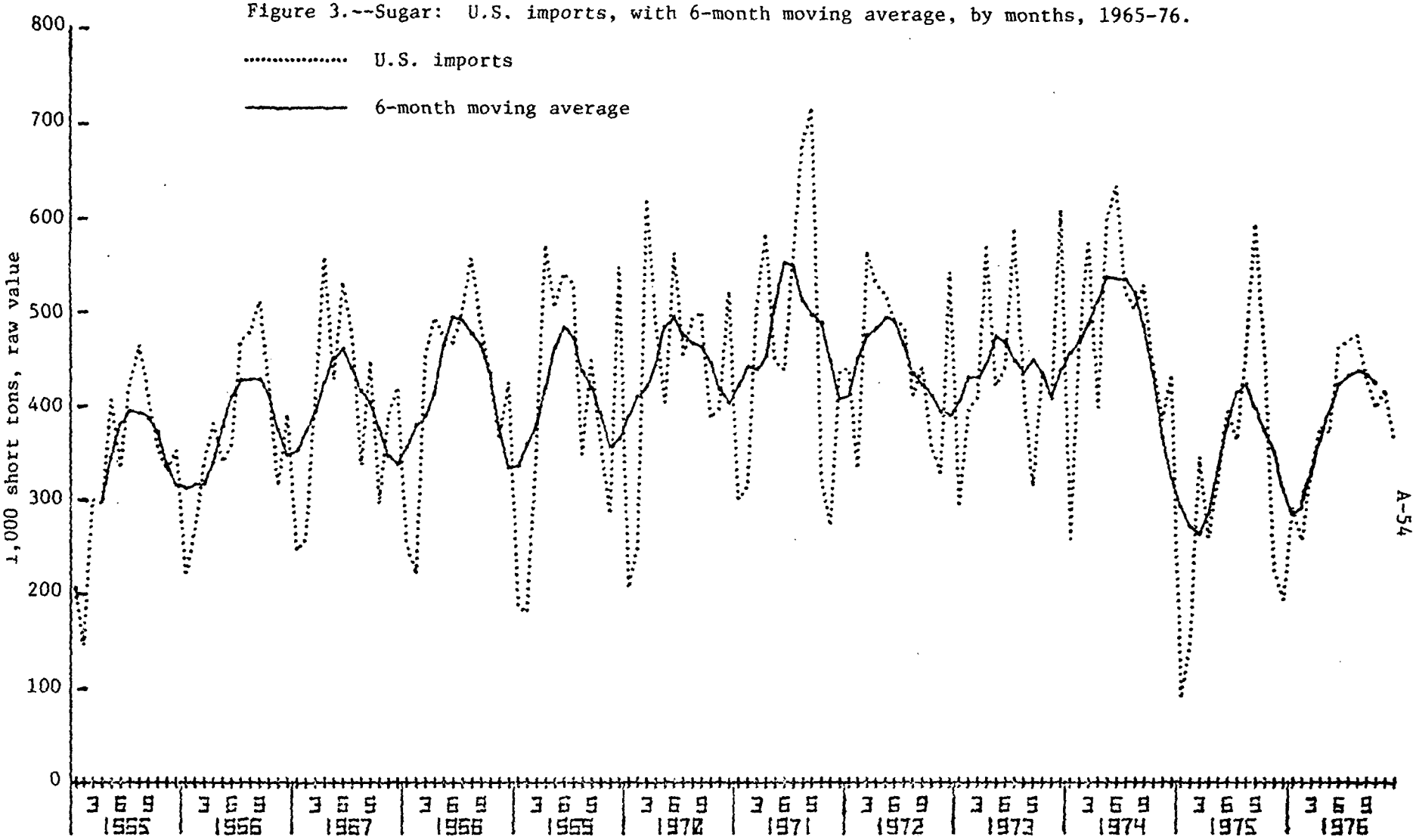
Source: Compiled from official statistics of the U.S. Department of Agriculture.

Figure 2.--Sugar: U.S. imports, with trend lines A, B, and C, by months, 1965-76.



Source: Compiled from official statistics of the U.S. Department of Agriculture.

Figure 3.--Sugar: U.S. imports, with 6-month moving average, by months, 1965-76.



Source: Compiled from official statistics of the U.S. Department of Agriculture.

below the long-term trend in imports, while in 1975 and 1976, imports, although down, were recovering.

Under the Sugar Act, low levels of imports of refined and liquid sugar were common in most years, with the amount varying significantly depending on the difference in U.S. and world prices. Since the expiration of the Sugar Act and the end of restrictive quotas on refined sugar, imports of such sugar have been rising to record levels (table 6). Most of this increase is accounted for by increased border sales of refined and liquid sugar by Canadian sugar refineries; but total imports of refined and liquid sugar are still less than 2 percent of total sugar imports.

Imports of sugar as flavored or blended sugars and sirups under TSUS item 155.75 have been small relative to raw and refined sugar imports (table 7). Such imports were not subject to quota under the Sugar Act; but in the event of any effort to use the provision to evade sugar quotas, the Secretary of Agriculture was empowered under the Sugar Act to make such imports subject to quota. Imports of sugar cane and sugar beets classified under TSUS items 155.10, 155.12, and 155.15 have been negligible or nil. Sugar cane and sugar beets are too perishable to be substantial articles of international trade. The few entries which have occurred in these TSUS items have been specialty products, such as canned sugar cane, sliced and dried sugar beets, and sugar beet juice, and have not been used for purposes of extracting sugar. Some sugar beets were imported in December 1976 from Canada for processing in Maine.

Table 6.--Liquid sugar and other sugar sirups (TSUS item 155.30): U.S. imports for consumption, by selected sources, 1971-76

Source	1971	1972	1973	1974	1975	1976
	Quantity (1,000 pounds of total sugars)					
Canada	0	3	0	0	22,557	36,990
United Kingdom	158	131	138	83	89	69
Republic of South Africa	0	0	0	0	0	46
Mexico	0	0	0	0	0	7
Guatemala	0	0	0	0	0	32
Federal Republic of Germany	0	0	0	0	4	9
Sweden	3	2	6	4	9	8
Swaziland	0	0	0	0	72	0
Australia	0	0	0	0	66	0
India	0	4	0	12	24	0
Other	0	2	9	0	11	0
Total	161	148	153	99	22,832	37,160
	Value (1,000 dollars)					
Canada	0	5	0	0	5,252	6,049
United Kingdom	27	27	29	35	42	22
Republic of South Africa	0	0	0	0	0	9
Mexico	0	0	0	0	0	6
Guatemala	0	0	0	0	0	5
Federal Republic of Germany	0	0	0	0	1	4
Sweden	1/	2	2	1	4	4
Swaziland	0	0	0	0	17	0
Australia	0	0	0	0	12	0
India	0	1	0	4	8	0
Other	0	2	2	0	1/	0
Total	28	35	32	39	5,339	6,098
	Unit value (cents per pound of total sugars)					
Canada	0	168.0	0	0	23.3	16.4
United Kingdom	17.3	20.3	20.7	41.5	47.5	32.3
Republic of South Africa	0	0	0	0	0	19.3
Mexico	0	0	0	0	0	83.7
Guatemala	0	0	0	0	0	16.7
Federal Republic of Germany	0	0	0	0	38.6	39.6
Sweden	15.6	20.2	25.3	32.8	43.6	45.1
Swaziland	0	0	0	0	23.3	0
Australia	0	0	0	0	18.3	0
India	0	23.5	0	30.4	32.3	0
Other	0	22.6	18.2	0	25.3	0
Average	17.3	23.4	20.7	39.8	23.4	16.4

1/ Less than $500.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 7.--Sugars, sirups, and molasses, flavored, and blended sirups, flavored or unflavored (TSUS item 155.75): U.S. imports for consumption, by selected sources, 1971-76

Source	1971	1972	1973	1974	1975	1976
	Quantity (1,000 pounds)					
Jamaica	213	217	335	487	3,599	931
Hong Kong	651	612	565	378	604	622
Federal Republic of Germany	88	103	97	91	48	148
Mexico	0	0	0	8,177	2,294	362
People's Republic of China	0	4	24	23	267	228
Poland	0	26	0	24	16	86
Brazil	0	0	0	308	9,137	1
Australia	10	0	5	230	2,630	4
El Salvador	0	0	0	1	639	0
Honduras	0	0	0	0	735	0
Other	252	302	368	446	1,007	305
Total	1,214	1,264	1,394	10,165	20,976	2,687
	Value (1,000 dollars)					
Jamaica	51	54	77	105	753	198
Hong Kong	388	241	128	90	175	161
Federal Republic of Germany	56	73	90	98	58	140
Mexico	0	0	0	1,491	423	65
People's Republic of China	0	1	8	11	66	50
Poland	0	5	0	7	7	33
Brazil	0	0	0	33	1,074	3
Australia	1	0	1	30	571	1
El Salvador	0	0	0	1/	125	0
Honduras	0	0	0	0	102	0
Other	73	134	140	131	265	134
Total	569	508	444	1,996	3,619	785
	Unit value (cents per pound)					
Jamaica	23.9	24.9	23.0	21.6	20.9	21.3
Hong Kong	59.6	39.4	22.7	23.8	29.0	25.8
Federal Republic of Germany	62.9	70.7	93.3	108.6	120.8	95.0
Mexico	-	-	-	18.2	18.4	18.0
People's Republic of China	-	28.5	32.0	50.1	24.7	21.7
Poland	-	19.7	-	30.0	43.2	38.9
Brazil	-	-	-	10.7	11.8	336.5
Australia	9.8	-	12.3	21.7	21.7	28.1
El Salvador	-	-	-	55.0	19.6	-
Honduras	-	-	-	-	13.9	-
Other	29.0	44.4	38.0	29.4	26.3	43.9
Average	46.9	40.2	31.9	19.6	17.3	29.2

1/ Less than $500.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Ratio of imports to domestic production

The ratio of U.S. imports of sugar to domestic production decreased from 91 percent in 1971 to 84 percent in 1973, increased to 97 percent in 1974, and then declined sharply to 59 percent in 1975 (table 8). Domestic production during the period 1971-75 increased from 6.14 million short tons, raw value, in 1971 to 6.32 million tons in 1973. Part of the increase in domestic production during the period can be attributed to the increased quotas allocated to the domestic sugar producers under the extension of the Sugar Act in 1971. Production declined to 5.96 million tons in 1974 principally owing to sugar beet growers cutting back their acreage in response to decreased earnings from sugar beets under wage and price controls and higher prices which could be realized from competing crops. Production increased to 6.61 million tons in 1975. The expansion in production in 1975 can be attributed to the high prices farmers received in 1974 for their sugar cane and sugar beet crops. The President and the Department of Agriculture had also requested farmers to expand production. Import levels declined from 5.59 million short tons in 1971 to 5.33 million tons in 1973, increased to 5.77 million tons in 1974, and declined to 3.88 million tons in 1975.

During the period 1971-75, domestic production did not fluctuate much on a calendar-year basis when compared with imports, which ranged between 3.88 million and 5.77 million short tons, raw value; hence fluctuations in the ratio of imports to domestic production are closely correlated with fluctuations in import levels. Data for January-November 1975 and 1976 are also given in table 8; however, these data should not

Table 8.--Sugar: U.S. production, imports, exports, ending stocks, and consumption, 1960-75, and January-November 1975 and 1976

(In millions of short tons, raw value)

Year	Production	Imports	Exports	Ending Stocks	Consumption 1/	Ratio I/P	Ratio I/C
						Percent	Percent
1960	5.04	4.88	0.05	2.48	9.49	97	51
1961	5.40	4.41	.06	2.35	9.86	82	45
1962	5.42	4.68	.07	2.40	9.99	86	47
1963	5.88	4.59	.03	2.66	10.19	78	45
1964	6.60	3.63	.02	2.95	9.91	55	37
1965	6.27	4.03	.09	2.87	10.27	64	39
1966	6.18	4.50	.07	2.85	10.60	73	42
1967	6.12	4.80	.07	2.98	10.68	78	45
1968	6.28	5.13	.08	3.08	11.23	82	46
1969	5.97	4.89	.08	2.92	10.94	82	45
1970	6.34	5.30	.07	2.85	11.61	84	48
1971	6.14	5.59	.09	2.89	11.59	91	48
1972	6.32	5.46	.05	2.86	11.70	86	47
1973	6.32	5.33	.03	2.69	11.77	84	45
1974	5.96	5.77	.03	2.88	11.47	97	50
1975	6.61	3.88	.15	2.90	10.18	59	38
January-November:							
1975	5.30	3.68	.14	2/ 2.41	9.27	69	40
1976	5.83	4.30	.06	2/ 2.72	10.25	74	42

1/ Actual consumption, including, human, livestock feed, alcohol, and refining loss.

2/ Partly estimated.

Source: Compiled from official statistics of the U.S. Department of Agriculture.

be used to compute an import to production ratio in either year because of the seasonal nature of sugar production, however it is estimated that the import to production ratio for 1976 will be higher than the 59 percent import to production ratio of 1975.

Ratio of imports to domestic consumption

The ratio of U.S. imports of sugar to domestic consumption decreased irregularly from 1971 to 1975. From 1971 to 1973, the ratio declined from 48 to 45 percent. In 1974, it increased to 50 percent--the highest level since 1960--and then declined to 38 percent in 1975, which was the lowest level since 1964. The estimated ratio for 1976 is 42 percent. The ratio of imports to domestic consumption is more stable than that of imports to domestic production because of the mitigating effect of changes in stocks. The ratio of imports to consumption for 1960-75, January-November 1975, and January-November 1976 are shown in table 8.

Leading suppliers of U.S. imports

In 1975, the leading suppliers of U.S. imports of sugar (TSUS items 155.20 and 155.30) were the Dominican Republic, Australia, the Philippines, the West Indies, Peru, Brazil, and Central America. Although 27 other countries exported sugar to the United States in 1975, the principal suppliers accounted for 69 percent of the total. U.S. imports by countries of origin are shown in table 5.

The Dominican Republic.--The Dominican Republic's production is estimated at 1.3 million short tons, raw value, of sugar in crop year 1975/76, slightly above the 1.2 million tons produced in 1974/75. A few U.S. firms are involved in production of sugar in the Dominican Republic.

The Dominican Republic's exports of sugar in crop year 1974/75 were 1.2 million short tons, raw value, and those in 1975/76 were estimated at 1.1 million tons. The principal export market for the Dominican Republic has been the United States. In recent years, the United States accounted for 65 to 70 percent of the Dominican Republic's export market. The Dominican Republic accounted for 775,000 tons, or 20 percent of U.S. imports in 1975. In 1976, the Dominican Republic further increased its sugar exports to the United States to 971,000 short tons raw value. The Dominican Republic was a consistent supplier of the U.S. market under the Sugar Act and increased its exports more than any other country when the Cuban quota was prorated to other countries in 1962.

Australia.--Australia produced 3.2 million short tons, raw value, of sugar in crop year 1975/76 (table 9). Although sugar cane yields were higher in 1975/76 than a year earlier, a lower sugar-extraction rate resulted in sugar production being only slightly above 1974 production. In 1976/77, production increased to 3.8 million short tons. Australia's production is controlled by the Queensland Government, and its marketing is done entirely by CSR, Ltd.

Australia's sugar exports declined from 2.3 million tons in 1973 to 2.0 million tons in 1974, and then increased to an estimated 2.2 million tons in 1975. Australia's principal export markets in 1975 were the United States, Canada, Malaysia, Japan, and the Republic of Korea. Before 1974, Australia's principal markets were Japan and the United Kingdom.

U.S. imports from Australia increased dramatically from 242,000 tons in 1974 to 479,000 tons in 1975. The 1975 imports accounted for 12 percent of U.S. imports in that year. The increased U.S. imports from Australia have resulted from the ending of the British Commonwealth Sugar

Agreement and the consequent development of new markets for Australian sugar. In 1976, U.S. imports of Australian sugar amounted to 470,000 short tons, raw value.

The Philippines.--Philippine sugar production in 1975 was estimated at 3.3 million short tons, raw value, up from the 2.7 million tons produced in 1974. In 1976, Philippine production was estimated at 3.2 million tons. The increase in production in 1975 was due largely to favorable weather conditions. Philippine exports amounted to 1.6 million tons in 1973, 1.8 million tons in 1974, and 1.1 million tons in 1975. The Philippines' principal markets are the United States and Japan. The Philippines was the principal foreign supplier of sugar to the United States from the time U.S.-Cuba sugar trade ceased in 1960 to 1974. In 1975, U.S. imports of sugar from the Philippines amounted to 413,000 tons (11 percent of the total), down from 1.5 million tons in 1974.

In 1975, the distribution system for marketing sugar in the Philippines was reorganized and put under the control of a quasi-governmental agency. The new marketing agency held out for higher prices in 1975 while world prices were falling, and sales declined while supplies were growing. Consequently, the cane mills--which were no longer responsible for marketing raw sugar after milling--accumulated large inventories, in some instances beyond local storage capacities. Since then, the Philippines has signed long-term supply contracts with U.S. cane sugar refiners which provide, among other things, for Philippine participation in the sale of the refined sugar. U.S. imports from the Philippines in 1976 were 915,000 tons.

The West Indies.--Production of sugar in the West Indies (Barbados, Guyana, Jamaica, Trinidad and Tobago, and the Leeward and Windward

Islands) increased from 1.11 million short tons, raw value, in 1973 to 1.14 million tons in 1974. The West Indies' exports of sugar increased during the same period from 852,000 tons to 856,000 tons. U.S. imports from the West Indies decreased from 282,000 tons in 1974 to 238,000 tons in 1975. The 1975 imports accounted for 6 percent of U.S. sugar imports that year. The West Indies' sugar sales in the United States are complicated by GSP treatment. In 1976 Jamaica and Guyana, the largest producers, were not eligible by the competitive-need criterion, while other West Indies countries were eligible.

Peru.--Peru's production of sugar increased from 1.02 million short tons, raw value, in 1971 to 1.09 million tons in 1974, and then declined to 1.07 million tons in 1975. Production in 1975 was down slightly from 1974 because of strikes and other labor problems, as well as a lower-than-expected cane yield. Peru's sugar exports were 449,000 tons in 1973, 509,000 tons in 1974, and 465,000 tons in 1975. In 1975, U.S. imports of sugar from Peru amounted to 216,000 tons, down from 471,000 tons in 1974, and accounted for 6 percent of total U.S. sugar imports. In 1976, U.S. imports of Peruvian sugar amounted to 313,000 short tons, raw value.

Brazil.--Brazil's annual production of sugar increased from 7.7 million short tons, raw value, in 1973/74 to 8.2 million tons in 1974/75, and then declined to 6.9 million tons in 1975/76. Frost damage to part of the crop was the cause of the production decline in 1975/76. Production in 1976/77 is estimated at 8.3 million tons.

Brazilian sugar exports declined from 3.3 million tons in 1973 to 1.9 million tons in 1975. U.S. imports of Brazilian sugar were 652,000 tons in 1973, 783,000 tons in 1974, and 197,000 tons in 1975. Brazil's sugar-marketing agency has been unable to agree with U.S. firms on the

terms for long-term supply contracts for sugar, and in 1976 sent no sugar to the U.S. market. However, Brazil remains one of the largest potential suppliers of sugar to the U.S. market.

Central America.--Production in the Central American countries (Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and Panama) increased from 1.1 million short tons, raw value, in 1971 to 1.6 million tons in 1975. In 1975, U.S. imports from Central America were 433,000 tons compared with 398,000 tons in 1973. The imports from Central America were up significantly in 1976, reaching 821,000 tons. All of the above countries received duty-free treatment under the GSP for at least part of 1976.

World sugar production and consumption

During 1971/72 to 1975/76, annual world production of sugar rose from 77.8 million to 90.2 million short tons, raw value, an increase of 16 percent. During the same period, world consumption increased from 82.5 million to 89.1 million tons. During the 5-year period, world consumption exceeded world production in every year but 1973 and 1975. Estimated world production and consumption for 1976 are 95.9 million and 91.5 million short tons, respectively.

The European Community is the world's leading sugar producer, accounting for over a tenth of total world production. The U.S.S.R., the United States, Brazil, Cuba, and India are also important producers. The European Community, the U.S.S.R., and the United States consume most of their own production, while Brazil, Cuba, and India export significant portions of their output. Statistics on world production are shown in table 9.

The leading consumers of sugar are the U.S.S.R., the European Community, the United States, Brazil, the People's Republic of China, India, Japan, Mexico, and Poland. In 1974, the leading consumers on a per capita basis were Israel and New Zealand at 134 pounds each. Per capita consumption in the United States was about 97 pounds in 1974.

World sugar trade

International trade in sugar amounts to only about one-fourth of world production. Leading exporters have been Cuba, Australia, Brazil, India, and the Philippines. Leading importers have been the United States, the U.S.S.R., Japan, the European Community, and Canada (table 10).

Table 9.--Sugar: Production in selected major producing countries and total world production, crop years 1971/72 to 1976/77

(In thousands of short tons, raw value)

Country	Crop year 1/					
	1971/72	1972/73	1973/74	1974/75	1975/76	1976/77
European Community--	11,189	10,367	11,167	9,887	11,223	11,150
U.S.S.R.	8,813	8,982	10,547	8,521	8,488	10,141
Brazil	6,227	6,793	7,671	8,157	6,834	8,267
United States	6,134	6,410	5,928	5,882	7,196	6,935
Cuba	4,837	5,787	6,393	6,283	6,614	6,393
India	4,222	5,039	5,455	6,387	6,019	6,063
Australia	3,015	3,164	2,837	3,219	3,230	3,770
Philippines	2,061	2,672	2,913	2,717	3,260	3,193
Mexico	2,778	3,052	3,124	3,006	3,003	3,031
People's Republic of China	2,115	2,007	2,899	2,646	2,756	2,866
Poland	1,887	2,016	2,003	1,716	2,149	2,205
Other	24,540	26,256	27,891	27,772	29,473	31,931
World total	77,818	82,545	88,848	86,193	90,245	95,945

1/ Entire crop included for all harvests begun during the indicated May 1-April 30 crop year regardless of when harvests are completed.

