

The Effect of the GATT on U.S. Peanut Markets

**R. Borges, W. Thurman,
and R. Rucker**

GATT Research Paper 92-GATT 23

The Effects of the GATT on U.S. Peanut Markets

Randal R. Rucker, Walter N. Thurman, and Robert B. Borges

GATT Research Paper 92-GATT 23

**Center for Agricultural and Rural Development
Iowa State University
Ames, Iowa 50011**

Randal R. Rucker is at Montana State University. Walter N. Thurman and Robert B. Borges are at North Carolina State University.

This material is based upon work supported by the Cooperative State Research Service, U.S. Department of Agriculture, under Agreement No. 92-38812-7261. Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the authors and do not necessarily reflect the view of the U.S. Department of Agriculture.

THE EFFECTS OF THE GATT ON U.S. PEANUT MARKETS

Randal R. Rucker, Walter N. Thurman, and Robert B. Borges

The Uruguay Round of the General Agreement on Tariffs and Trade (hereafter, the GATT) which was signed by more than 100 nations on December 15, 1993, represents the culmination of seven years of negotiations on reforms of international trade. Assuming that the U.S. Congress will ratify the agreement most, if not all, agricultural commodities produced in the United States will be affected in some way. The purpose of the present paper is to examine the likely effects of the GATT on U.S. peanut markets.

Although the market value of U.S. peanut production is small compared to many other U.S. agricultural commodities, the impacts of the GATT on peanut markets are of considerable interest for at least two reasons. First, because peanut production is concentrated in a relatively small number of states, peanut revenues constitute an important component of incomes in many communities in the Southeastern United States. The impacts of the GATT on peanut markets are therefore important to farmers and policy makers in these areas. Second, the federal peanut program is unique among U.S. commodity programs with its marketing quota, price supports, and import restrictions. An important component of the federal peanut program is explicit restriction on imports of peanuts. The restriction has brought attention to the trade conditions for peanuts that seems not to be justified by the value of trade in peanuts. During the course of the Uruguay Round negotiations, for example, peanut import restrictions were used by other countries as an example of restrictive U.S. trade policies.

In this paper, we present a model of the U.S. peanut program that explains its effects on the domestic industry. Using this framework, the impacts of the GATT are then examined. Our analysis suggests that the GATT will have its primary effects on U.S. peanut markets through increased raw peanut imports. This will decrease the demand for U.S.-grown peanuts and tend to increase the treasury costs of the federal peanut program. A potentially important effect related to the GATT will result from a side agreement which will halt the growth of U.S. imports of Canadian peanut butter. Relative to a scenario in which peanut butter imports are not restricted, such restrictions on peanut butter imports will increase the demand for U.S. grown peanuts and reduce any treasury costs associated with the peanut program. Recent analysis by the USDA (1994) suggests that the demand-increasing effects of the reduction in peanut butter imports will outweigh the demand-decreasing effects of the increase in imports, thereby making U.S. peanut growers better off. That analysis, however, assumes that in the absence of the GATT peanut butter imports would have continued their recent rapid

growth. In contrast, we argue that for political reasons peanut butter imports would not have continued to grow and that the net benefits to U.S. peanut growers from the GATT almost certainly are negative, but modest. Our analysis suggests that, at worst, either the treasury costs of the peanut program will increase by about \$23 million or annual grower revenues will fall by \$10-\$18 million (less than one cent per pound of quota peanuts produced). Because the GATT allows the continued restriction of domestic supply through marketing quota, there are unlikely to be any offsetting benefits to U.S. consumers.

We proceed as follows. In section I we list the four areas of trade policy that are affected by the GATT and discuss their relevance for understanding the impacts on U.S. peanut markets. In section II we describe the U.S. peanut program and develop an analytical framework for understanding its effects. In section III we detail the specific GATT provisions related to the peanut program (as well as the interaction between these and related provisions in the North American Free Trade Agreement and the Canadian Free Trade Agreement) and analyze their impacts on U.S. peanut markets. In section IV we conclude.

I. GATT MECHANISMS FOR PROMOTING TRADE¹

The GATT identifies four types of impediments to trade: market access barriers, export subsidies, internal supports, and scientifically unjustified sanitary and phytosanitary measures. A brief discussion of the issues associated with each of these areas and of the corresponding corrective remedies under the "Final Act" GATT of December 1993 follows.