Source: Compiled from official statistics of the U.S. Department of Agriculture.

Table 10.--Sugar: Total imports by principal sugar-importing countries, 1971-75

(In short tons, raw value)

Country	1971	1972	1973	1974	1975
United States	5,585,500	5,458,812	5,329,293	5,769,976	3,882,589
U.S.S.R	1,692,351	2,120,735	2,899,092	2,044,839	3,567,258
Japan	2,607,720	3,038,115	2,694,362	3,144,161	2,805,793
European Community	2,296,891	2,293,964	2,288,401	2,164,119	2,153,621
Canada	1,044,381	1,055,032	1,120,904	1,044,233	1,144,649
Iran	106,068	117,874	333,682	669,971	705,867
Iraq	326,160	298,282	521,988	432,430	416,230
Spain	31,774	63,329	86,812	499,504	411,582
Algeria	258,970	256,746	306,907	449,898	396,720
Portugal	257,358	262,099	277,262	380,697	394,045

Source: Compiled from official statistics of the International Sugar Organization.

Controlled-market sugar trade.--Trade in sugar occurs in either a controlled market (i.e., one regulated by Government policy) or in a free market. Controlled markets account for about five-sixths of world sugar output. Thus, most sugar not entering international trade and about half of that entering world trade is subject to some form of governmental control on price or supply. The European Community has used a variable levy to prevent imports from entering at less than a designated price target. The Commonwealth Sugar Agreement, which expired in 1974 because of the United Kingdom's entry into the European Community, involved guaranteed prices on fixed quantities of imports into the United Kingdom from certain members of the Commonwealth. Now, with the United Kingdom in the European Community, the Community is a net importer.

Until 1974, the United States controlled supply through the allocation of estimated consumption requirements among specified domestic

and foreign suppliers. As a result of this quota program, U.S. prices were generally higher than world-market prices, and suppliers generally tried to fill their quotas. Portugal, among the smaller importing countries, had a somewhat similar system of supply control involving its African possessions and Brazil.

Communist countries are generally isolated from the impact of the world market by government trading monopolies which control their domestic and foreign trade in sugar. In international trade, these countries usually buy and sell under contracts at prices that can have political overtones. Communist countries do deal on the world market, but this represents only part of their international sugar trade--most of which occurs among themselves or under bilateral agreements with others.

In most other countries, governments have established policies and control devices, such as official trading monopolies, licensing, exchange allocations, and exclusive trade arrangements, which allow these countries to insulate themselves from the free market when they choose to do so. Some major exporting countries, such as Australia, Mexico, and Brazil, use trading monopolies to isolate their domestic markets from the world market to maintain stable prices. Some government-sponsored trading monopolies arose largely out of the need to control export trade to take advantage of preferential arrangements with the United States or the British Commonwealth. Many importing countries, both with or without domestic sugar beet or sugar cane production, have permitted imports of raw sugar but embargoed or restricted imports of refined sugar to protect domestic

refining interests. Many countries have very high excise taxes on sugar, which are probably as much an effort to raise revenues as they are an aid to control sugar marketing.

Free-market sugar trade.--The so-called free market for sugar sold in nonpreferential international markets accounts for only about one-sixth of world sugar production. To call even this a free market may be a misnomer because when sugar is in abundant supply this market becomes a distress market for subsidized exports or for surplus sugar from countries that normally sell part of their exports in controlled markets.

Chief exporters to the free market have been Cuba, Australia, Brazil, South Africa, the European Community, and Taiwan. The chief importers (which generally benefit from low prices when sugar supplies are abundant) have been Japan, Canada, most of the Middle Eastern countries, and many other countries that produce little or no sugar themselves. The United States and many of its leading suppliers also went on the free market after the expiration of the U.S. Sugar Act.

International sugar agreements.--For over a century there have been attempts by world producers and users of sugar to keep the free market from becoming a distress market for that part of their output that cannot be sold in controlled markets. The latest attempts to stabilize the world market were a series of international sugar agreements beginning in 1937. The United States participated in some of the agreements in the 1950's. The International Agreement of 1968 was effective for the period 1969-73. It allocated export quotas to countries normally exporting to the world market, with the level of the quotas varying with world-

market prices. Exporting member countries agreed to maintain buffer stocks (accumulated when prices were low) and to give preferential treatment to importing member countries when prices rose. All signatory countries agreed to remove obstacles which restricted consumption, and signatory importing countries also agreed not to buy sugar from nonmembers when prices were low. However, prices during much of the period were too high for the accumulation of buffer stocks. Quotas were suspended in 1972 and 1973 when world-market prices rose to levels at which the quotas became ineffective. A new agreement was negotiated in 1973, but it contains no economic provisions because of a failure by participating countries to agree on prices. The agreement provides for little more than the gathering of statistics. The United States and the European Community were not signatories to either the 1968 or the 1973 agreements but the United States does have observers at meetings of members of the agreement. Negotiations for a new agreement are scheduled for the spring of 1977. 1/

The Question of Serious Injury or Threat Thereof to the Domestic Industry

U.S. production

During 1971/72 to 1976/77, annual U.S. production of sugar made from cane and beets ranged from a low of 5.7 million short tons, raw value, in 1974/75 to a high of 7.3 million tons in 1975/76 and averaged 6.5 million tons; during 1976/77 it amounted to 6.9 million tons. During the period, sugar production from cane ranged from a low of 2.8 million

1/ For more detailed information on the International Sugar Agreement, see International Commodity Agreements, a report of the U.S. International Trade Commission to the . . . Committee on Finance, U.S. Senate, 94th Cong., 1st Sess. Committee Print, November 1975.

tons in 1971/72 to a high of 3.2 million tons in 1975/76 and 1976/77 and averaged 2.9 million tons. Sugar production from beets during 1971/72 to 1976/77 ranged from a low of 2.9 million tons in 1974/75 to a high of 4.0 million tons in 1975/76 and averaged 3.5 million tons; during 1976/77, it amounted to 3.9 million tons (table 11).

The value of U.S. sugar production, raw value, excluding that in Hawaii and Puerto Rico, increased dramatically from $554 million in 1971/72 to $1,746 million in 1974/75. However, the value declined in 1975/76 to $1,173 million and in 1976/77 to $836 million.

The average unit value of U.S. sugar production followed very closely the changes in the value of output, increasing from $116.49 per short ton, raw value, in 1971/72 to $397.92 per ton in 1974/75. The decrease in the average unit value in 1975/76 was to $200.70 per ton, and the decrease in 1976/77 was to $144.96 per ton.

Inventories

Inventories held by major segments of the U.S. sugar industry are reported monthly by the U.S. Department of Agriculture (table 12). Total inventories as of January 1 were relatively stable at 2.8-2.9 million short tons in 1971, 1972, and 1973, dropped to less than 2.7 million short tons in 1974, and increased to about 2.9 million short tons in 1975 and 1976. In 1977, January 1, inventories increased to 3.1 million short tons, not including inventories of Hawaii and Puerto Rico sugar companies.

Table 11.--Sugar: U.S. production, value of production, and average unit value of production, by type, crop years 1971/72 to 1976/77

Type	Crop year 1/					
	1971/72	1972/73	1973/74	1974/75	1975/76	1976/77 2/
	Quantity (1,000 short tons, raw value)					
Cane sugar:						
Mainland cane	1,206	1,621	1,420	1,471	1,827	1,681
Offshore cane	1,554	1,417	1,384	1,332	1,409	1,353
Total, cane	2,760	3,038	2,804	2,803	3,236	3,034
Beet sugar	3,552	3,624	3,200	2,916	4,019	3,906
Total, cane and beet	6,312	6,662	6,004	5,719	7,255	6,934
	Value (1,000 dollars)					
Cane sugar 3/	137,998	201,639	333,061	710,094	352,532	253,767
Beet sugar	416,279	455,830	725,661	1,035,567	820,743	582,655
Total, cane and beet 3/	554,277	657,469	1,058,722	1,745,661	1,173,275	836,422
	Average unit value (dollars per short ton, raw value)					
Cane sugar 3/	114.43	124.39	234.55	482.73	192.96	136.14
Beet sugar	117.20	125.80	226.77	355.13	204.22	149.17
Average, cane and beet 3/	116.49	125.35	229.16	397.92	200.70	144.96

1/ The crop year for beet sugar begins in September in all States except California and lowland areas of Arizona, where it begins in March and April, respectively. The Louisiana cane sugar crop year begins in October, that in Florida and Texas begins in November, that in Puerto Rico begins in December, and that in Hawaii, in January.

2/ Preliminary.

3/ Mainland cane only; does not include Hawaii or Puerto Rico.

Source: Compiled from official statistics of the U.S. Department of Agriculture.

Table 12.--Sugar: U.S. inventories on January 1, by type of firm, 1971-77

(In thousands of short tons, raw value)

Type of firm	1971	1972	1973	1974	1975	1976	1977 1/
Cane sugar refiners:							
Raw	804	785	972	993	886	415	768
Refined	253	273	249	275	295	237	249
Beet sugar processors	1,355	1,346	1,369	1,210	1,406	1,596	1,730
Importers	4	1	3	1	1	-	-
Mainland cane millers 2/	376	283	116	99	211	484	400
Hawaii sugar companies	50	158	125	71	55	85	3/
Puerto Rico sugar companies	7	42	30	31	25	47	3/
Total	2,849	2,888	2,864	2,685	2,879	2,864	3,147

1/ Preliminary.
2/ Establishments that acquire no raw sugar from others for refining. Processor-refiners are included with refiners.
3/ Not available.

Source: Compiled from official statistics of the U.S. Department of Agriculture.

In general, little change has occurred in the volume of aggregate U.S. inventories in recent years, but there has been a significant change in the types of holders of the inventories. For example, during the time that the Sugar Act was in effect and prices could be predicted to be steadily increasing under its controls, the cane sugar refiners held substantial inventories of raw sugar. However, by January 1, 1976, the raw sugar inventories of the refiners declined substantially, indicating that the refiners had shifted the risk of holding inventories in times of unstable and generally falling prices back to domestic and foreign suppliers of raw sugar. Thus, mainland cane millers were caught holding substantial inventories on January 1 of 1975 and 1976, when

prices were declining rapidly. In 1977, with prices at relatively low levels, refiner's inventories increased substantially. U.S. beet sugar processors have little control over their inventories, since their stock level on January 1 is primarily determined by sugar beet production; their inventories increased from 1.2 million tons, raw value, on January 1, 1974, to 1.7 million tons on January 1, 1977.

For other holders of sugar inventories, such as industrial users and household consumers, no data on sugar inventories are available. Prior to 1975, it is believed a substantial level of invisible inventory was held by industrial users who could count on their inventories not decreasing in value because of Sugar Act controls. However, the price stability of the Sugar Act discouraged the industrial user from hoarding sugar, since more sugar could always be obtained for use without fear of substantial price increases. Since 1975, these industrial users probably have had to formulate new policies for their purchases and inventories.

In 1974, while U.S. sugar prices were rapidly climbing to a record level in November, household consumers are believed to have bought substantial quantities of sugar for hoarding in hopes of beating future price increases. A part of the decline reported for household consumption of sugar in 1975 is believed to be due to consumers using up these hoards.

U.S. exports

Annual U.S. exports of sugar have been negligible, not exceeding 150,000 short tons, raw value, during 1960-75 (table 8). Most of the exports are of refined sugar or sugar-containing products. During the

period of high sugar prices, Japan was a potential market for raw sugar exports from Hawaii; however, due to the decline in the world sugar price, the potential for this market has decreased.

Employment, man-hours, and wages

The Department of Agriculture gathered statistics on employment for the sugar industry under the terms of the Sugar Act. This coverage ended in 1973. More recent information was obtained by Commission questionnaires. The Commission sought, but did not receive employment, man-hour, and wage data relating to the production of corn sweeteners in the United States.

Data on employment, man-hours, and total wages were aggregated from questionnaire returns from U.S. sugar beet growers, beet sugar processors, sugar cane growers and millers, and cane sugar refiners. In general, these data should not be construed as industry totals; rather, they are samples of the industry aggregates and should be inspected for information regarding trends. However, coverage of actual production of all segments of the sugar industry, except for sugar beet growers, is relatively complete. The sample coverage of sugar beet growers is too small to be considered representative.

Two points are of importance to the interpretation of the questionnaire data on employment and wages:

(1) Employment in the sugar industry is highly seasonal, especially in sugar cane growing and milling, sugar beet growing, and beet sugar processing; 1/ and

(2) Productivity has increased in the sugar industry because of mechanization, and employment has fallen. For example, employment in 1973 in the beet sugar industry was less than half the employment in 1963, while production was about 3 percent higher.

1/ The Hawaiian cane industry excepted, employment is expanded during the planting and harvesting seasons.

Four general industry categories were covered: Sugar beet growing, beet sugar processing, sugar cane growing and milling, and cane sugar refining. Annual statistics for each category for production and related workers' employment, man-hours worked, and total wages paid were obtained. Data on nonsugar-related operations were also obtained for the cane-sugar-refining, sugar-beet-growing, and beet-sugar-processing industries.

According to the sample data presented in table 13, total employment in the sugar industry has increased. 1/ Increased employment in the cane sugar sector outweighed decreased employment by beet sugar processors in the 1972-74 period, employment by each group increased in 1975, and increased employment by beet sugar processors outweighed decreases in employment in the cane sugar sector in 1976.

Total man-hours in the sugar industry increased in every year over the period 1972-76, except in 1974, as did man-hours worked by beet sugar processors. Total man-hours worked in the cane sugar sector increased in every year over the period 1972-75, but decreased in 1976. Total wages and wages in each group increased in every year over the period 1972-76.

Wages for production and related workers engaged in sugar beet and sugar cane growing are generally higher than wages of hired workers on U.S. farms. The latest available data for weighted-average earnings per hour of field workers in the sugar industry in 1973 were $2.05 in Louisiana, $2.58 in Florida, $4.09 plus $1.56 in fringes in Hawaii, and $2.46 in the beet sector.

1/ The employment totals do not include statistics on sugar beet growers.

Table 13.--Number of production and related workers involved in the growing, processing, and refining of sugar in the United States, man-hours worked by them, and wages paid to them, by types of operations, 1972-76

Type of operation	1972	1973	1974	1975	1976 1/
	Number of production and related workers				
Sugar beet growers	2/	2/	2/	2/	2/
Beet sugar processors	12,278	12,097	11,365	12,543	13,432
Subtotal	12,278	12,097	11,365	12,543	13,432
Sugar cane growers	9,711	9,994	10,129	10,644	10,311
Sugar cane millers	6,023	6,663	7,257	7,566	7,440
Cane sugar refiners	6,280	6,182	6,192	6,060	6,072
Subtotal	22,014	22,839	23,578	24,270	23,823
Total	34,292	34,936	34,943	36,813	37,255
	Man-hours worked (1,000 man-hours)				
Sugar beet growers	2/	2/	2/	2/	2/
Beet sugar processors	22,176	22,870	21,334	23,541	24,825
Subtotal	22,176	22,870	21,334	23,541	24,825
Sugar cane growers	18,193	18,970	18,225	21,068	20,481
Sugar cane millers	10,450	11,115	11,907	13,698	13,461
Cane sugar refiners	14,277	14,140	14,624	13,401	13,540
Subtotal	42,920	44,225	44,756	48,167	47,482
Total	65,096	67,095	66,090	71,708	72,307
	Wages paid (1,000 dollars)				
Sugar beet growers	2/	2/	2/	2/	2/
Beet sugar processors	83,850	91,188	93,786	114,010	133,284
Subtotal	83,850	91,188	93,786	114,010	133,284
Sugar cane growers	60,073	68,065	86,343	97,654	104,052
Sugar cane millers	47,132	54,394	67,719	85,146	86,515
Cane sugar refiners	65,188	65,599	77,107	77,324	86,536
Subtotal	172,393	188,058	231,169	260,124	277,103
Total	256,243	279,246	324,955	374,134	410,387

1/ Data for 1976 are estimated.

2/ Data are available for 27 of an estimated 11,000 to 15,000 U.S. sugar beet growers, a number considered too small for inclusion in this table.

Source: Compiled by the U.S. International Trade Commission from data submitted in response to questionnaires.

Wages for production workers in cane milling and refining and beet processing are generally higher than wages in the food-processing industry. Imputed average earnings per hour worked in 1974 were $4.10 in cane milling, $5.63 in cane sugar refining, and $4.36 in beet sugar processing. 1/

Sugar beet growers and beet sugar processors.--Sample coverage of sugar beet growers was relatively small. Sugar operations in the sugar-beet-growing industry showed gains in employment from 1972-74 and employment decreases in 1975 and 1976. Man-hours worked and total wages for production and related workers increased during the period 1972-75 (table 14). All employment-related statistics in this sector, except employment in operations other than growing sugar beets, were lower in 1976 than in 1975.

Employment in other operations in the sugar-beet-growing sector is relatively high because of crop rotation farming techniques. However, man-hours and wages appear to be disproportionately higher in other operations than is indicated by employment ratios.

Most employment-related statistics in the survey of production and related workers in the beet-sugar-processing industry show steady increases from 1974 through 1976 (table 15). Employment in sugar operations in this sector appears to have recovered from a decreasing trend which bottomed in 1974. This reversal may be related to increased production because of high prices, earlier achievement of large-scale mechanization, and the failure of producers to meet quotas under the

1/ Imputed from man-hours and wages of production workers available in the Annual Survey of Manufacturers.

Table 14.--Number of production and related workers, man-hours worked by them, and wages paid to them, as reported by U.S. sugar beet growers, 1972-76

Item	1972	1973	1974	1975	1976 1/
Number of workers involved in--					
Sugar-beet-growing operations	167	172	307	278	220
Other operations	189	205	205	248	249
Man-hours worked--					
Growing sugar beets					
1,000 man-hours	157	172	217	236	203
Producing all products----do----	546	591	666	780	772
Total wages paid to workers--					
Growing sugar beets					
1,000 dollars	425	527	664	873	763
Producing all products----do----	1,397	1,683	2,025	2,568	2,396

1/ Data for 1976 are estimated.

Source: Compiled by the U.S. International Trade Commission from data submitted in response to questionnaires.

Note.--This table represents data from 27 of an estimated 11,000 to 15,000 U.S. sugar-beet growers.

Table 15.--Number of production and related workers, man-hours worked by them, and wages paid to them, as reported by U.S. processors of beet sugar, 1972-76

Item	1972	1973	1974	1975	1976 1/
Number of workers involved in--					
Beet-sugar-processing operations	12,278	12,097	11,365	12,543	13,432
Other operations	3,023	3,218	3,661	3,842	4,520
Man-hours worked--					
Processing beet sugar					
1,000 man-hours	22,176	22,870	21,334	23,541	24,825
Producing all products--------do-------	30,629	31,976	31,519	33,499	35,839
Total wages paid to workers--					
Processing beet sugar---1,000 dollars	83,850	91,188	93,786	114,010	133,284
Producing all products--------do-------	122,439	133,065	147,273	169,186	200,549

1/ Data for 1976 are estimated.

Source: Compiled by the U.S. International Trade Commission from data submitted in response to questionnaires.

Note.--This table represents data from virtually all U.S. processors of beet sugar.

Sugar Act. Man-hours worked in beet sugar processing were down only in 1974 and increased in all other periods.

Employment in other operations of beet sugar processors and man-hours and wages in all operations increased in all but one instance over the entire period. The single exception was a slight decrease in 1974 in man-hours in all operations because of decreases in sugar operations.

Sugar cane growing and milling.--Questionnaire data in table 16 on sugar cane growing and milling include separate breakouts for Florida/Texas, Louisiana, and Hawaii. While total wages for production and related workers in cane growing and milling operations increased from 1972 to 1976, total employment and man-hours generally did not, especially in 1976. After increasing from 1972 to 1975, estimated milling employment among surveyed firms dropped 1.7 percent in 1976 compared with 1975, and the number of production and related workers in growing operations decreased by 3.1 percent.

Employment in growing operations in Florida/Texas increased in 1973, but declined in Louisiana and Hawaii. Employment in milling increased in all areas in 1973. Employment in Florida/Texas and Hawaii growing operations was relatively stable in 1974, but employment in Louisiana growing operations increased in 1974. Employment in Florida/Texas and Hawaii milling operations increased in 1974. Employment in Florida/Texas and Hawaii growing operations increased in 1975, but is estimated to have declined in 1976. Employment in Louisiana growing operations declined in both 1975 and 1976. Employment in milling operations in these areas followed the pattern of employment in growing

Table 16.--Number of production and related workers, man-hours worked by them, and wages paid to them, as reported by U.S. sugar cane growers and millers, 1972-76

Item	1972	1973	1974	1975	1976 1/
Number of workers involved in--					
Growing operations:					
Florida and Texas	3,561	4,086	4,034	4,461	4,258
Louisiana	1,385	1,189	1,380	1,293	1,252
Hawaii	4,765	4,719	4,715	4,890	4,801
Total	9,711	9,994	10,129	10,644	10,311
Milling operations:					
Florida and Texas	1,485	1,987	2,293	2,565	2,489
Louisiana	1,936	2,002	2,137	2,081	1,992
Hawaii	2,602	2,674	2,827	2,920	2,959
Total	6,023	6,663	7,257	7,566	7,440
Man-hours worked on--					
Growing operations:					
Florida and Texas 1,000 man-hours	7,400	8,235	7,797	9,695	9,498
Louisiana-------do------	1,393	1,267	1,503	1,336	1,322
Hawaii----------do------	9,400	9,468	8,925	10,037	9,661
Total---------do------	18,193	18,970	18,225	21,068	20,481
Milling operations:					
Florida and Texas 1,000 man-hours	3,565	3,952	4,748	5,826	5,752
Louisiana-------do------	1,179	1,286	1,239	1,206	1,213
Hawaii----------do------	5,706	5,877	5,920	6,666	6,496
Total---------do------	10,450	11,115	11,907	13,698	13,461
Total wages paid to workers in--					
Growing operations:					
Florida and Texas 1,000 dollars	19,870	26,194	38,936	40,770	43,624
Louisiana-------do------	5,262	5,217	6,885	7,108	7,328
Hawaii----------do------	34,941	36,654	40,522	49,776	53,100
Total---------do------	60,073	68,065	86,343	97,654	104,052
Milling operations:					
Florida and Texas 1,000 dollars	13,075	16,697	22,644	29,822	31,255
Louisiana-------do------	12,692	14,308	16,980	21,067	20,025
Hawaii----------do------	21,365	23,389	28,095	34,257	35,235
Total---------do------	47,132	54,394	67,719	85,146	86,515

1/ Data for 1976 are estimated.

Source: Compiled by the U.S. International Trade Commission from data submitted in response to questionnaires.

Note.--Data in this table are from the sugar cane growers and millers which represent most of the production in Florida, Texas, Louisiana, and Hawaii.

operations in 1975 and 1976, except in Hawaii, where milling employment is estimated to have increased slightly in 1976.

Man-hours worked by employees of Florida/Texas growing operations were up in 1973 and 1975, but man-hours worked were down in 1974 and 1976. Man-hours worked in milling in Florida/Texas increased over the period 1972-75, but fell in 1976. Man-hours worked in growing and milling in Louisiana followed the pattern of Louisiana employment. Man-hours worked in Louisiana growing operations were up in 1973 and 1975, but down in 1974 and 1976; man-hours worked in Hawaiian milling operations increased in each year during 1972-75 and declined in 1976.

Total wages paid by growers in Florida/Texas and Hawaii increased steadily throughout the period; wages more than doubled in Florida/Texas and increased by 50 percent in Hawaii. Wages paid by Louisiana growers fell slightly in 1973 and then increased by 40 percent over the period 1973-76. Total wages paid in milling operations increased in all periods; the total increase over the period for all sectors was approximately 80 percent.

Cane sugar refiners.--The sample of cane sugar refiners was relatively complete in terms of the number of firms responding (table 17). The number of production and related workers in refining operations remained above 6,000 employees each year during 1972-76, with only slight downturns in 1973 and 1975. Man-hours worked followed the same pattern with somewhat larger percentage fluctuations. Total wages increased in every year for a total change of 33 percent over the period 1972-76.

Employment in other operations of production and related workers employed by cane sugar refiners increased from 1973 to 1976; man-hours

Table 17.--Number of production and related workers, man-hours worked by them, and wages paid to them, as reported by U.S. cane sugar refiners, 1972-76

Item	1972	1973	1974	1975	1976 1/
Number of workers involved in--					
Cane-sugar-refining operations	6,280	6,182	6,192	6,060	6,072
Other operations	2,633	2,522	2,725	3,025	3,699
Man-hours worked--					
Refining cane sugar 1,000 man-hours	14,277	14,140	14,624	13,401	13,540
Producing all products----do----	19,585	20,023	20,396	19,330	20,843
Total wages paid to workers--					
Refining cane sugar 1,000 dollars	65,188	65,599	77,107	77,324	86,536
Producing all products----do----	83,172	87,027	100,035	105,297	122,716

1/ Data for 1976 are estimated.

Source: Compiled by the U.S. International Trade Commission from data submitted in response to questionnaires.

Note.--Data in this table are from the cane sugar refiners which represent most of the production.

worked in such operations increased in all years except 1975. The 1975 decrease occurred even though employment increased. Total wages paid increased throughout the period.

Profit-and loss experience of the U.S. sugar industry

All segments of the sugar industry--growing, milling, processing and refining--enjoyed a dramatic increase in net sales during 1972-74. Net sales for most segments of the industry declined, however, in 1975--a period of declining sugar prices. With the exception of proprietary cane sugar refining, the sugar industry also enjoyed an increase in profits for proprietary firms and an increase in payments to members of cooperatives during 1972-74. Profits and payments like net sales, declined in 1975 for most segments of the industry.

Total net sales and net profits before income taxes and payments to members of cooperatives are presented in tables 18 and 19 for 1972-76 for all the growers, processors, millers, and refiners that responded with usable data to the Commission's questionnaires. Total net sales for the entire sugar industry rose from $2.7 billion in 1972 to $6.9 billion in 1974 before declining to $5.4 billion in 1975. Seventeen members of the industry--mainly processors and refiners--submitted profit-and-loss data for the interim periods commencing with the beginning of their 1975 and 1976 accounting years and ending September 30, of 1975 and 1976. Total net sales for the 17 members declined from $1.8 billion to $1.3 billion between these periods, or by 28 percent. At this rate of decline, total net sales for the total sugar industry could decline to about $4.0 billion in 1976.

Table 18.--Sugar: Net sales by U.S. growers, processors, millers, and refiners on their sugar operations, accounting years 1972-76

(In thousands of dollars)

Item	1972	1973	1974	1975	To Sept. 30 1/-- 1975	To Sept. 30 1/-- 1976
Sugar beet growers and beet sugar processors:						
27 growers	2/	2/	2/	2/	2/	2/
10 processors	841,513	1,012,477	1,951,782	1,562,280	3/ 535,430	3/ 428,545
Total	841,513	1,012,477	1,951,782	1,562,280	535,430	428,545
Sugar cane growers:						
19 Florida growers	***	***	***	***	***	***
23 Louisiana growers	***	***	***	***	***	***
14 Hawaiian growers	***	***	***	***	***	***
Total	65,590	88,943	161,916	181,039	4/	4/
Sugar cane millers:						
6 Florida millers	***	***	***	***	***	***
26 Louisiana millers	***	***	***	***	***	***
1 Texas miller	***	***	***	***	***	***
14 Hawaiian millers	***	***	***	***	***	***
Total	390,846	529,573	1,408,820	1,091,366	174,656	92,685
Cane sugar refiners:						
8 refiners	***	***	***	***	***	***
1 Florida cooperative refiner	***	***	***	***	***	***
California & Hawaiian Sugar Co	***	***	***	***	***	***
Total	1,401,499	1,826,555	3,406,360	2,571,226	1,132,135	766,214
Grand total	2,699,448	3,457,548	6,928,878	5,405,911	1,842,221	1,287,444

1/ The interim 1975 and 1976 accounting periods for each of the reporting concerns range from 1 month to 12 months and end no later than Sept. 30. 2/ Data are insignificant in terms of the total for all U.S. sugar beet growers. 3/ Data are for 7 processors. 4/ Not available.

5/ The 14 Hawaiian growers are also millers. Their sugar cane is transferred to their mills at cost.

6/ Data are for 1 miller. 7/ Commenced operation on Dec. 8, 1973. 8/ Data are for 6 refiners.

Source: Compiled from data submitted to the U.S. International Trade Commission by U.S. growers, processors, millers, and refiners.

Table 19.--Sugar: Net profit or (loss) before income taxes or net proceeds paid or payable to cooperative members for U.S. growers, processors, millers, and refiners on their sugar operations, accounting years 1972-76

(In thousands of dollars)

Item	1972	1973	1974	1975	To Sept. 30 1/--	
					1975	1976
Sugar beet growers and beet sugar processors:						
27 growers (total farm)	2/	2/	2/	2/	2/	2/
10 processors	45,534	108,229	395,402	234,419	3/ 111,117	3/ 37,987
Total	45,534	108,229	395,402	234,419	111,117	37,987
Sugar cane growers:						
19 Florida growers	***	***	***	***	***	***
23 Louisiana growers	***	***	***	***	***	***
14 Hawaiian growers	***	***	***	***	***	***
Total	7,342	20,533	72,996	75,945	4/	4/
Sugar cane millers:						
6 Florida millers	***	***	***	***	***	***
26 Louisiana millers	***	***	***	***	***	***
1 Texas miller	***	***	***	***	***	***
14 Hawaiian millers	***	***	***	***	***	***
Total	55,187	121,613	641,553	357,405	40,887	16,267
Cane sugar refiners:						
8 refiners	***	***	***	***	***	***
1 Florida cooperative refiner	***	***	***	***	***	***
California & Hawaiian Sugar Co.	***	***	***	***	***	***
Total	169,757	202,535	438,851	367,150	225,943	193,977
Grand total	277,820	452,910	1,548,802	1,034,919	377,947	248,231

1/ The interim 1975 and 1976 accounting periods for each of the reporting concerns range from 1 month to 12 months and end no later than Sept. 30. 2/ Data are insignificant in terms of the total for all U.S. sugar beet growers. 3/ Data are for 7 processors. 4/ Not available.
5/ The 14 Hawaiian growers are also millers. Their sugar cane is transferred to their mill at cost.
6/ Commenced operation on Dec. 8, 1973. 7/ Data are for 6 refiners.

Source: Compiled from data submitted to the U.S. International Trade Commission by U.S. growers, processors, millers, and refiners.

Combined profits and payments by cooperatives for the total sugar industry increased from $279 million in 1972 to $1.5 billion in 1974, and then declined to $1.0 billion in 1975. Total interim profits or payments for the 17 members which furnished such data declined from $378 million in 1975 to $248 million in 1976, or by 34 percent. The combined profit-and-loss data and cooperative payment data are compiled together solely for the purpose of establishing an overall trend for the sugar industry. The data should not be construed as a return on total net sales.

The sugar-refining segment is the largest component of the total sugar industry in terms of sales and profits. It must be noted that the proprietary refiners also refine imported raw sugar.

The response to the Commission's questionnaires was, overall, very good. Of the 46 sugar beet growers to which questionnaires were sent, 27 submitted usable data on their total farm operations. Sixteen out of 28 independent Florida sugar cane growers responded with usable data on their sugar cane operations, as did 15 out of 19 Louisiana growers. Fourteen out of 16 Hawaiian grower--millers responded, and almost all of the grower-millers and nongrower-millers in Florida and Louisiana responded. Ten out of 11 beet sugar processors responded with usable data, as did 10 of the 13 cane sugar refiners. The one U.S. producer of saccharin supplied the Commission with usable profit-and-loss data. Although producers of corn sweeteners were sent questionnaires, none provided the Commission with profit-and-loss data on their corn sweetener operations.

The sample of sugar beet growers and independent sugar cane growers was small when compared with the large number of growers in the United States. However, grower-millers account for a substantial share of the total sugar cane grown in Florida, Louisiana, and Hawaii.

Profit-and-loss experience of U.S. growers of sugar beets

The data in this section, compiled from responses to questionnaires, represent the profit-and-loss experience on the overall farm operations of 27 growers of sugar beets for 1972-75. The Commission also requested separate data on the 27 growers' sugar beet operations. Data from a small number of growers on their sugar beet operations appeared reasonable. Such data, however, was not sufficient to constitute a worthwhile tabulation. Sugar beets are grown in rotation with other field crops; thus, it is a difficult task for growers to segregate expenses for any one crop.

The 27 responding growers represent less than one-half of 1 percent of the estimated 11,000 to 15,000 growers which grow sugar beets in the United States.

Nine of the 27 growers operate as single-family enterprises; the remainder operate as either partnerships or corporations. In order to present comparable profit-and-loss data, all officers' salaries or owners salaries, where known, were excluded from operating expenses in this section.

Profit-and-loss experience of the 27 sugar beet growers on their overall farm operations for 1972-75 are presented in table 20. Total farm income more than doubled and net farm profits more than tripled during the period. Total net farm income averaged $9.8 million a year in the 2-year period 1972-73 and $18.3 million in 1974-75. Net farm profit before income taxes averaged $2.1 million a year in 1972-73 and $5.2 million in 1974-75.

Table 20.--Sugar: Profit-and-loss experience of 27 U.S. sugar beet growers on their total farm operations, 1972-75

Item	1972	1973	1974	1975
Total farm income:				
Sugar beets sold---1,000 dollars--	1,703	2,244	5,293	5,968
Other farm crops sold 1,000 dollars--	5,103	7,512	11,142	10,003
Livestock, poultry, and dairy products sold----1,000 dollars--	751	817	327	1,726
Other farm income----------do----	709	789	1,071	1,018
Total farm income---------do----	8,266	11,362	17,833	18,715
Total farm expenses:				
Hired labor--------1,000 dollars--	1,538	1,906	2,293	2,551
Machine hire and custom work 1,000 dollars--	254	343	508	604
Rent of farm or farmland----do----	311	505	843	854
Seed and plants purchased---do----	196	331	490	524
Fertilizers, lime, and chemicals purchased--------1,000 dollars--	937	1,544	2,770	2,845
Supplies purchased---------do----	166	275	385	400
Repairs and maintenance-----do----	474	606	858	906
Depreciation expense--------do----	792	883	1,047	1,269
Feed purchased-------------do----	231	256	335	557
Taxes----------do----	440	514	605	556
Insurance----------do----	126	166	225	270
Gasoline, oil, and fuel-----do----	268	402	557	647
Shipping and hauling expense 1,000 dollars--	107	147	207	204
Interest expense----------do----	278	366	396	428
Other farm expenses---------do----	628	510	961	1,024
Total farm expenses-------do----	6,746	8,754	12,480	13,639
Net farm profit before income taxes 1,000 dollars--	1,520	2,608	5,353	5,076
Ratio of sugar beets sold to total farm income----------percent--	20.6	19.8	29.7	31.9
Ratio of net farm profit before income taxes to total farm income percent--	18.4	23.0	30.0	27.1

Source: Compiled from data submitted to the U.S. International Trade Commission by U.S. sugar beet growers.

Pretax profits for the 27 growers averaged 18.4 percent of total farm income in 1972, 23.0 percent in 1973, 30.0 percent in 1974, and 27.1 percent in 1975.

The value of sugar beets sold increased from an average of $2.0 million a year in 1972-73 to $5.6 million in 1974-75. As a share of total farm income, the value of sugar beets sold averaged 20.6 percent in 1972, 19.8 percent in 1973, 29.7 percent in 1974, and 31.9 percent in 1975.

Total farm expenses increased yearly during 1972-75, rising from $6.7 million in 1972 to $13.6 million in 1975. The two largest expense items were hired labor and fertilizers, lime, and chemicals purchased. The cost of each of these items increased yearly during the period--from $1.5 million to $2.6 million and from $937,000 to $2.8 million, respectively.

The increase in value for sugar beets sold in 1974 and 1975 resulted from both higher sugar beet prices and higher production from increased sugar beet acreage.

In addition to income from sugar beets sold, the 27 growers received payments under the Sugar Act in each of the years 1972-75. The aggregate amounts received from the U.S. Department of Agriculture are included in "Other farm income" in table 20.

Profit-and-loss experience of U.S. processors of beet sugar

The data in this section represent the profit-and-loss experience of 10 U.S. beet sugar processors on the overall operations of their divisions or companies that process beet sugar and on their beet-sugar-processing operations. The profit-and-loss data for the 10 beet sugar processors for accounting years 1972-76 are shown in tables 21 and 22.

Overall company or division operations.--Total overall company or division net sales more than doubled for the 10 beet sugar processors during 1972-74, increasing from $1.4 billion to $3.3 billion. Net sales declined by $895 million, or 27 percent, in 1975. Net profit before income taxes rose dramatically in 1972-74, increasing from $65 million to $383 million, and then declined to $280 million in 1975. As a share of net sales, average pretax profit increased from 4.8 percent in 1972 to 11.6 percent in each of the years 1974 and 1975.

Seven of the 10 processors furnished interim profit-and-loss data commencing with the beginning of their 1975 and 1976 accounting years and ending September 30 of 1975 and 1976. Total division or company net sales declined from $545 million to $453 million between these periods, while pretax profits declined from $110 million to $39 million.

Beet-sugar-processing operations.--Total net sales of beet sugar and sugar beet byproducts for the 10 processors increased sharply from $842 million and $1.0 billion in 1972 and 1973, respectively, to $2.0 billion in 1974. In 1975, total net sales declined to $1.6 billion. Net profit before income taxes increased dramatically in the same period,

Table 21.--Sugar: Profit-and-loss experience of U.S. beet-sugar processors on the overall operations of their divisions or companies that process beet-sugar, accounting years 1972-76 1/

Item	1972	1973	1974	1975	To Sept. 30 2/--	
					1975	1976
Number of processors included	10	10	10	10	7	7
Net sales--1,000 dollars--	1,370,961	1,881,778	3,300,288	2,405,113	545,402	452,692
Cost of goods sold:						
Raw materials--1,000 dollars--	815,939	1,317,027	2,260,924	1,421,300	271,943	215,119
Direct labor--do--	103,537	114,502	128,881	157,543	31,368	33,133
Depreciation expense--do--	28,644	32,122	35,555	44,568	10,096	10,888
Other factory costs--do--	231,857	223,732	313,725	371,946	95,447	93,991
Opening inventory--do--	183,674	185,184	284,315	266,284	102,667	142,386
Closing inventory--do--	(183,538)	(282,665)	(255,665)	(321,768)	(102,951)	(118,034)
Cost of goods sold--do--	1,180,113	1,589,902	2,767,735	1,939,873	408,570	377,483
Gross profit--do--	190,848	291,876	532,553	465,240	136,832	75,209
General, administrative, and selling expenses--do--	109,925	126,565	148,552	174,632	33,414	35,138
Net operating profit--do--	80,923	165,311	384,001	290,608	103,418	40,071
Other income and (expense), net--do--	(15,521)	(14,125)	(785)	(11,008)	6,425	(1,049)
Net profit before income taxes--do--	65,402	151,186	383,216	279,600	109,843	39,022
Ratio of net operating profit to net sales--percent--	5.9	8.8	11.6	12.1	19.0	8.9
Ratio of net profit before income taxes to net sales percent--	4.8	8.0	11.6	11.6	20.1	8.6

1/ The accounting year for each processor ended on or between Feb. 28 and Sept. 30.

2/ The interim 1975 and 1976 accounting periods of each of the 7 processors range from 1 month to 12 months, average 7.6 months, and end no later than Sept. 30.

Source: Compiled from data submitted to the U.S. International Trade Commission by U.S. processors of beet-sugar.

Table 22.--Sugar: Profit-and-loss experience of U.S. beet-sugar processors on their beet-sugar-processing operations, accounting years 1972-76 1/

Item	1972	1973	1974	1975	To Sept. 30 2/-- 1975	To Sept. 30 2/-- 1976
Number of processors included	10	10	10	10	7	7
Net sales:						
Sugar----------1,000 dollars	759,841	897,554	1,803,603	1,424,991	507,097	395,287
Beet-sugar byproducts----------do	81,672	114,923	148,179	137,289	28,333	33,258
Total net sales----------do	841,513	1,012,477	1,951,782	1,562,280	535,430	428,545
Cost of goods sold:						
Cost of sugar beets----------1,000 dollars	448,980	634,740	1,090,272	849,330	269,514	210,339
Direct labor----------do	69,526	71,690	80,932	101,122	28,370	29,803
Depreciation or amortization expense----------do	18,919	20,896	22,801	28,596	8,899	8,896
Other processing costs----------do	164,916	165,809	228,805	288,371	83,582	74,344
Opening inventory----------do	150,051	148,667	234,673	198,761	92,941	126,691
Closing inventory----------do	(148,666)	(233,023)	(198,761)	(249,471)	(88,100)	(93,784)
Cost of goods sold----------do	703,726	808,779	1,458,722	1,216,709	395,206	356,289
Gross profit----------do	137,787	203,698	493,060	345,571	140,224	72,256
General, administrative, shipping, and selling expenses:						
General and administrative expense----------1,000 dollars	17,611	21,669	27,646	30,768	7,769	7,935
Shipping expense----------do	12,022	12,144	13,959	16,351	5,066	5,987
Selling expense----------do	51,323	51,085	55,367	56,547	21,321	20,726
Total general, administrative, shipping, and selling expenses----------1,000 dollars	80,956	84,898	96,972	103,666	34,156	34,648
Net operating profit----------do	56,831	118,800	396,088	241,905	106,068	37,608
Other income and (expense), net----------do	(11,297)	(10,571)	(686)	(7,486)	5,049	379
Net profit before taxes----------do	45,534	108,229	395,402	234,419	111,117	37,987
Ratio of net operating profit to total net sales--percent	6.8	11.7	20.3	15.5	19.8	8.8
Ratio of net profit before income taxes to total net sales--percent	5.4	10.7	20.3	15.0	20.8	8.9

1/ The accounting year for each processor ended on or between Feb. 28 and Sept. 30.
2/ The interim 1975 and 1976 accounting periods for each of the 7 processors range from 1 month to 12 months, average 7.6 months, and end no later than Sept. 30.

Source: Compiled from data submitted to the U.S. International Trade Commission by U.S. processors of beet-sugar.

rising from $46 million and $108 million in 1972 and 1973, respectively, to $395 million in 1974. Such profit declined to $234 million in 1975.

Net sales for the seven processors which furnished interim data declined from $535 million in the period ended September 30, 1975, to $429 million in the period ended September 30, 1976. Pretax profit declined from $111 million to $38 million between these periods.

As a share of net sales, pretax profits averaged 5.4 percent in 1972, 10.7 percent in 1973, 20.3 percent in 1974, 15.0 percent in 1975, 20.8 percent in the interim period ended September 30, 1975, and 8.9 percent in the interim period ended September 30, 1976.

The beet-sugar-processing operations of the 10 processors were more profitable than those of other product operations within the divisions or companies during the period 1972-75. Net sales of beet sugar and sugar beet byproducts (mainly molasses) accounted for 60 percent of the 10 processors' total division or company net sales and 35 percent of total division or company net profits before income taxes during 1972-75.