Market Access The Final Act requires that a variety of non-tariff barriers including quotas, variable levies, and restrictive licensing be converted to tariffs. Following this "tariffication" process, the involved countries have agreed to reduce the level of tariffs over the six-year implementation period. During the tariffication process, countries have agreed to maintain current access opportunities. For countries in which imports of individual commodities during specified base periods are very low or nonexistent, quantitative commitments for increased import access are established.

Export Subsidies The Final Act specifies reduction commitments for particular export subsidy policies. Countries with commodities subject to this provision are required to reduce both the flows of subsidized exports and the budgetary outlays for such subsidies.

¹ The primary source for most of the material in this section is USDA (January 1994 and March 1994).

Internal Support The Final Act identifies domestic policies that distort trade and that are to be subject to reduction commitments. Participating countries have agreed that the level of support provided by identified policies is to be determined by a common measure, referred to as the Aggregate Measure of Support.

Sanitary and Phytosanitary Restrictions Under the GATT, countries are required to use a scientific basis for establishing all health-related measures that affect trade. Countries are encouraged to make greater use of international standards. The right of individual countries to maintain standards more stringent than those of international organizations is recognized, however, if such standards have a scientific basis.

Commitments to increase market access, decrease export subsidies, and decrease internal support are to be made from average levels of prices and quantities during a designated multi-year base period. For peanuts, this base period is 1986-1988. The commitments made under the Final Act are to be phased in over a six-year period, beginning in 1995.

Of the four listed areas above, the most relevant for the peanut program is market access — imports of raw peanuts have been limited to less than one percent of U.S. consumption. Relaxing these restrictions will affect U.S. peanut markets and the operation of the peanut program. Because of recent reductions in commodity support levels by the United States under the 1985 and 1990 farm bills, the United States is not required to make further reductions in internal support levels to meet its obligations under the GATT. Further, the peanut program does not include any export subsidies. Second-order effects on U.S. peanut markets may result from the sanitary and phytosanitary provisions if, for example, these lead to changes in standards relating to aflatoxin content for U.S. imports into European countries. A side agreement to the Final Act restricting peanut butter imports may also have effects on U.S. peanut markets.

II. PEANUT MARKETS AND THE PEANUT PROGRAM²

Peanut production in the United States is concentrated in seven southern states — Alabama, Florida, Georgia, North Carolina, Oklahoma, Texas, and Virginia — and is an important source of income in many local economies. There are two peanut markets, separated both by end-use of the peanut and by government policy — the edible market and the crush market. Peanuts sold into the edible market are used in such products as salted-in-the-shell peanuts, candy bars, and peanut butter. Peanuts sold into the crush market are used to produce peanut oil, cake, and meal. Peanut oil is consumed by

² Much of the material in this section is adapted from Rucker and Thurman (1990), which contains a more detailed analysis of the effects of the peanut program.

humans, but is not included among "edible" uses for policy purposes. Peanut cake and meal are animal feeds.

Government programs regulating peanut prices and production have been in effect since the 1930s. Early incarnations of the peanut program used price supports and set acreage allotments to regulate production. Following large treasury costs in the mid-1970s, the acreage allotment-based peanut program was changed to a poundage quota-based program under the Food and Agricultural Act of 1977. A variety of adjustments to fine-tune the operation of the program have been made in subsequent farm bills. Under the current peanut program, a minimum price is established for peanuts sold into the domestic edible market. Only peanuts with poundage quota can be sold into the edible market. Quota peanuts can also be placed with the Commodity Credit Corporation (CCC). In either case, quota peanuts receive at least the edible support price.

Growers are allowed to grow more than their poundage quota, but these "additional" peanuts cannot be sold directly into the edible market. Growers who grow additionals have the option of contracting with handlers for sale in the export market.³ Such contracts must be signed by a legislatively specified date — under current legislation, this date is September 15. Additionals without advance contracts must be placed under loan with the area growers' association.⁴ Additionals placed under loan are guaranteed a minimum additional support price well below the edible support price. For reasons discussed below, however, growers normally receive a payment for additionals placed in growers' association pools that exceeds the additionals support price and is near the price received by additionals contracted for export. The high domestic support price is protected by a virtual ban on imports.