Five of the 10 beet sugar processors changed to the last-in-first-out (LIFO) method of valuing their sugar inventories in 1974. Had the five processors not changed to the LIFO method, net profits before income tax would have been $432 million in 1974 instead of $395 million. The change in the basis of valuation also lowered total division or company profits for 1974.

As stated above, sales of sugar beet byproducts consist mainly of molasses, with some sugar beet pulp sales. However, most processors treat pulp sales as a deduction from processing costs, and at least two processors treat sales of molasses as a deduction from processing costs.

Profit margins of the beet sugar processors were higher than those of the cane sugar refiners during 1972-76. Beet-sugar-processing encompasses the equivalent of the combined function of sugar cane milling and sugar refining and, therefore, requires a higher capital investment and a higher return on sales.

Profit-and-loss experience of growers, grower-millers, and nongrower-millers of sugar cane

The period 1972-75 was, overall, an era of prosperity for growers, grower-millers, and nongrower-millers of sugar cane situated in Florida, Louisiana, Texas, and Hawaii. The year 1974 was exceptionally prosperous. The forecast for the sugar cane industry for the 1976/77 crop year, however, appears bleak. It appears that declining sugar prices, coupled with increasing farming and milling costs, will turn numerous farm and mill operations into marginal or unprofitable operations.

Many of the sugar cane grower-millers and nongrower-millers of Florida, Louisiana, and Hawaii which submitted profit-and-loss data to the Commission for 1972-75 also submitted estimated or projected profit-and-loss data for their 1976/77 crop year (1976 accounting year).

The data reveal sharp declines in sales and profits when compared with those for the 1975/76 crop year (1975 accounting year). 1/

Growers of sugar cane, unlike growers of sugar beets, generally grow only the one crop on their farms. There are, however, several Florida growers who raise cattle and/or grow vegetables. These growers, for the most part, maintain separate accounting records for their sugar-cane-growing operations. No profit-and-loss data were requested from sugar-cane-growers on their total farm or company operations.

There are two types of growers covered in this section: independent growers and concerns that grow and mill sugar cane. 2/ The sugar-cane-growing operations of grower-millers are generally much larger than those of independent growers.

There are basically three types of sugar cane millers: proprietary nongrower millers, proprietary grower-millers, and cooperative grower-owned millers. The cooperative millers of Florida and Texas usually harvest their members' sugar cane crops. Generally, all the millers perform the function of hauling sugar cane from the farm to the mill.

1/ Normally, estimated or projected profit-and-loss data are not used in the Commission's industry reports. However, because of the lack of actual profit-and-loss data for 1976, and because of declining sugar prices, the grower-millers and nongrower-millers were permitted, at their request, to submit estimated or projected data for their 1976/77 crop year. There can be no opinion expressed as to the overall validity of these data, as there are insufficient supporting data. However, for the grower millers and nongrower-millers which did submit supporting documents, the data appear reasonable. The forecasted projections of the Hawaiian sugar cane industry appear to be especially sound. The projections for 1976/77 were made in late 1976 and do not take into account the possible effects of the extended Florida freeze of January 1977.

2/ One firm in Louisiana has a completely integrated operation. It grows, mills, and refines sugar cane and raw sugar.

The accounting practices of sugar cane millers differ somewhat from those of other U.S. industries. It is a generally accepted accounting practice in the sugar-cane-milling industry to value yearend inventories at market value, and to include the total value of such inventories in net sales for the current year. 1/ Net sales of bagasse are generally treated as a deduction from milling costs.

Florida growers and millers.--Profit-and-loss experience of 16 independent Florida growers of sugar cane is shown in table 23. Total sugar cane income increased from $7.5 million in 1972 to $18.5 million in 1974 and then declined to $14.7 million in 1975. On the other hand, sugar cane farm expenses increased yearly during the 1972-75 period--ranging from $5.9 million in 1972 to $12.6 million in 1975. Net sugar cane profit before income taxes increased from $1.6 million in 1972 to $8.0 million in 1974 and then declined to $2.2 million in 1975. Profit margins ranged from a high 43.3 percent in 1974 to a low of 14.6 percent in 1975. The sugar cane farms of 6 of the 16 Florida growers are single-family enterprises, 1 is a partnership, and 9 are corporations.

Profit-and-loss experience of three proprietary grower-millers on their sugar-cane-growing operations is presented in table 24 for the 1972-76 period. Total sugar cane farm income soared during 1972-75 increasing from $40.0 million in 1972 to $126.6 million in 1975. Net sugar cane farm profit before income taxes also increased yearly

1/ All profit-and-loss data for sugar cane millers have been adjusted, where needed, to conform to this practice.

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Producers of corn sweeteners.--No return of questionnaires containing profit-and-loss data have been received from the corn-sweetener producers. Data from other sources indicate that as sugar prices have fallen, the profit margins for corn sweetener producers have been reduced, but there is no evidence that actual losses have occurred.

With regard to high-fructose sirup, the U.S. Department of Agriculture reported that sharply lower sugar prices and excess high-fructose sirup capacity which emerged in 1976 have severely shaken the U.S. corn refining industry. Plants which previously operated around the clock have more recently shut down at times awaiting new orders. Production capacity expansion plans have been cut back or delayed. In contrast excess capacity for dextrose is reportedly negligible and for conventional corn sirup, is probably no more than a fifth to a third of the excess capacity for high-fructose sirup.

1/ See appendix IJ for the economic effects of the ban on saccharin for food use announced on March 9, 1977.

Estimation of profitability of sugar cane and sugar beet production

A sugar policy study in which the following table appeared was prepared in March 1976 under the auspices of the Council on International Economic Policy. From this study, broad generalizations can be made about the effects of sugar prices on profitability in segments of the domestic sugar industry (sugar beet and sugar cane growing and sugar cane milling).

Table 43, based on this study, reflects conditions in 1975, so interpretations for periods beyond that time require assumptions about changes in production costs.

According to this study, world sugar prices of 10 cents per pound for any sustained period would result in negative returns in all U.S. sugar-cane-producing regions and in all but two sugar-beet-producing regions. Since mid-August 1976, the world sugar price has been below 10 cents per pound and is currently about 8 cents per pound. On September 21, 1976, the President raised the rate of duty on sugar 1.25 cents per pound, which should be added to the world sugar price when using this table.

In the course of the investigation several studies on the costs of production for sugar cane and sugar beets were examined, as well as data received in response to questionnaires sent to sugar beet growers and sugar cane producers and millers. The cost-of-production data received seem consistent with the estimates shown in the table. Fixed costs represent about 60 percent of the total costs of production. The profitability of sugar production appears to be highest where alternative

Table 43.--Estimated Long-run profitability of sugarbeet and sugarcane production in the U.S. at selected world sugar prices, 1975 dollars

Area	Management income per acre with av. Mn. N.Y. spot sugar price of						
	5.0	7.5	10.0	12.5	15.0	17.5	20.0
	Cents per pound						
	Dollars per acre 2/						
Sugarbeet Regions							
1. Ohio-Michigan	-166	-89	-37	67	145	222	301
2. Red River Valley	-110	-53	4	61	118	175	231
3. Nebraska-N. Colorado-N. Kansas	-185	-105	-26	53	133	212	291
4. Texas-S. Colorado-S. Kansas	-243	-92	-18	57	133	207	282
5. Montana-Wyoming	-133	-117	-31	54	140	225	311
6. S. Idaho-Utah	-212	-136	-60	16	92	168	244
7. Washington-Oregon-W. Idaho	-220	-120	8	80	180	280	381
8. California-Arizona	-236	-140	-45	52	147	244	340
Sugarcane Regions							
Hawaii	-1,280	-753	-226	302	829	1,356	1,883
Florida	-430	-261	-91	78	247	417	586
Louisiana	-411	-314	-217	-120	-24	73	169
Texas	-267	-138	-19	100	219	338	457
Puerto Rico	-539	-435	-331	-227	-123	-20	84

1/ U.S. raw sugar price is assumed to be $1.50 per cwt higher than world price to account for transportation charges and minimum tariff (.625 cents per pound). For sugarbeet regions, net incomes reflect grower returns only. For sugarcane, returns are for growers and millers combined. Per acre returns and costs are based on average 1971-73 yields for beets, 1972-74 yields for cane and reflect 1975 dollars.

2/ Cost presented are considered average or representative cost, and as such should not be interepreted to mean that all producers in an area would face a cost structure yielding returns presented. There are efficient farms which would have a lower average cost--thus higher returns-- and there are less efficient farms. The distribution is not estimated.

Source: Council on International Economic Policy.

crops are the most attractive and lowest where the alternatives to sugar production are most limited.

U.S. producers' efforts to compete with imports

U.S. producers, millers, and refiners of sugar have generally been fairly quick to adopt new technologies and methods in an effort to become more competitive. Research in sugar-production techniques has been going on for years. Only marginal improvements in methods and technology are attainable, however, since the U.S. industry is probably the most physically efficient of any sugar industry in the world. The U.S. cane and beet producers have adopted improved hybrids, irrigation, and labor-saving mechanization to achieve crop yields and sugar content in their crops that are higher than those generally achieved elsewhere. Hawaiian sugar cane production is noted for having higher yields of sugar per acre than anywhere else in the world. The U.S. sugar-cane-milling and beet-sugar-processing industries have for the most part adopted the latest technological advances in their respective industries, although both industries still have a few older plants whose equipment has not been entirely modernized. The U.S. cane-sugar-refining industry is efficient and is noted for turning out the world's highest quality sugar.

Under the umbrella of price protection of the Sugar Act, U.S. producers concentrated most of their efforts on lowering costs of production to maximize profits. Despited efforts to hold down costs of production, U.S. costs are higher than those in many exporting countries, largely owing to a substantial difference in labor costs.

The Question of Imports as a Substantial Cause of Serious Injury

U.S. consumption of sugar and other sweeteners

During the period 1960-73, annual U.S. consumption of sugar increased gradually from 9.5 million to 11.8 million short tons, raw value. However, the rapid increase in prices to record levels toward the end of 1974, followed by continued high prices during much of 1975, caused total U.S. sugar consumption to fall in each of those years--to 11.5 million tons in 1974 and then sharply to 10.2 million tons in 1975. Preliminary indications are that total sugar consumption will recover in 1976 to around 11.0 million tons as prices have declined sharply since reaching a peak in late 1974.

There has been an increase in the proportion of domestic sugar consumption supplied by domestic sugar producers. From 1971 to 1975, the ratio of imports to domestic consumption decreased irregularly from 48 percent to 38 percent (see table 8, p. A-52). This implies an increase in the share of the domestic market supplied by domestic producers from about 52 percent in 1971 to 62 percent in 1975. However, a comparison of the import-to-consumption ratios for the periods January-November 1975 and January-November 1976 indicates that the proportion of the domestic sugar market supplied by domestic producers decreased from 60 percent to 58 percent.

Inasmuch as sugar is only one of many sweeteners available for direct consumption or for use in prepared foods, it is necessary to evaluate the competitive effect that other sweetners have on sugar.

Corn sweeteners follow sugar in importance, accounting for the bulk of the nonsugar sweeteners consumed in the United States.

From 1971 to 1975, corn-sweetener consumption increased from 2.0 million to 2.9 million short tons. Corn-sweetener consumption in 1976 is estimated to have totaled 3.3 million tons. In recent years, the principal expansion of corn-sweetener consumption has come from high-fructose sirups, which increased from 94,000 short tons in 1971 to 502,000 tons in 1975. Consumption in 1976 is estimated at about 800,000 tons.

Table 44 shows annual U.S. per capita consumption of sugar and other sweeteners from 1965 to 1976. Annual U.S. per capita consumption of all sweeteners rose from 119 pounds in 1965 to 133 pounds in 1973. In 1974, per capita consumption of all sweeteners fell to 132 pounds and in 1975 to 128 pounds. The fall in the per capita consumption of sugar primarily accounted for the decline in per capita consumption of all sweeteners. In 1976, per capita consumption of all sweeteners is estimated to have totaled 136 pounds. The continued expansion of corn-sweetener use and the recovery of sugar consumption are responsible for the increase.

Annual per capita consumption of sugar was relatively stable over the period, rising slowly from 97 pounds in 1965 to 103 pounds in 1972. In 1973, per capita consumption of sugar fell to 102 pounds and in 1974 to 97 pounds. High prices led to a further drop to 90 pounds per person in 1975. Low prices in 1976 enabled per capita consumption to recover to an estimated 95 pounds.

Table 44.--Annual U.S. per capita consumption of sugar and other sweeteners, by types, 1965-76

(In pounds)

Type of sweetener	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976 1/
Caloric sweeteners:												
Sugar	96.8	97.2	98.3	99.0	100.7	101.9	102.4	102.8	101.5	96.6	90.2	95.1
Corn sweeteners: 2/												
Corn sirup:												
Regular	11.0	11.2	11.9	12.6	13.2	14.0	15.0	15.6	16.7	17.4	17.7	17.7
High-fructose	-	-	-	-	-	-	-	.9	1.4	2.3	4.7	7.1
Dextrose	4.1	4.2	4.2	4.3	4.5	4.6	5.0	4.4	4.8	4.9	5.1	5.1
Total, corn sweeteners	15.1	15.4	16.1	16.9	17.7	18.6	20.0	20.9	22.9	24.6	27.5	29.9
Other: 2/												
Honey	1.1	1.0	.9	.9	1.0	1.0	.9	1.0	.9	.8	.9	1.0
Edible sirups	.7	.7	.5	.7	.6	.5	.5	.5	.5	.4	.4	.4
Total	1.8	1.7	1.4	1.6	1.6	1.5	1.4	1.5	1.4	1.2	1.3	1.4
Total, caloric sweeteners	113.7	114.3	115.8	117.5	120.0	122.0	123.8	125.2	125.8	122.4	119.0	126.4
Noncaloric sweeteners: 3/												
Saccharin 4/	4.0	4.5	4.8	5.0	5.3	6.2	5.0	5.0	7.0	10.0	9.0	10.0
Cyclamate 5/	1.7	1.9	2.1	2.2	1.6	-	-	-	-	-	-	-
Total, noncaloric sweeteners	5.7	6.4	6.9	7.2	6.9	6.2	5.0	5.0	7.0	10.0	9.0	10.0
Total, all sweeteners	119.4	120.7	122.7	124.7	126.9	128.2	128.8	130.2	132.8	132.4	128.0	136.4

1/ Preliminary.
2/ Dry basis.
3/ Sugar sweetness equivalent for saccharin and cyclamate is assumed to be 300 and 30 times as sweet as sugar, respectively.
4/ Data for 1971-76 estimated by the U.S. International Trade Commission.
5/ Cyclamate for food use was banned by the U.S. Food and Drug Administration as of 1970.

Source: Compiled from official statistics of the U.S. Department of Agriculture, except as noted.

Per capita consumption of corn sweeteners rose steadily from 15 pounds in 1965 to approximately 30 pounds in 1976. The 53-percent increase between 1971 and 1976 largely reflects a substantial rise in the per capita use of corn sirup and the introduction in the market and the rapid acceptance of high-fructose sirup.

Data on per capita consumption indicate that high sugar prices in 1974 and 1975 resulted in significant substitution of other sweeteners (e.g., corn sirup and saccharin) for sugar.

The distribution of sugar to primary users gives an indication as to who uses the sugar consumed in the United States and in what form the nearly 100 pounds of sugar consumed per capita in the United States ultimately reaches the consumer. Total U.S. deliveries of refined sugar amounted to 21.5 billion pounds in 1973 and then declined to 18.5 billion pounds in 1975. Quarterly data reveal that consumption (which is seasonal) declined most sharply in the fourth quarter of 1974 and the first quarter of 1975, when prices were at their highest. There appears to have been an increase in consumption in the first three quarters of 1976 compared with the corresponding period of 1975 (table 45).

Sugar prices

The prices of raw sugar on the world and U.S. markets increased dramatically in 1974 and then declined as abruptly as they had risen. The price of raw sugar delivered in New York averaged 10 cents per pound in 1973, peaked in November 1974 at an average of 57 cents per pound, fell to just below 10 cents per pound in September 1976, and,

Table 45.--Sugar: U.S. deliveries, by types of products and businesses of buyer, by quarters, 1972-75 and January-September 1976

(In billions of pounds)

Period	Total deliveries	Bakery, cereal, and allied products	Confectionery and related products	Ice cream and dairy products	Beverages	Canned, bottled, frozen foods; jams, jellies, etc.	Multiple and all other food uses	Non-food uses	Hotels, restaurants, and institutions	Wholesale grocers, jobbers, and sugar dealers	Retail grocers, chain stores, and supermarkets	All other deliveries
1972:												
Jan.-Mar----	4.84	0.68	0.54	0.25	1.06	0.38	0.24	0.05	0.04	0.97	0.59	0.04
Apr.-June---	5.37	.70	.50	.34	1.33	.47	.27	.04	.04	1.01	.65	.04
July-Sept---	6.09	.80	.53	.34	1.40	.71	.26	.05	.04	1.17	.73	.05
Oct.-Dec----	5.14	.72	.54	.27	1.09	.41	.25	.05	.04	1.06	.66	.04
Total-----	21.44	2.90	2.11	1.20	4.87	1.97	1.02	.18	.17	4.21	2.63	.18
1973:												
Jan.-Mar----	4.81	.69	.51	.27	1.07	.41	.26	.06	.04	.91	.54	.05
Apr.-June---	5.50	.74	.53	.34	1.32	.49	.26	.05	.05	1.01	.64	.05
July-Sept---	6.09	.73	.50	.31	1.43	.71	.25	.05	.05	1.20	.80	.06
Oct.-Dec----	5.15	.74	.53	.26	1.12	.44	.24	.06	.05	1.00	.65	.05
Total-----	21.54	2.19	2.07	1.19	4.94	2.05	1.00	.22	.19	4.13	2.63	.21
1974:												
Jan.-Mar----	5.15	.78	.57	.29	1.09	.41	.27	.07	.05	.95	.63	.05
Apr.-June---	5.48	.74	.53	.32	1.31	.46	.24	.07	.05	1.03	.67	.07
July-Sept---	5.98	.75	.52	.31	1.32	.72	.28	.06	.05	1.13	.78	.06
Oct.-Dec----	4.47	.62	.42	.22	.98	.31	.25	.06	.04	.88	.63	.06
Total-----	21.08	2.89	2.04	1.14	4.70	1.90	1.03	.26	.18	4.00	2.71	.24
1975:												
Jan.-Mar----	3.25	.50	.32	.17	.79	.20	.19	.03	.03	.52	.38	.04
Apr.-June---	4.82	.60	.38	.28	1.08	.34	.25	.04	.04	.98	.65	.05
July-Sept---	5.76	.65	.42	.29	1.21	.59	.28	.04	.03	1.24	.77	.05
Oct.-Dec----	4.68	.62	.42	.24	.95	.28	.22	.05	.03	.97	.67	.04
Total-----	18.55	2.38	1.53	.98	4.04	1.40	.94	.17	.14	3.71	2.46	.16
1976:												
Jan.-Mar----	4.64	.65	.46	.25	.96	.28	.25	.05	.03	.88	.54	.05
Apr.-June---	5.20	.61	.43	.28	1.19	.35	.29	.05	.04	1.02	.61	.06
July-Sept---	5.61	.61	.41	.29	1.20	.48	.23	.05	.03	1.22	.75	.07

Source: Compiled from official statistics of the U.S. Department of Agriculture.

Note.--Because of rounding, figures may not add to the totals shown.

since the threefold tariff increase of 1.25 cents per pound, remained in the 10-cent range through 1976 (figure 4 and table 46).

Figure 5 presents a historical price series to compare with the magnitude of these recent prices and their movements. In the 1950's and 1960's the annual delivered price in New York averaged 6.6 cents per pound and exceeded 8 cents per pound only in 1963. The world price averaged less than 4 cents per pound over the same period and, although somewhat more volatile, it never exceeded 8.5 cents per pound during the period (table 47).

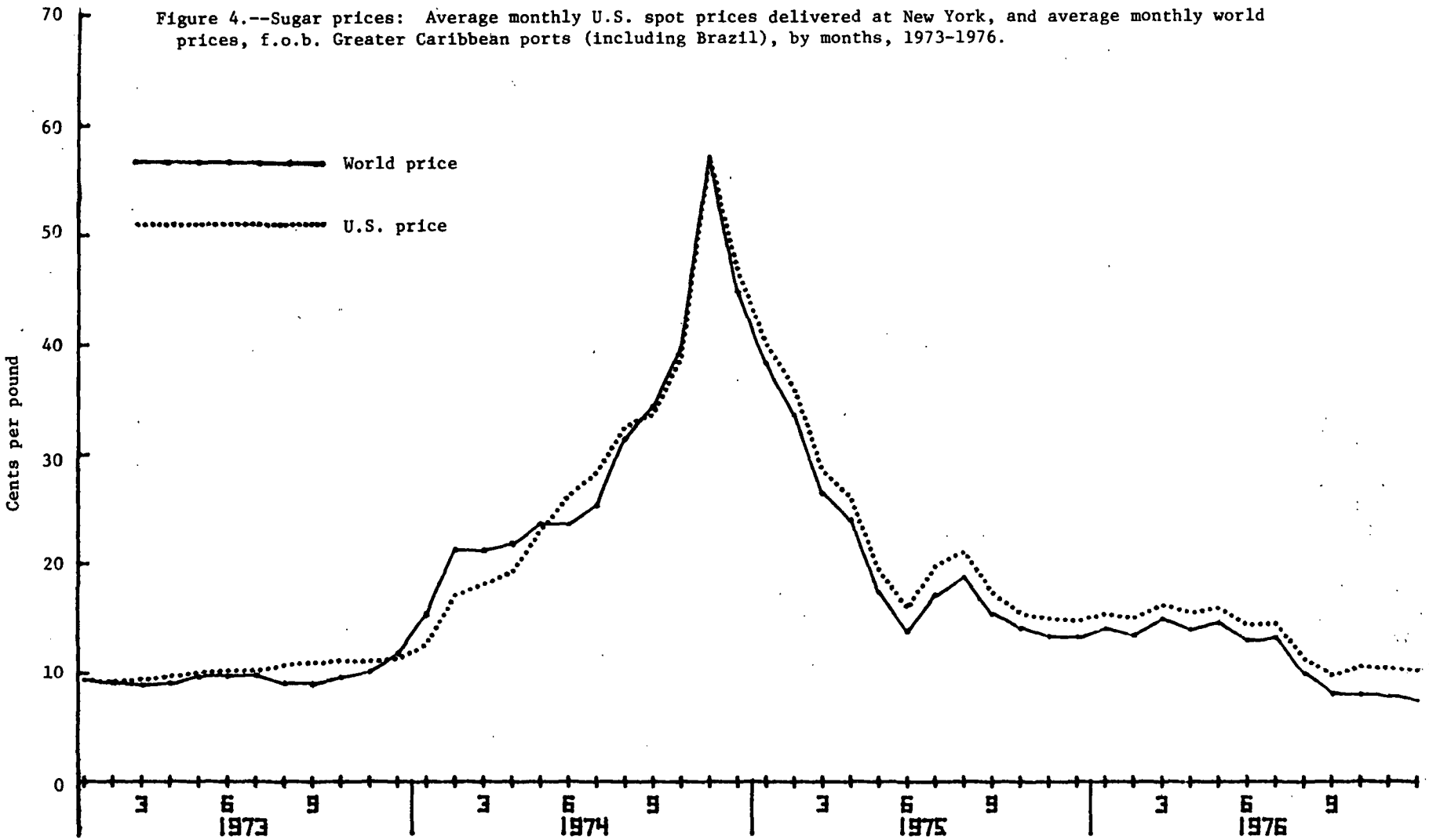
The termination of the Sugar Act and its effective system of import restrictions on December 31, 1974, marked the end of separate world and U.S. prices of raw sugar. The old quota premium or discount between these prices has been eliminated because the two prices are effectively the same after allowance for insurance, freight, and duty. If the prices of sugar in the world and U.S. markets are not equal, the markets will not be cleared, and market forces will act to eliminate any difference between these prices. 1/

World markets.--The world price does not represent the price at which a majority of world sugar is traded, but represents only the residual market after producing countries have satisfied their domestic needs and those of preferential markets. 2/ Prior to the United States

1/ Tables 46 and 47 present the insurance, freight, duty, and quota premium or discount data over the period 1955-76. The quota premium or discount has tended to zero. Figures 4 and 5 were drawn without allowances for these differences to avoid superposition of the series in the later period.

2/ The domestic sugar markets in many countries are insulated from events occurring on the world market. For example, the internal prices of sugar in many countries in 1974-75 did not reflect the high world prices of the period. Consequently, aggregate world demand did not contract as much as if a uniform consumer resistance to high world prices had occurred.

Figure 4.--Sugar prices: Average monthly U.S. spot prices delivered at New York, and average monthly world prices, f.o.b. Greater Caribbean ports (including Brazil), by months, 1973-1976.



Source: Compiled from official statistics of the U.S. Department of Agriculture.

Table 46.--Sugar: Comparison of U.S. and world prices, by months, 1974-76

(In cents per pound)

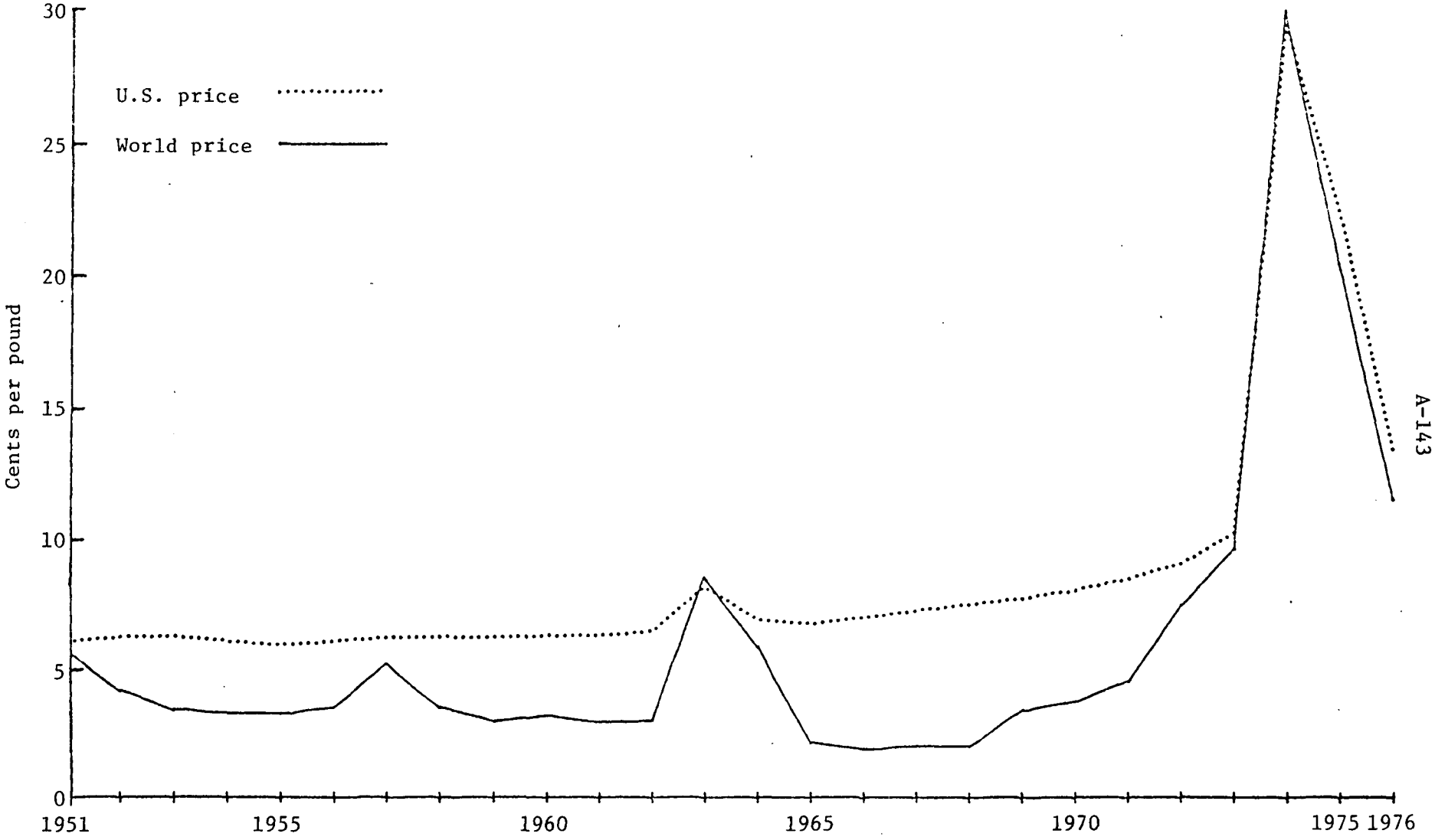
Period	World price, f.o.b. Caribbean 1/	Cost of insurance and freight	Duty per lb. for 96° raw sugar	World price, New York basis	Quota premium or (discount)	U.S. price, New York, duty paid 2/	Price paid to foreign supplier
1974:							
January----	15.32	0.925	0.625	16.87	(4.24)	12.63	11.08
February---	21.28	.925	.625	22.83	(5.74)	17.09	15.54
March------	21.27	.965	.625	22.86	(4.75)	18.11	16.52
April------	21.77	1.005	.625	23.40	(4.15)	19.25	17.62
May--------	23.65	1.125	.625	25.40	(2.35)	23.05	21.30
June-------	23.67	1.105	.625	25.40	.90	26.30	24.57
July-------	25.40	1.035	.625	27.06	.29	28.35	25.69
August-----	31.45	1.005	.625	33.08	(.48)	32.60	30.97
September--	34.35	.975	.625	35.95	(2.24)	33.71	32.11
October----	39.63	1.045	.625	41.30	(2.47)	38.83	37.16
November---	57.17	1.045	.625	58.84	(1.54)	57.30	55.63
December---	44.97	.955	.625	46.55	.19	46.74	45.16
1975:							
January----	38.32	.845	.625	39.79	.36	40.15	38.68
February---	33.72	.875	.625	35.22	.85	36.07	34.57
March------	26.50	.875	.625	28.00	.52	28.52	27.02
April------	24.06	.875	.625	25.56	.51	26.07	24.57
May--------	17.38	.805	.625	18.81	.46	19.27	17.84
June-------	13.83	.795	.625	15.25	.71	15.96	14.54
July-------	17.06	.795	.625	18.48	1.41	19.89	18.47
August-----	18.73	.745	.625	20.10	1.01	21.11	19.74
September--	15.45	.765	.625	16.84	.52	17.36	15.97
October----	14.09	.775	.625	15.49	(.04)	15.45	14.05
November---	13.40	.775	.625	14.80	.23	15.03	13.63
December---	13.29	.775	.625	14.69	.11	14.80	13.40
1976:							
January----	14.04	.755	.625	15.52	(.10)	15.42	13.94
February---	13.52	.755	.625	14.90	.14	15.04	13.66
March------	14.92	.825	.625	16.37	(.10)	16.27	14.82
April------	14.06	.825	.625	15.51	.07	15.58	14.13
May--------	14.58	.825	.625	16.03	(.06)	15.97	14.52
June-------	12.99	.805	.625	14.42	(.02)	14.40	12.97
July-------	13.21	.805	.625	14.64	(.05)	14.59	13.16
August-----	9.99	.785	.625	11.40	(.09)	11.31	9.90
September--	8.16	.789	1.011	10.05	(.25)	9.80	7.91
October----	8.03	.845	1.875	10.75	(.10)	10.65	7.93
November---	7.91	.695	1.875	10.48	(.02)	10.46	7.89
December---	7.54	.695	1.875	10.11	.11	10.22	7.65

1/ Data are spot prices for Contract No. 11 bulk sugar, f.o.b. stowed at Greater Caribbean ports (including Brazil).

2/ Data are spot prices for Contract No. 12 bulk sugar delivered to Atlantic or Gulf ports, duty paid, or duty free.

Source: Compiled from official statistics of the U.S. Department of Agriculture.

Figure 5.--Sugar prices: Average annual U.S. spot prices, delivered at New York, and average annual world prices, f.o.b. Greater Caribbean ports (including Brazil), 1951-76.



Source: Compiled from official statistics of the U.S. Department of Agriculture.

Table 47.--Sugar: Component parts of U.S. retail prices, 1955-76

(In cents per pound)

Period	World price, f.o.b. Caribbean 1/	Cost of insurance and freight	Duty per lb. for 96° raw sugar	World price, New York basis	Quota premium or (discount)	U.S. price, New York, duty paid 2/	U.S. price, after refining loss 3/	Spread for refining	Excise tax per lb. of refined sugar	Wholesale refined price, Northeast 4/	Spread for retailing 5/	Retail price, U.S. average
1955	3.24	0.450	0.50	4.19	1.76	5.95	6.367	1.688	0.535	8.59	1.83	10.42
1956	3.48	.490	.50	4.47	1.62	6.09	6.516	1.719	.535	8.77	1.80	10.57
1957	5.16	.440	.50	6.10	.14	6.24	6.677	1.938	.535	9.15	1.88	11.03
1958	3.50	.360	.50	4.36	1.91	6.27	6.709	2.026	.535	9.27	1.99	11.26
1959	2.97	.390	.50	3.86	2.38	6.24	6.677	2.118	.535	9.33	2.10	11.43
1960	3.14	.450	.50	4.09	2.21	6.30	6.741	2.145	.535	9.43	2.20	11.63
1961	2.91	.315	.625	3.85	2.45	6.30	6.741	2.124	.535	9.40	2.37	11.77
1962	2.98	.265	.625	3.87	2.58	6.45	6.902	2.163	.535	9.60	2.10	11.70
1963	8.50	.285	.625	9.41	(1.23)	8.18	8.753	2.654	.533	11.94	1.64	13.58
1964	5.87	.295	.625	6.79	.11	6.90	7.383	2.767	.530	10.68	2.13	12.81
1965	2.12	.325	.625	3.07	3.68	6.75	7.223	2.467	.530	10.22	1.58	11.80
1966	1.86	.335	.625	2.82	4.17	6.99	7.479	2.351	.530	10.36	1.68	12.04
1967	1.99	.335	.625	2.95	4.33	7.28	7.790	2.300	.530	10.62	1.57	12.19
1968	1.98	.355	.625	2.96	4.56	7.52	8.046	2.264	.530	10.84	1.34	12.18
1969	3.37	.375	.625	4.37	3.38	7.75	8.293	2.617	.530	11.44	.96	12.40
1970	3.75	.505	.625	4.88	3.19	8.07	8.635	2.805	.530	11.97	1.00	12.97
1971	4.52	.505	.625	5.65	2.87	8.52	9.116	2.834	.530	12.48	1.13	13.61
1972	7.43	.485	.625	8.54	.55	9.09	9.726	2.834	.530	13.09	.82	13.91
1973	9.61	.755	.625	10.99	(.70)	10.29	11.010	2.530	.530	14.07	1.03	15.10
1974	29.99	1.005	.625	31.62	(2.12)	29.50	31.565	2.255	.530	34.35	(2.01)	32.34
1975	20.49	.805	.625	21.92	.55	22.47	24.043	7.112	.265	31.42	5.74	37.16
1976	11.58	.783	.977	13.34	(.03)	13.31	14.242	4.958	0.0	19.20	4.78	23.98

1/ Data are spot prices, New York Coffee and Sugar Exchange: 1955-60, Contract No. 4; 1961-70, Contract No. 8; 1971-75, Contract No. 11.

2/ Data are spot prices, New York Coffee and Sugar Exchange: 1955-60, Contract No. 6; 1961-66, Contract No. 7; beginning Nov. 21, 1966, Contract No. 10; beginning Oct. 1, 1974, Contract No. 12.

3/ The price is adjusted for refining loss according to the formula: 1.07 pounds of 96° raw sugar equals 1.00 pounds of refined sugar.

4/ Wholesale lots of 100-lb bags, f.o.b., before "freight prepays," discounts, and allowances.

5/ Spread is indicative only, since Northeast wholesale prices do not apply for other U.S. areas represented in the U.S. average.

Source: Compiled from official statistics of the U.S. Department of Agriculture.

entry into the world market in 1974 and the concurrent cessation of the Commonwealth Sugar Agreement, approximately 20 percent of annual world production moved on the world free market. 1/

The world free market for sugar has been characterized in the short run by price instability and in the long run by large fluctations in price in 6 to 10-year cycles, as occurred in the years 1950 and 1951, 1956 and 1957, 1962-64, and 1972-76. These cyclical fluctuations in price were larger than in the short run because of the drawing down of world stocks over a period of prior years as world consumption exceeded world production. An eventual supply/demand imbalance without adequate world stocks available to moderate excess demand pressure resulted in relatively large price flutuations. The price fluctuations of 1972-76 were much greater than those of any earlier period because several short-term factors magnified the price effect stemming from the recurrent long-term problem of inadequate world stocks.

Price instability since 1973.--The origin of the explosion in prices in 1974 can be traced back to the 1960's. The high world price in 1963 encouraged an excessive production response which resulted in extremely low world prices of approximately 2 cents per pound in the period 1965-68. In 1969 the world price began to climb, but because of poor economic conditions in the producing countries' sugar sectors stemming from the earlier period of overproduction and low prices, world production did not respond adequately to the increased prices.

1/ This figure is based on the International Sugar Organization's reporting of net imports from the free market as defined in its most recent Statistical Bulletin.

World sugar consumption equalled or exeeded world production in 1970, 1971, and 1972, and sugar stocks declined. World production reached record levels in crop year 1973/74 and some rebuilding of stocks occurred, but production was down in some important areas. For example, production was down by 11 percent in the United States. At the same time, estimated world consumption again exceeded estimated world production. World stocks were very tight, at less than 20 percent of world consumption, and sugar prices, which had remained below 30 cents per pound through July 1974, began to rise rapidly (fig. 4 and table 46).

World production increased in 1972/73 and 1973/74, and record prices normally would have brought forth increased production such as had occurred in response to high prices in 1956/57 and 1963/64. However, world production fell in 1974/75. The decrease in production became increasingly apparent as crop predictions were revised downward. Total U.S. sugar production fell 5 percent in 1974/75, and U.S. beet sugar production fell by 10 percent. Aggressive purchase programs were undertaken by sugar-deficit countries to maintain domestic consumption requirements, and world prices continued to climb.

Other developments affected the sugar market during this period of supply and demand imbalance. Various actions contributing to uncertainty had adverse psychological effects on the market. The ups and downs of efforts to extend the Sugar Act, rumors of excess purchases

by the U.S.S.R. and Middle East nations, and withholding of exports by some major world suppliers contributed to market instability. 1/ The announcement of additional U.S. sugar-consumption requirements of 200,000 tons on December 11, 1973, and 500,000 tons on January 11, 1974, and U.S. supply deficits of 600,000 tons on September 25, 1974, probably exerted upward pressure on the world price. By the fall of 1974 the sugar market was panic stricken. Hoarding of sugar was a chronic problem. The price of raw sugar peaked at 65 cents per pound in New York in the week of November 18.

Actual market conditions began to have an effect in late 1974. Exaggerated demand predictions were revised downward. Supply forecasts improved, and supplies greater than had been expected entered the market. These factors and strong consumer resistance to high prices brought about an abrupt reversal in price trends in late 1974 and early 1975. 2/

Figure 4 presents monthly-average prices during the period 1973-76. The U.S. price leveled off in the range of 14 to 15 cents per pound from October 1975 through July 1976. Then, in mid-August, world and domestic prices fell below the 10-cent-per-pound level.

Figure 6 presents weekly-average prices between January 1976 and early February 1977 to provide greater detail on recent movements in prices. After a significant decline in the price of raw sugar in the

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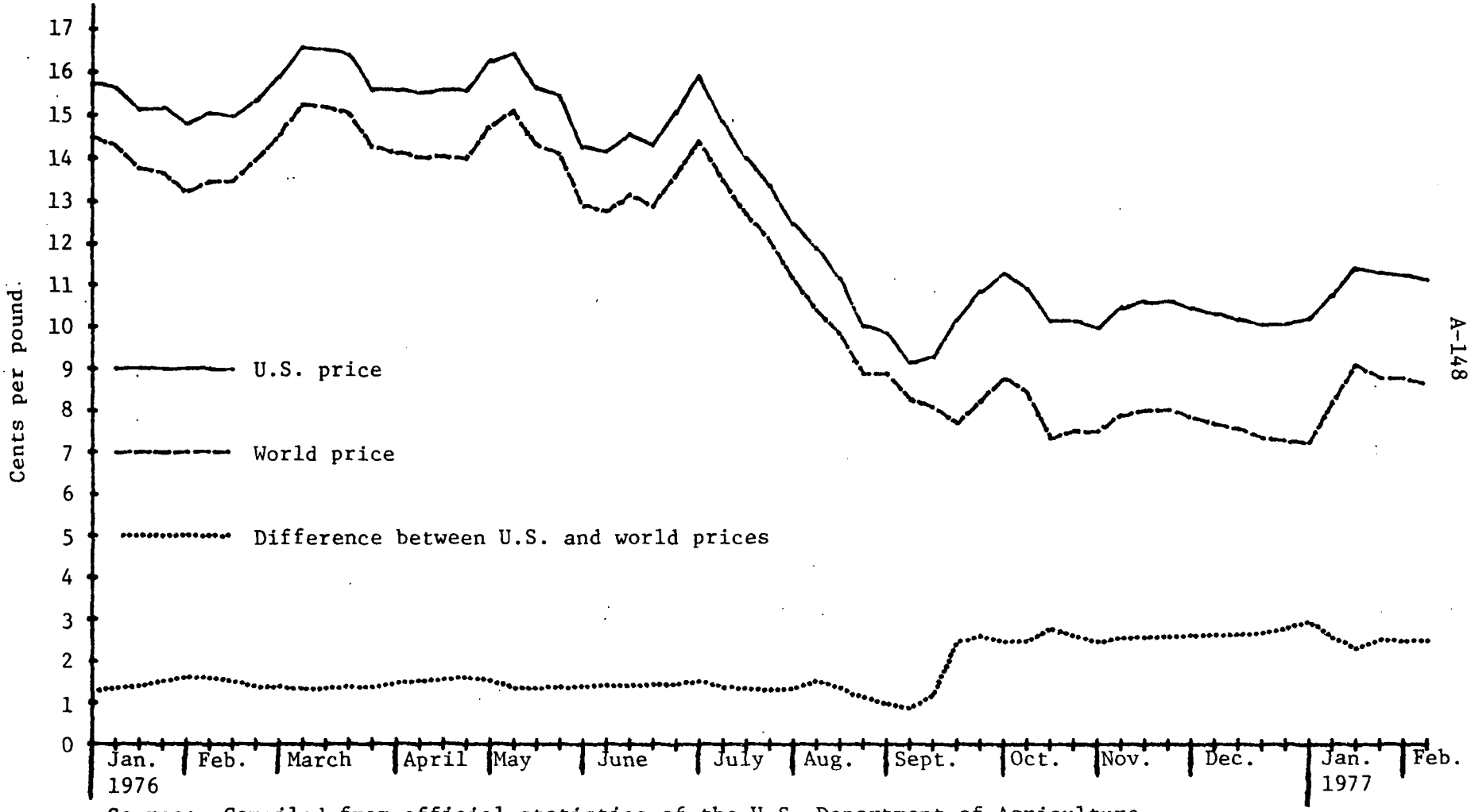
1/ Subsequent research by the Council on Wage and Price Stability and the U.S. Department of Agriculture dispelled some of these rumors, but the effect on the market occurred, whatever the authenticity of the rumors at the time.