Although there are legislated barriers between the domestic edible market and the export and domestic crush markets, these barriers are not free of leakages. Peanut handlers (buyers) can, for example, "buy back" additionals for use in the domestic edible market. These buybacks, which can be accomplished in a couple of different ways (see Rucker and Thurman), require the buyers to make payments to the growers' association equal to the quota price plus a handling charge.

The growers' association takes under loan both quota and additional peanuts. The association can then sell quota peanuts for edible uses, or for export or domestic crush. Additional peanuts placed under loan with the association can be bought back for

³ Growers are also allowed to sell their additional peanuts into the domestic crush market, but because the price received in this market is lower than other alternatives, this option is not economically relevant.

⁴There are three area growers' associations — the Peanut Growers' Cooperative Marketing Association (PGCMA) for the Virginia-Carolina region, the Southwest Peanut Growers' Association for the Texas-Oklahoma region, and the Georgia, Florida, Alabama Growers' Association.

use in the edible market as discussed above, or be sold for domestic crush. The association is also allowed to sell both quota and additional peanuts for export, but such sales cannot be made below a USDA-established export support price.⁵ Because this export support price typically has been set above the world price this option rarely is exercised.

The growers' association incurs losses if it buys quota peanuts at the edible support price and then resells them at lower prices for domestic crush or export. Such losses are borne by taxpayers. If, however, the growers' association buys additional at the relatively low additional support price and then sells them for the edible support price under the buyback provision, it earns profits. Any such profits are distributed among growers who place additional in the association pools.⁶

Given the preceding, the effects of the peanut program on peanut markets can be analyzed. We show below that the current restriction on imports of edible-grade peanuts reduces potential gains from trade and that the poundage quota and quota support price maintain an artificially high price in the domestic edible market. This generates a flow of rents to owners of poundage quota but imposes (larger) costs on domestic consumers. We also demonstrate that the buyback provision usually prevents the price of edible peanuts from rising above the quota support price.

To focus on the primary elements of the peanut program we make the following assumptions.⁷

- (1) The USDA perfectly enforces all provisions of the peanut program.
- (2) There are two uses for peanuts (edible and crush) and two qualities of peanuts (edible grade and crush grade). Edible grade peanuts are of higher quality and they can be used either for edible purposes or crushed into oil and meal. Crush-grade peanuts are suitable for crush use but cannot be used for edible purposes. U.S. peanut producers grow only edible-grade peanuts, while foreign producers grow both edible- and crush-grade peanuts.
- (3) The foreign prices of crush- and edible-grade peanuts are exogenous to domestic markets. This assumption is introduced for exposition and is relaxed later.

⁵This support price applies only to sales of peanuts by the growers' association and not to contract additional sales by growers. Peanuts sold by the growers' association to processors for domestic crush cannot be exported by those processors.

⁶See Rucker and Thurman for details on past and current rules for distributing these profits.

⁷Detailed discussions of the justifications for these assumptions can be found in Rucker and Thurman (1988 and 1990).

- (4) The legislated minimum price for peanuts sold by growers' associations into the export edible market is above the world price of peanuts, so that peanuts in association pools are priced too high to be sold in the export edible market.
- (5) Imports for edible use are prohibited. Private exports of edible-grade peanuts are not restricted. There are no effective restrictions on the import or export of crush-grade peanuts.

The following notation is used in our analysis:

D_e = demand for U.S.-grown edible-grade peanuts in the domestic market.

D_c = demand for crush grade peanuts in the domestic market.

S^d = domestically produced supply of peanuts.

P_e^f = foreign price of edible-grade peanuts.

P_c = foreign (and domestic) price of crush-grade peanuts.

P_s = support price for domestic edible peanuts (the quota support price) and

Q_q = aggregate poundage quota.

Figure 1 shows the domestic demand for edibles, D_e , the domestic demand for crush, D_c , the foreign price of edible-grade peanuts, P_e^f , the price of crush-grade peanuts, P_c , and the domestic supply of peanuts, S^d . In the absence of government restrictions, and given our assumption that only edible-grade peanuts are grown in the United States, the domestic edible and crush markets equilibrate separately at prices P_e^f and P_c . The entire domestic crop of Q_e^s is sold for edible uses. Domestic consumption of edibles is Q_e^d , edible exports are X_0 , and Q_c^d pounds of crush-grade peanuts are imported for domestic oil and meal uses.