2/ U.S. refined-sugar deliveries in 1975, by type of container, were down 14 percent for liquid sugar, 6 percent for bulk dry sugar, 27 percent for packages 50 pounds and over, and 5 percent for packages under 50 pounds.

Figure 6.--Sugar: Comparison of U.S. and world raw-sugar prices, by weeks, 1976 and January-February 1977.



Source: Compiled from official statistics of the U.S. Department of Agriculture.

period June-early September, the duty for 96° raw sugar was increased from 0.625 to 1.875 cents per pound, effective September 21, 1976. The domestic price leveled off in the 10-cents-per-pound range until several major market developments resulted in an increased price of 11 cents per pound, with world sugar prices increasing from about 8 to about 9 cents per pound. These developments were: Reports of purchases by the USSR and the People's Republic of China of more than 1 million tons of raw sugar from the Philippines, the withdrawal of Cuba from the free world market, a reduction in expected Florida sugar output because of frost, and a report of a 7-percent reduction in U.S. sugar beet acreage in 1977/78.

The increase in duty occurred at the end of a price decline lasting several weeks. Figure 6 includes a plot of the difference between the U.S. price and the world price. 1/ After a narrowing of the difference in late August and early September, the differential widened to reflect the increased duty.

The latest U.S. Department of Agriculture Sugar and Sweetener Report, December 1976, states that domestic raw cane sugar prices could remain about 11 cents per pound during the first half of 1977, if current crop estimates do nt change significantly, and if price expectations are not significantly affected by policy developments. These developments include a decision in the U.S. International Trade Commission investigation, U.S. legislative and executive reviews of sugar policy, and an April 18 negotiating conference on an International Sugar Agreement.

1/ This difference is insurance, freight, and duty. If the world price is adjusted for these factors, the U.S. price and the world price are equal.

The prices of sugar on the futures markets are trending upward. 1/ The market shows an increasing differential between the U.S. and world prices in the coming months. This is considered by commodity traders in sugar to represent a discounting of expectations that some future U.S. Government action in the sugar market is probable.

1/ The May contract No. 12, U.S. sugar, closed at 11.40 cents per pound, while the September contract closed at 12.15 cents per pound on February 17, 1977. Respective prices for contract No. 11, world sugar, were 8.90 and 8.90 cents per pound, and the July contract closed at 9.19 cents per pound.

Competitive sweetener prices.--Sweeteners can be divided into nutritive and non-nutritive groups. The most important nutritive sweetener other than sugar is based on corn starch, while saccharin is the most important non-nutritive sweetner. The discussion of competitive sweetener prices is limited to nutritive sweeteners because saccharin has a relatively small share of the sweetener market.

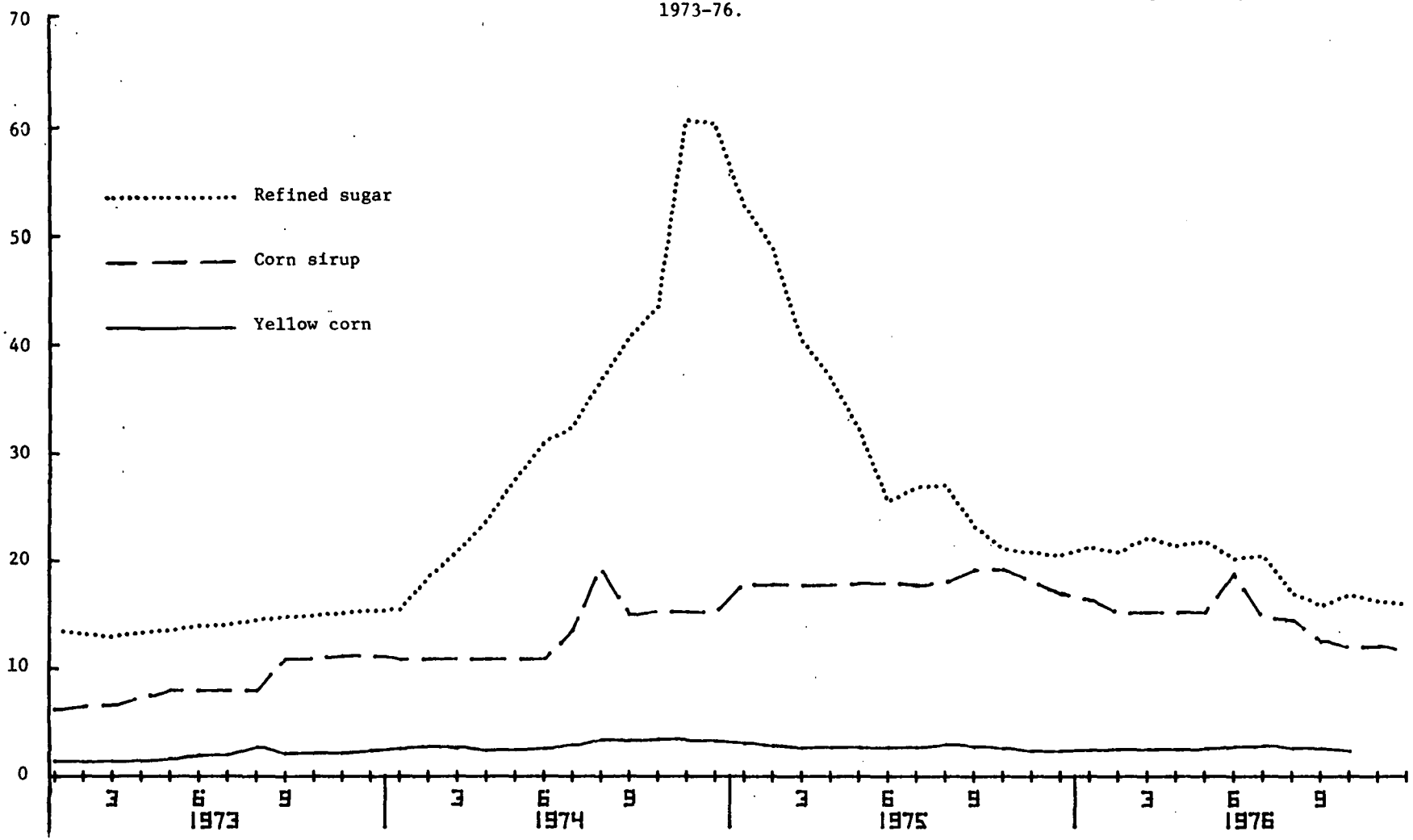
The principal nutritive sweeteners are sugar, corn sirup, and dextrose. These products are not perfect substitutes for each other as each has specific properties ideally suited for different uses. A newly developed product, high-fructose sirup, is rapidly growing in use and appears to have disturbed the complementarity in use of the other sweeteners. 1/ For example, the soft-drink industry is the largest industrial user of sugar and, although ordinary corn sirups have not made significant inroads in this market, high-fructose sirup appears to be ideally suited for use in soft drinks.

Industry and government sources indicate that high-fructose sirup could substitute for any sweetener use that does not specifically require dry crystals. Estimates are advanced that such heavy inroads will not occur, but that high-fructose sirup will eventually supply approximately one-half of the industrial market. Current use is limited to productive capacity.

Figure 7 presents monthly price data for refined sugar, corn sirup, and yellow corn. The relative lack of correlation between prices of refined sugar and corn sirup reflects the complementary aspects of corn sirup with sugar (table 48). Corn sirup is a sweetener with its own unique characteristics in flavor and use.

1/ Virtually all high-fructose sirup is produced from corn.

Figure 7.--Wholesale prices of refined sugar, corn sirup (dry basis), and No. 2 yellow corn, by months, 1973-76.



Source: Compiled from official statistics of the U.S. Department of Agriculture.

Table 48.--Wholesale prices of refined sugar, Northeast, in 100-pound bags, and corn sirup, dry basis, New York, in bulk, by months, 1973-76

(In cents per pound)

Month	1973		1974		1975		1976	
	Refined sugar	Corn sirup	Refined sugar	Corn sirup	Refined sugar	Corn sirup	Refined sugar	Corn sirup
January	13.15	6.21	15.65	10.85	52.95	17.81	21.31	16.33
February	13.18	6.45	18.49	10.85	48.96	17.83	20.86	15.18
March	12.94	6.59	20.90	10.85	40.50	17.78	22.20	15.18
April	13.30	7.25	23.78	10.85	37.01	17.80	21.41	15.18
May	13.55	7.95	27.61	10.85	32.23	17.93	21.87	15.18
June	13.96	7.95	31.04	10.85	25.57	17.93	20.22	18.74
July	14.05	7.95	32.50	13.45	26.89	17.78	20.46	14.73
August	14.50	7.95	36.83	19.27	27.05	18.04	17.04	14.50
September	14.80	10.87	40.74	15.01	23.30	19.17	15.85	12.56
October	14.95	10.93	43.59	15.23	21.15	19.20	16.90	12.00
November	15.13	11.15	60.69	15.23	20.84	18.11	16.28	12.12
December	15.33	11.15	60.41	15.23	20.53	17.01	15.97	11.61

Source: Compiled from official statistics of the U.S. Department of Agriculture.

Table 49 presents prices for high-fructose corn sirup, corn sirup, and refined sugar. The price of high-fructose corn sirup was first reported in 1975, although measurable production occurred as early as 1971. High-fructose corn sirup is priced competitively below the price of refined sugar. This competitive margin is approximately 20 to 30 percent and the two price series are highly correlated. 1/ The price of high-fructose corn sirup is highly correlated with the price of refined sugar, but is not highly correlated with the price of corn sirup. Whereas high-fructose corn sirup was substantially higher in price than other corn sirups in the early part of 1975, it has been less costly than other corn sirups since the last quarter of 1975.

Injury and possible causes--An examination of the possibility that serious injury, or the threat thereof, to a U.S. industry may have resulted in substantial part from increased imports normally includes an examination of domestic price depression or suppression. However, this approach is not possible under the current circumstances because the price of the imported product is equal to the price of the domestic product. The removal of effective import restrictions with the end of the Sugar Act resulted in the same price for U.S. raw sugar and world raw sugar (adjusted for insurance, freight, and duty). This was the inevitable result when the United States became part of the world free market and the necessity of a single price to clear the markets with quantities offered in balance with quantities demanded.

1/ The prices of refined and liquid sugar are believed to have been somewhat weaker in the last months of 1976 as more discounting occurred than is revealed by this price data. Sales of GSP sugar and certain import contractual arrangements may be responsible.

Table 49.--Wholesale prices of high-fructose corn sirup, dry basis, Decatur, Ill., in bulk; corn sirup, dry basis, New York, in bulk; refined sugar, Northeast, in 100-pound bags; by quarters 1975, and by months, 1976

(In cents per pound)

Period	High-fructose corn sirup	Corn sirup	Refined sugar
1975:			
January-March	31.73	17.81	47.47
April-June	25.14	17.89	31.60
July-September	19.11	18.33	25.75
October-December	16.48	18.11	20.84
1976:			
January	15.14	16.33	21.31
February	15.14	15.18	20.86
March	15.14	15.18	22.20
April	15.14	15.18	21.41
May	15.14	15.18	21.87
June	14.85	18.74	20.22
July	14.79	14.73	20.46
August	14.34	14.50	17.04
September	11.89	12.56	15.85
October	11.75	12.00	16.90
November	11.30	12.12	16.28
December	11.48	11.61	15.97

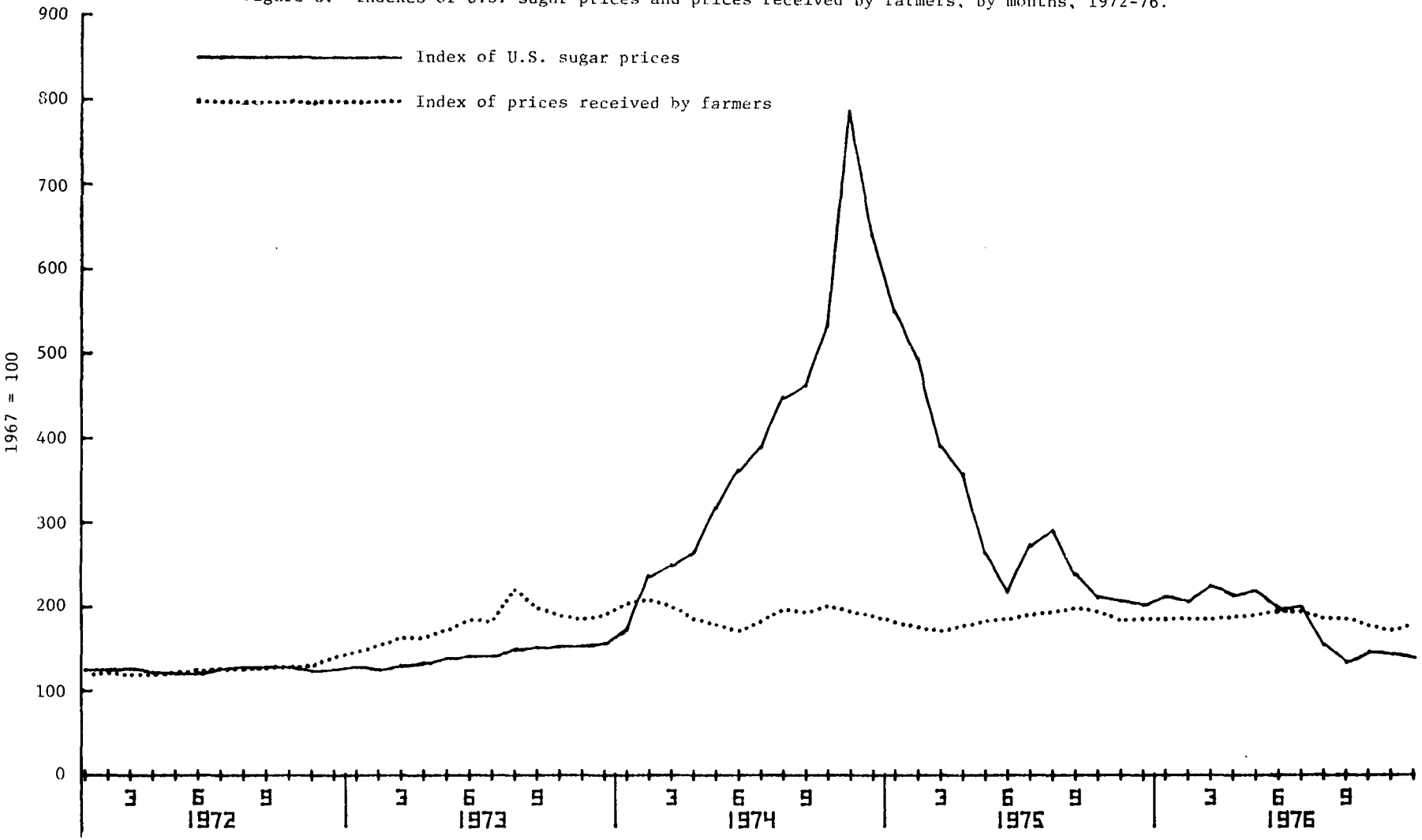
Source: Compiled from official statistics of the U.S. Department of Agriculture.

The new market situation has had an impact on the U.S. sugar economy and movements in prices and imports. The current situation of low prices and the cause of these low prices is an especially important consideration. First, however, the large movements in sugar prices are compared with movements in prices received by farmers in the rest of the agricultural economy. This provides an important perspective for examination of injury and possible cause.

The fluctuations in the price of sugar in the United States were relatively larger than fluctuations in the prices received for all agricultural products. Figure 8 presents this comparison. The high prices of sugar in the 28-month period, February 1974-May 1976, had a greater potential for increased income benefits to producers of sugar than high prices of other agricultural products had for those producers. In the 4-month period, August-November 1976, the sugar price index fell below the price index for other agricultural products, and the potential effects on income benefits to these groups were reversed.

The relationship of imports and prices is subject to some debate. The argument of the domestic sugar producers in support of import relief noted that current sugar prices were too low, and substantial losses were being incurred. The low price was attributed to increased imports. Their proof of this was that restricting imports would increase the price of sugar. If restricting imports would solve the problem of low prices, then increased imports must have caused the problem. However, a system of effective quotas would result in a different market system than currently prevails and the question of cause must be examined under the current unrestricted market system.

Figure 8.--Indexes of U.S. sugar prices and prices received by farmers, by months, 1972-76.



Source: Compiled from official statistics of the U.S. Department of Agriculture.

The argument in opposition to import relief was that the failure of the United States to extend the Sugar Act resulted in U.S. entrance into the world free market for sugar. This entrance into the world market required that the United States accept the economic conditions that exist on the world market and the associated world price of sugar. This decision to accept the world price by failure to extend the Sugar Act was responsible for both the high U.S. prices of sugar in 1974-75 and the low U.S. prices of 1976. Imports of sugar of whatever magnitude necessary to supplement domestic supplies were not responsible for the fluctuations in the U.S. price because the world price of sugar had determined the U.S. price of sugar. However, there are interrelations between the two markets which must be considered.

There are several causes of the current low world and U.S. prices of raw sugar. World production and consumption of sugar are of primary importance. However, because most world production is consumed internally, often in protected markets, only a limited portion of world consumption and production enter into the demand and supply of the world free market. Therefore, changes in aggregate world production and consumption and the difference between the two do not necessarily represent the same changes on the world free market. World production of sugar in 1974 was 86.2 million tons, while world consumption was estimated to be 88.2 million tons. The world-free-market volume was approximately 17.0 million tons. In 1975 world production increased to 90.3 tons and consumption ran 89.1 million tons. The free-market volume was estimated to fall to 15.2 million tons. Production and consumption

estimates for 1976 were 95.9 and 91.3 million tons, respectively. No estimates on the 1976 volume of the world free market were available.

The net effect of the increases in world production and consumption on the world free market are difficult to determine. However, in the present context there have probably been more than adequate supplies on the world market and a depressing effect on the price of sugar in the world market.

Another important consideration is that the U.S. sugar market interacts with the world market. The United States is unable to obtain imports of sugar without affecting the world market because of the relative volumes involved. U.S. imports of 4 million short tons in 1975 represented 25 percent of the free-market volume of 15 million short tons. Therefore, developments in the U.S. sugar economy have definite effects on the world market, particularly on the price in the world market, and these developments must be considered.

The effects of U.S. market forces on the world and U.S. prices of sugar have also been negative. U.S. demand for world sugar depends on the supply and demand for domestic sugar. U.S. sugar production increased 11 percent in 1975 and was 10 percent higher on an 11-month basis in 1976. These increases represent the expected production response to high prices of 1974-75. Increased domestic supplies have a depressing effect on the price of sugar in both the world and domestic markets.

U.S. demand for sugar has been recently depressed because of high prices. Per capita consumption has fallen considerably below historic levels, although it is recovering. Increased competition from corn

sweeteners has also depressed U.S. demand for sugar. High-fructose sirup production increased by more than 50 percent in 1976 or by more than 250,000 tons. U.S. consumption of sugar decreased 11 percent in 1975, but was up 11 percent on an 11-month basis in 1976. Decreased demand also has a depressing effect on the world and U.S. prices of sugar.

In summary, the reason that the U.S. price of sugar is equal to the adjusted world price of sugar is the availability of unrestricted imports in the U.S. market because of the expiration of the Sugar Act and its system of effective import restraints. Because the world and U.S. markets for sugar are interrelated, economic conditions in both markets were the causes of recent high world and U.S. prices of sugar. Changes in economic conditions in both markets resulted in the recent low prices of sugar. The primary causes of the recent low prices are increased sugar production in both the United States and the world in response to previous high prices, and decreased levels of demand in both the United States and the world in response to previous high prices and competition from alternative sweeteners.

Elasticity of demand for imports.--Regression analysis was employed in order to estimate the price elasticity of demand for imported sugar. 1/ Using quarterly data, it was found that a 1 percent increase in the price of imported sugar has historically been associated with a 0.17

1/ An elasticity is the percentage change in one variable associated with a 1 percent change in another variable. The association of price and quantity demanded is a negative relationship, while the association of income and quantity demanded is generally positive..

percent decrease in sugar imports. 1/ An earlier study developed a price elasticity of domestic demand for sugar of -0.24 at the retail level. 2/

The quarterly estimate of income elasticity of demand for imported sugar was -.251. A negative association is not normally expected. However, the George and King study estimates of income elasticity were negative--ordinary regression -0.17, weighted regression -0.19. The negative association of quantity demanded with income is probably because of the decreased use of sugar in some sectors over the years, particularly in consumer package use.

Other possible causes of serious injury to the domestic industry

If the corn sweetener industry is not defined as part of the domestic industry producing a like or directly competitive product, then a possible substantial cause of serious injury, or the threat thereof, other than increased imports of sugar would be the inroads that corn sweeteners have made into sugar sales.

For many years sugar consumption in the United States was relatively stable, growing only with population. However, the total U.S. sweetener market was growing, with corn sweeteners capturing most of the growth. With the high prices of sugar in 1974 and 1975, the growth of corn sweetener consumption accelerated while total consumption of sweeteners was stable or declining, largely because of declining

1/ Detailed elasticity estimates, regression equations, and appropriate tests of statistical significance may be found in Appendix E.

2/ Consumer Demand for Food Commodities in the United States With Projections for 1980, P.S. George and G. A. King, Giannini Foundation Monograph No. 26, California Agricultural Experiment Station, March 1971, p. 47.

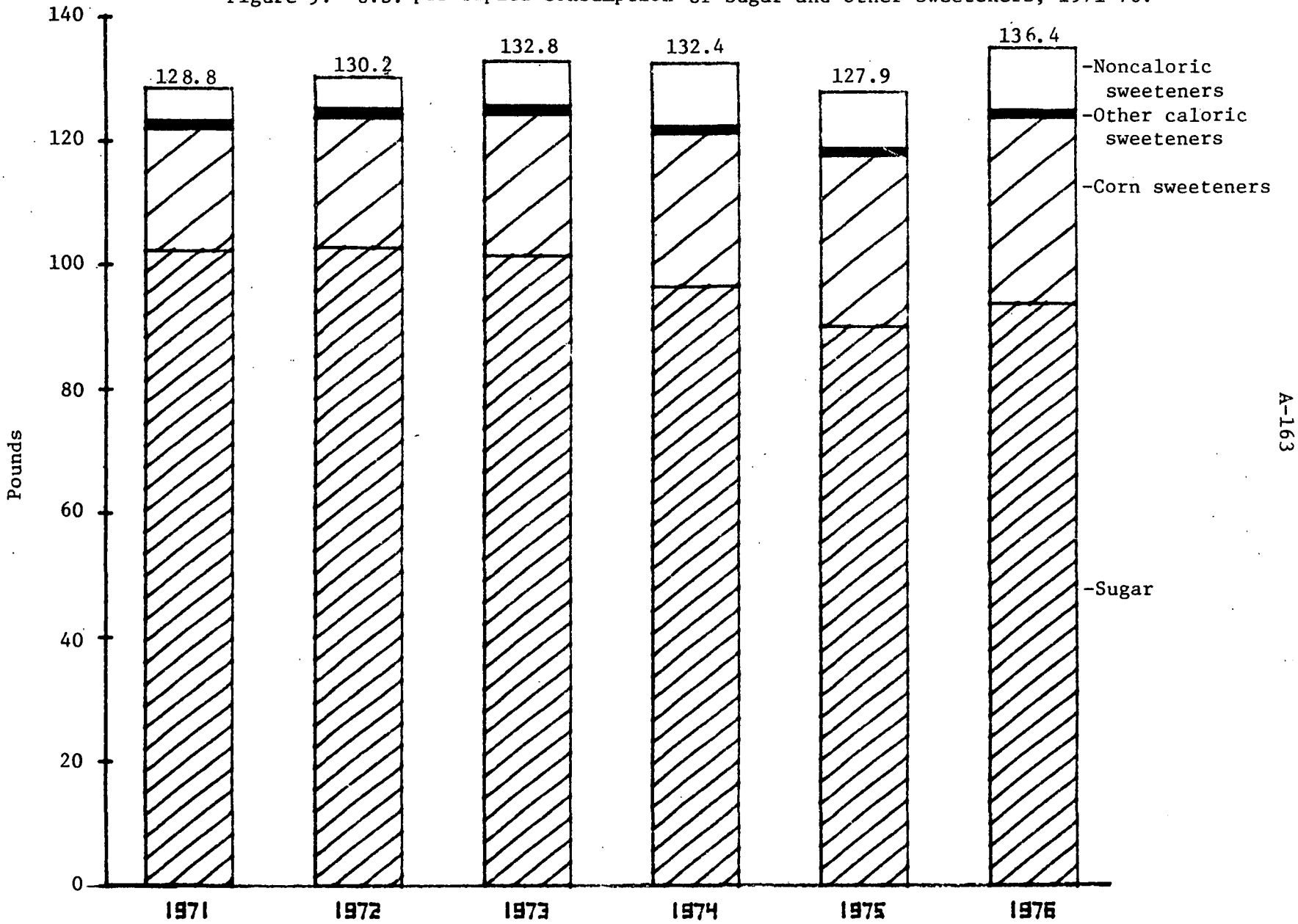
sugar consumption. To some extent the increase in corn sweetener consumption in 1974 and 1975 was at the expense of sugar. In this same period the corn sweetener industry also introduced and increased rapidly its production and sale of high-fructose sirup, which was a nearly perfect substitute for invert sugar sirup in many uses (figure 9).

Corn sweetener inroads into sugar markets are a possible alternative cause of serious injury. However, the more corn sweeteners are looked upon as substituting for sugar, the more the corn sweetener industry would appear to be a candidate for consideration as a part of the domestic industry producing a like or directly competitive product.

Another possible alternative cause of serious injury to the domestic industry, besides increased imports of sugar, is the rapid rise in costs of production of sugar that have occurred in recent years. While under the Sugar Act domestic producers apparently felt able to produce sugar at prices of less than 10 cents per pound through 1972 and 10.3 cents per pound in 1973, the industry has testified at public hearings that a price of 15 cents per pound would be necessary to cover their costs of production in 1976. If a 50-percent rise in costs of production has occurred in the last 3 years, then it is possible that increased costs of production could be considered an important cause of injury.

Data received from questionnaires of U.S. sugar producers reflect an increase in production costs in the last 3 years of about 50 percent in Florida, 16 percent in Hawaii, and 60 percent in Louisiana.

Figure 9.--U.S. per capita consumption of sugar and other sweeteners, 1971-76.



Source: Compiled from official statistics of the U.S. Department of Agriculture.

APPENDIX A

LETTER FROM RUSSELL B. LONG, CHAIRMAN, COMMITTEE ON FINANCE, UNITED STATES SENATE, TRANSMITTING A RESOLUTION OF THE COMMITTEE, SEPTEMBER 14, 1976, DIRECTING AN INVESTIGATION INTO SUGAR IMPORTS UNDER SECTION 201 OF THE TRADE ACT OF 1974

A-165

United States Senate

COMMITTEE ON FINANCE
WASHINGTON, D.C. 20510

DOCKET NUMBER
TA-408
Office of the Secretary
Intl. Trade Commission

September 14, 1976

Mr. Will E. Leonard
Chairman, International Trade Commission
8th & E Street, N.W.
Washington, D. C. 20436

Dear Mr. Chairman:

Enclosed with this letter is a resolution adopted by the Committee on Finance on September 14, 1976, directing the Commission to make an investigation into sugar imports under section 201 of the Trade Act of 1974. If you have any questions about this resolution, please contact Bob Cassidy on the Finance Committee staff.

With every good wish, I am

Sincerely,

Russell B. Long

Chairman

94th Congress
2nd Session

A-166

FINANCE COMMITTEE RESOLUTION

Resolved by Committee on Finance of the Senate, That, pursuant to section 201 (b)(1) of the Trade Act of 1974, the United States International Trade Commission shall promptly make an investigation to determine whether sugar is being imported into the United States in such increased quantities as to be a substantial cause, or threat thereof, to the domestic industry producing an article like or directly competitive with the imported sugar. For purposes of this resolution, the term "sugar"means articles classified under items 155.10 through 155.31 and item 155.75 of the Tariff Schedules of the United States (19 U.S.C. 1202).

APPENDIX B

LETTER FROM THE PRESIDENT, SEPTEMBER 21, 1976, REQUESTING THAT THE COMMISSION EXPEDITE ITS INVESTIGATION

A-168

THE WHITE HOUSE

WASHINGTON

September 21, 1976

Dear Mr. Chairman:

It is my understanding that the Senate Finance Committee, acting pursuant to Section 201(b)(1) of the Trade Act of 1974, has requested that the U.S. International Trade Commission begin an investigation under Section 201 of the Trade Act to determine whether United States sugar producers are being harmed or threatened with harm by imports of sugar. I urge the Commission to promptly make such an investigation in view of recent trends in the sugar industry.

As a separate action, within the limits of my authority to establish appropriate rates of duty for sugar provided for in TSUS items 155.20 and 155.30, I have proclaimed a rate of duty applicable to such sugar imports of approximately 1.9 cents per pound. This action is not intended to prejudge the results of the Commission's investigation.

I request that the Commission expedite its investigation and submit its report to me as quickly as possible.

Sincerely,

Gerald R. Ford

The Honorable Will E. Leonard, Jr.
Chairman
U.S. International Trade Commission
Washington, D.C. 20436

APPENDIX C

TARIFF SCHEDULES OF THE UNITED STATES ANNOTATED (1976), SCHEDULE 1, PART 10, SUBPART A--SUGARS, SIRUPS, AND MOLASSES AND TABLE ENTITLED "U.S. IMPORTS FOR CONSUMPTION, BY TSUS ITEMS, 1972-75 AND JANUARY-SEPTEMBER 1976"

GSP	Item	Stat. Suffix	Articles	Units of Quantity	Rates of Duty 1	Rates of Duty 2
			PART 10. - SUGAR; COCOA; CONFECTIONERY			
			Subpart A. - Sugars, Sirups, and Molasses			
			Subpart A headnotes:			
			1. The term "degree", as used in the "Rates of Duty" columns of this subpart, means sugar degree as determined by polariscopic test.			
			2. The rates in column numbered 1 in items 155.20 and 155.30 on January 1, 1968, shall be effective only during such time as title II of the Sugar Act of 1948 or substantially equivalent legislation is in effect in the United States, whether or not the quotas, or any of them, authorized by such legislation, are being applied or are suspended: Provided, (i) That, if the President finds that a particular rate not lower than such January 1 1968, rate, limited by a particular quota, may be established for any articles provided for in item 155.20 or 155.30 which will give due consideration to the interests in the United States sugar market of domestic producers and materially affected contracting parties to the General Agreement on Tariffs and Trade, he shall proclaim such particular rate and such quota limitation, to be effective not later than the 90th day following the termination of the effectiveness of such legislation; (ii) That any rate and quota limitation so established shall be modified if the President finds and proclaims that such modification is required or appropriate to give effect to the above considerations; and (iii) That the January 1, 1968, rates shall resume full effectiveness, subject to the provisions of this headnote, if legislation substantially equivalent to title II of the Sugar Act of 1948 should subsequently become effective.			
			1/ 3. The total amount of sugars, sirups, and molasses described in items 155.20 and 155.30, the products of all foreign countries, entered in any calendar year shall not exceed, in the aggregate, 7,000,000 short tons, raw value. For the purposes of this headnote, the term "raw value" means the equivalent of such articles in terms of ordinary commercial raw sugar testing 96 degrees by the polariscope as determined in accordance with regulations issued by the Secretary of the Treasury. The principal grades and types of sugar shall be translated into terms of raw value in the following manner: (i) For sugar described in item 155.20, by multiplying the number of pounds thereof by the greater of 0.93, or 1.07 less 0.0175 for each degree of polarization under 100 degrees (and fractions of a degree in proportion).			

1/ Subpart A headnote 3 added. Presidential Proclamation 4334, effective date January 1, 1975.

GSP	Item	Stat. Suffix	Articles	Units of Quantity	Rates of Duty 1	Rates of Duty 2
			(ii) For sugar described in item 155.30, by multiplying the number of pounds of the total sugars thereof (the sum of the sucrose and reducing or invert sugars) by 1.07. (iii) The Secretary of the Treasury shall establish methods for translating sugar into terms of raw value for any special grade or type of sugar for which he determines that the raw value cannot be measured adequately under the above provisions.			
			Sugar beets and sugar cane:			
			In their natural state:			
	155.10	00	Sugar beets	S. ton	80¢ per short ton	80¢ per short ton
	155.12	00	Sugar cane	S. ton	$2.50 per short ton	$2.50 per short ton
	155.15	00	In other forms suitable for the commercial extraction of sugar	Lb.total sugars	0.5¢ per lb. of total sugars	1.5¢ per lb. of total sugars
			Sugars, sirups, and molasses, derived from sugar cane or sugar beets:			
A*	155.20		Principally of crystalline structure or in dry amorphous form 1/	.....	1.9875¢ per lb. less 0.028125¢ per lb. for each degree under 100 degrees (and fractions of a degree in proportion) but not less than 1.284375¢ per lb.	1.9875¢ per lb. less 0.028125¢ per lb. for each degree under 100 degrees (and fractions of a degree in proportion) but not less than 1.284375¢ per lb.
		10	*Over 99°*	*Lb.*		
		20	*Over 98° but not over 99°*	*Lb.*		
		30	*Over 97° but not over 98°*	*Lb.*		
		40	*Over 96° but not over 97°*	*Lb.*		
		50	*Over 95° but not over 96°*	*Lb.*		
		60	*Over 85° but not over 95°*	*Lb.*		
		70	*Over 75° but not over 85°*	*Lb.*		
		80	*Not over 75°*	*Lb.*		
	155.21		If products of Cuba	.....	0.53¢ per lb. less 0.0075¢ per lb. for each degree under 100 degrees (and fractions of a degree in proportion) but not less than 0.3425¢ per lb. (s)	
			Not principally of crystalline structure and not in dry amorphous form:			
A	155.30	00	Containing soluble non-sugar solids (excluding any foreign substance that may have been added or developed in the product) equal to 6% or less by weight of the total soluble solids 1/	Lb.total sugars	Dutiable on total sugars at the rate per lb. applicable under Item 155.20 to sugar testing 100 degrees	Dutiable on total sugars at the rate per lb. applicable under Item 155.20 to sugar testing 100 degrees
	155.31		If products of Cuba	.....	Dutiable on total sugars at the rate per lb. applicable under Item 155.21 to sugar testing 100 degrees (s)	
A*	155.35	00	Other	Gal	2.9¢ per gal.	6.8¢ per gal.
	155.36		If products of Cuba	.....	2.1¢ per gal. (s)	

(s) = Suspended. See general headnote 3(b).

1/ Imports of cane and beet sugar are subject to absolute quotas (see headnote 3).

Note: For explanation of the symbol "A" or "A*" in the column entitled "GSP", see general headnote 3(c).

GSP	Item	Stat. Suffix	Articles	Units of Quantity	Rates of Duty 1	Rates of Duty 2
A	155.40	00	Sugars, sirups, molasses, and mixtures thereof; all the foregoing derived from sugar cane or sugar beets and containing soluble non-sugar solids (excluding any foreign substance that may have been added or developed in the product) equal to over 6% by weight of the total soluble solids, if imported for use other than (a) the commercial extraction of sugar, or (b) human consumption.....	Gal.v 1/ Lb.total sugars	0.012¢ per lb. of total sugars	0.03¢ per lb. of total sugars
	155.41		If product of Cuba.....	.....	0.01¢ per lb. of total sugars (s)	
	155.50	00	Maple sugar.....	Lb.....	Free	6¢ per lb.
	155.55	00	Maple sirup.....	Lb.....	Free	4¢ per lb.
A	155.60	00	Dextrose.....	Lb.....	1.6¢ per lb.	2¢ per lb.
	155.65	00	Dextrose sirup.....	Lb.....	1.6¢ per lb.	2¢ per lb.
	155.70	00	Honey.....	Lb.....	1¢ per lb.	3¢ per lb.
A	155.75	00	Sugars, sirups, and molasses, described in this subpart, flavored; and sirups, flavored or unflavored, consisting of blends of any of the products described in this subpart.....	Lb.....	15% ad val.	20% ad val.
			Subpart B.-Cocoa			
			Subpart B headnote:			
			1. The term "chocolate", as used in this subpart, shall be limited to products (whether or not confectionery) consisting wholly of ground cocoa beans, with or without added fat, sweetening, milk, flavoring, or emulsifying agents.			
	156.10	00	Cocoa beans.....	Lb.....	Free	Free
			Chocolate:			
	156.20	00	Not sweetened.....	Lb.....	Free	3¢ per lb.
			Sweetened:			
A	156.25	00	In bars or blocks weighing 10 pounds or more each.....	Lb.....	0.4¢ per lb.	4¢ per lb.
A	156.30		In any other form.....	.....	5% ad val.	40% ad val.
		20	*For consumption at retail as candy or confection.....*	*Lb.*		
			Other:			
		45	*Not containing butterfat or other milk solids.....*	*Lb.*		
			Other:			
		50	*Containing over 5.5 percent by weight of butterfat (item 950.15).....*	*Lb.*		
		65	*Containing not over 5.5 percent by weight of butterfat or containing other milk solids (item 950.16).....*	*Lb.*		

(s) = Suspended. See general headnote 3(b).

1/ Report gallons of dried molasses on basis of 6 pounds total sugars to one gallon.

Note: For explanation of the symbol "A" or "A*" in the column entitled "GSP", see general headnote 3(c).

U.S. imports for consumption, by TSUS item, 1972-76

(In thousands of dollars)

TSUS item	1972	1973	1974	1975	1976
155.10	-	-	-	-	55
155.12	-	1	-	1	1/
155.15	-	1	1/	7	1/
155.20	806,431	918,183	1,955,537	1,872,112	1,148,397
155.30	35	32	39	5,339	6,098
155.35	1,156	2,824	4,293	4,407	5,574
155.40	53,813	95,545	121,926	86,476	111,119
155.50	1,816	1,817	937	1,084	1,112
155.55	4,460	4,952	4,948	4,182	6,322
155.60	41	70	503	990	67
155.65	1/	63	27	267	412
155.70	8,900	3,765	10,554	16,178	20,561
155.75	508	444	1,996	3,619	785

1/ Less than $500.

Source: Compiled from official statistics of the U.S. Department of Commerce.

APPENDIX D

SUGAR SNAPBACK PROVISION

With the termination of the sugar-import-quota provisions of the Sugar Act of 1948 on December 31, 1974, the reduced rates of duty then in effect for imported sugar (col. 1 rates for TSUS items 155.20 and 155.30) would have reverted to the higher statutory rates shown in column 2 (approximately a threefold increase in the rate of duty), except that the President by Proclamation No. 4334 provided for other authorized import treatment. The possible reversion in the rates of duty on sugar and the authority for Presidential action to interpose different import treatment thereon are provided for in headnote 2 to subpart A, part 10, schedule 1, of the TSUS, often called the snapback provision. 1/

Headnote 2(i) provides that upon termination of sugar quota legislation:

> . . . if the President finds that a particular rate not lower than such January 1, 1968, rate, limited by a particular quota, may be established for any articles provided for in item 155.20 or 155.30, which will give due consideration to the interests in the United States sugar market of domestic producers and materially affected contracting parties to the General Agreement on Tariffs and Trade, he shall proclaim such particular rate and such quota limitation, to be effective not later than the 90th day following the termination of the effectiveness of such legislation. 2/.

1/ Headnote 2 states, in part, that "the rates in column numbered 1 . . . shall be effective only during such time as title II of the Sugar Act of 1948 or substantially equivalent legislation is in effect in the United States . . . ." Also, paragraph (d) of general headnote 4 of the TSUS provides that "whenever a proclaimed rate is terminated or suspended, the rate shall revert, unless otherwise provided, to the next intervening proclaimed rate previously superseded but not terminated . . ." for items 155.20 and 155.30; the column 1 rate would become the same as the respective statutory rates which are in column 1 rate would become the same as the respective statutory rates which are in column 2.

2/ The headnote first appeared in the 1951 Torquay Protocol to the GATT (TIAS 2420). It subsequently was contained in the 1967 Geneva Protocol to the GATT, with the footnote "This note is not in the Tariff Schedules of the United States on June 30, 1967." Thereafter, it was added to the TSUS by Presidential Proclamation 3822 (Dec. 16, 1967), which implemented the Kennedy round concessions.

The President's authority to proclaim rates and quotas under headnote 2 is derived from his authority under section 201(a)(2) of the Trade Expansion Act of 1962 (TEA), to

> (2) Proclaim such modification or continuance of any existing duty or other import restriction, such continuance of existing duty-free or excise treatment, or such additional import restrictions, as he determines to be required or appropriate to carry out any such trade agreement. (19 U.S.C. 1821(a)(2))

This authority remains in force even after such trade agreements are negotiated.

Headnote 2 fixes the column 1 rates in items 155.20 and 155.30 in effect on January 1, 1968, as the floor below which the President cannot reduce the duty. The ceiling for raising the duty, which is not expressly established by headnote 2, is derived from the statutory limitation of authority delegated to the President (in TEA section 201(a)(2)) to increase any rate of duty to a level not more than 50 percent above the rate existing on July 1, 1934. Since the present column 2 rates are the original statutory rates (effective since June 8, 1934), the ceiling on the President's authority under headnote 2 is 50 percent above the column 2 rate.

A proclamation under headnote 2(i) was issued on November 16, 1974, establishing rates of duty and quota limitations to become effective January 1, 1975. If there had been no such proclamation by March 31, 1975, the continuing power of the President to make any modification under headnote 2 would have lapsed, and the reversion of the rates of duty to the higher statutory rates would have remained in effect until changed pursuant to other authority.

Any rate of duty proclaimed under headnote 2(i) must be accompanied by the proclamation of quotas. 1/ If the snapback had occurred, there would have been no requirement that quota limitations be proclaimed. Any duty rates and quotas proclaimed under headnote 2(i) must give due consideration to the interests in the U.S. sugar market of domestic producers and materially affected contracting parties to the GATT. Pursuant to headnote 2(ii), the President may subsequently modify any action taken under headnote 2(i) if he finds, owing to changed circumstances, that a modification in the duty rate or quota is required or appropriate to give effect to the interests of domestic producers and affected GATT contracting parties.

There is no expiration date for the President's authority to act under headnote 2 (ii) now that he has acted under the authority of headnote 2(i) unless Congress enacts specific legislation substantially equivalent to title II of the Sugar Act of 1948, in which event the original concession rates would be restored. Congress could at any time enact legislation revoking the President's authority under headnote 2 and establishing any rate of duty and/or quota limitation deemed appropriate.

Reversion to the statutory rates or other restrictive action by the President pursuant to headnote 2 could not reasonably be considered a nullification or impairment of benefits derived from a trade agreement. Because headnote 2 was part of the 1950 Annecy and 1951 Torquay Protocols and was repeated in the 1967 Geneva Protocol, use of the provisions under

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1/ Despite the language of headnote 2, "rate, limited by a particular quota," the headnote contemplates absolute quotas, whether country-by-country or global quotas, rather than so-called tariff-rate quotas, which provide a quantitative limitation on imports at a certain rate, with higher rates on imports in excess of the quantitative limitation.

headnote 2 would have been within the reasonable expectation of the parties. Indeed, the headnote 2 provisions were conditional limitations that formed part of the negotiated package whereby U.S. trading partners received the present column 1 rates.

In addition, the imposition of quotas under the terms of headnote 2 cannot be deemed a violation of article XI of the GATT, which places limitations on the imposition of quantitative import restrictions by contracting parties, notwithstanding that such action may not be within the specified exceptions in article XI. The contracting parties accepted the headnote, thereby acknowledging the right reserved to the United States to change rates of duty and impose quotas during any lapse in U.S. sugar legislation, despite any provisions of the GATT generally prohibiting quantitative restrictions.

Presidential Proclamation No. 4334.--On November 16, 1974, the President signed proclamation No. 4334, which, pursuant to headnote 2, subpart A, part 10 of schedule 1 of the TSUS, applied the then-current column 1 rates of duty for items 155.20 and 155.30, thus negating any reversion of the rates of duty for the column 2 rates with the expiration of sugar-quota legislation on December 31, 1974. In addition, the proclamation modified the subpart mentioned above by adding a new headnote 3, which reads in part as follows:

> (3) The total amount of sugars, sirups, and molasses described in items 155.20 and 155.30, the products of all foreign countries, entered in any calendar year shall not exceed, in the aggregate, 7,000,000 short tons, raw value.

In its announcement, the White House indicated that this action was intended to avoid an increase in the tariff on imported sugar after

December 31, 1974, which ultimately would have resulted in higher prices of sugar to consumers. To meet the requirement of headnote 2, quota limitation was needed, but the 7-million-short-ton quota was believed to be high enough to be inoperative as a limitation on imports. The quotas for sugar imports in 1974 under the Sugar Act amounted to about 6.7 million short tons, raw value, but only about 6 million tons were imported.

The quota of 7-million short tons, raw value, proclaimed by the President is for raw and refined sugar, liquid sugar, and certain sugar sirups, as defined in items 155.20 and 155.30. The global quota is applicable to imports from all countries. The proclamation included methods for determining the raw value of sugar for the purposes of this quota, which differed somewhat from the methods specified in the Sugar Act.

Presidential Proclamation No. 4463.--On September 21, 1976, the President signed Presidential Proclamation No. 4463, which, pursuant to headnote 2, subpart A, part 10 of schedule 1 of the TSUS, modified the column 1 rates of duty for items 155.20 and 155.30, by increasing the duty to the same rates provided in column 2. For sugar testing 96° (raw value) through polariscopic testing, this was an increase from 0.625 cent per pound to 1.875 cents per pound. The proclamation made no change in the 7-million-short-ton quota and did not affect the duty-free treatment of sugar from designated beneficiary countries under the Generalized System of Preferences.

On October 4, 1976, the President signed Presidential Proclamation No. 4466, which provided for modification of proclamation No. 4463, regarding tariffs on certain sugars, sirups, and molasses. The President amended the effective date of the tariff increase of proclamation No. 4463 so that the provision would not be effective with respect to articles exported to the United States before 12:01 a.m. (U.S. eastern daylight saving time), September 21, 1976, provided that such articles were entered or withdrawn from warehouse for consumption on or before November 8, 1976. This was in order to alleviate hardships which might result from the sudden increase in the rate of duty with respect to such goods.

Since sugar imports are contracted for in advance of delivery, some importers would certainly have suffered hardship from the sudden increase in duty. However, depending on the pricing terms of such contracts, the change in the effective date may have provided some importers substantial windfall profits and saved other importers from serious losses.

APPENDIX E

RESPONSE OF IMPORTED SUGAR TO CHANGES IN THE PRICE OF SUGAR AND OTHER ECONOMIC VARIABLES

The demand for an imported product, such as sugar, is expected to vary with domestic income, the domestic price of sugar, and the price of imported sugar. However, the theory of import demand in its standard form is based on the proposition that the imported good and the domestic good are not perfect substitutes. In the case of sugar, this standard equation specification is therefore inadequate. An alternative equation is suggested in Quantitative International Economics, a textbook of theoretical and empirical literature written by E. E. Leamer, of Harvard University, and R. M. Stern, of the University of Michigan. The alternative import demand equation is

$$M = f(S,Y,p,p_a)$$

where M = imports,
S = a domestic supply-oriented variable,
Y = domestic income,
p = world price, and
p_a = the price of an alternative or competing product.

The standard assumptions are that ceteris paribus conditions hold, the foreign supply curve is infinitely elastic, and the demand relationship for imports over time is constant. The new criterion is that imported and domestic goods are perfect substitutes.

In this analysis of the demand for imported sugar, M equals the quantity of imports of sugar in thousands of short tons, S equals domestic inventories of sugar, raw and refined, in thousands of short tons, 1/ Y equals real gross national product in 1958 dollars, p equals the world

1/ Although Leamer and Stern suggest a "supply-shifting" variable such as investment in plant and equipment, inventories were chosen instead because they are a supply-oriented variable and do influence the demand for sugar.

price of sugar, New York basis, and p_a equals the New York corn sirup price, dry basis. The equations were run in a log-linear format, so that the coefficients presented in table 50 are actual elasticities. For instance, a coefficient of -0.105 for the price of imported sugar indicates that a 1-percent increase in the monthly-price of imports for the current period, corresponds to a 0.105 percent decrease in the quantity demanded of imported sugar.

Monthly and quarterly equations were fitted, using both seasonally adjusted and nonseasonally adjusted dependent variables. 1/ The best fits were obtained with the unadjusted data, presumably owing to the fact that irregular movements in certain independent variables (especially the inventory variable) corresponded closely to irregular fluctuations in the demand for sugar imports.

The unlagged equation explained monthly import data better than quarterly import data, but it still failed to explain even 50 percent of the variation in imports. The fit of the equation measurably improved when quarterly data were used, and when the world price of sugar was lagged one period and both current and once-lagged inventories were employed.

The lagged world price of sugar and current inventories both have the expected sign. Imports have tended to decrease by 0.17 percent with an increase of 1 percent in the price of imports during the previous period. Futhermore, the import/domestic inventories relationship

1/ For the quarterly series, a dummy variable was successfully included to account for the quota period.

Table 50.--Sugar: Measures of import elasticities and their statistical tests of significance for January 1974-May 1976 and April 1969-June 1976

Import demand equations 1/ and period	Variables, 2/ elasticities, and t-statistics 3/							Statistical tests of equations 4/		
	p	p_{-1}	P_a	Y	S	S_{-1}	D	R^2	SEE	DW
Equation I, monthly data, January 1974-May 1976	-0.105	-	-1.15	1.94	-0.700	-	-	0.443	0.356	1.42
	(.331) 1/	-	(3.25)	(.307)	(3.70)	-	-	-	-	-
Equation II, quarterly data, April 1969-June 1976	.007	-	-.305	.482	-.093	-	-	.166	.249	1.83
	(.055)	-	(1.81)	(.424)	(.751)	-	-	-	-	-
Equation III, quarterly data, April 1969-June 1976	-	-0.167	-.494	-.251	-.259	0.504	-0.462	.714	.142	1.74
	-	(2.05)	(3.06)	(.360)	(2.59)	(5.03)	(2.95)	-	-	-

1/ A log-linear equation was used to explain imports of sugar: Equations I and II, $\log M = a + \alpha \log p + \beta \log p_a + \Psi \log Y + \phi \log S$; Equation III, $\log M = a + \alpha \log p_{-1} + \beta \log p_a + \Psi \log Y + \phi \log S + \delta \log S_{-1} + D$.

2/ Independent variables: p = world price of sugar, New York basis; p_{-1} = world price lagged 1 period; p_a = price of corn sirup; Y = real gross national product; S = domestic inventories of sugar; S_{-1} = inventories lagged 1 period; D = dummy variable to account for Sugar Act quota period.

3/ Figures in parentheses are the appropriate t-statistics.

4/ R^2 = coefficient of determination; SEE = standard error of estimate; and DW = Durbin-Watson statistic.

Source: Compiled by the U.S. International Trade Commission.

shows that an increase of 1 percent in inventories is historically followed by a 0.26 percent decrease in the demand for imported sugar.

Some difficulties arise in trying to explain the income elasticity, the corn-sirup-price elasticity, and the lagged-inventory elasticity. The elasticity of income was negative in equation III, that is, sugar imports decrease as income increases. However, the elasticity coefficient was not statistically significant. The indicated relationship with respect to the price of corn sirup shows that imports tend to increase as corn sirup prices decrease. The best explanation of this phenomenon is that corn sirup prices are correlated (+0.77) with sugar prices in the previous period; hence, both have a negative sign. Apparently, the corn sirup price is related to the price of sugar. That is, if sugar prices increase in period 1, prices of corn sirup are likely to rise in period 2. Conversely, lower sugar prices in period 1 tend to depress the price of corn sirup.

There are two possibilities to explain the positive sign of the lagged inventory coefficient. The simplest explanation is that there is a spurious but statistically significant tie between imports and inventories. A more complicated but quite possible explanation is that refiners anticipate demand and therefore build inventories one quarter before peak demand and lower inventories one quarter before slack demand. Thus, the observed phenomenon can be explained by a seasonality hypothesis.

In any case, inventories seem to be a good leading indicator of sugar imports.

APPENDIX F

GLOSSARY

GLOSSARY

BAGASSE.--Fibrous residue remaining after sugar cane has been milled to extract the sugar-containing juices.

DEGREES.--Sugar degrees as determined by polariscopic test (see polarization).

DEXTROSE.--The crystalline form of the monosaccharide glucose also called glucose or grape sugar. It is less sweet than sucrose.

DIRECT CONSUMPTION SUGAR.--Sugar principally of crystalline structure and any liquid sugars which are not to be further refined or improved in quality before being marketed.

FRUCTOSE.--One of the products formed when sucrose is inverted, also known as levulose or fruit sugar. Widely distributed in numerous plants, it has greater sweetening power than sucrose.

GLUCOSE.--Various sugar sirups containing dextrose are commonly referred to as glucose in the sugar trade. Most commercial glucose is made from cornstarch.

HIGH-FRUCTOSE SIRUP.--A new product of the wet-corn milling industry resulting from further hydrolysis of corn sirup in the presence of enzymes resulting in a sirup containing both glucose and fructose similar to invert sugar.

INVERT SUGAR.--A combination of equal parts of glucose and fructose formed from sucrose and water by the action of acids or certain other chemicals.

LIQUID SUGAR.--A solution of refined sugar in water. Nearly all liquid sugar is sold to industrial users.

POLARIZATION.--A common measure of the sucrose content of various substances such as cane juice, molasses, sirup, and raw sugar. Sucrose in solution has the property of rotating a beam of polarized light. The extent of the rotation, measured by a polariscope, serves as a measure of the percent of sucrose in the substance being tested. Refined sugar tests 100°.

REDUCING SUGARS.--The glucose and fructose content of a sugar sirup (see invert sugar).

REFINED SUGAR.--The principal product obtained from refining raw sugar. Consisting of 100 percent sucrose, it is sold to consumers in such forms as granulated, powdered, and cubes. It is a white crystalline substance, with no taste other than sweetness.

RAW VALUE.--The equivalent of any sugar in terms of ordinary commercial raw sugar which tests 96° by polariscope.

RAW SUGAR.--The principal product of mills processing sugar cane. It has a light brown color and is generally sold to refineries for processing into refined sugar.

SUCROSE.--A disaccharide having the chemical formula $C_{12}H_{22}O_{11}$. When acted upon by acids or certain other chemicals, it reacts in solution, forming equal parts of two monosaccharides, glucose and fructose. In this process, called inversion, one molecule of sucrose forms one molecule of glucose and one molecule of fructose.

SUGAR.--A carbohydrate, the chemical name of which is sucrose. It occurs naturally in a large number of plants, but nearly all commercial sugar comes from either sugar cane or sugar beets because of their high sucrose content which can be readily extracted.

APPENDIX G

GSP IMPORTS OF SUGAR

GSP Imports of Sugar

Sugar (TSUS 155.20): U.S. imports, 1976

Country	All imports, 1976		GSP imports, 1976	
	Quantity	Value	Quantity	Value
	Pounds, tel quel	Dollars	Pounds, tel quel	Dollars
Canada	60,237,769	10,054,636	0	0
Mexico 1/2/	257,630	77,719	246,780	73,671
Guatemala 1/2/	638,062,028	80,410,333	579,140,377	71,642,626
Belize 1/2/3/	27,991,066	3,989,371	27,991,066	3,989,371
El Salvador 1/3/	259,277,669	36,156,650	39,125,695	4,825,496
Honduras 1/2/3/	14,743,998	1,194,258	14,743,998	1,194,258
Nicaragua 1/3/	304,183,265	43,296,119	64,452,239	10,053,761
Costa Rica 1/2/4/	130,323,973	18,260,311	125,835,723	17,284,162
Panama 1/3/	189,977,686	27,392,335	31,662,720	4,773,745
Jamaica 1/	142,084,387	20,013,958	0	0
Haiti 1/2/3/	12,046,004	1,631,702	12,046,004	1,631,702
Dominican Republic 1/	1,849,434,539	215,218,777	0	-
St. Christopher-Nevis-Anguilla 1/2/3/	34,797,790	5,163,261	34,797,790	5,163,261
Barbados 1/2/3/	68,149,964	10,036,264	68,149,964	10,036,264
Trinidad 1/2/3/	149,661,548	22,106,941	149,661,548	22,106,941
Colombia 1/	224,788,070	28,787,893	0	0
Guyana 1/	94,699,742	12,601,119	0	0
Ecuador	72,849,376	9,735,819	0	0
Peru 1/	700,494,646	96,946,080	0	0
Bolivia 1/2/3/	76,487,736	9,872,593	76,487,736	9,872,593
Brazil 1/	0	0	0	0
Paraguay 1/2/3/	17,259,962	2,515,124	17,259,962	2,515,124
Uruguay 1/2/3/	11,016,662	936,416	11,016,662	936,416
Argentina 1/	191,060,888	24,797,632	0	0
Sweden	6,991	3,173	0	0
United Kingdom	102,141	20,301	0	0
Netherlands	2,672,123	422,646	0	0
Belgium	1,488,451	244,739	0	0
France	29,609,269	4,069,847	0	0
Federal Republic of Germany	1,828,484	267,850	0	0
India 1/	373,260,806	52,819,886	0	0
Thailand 1/3/	137,684,478	19,808,314	0	0
Philippine Republic 1/	1,847,815,880	226,724,504	0	0
China Mainland	47,975	13,003	0	0
Japan	443	582	0	0
Korean Republic 1/2/3/	1,879,507	409,470	1,879,507	409,470
Hong Kong 1/2/3/	4,550	1,736	4,550	1,736
China, Taiwan 1/	169,986,819	24,170,067	0	0
Australia	814,177,394	84,254,360	0	0
Mauritania 1/2/3/	58,424,752	5,041,575	58,424,752	5,041,575
Mozambique 1/2/3/	62,666,075	7,551,980	62,666,075	7,551,980
Malagasay Republic 1/2/3/	25,536,000	3,847,500	25,536,000	3,847,500
Republic of South Africa	191,629,066	25,305,328	0	0
Swaziland 1/2/3/	65,715,222	8,221,639	65,715,222	8,221,639
Malawi 1/2/3/	34,398,286	4,002,747	34,398,286	4,002,747
Total	9,088,821,110	1,148,396,558	1,501,242,656	195,176,038

1/ Designated beneficiary for GSP duty-free treatment.
2/ Beneficiary country receiving GSP treatment Mar. 1, 1976, to Feb. 28, 1977.
3/ Beneficiary country receiving GSP treatment Jan. 1, 1976, to Feb. 29, 1976.
4/ Costa Rica received GSP treatment retroactively due to revaluation of imports.

Source:

APPENDIX H

COMPILATION OF DATA SUBMITTED ON SALES OF CORN SWEETENERS BY 10 U.S. CORN SWEETENER PRODUCERS IN AGGREGATE FORM IN RESPONSE TO COURT ORDER WITH UNIT VALUES CALCULATED FROM QUANTITY AND VALUE DATA RECEIVED

Corn sweeteners: Sales by 10 U.S. corn sweetener producers, by type, 1972-76

Item	1972	1973	1974	1975	1976
	Quantity (1,000 pounds)				
Glucose sirup (corn sirup), unmixed:					
Type I (20 dextrose equivalent up to 38)	384,463	368,207	383,163	394,145	435,595
Type II (38 dextrose equivalent up to 58)	1,505,565	1,631,493	1,625,365	1,553,450	1,589,176
Type III (58 dextrose equivalent up to 73)	1,518,443	1,843,776	2,209,548	2,362,205	2,279,971
Type IV (73 dextrose equivalent and above)	275,724	267,002	272,652	289,045	242,023
High fructose sirup	346,968	625,487	833,970	1,469,180	2,120,154
Dextrose:					
Hydrous dextrose (including crude type)	934,482	1,048,195	1,075,233	1,011,048	982,405
Anhydrous dextrose	263,924	299,179	315,814	318,138	329,476
Glucose sirup solids (dried corn sirup)	107,782	124,780	163,000	158,163	140,308
	Value (1,000 dollars) 1/				
Glucose sirup (corn sirup), unmixed:					
Type I (20 dextrose equivalent up to 38)	12,704	21,013	37,255	49,880	40,031
Type II (38 dextrose equivalent up to 58)	54,457	88,461	152,069	194,834	144,476
Type III (58 dextrose equivalent up to 73)	55,505	97,925	205,818	294,182	206,475
Type IV (73 dextrose equivalent and above)	12,320	13,929	25,727	36,083	21,355
High fructose sirup	22,008	41,772	106,810	235,606	218,644
Dextrose:					
Hydrous dextrose (including crude type)	71,118	85,997	147,150	173,749	123,845
Anhydrous dextrose	19,719	22,413	34,349	59,962	41,786
Glucose sirup solids (dried corn sirup)	9,790	12,468	22,687	27,523	23,010
Total value	257,621	383,978	731,865	1,071,819	819,622
	Unit value (cents per pound)				
Glucose sirup (corn sirup), unmixed:					
Type I (20 dextrose equivalent up to 38)	3.30	5.71	9.72	12.66	9.19
Type II (38 dextrose equivalent up to 58)	3.62	5.42	9.36	12.54	9.09
Type III (58 dextrose equivalent up to 73)	3.66	5.31	9.31	12.45	9.06
Type IV (73 dextrose equivalent and above)	4.47	5.22	9.44	12.48	8.82
High fructose sirup	6.34	6.68	12.81	16.04	10.31
Dextrose:					
Hydrous dextrose (including crude type)	7.61	8.20	13.69	17.19	12.61
Anhydrous dextrose	7.47	7.49	10.88	18.85	12.68
Glucose sirup solids (dried corn sirup)	9.08	9.99	13.92	17.40	16.40

1/ Value of sales is net realized value, f.o.b. point of shipment.

APPENDIX IJ

ECONOMIC EFFECTS OF THE BAN ON FOOD USE OF SACCHARIN

On March 9, 1977, the U.S. Food and Drug Administration announced its intention to withdraw its approval of saccharin for use in foods. This action was based on adverse results from rat-feeding studies conducted under the auspices of the Canadian Government. The ban on the sale of foods containing saccharin takes effect July 1, 1977, and the FDA has encouraged manufacturers to discontinue using saccharin as soon as possible.

The U.S. Department of Agriculture estimates that food use of saccharin amounts to the sugar equivalent of about 750,000 short tons annually in recent years. Approximately 75 percent of this food use is in soft drinks.

The ban will not go into effect until July 1, 1977. It is believed that at least half of a normal years supply of saccharin and possibly more because of hoarding will be sold by the time the ban takes effect. Some manufacturers have announced that they will discontinue production of saccharin containing products, notably Coca-Cola USA. However, should other manufacturers continue production to meet orders until the ban takes effect, it is estimated that buying for present consumption and hoarding in advance of the ban will account for more than half a years supply. Therefore, the effect of the ban on saccharin use is anticipated to be unlikely to expose more than half of normal annual saccharin use to any substitution effect from caloric sweeteners in 1977, or about 375,000 short tons.

Because saccharin use is for low caloric purposes, it is unlikely that caloric sweeteners will substitute fully for saccharin in the marketplace. While currently there is no low caloric sweetener to

substitute for saccharin as saccharin was substituted for cyclamates when cyclamates were banned for food use, it is believed that new low calorie formulations for some products will appear. In addition, many consumers may choose to consume nothing or unsweetened products rather than substitute caloric sweeteners into their diets. Finally, for diabetics who cannot use sugar at all, it is believed that saccharin may still be made available by prescription. In any event, it is anticipated that only a little more than half of normal saccharin use will be substituted for by any increased usage of caloric sweeteners, or about 187,500 short tons in 1977 and 375,000 short tons in later years.

For that portion of saccharin use for which increased consumption of caloric sweeteners takes place, sugar will have to compete with corn sirup, particularly with high-fructose corn sirup. For 1977, it is anticipated that high-fructose corn sirup would capture about a third of such consumption leaving only about 125,000 short tons for increased sugar consumption in the remainder of 1977 as a result of the ban on saccharin.

Corn sweetener producers are improving their technology and will be making high-fructose corn sirups with higher and higher fructose contents, resulting in products that are sweeter in relation to their calorie content than sugar. In future years such corn sirup products can be anticipated to capture an even larger share of consumption in substitution for saccharin than is anticipated for 1977. It is believed that sugar consumption increases as a result of substitution for saccharin in the long run will amount to little more than 200,000 short tons in each year.

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