Next consider an edible quota in the amount Q_q^0 and a support price of P_s , chosen in figure 1 so that the domestic edible market clears. The support price is maintained by both the quota and the ban on imports. In the domestic market, demand is truncated at Q_q^0 for prices below P_s . Because the marginal price facing peanut producers is unchanged at P_e^f , however, total domestic production is unchanged. The reduction in domestic edible consumption (from Q_e^d to Q_q^0) is matched one-for-one by an increase in exports from X_0 to X_1 . In this scenario, the crush market is unaffected by the quota and support price. The welfare effects with this quota and support price are confined to the domestic edible market, where consumer surplus falls by ABEC and producers gain ABDC. The deadweight loss is BDE, the area under the domestic edible demand curve and above the world price and between the quantities demanded at the

support price and the world price. This observation implies that the welfare effects of the peanut program (at least in this scenario) can be measured empirically using estimates of the demand curve for peanuts only — estimates of the domestic supply of peanuts are not required.

In the preceding analysis, we assumed that policy makers were able to choose a support price and quota level so that there was neither a shortage nor a surplus of peanuts in the domestic edible market. Due to imperfect knowledge concerning the demand for edibles, however, policy makers may not be able to accomplish this. If, for example, the quota is set equal to Q_1 , then an excess supply of peanuts to the domestic edible market results. This excess supply is purchased by the growers' association at the support price and resold into the crush market at the crush price. Treasury costs equal the difference between the quantity demanded at the support price and the quota, multiplied by the difference between the support price and the crush price.

An alternative situation is one in which there is excess demand for edibles, rather than excess supply, at the support price. This situation results if the quota in figure 1 is set at Q_2 . Here, the market-clearing price would be above P_s . The buyback provision of the peanut program, however, typically prevents the price in the domestic edible market from rising above P_s . This provision allows for handlers to buy back non-quota peanuts into the domestic edible market at the support price. In figure 1, handlers, who are allowed to buy back as many peanuts as they wish, will request buybacks of $Q_q^0 - Q_2$, thereby effectively shifting the domestic supply of peanuts for the domestic edible market out to Q_q^0 . Only if the total available supply of edible-grade quota and additional peanuts under loan is less than Q_q^0 will the domestic edible price exceed the support price.

III. THE EFFECTS OF THE GATT ON U.S. PEANUT MARKETS

The provision of the GATT that most directly affects U.S. peanut markets is the market access provision, which will allow substantial increases in imports of raw peanuts over a six year transition period. Less direct, or secondary, effects may be felt through changes in the foreign price of peanuts, resulting from GATT-induced shifts in the demand for U.S.-grown peanuts. A primary concern of the U.S. peanut industry in recent years has been the growth in imports of peanut butter, mainly from Canada. In a separately negotiated side agreement to the GATT, future imports of peanut butter from Canada (as well as other countries) are limited to their 1993 levels. Specific terms of these agreements, as well as their relationships with the terms of the Canadian Free Trade Agreement (CFTA) and the North American Free Trade Agreement (NAFTA) are discussed below.

III.A. The Effects of the GATT on U.S. Imports of Raw Peanuts

Currently, imports of peanuts are virtually banned under section 22 of the U.S. Agricultural Act of 1933 as amended. The GATT calls for a relaxation of this ban to allow imports into the United States equal to three percent of domestic consumption during the 1986-1988 base period. This limit is referred to as a minimum access requirement. Allowable imports are to rise to five percent of base consumption by the sixth year of implementation of the agreement. For import quantities below the allowable limits, a duty will be charged equal to \$60 per ton (three cents per pound). Peanuts may be imported above the limits, but only if a high tariff is paid. The tariff on shelled peanuts is initially set at 155% of the transactions price; it will decline by 15% to 131.8% by the sixth year of implementation. Peanuts in the shell above the minimum access requirement will initially be charged a tariff of 192.7%, also to be reduced by 15% by the sixth year.

An important question is whether it is likely that raw peanuts will be imported into the United States above the minimum access levels.⁸ That is, is it likely that the world price of peanuts will be low enough to make it worthwhile to import peanuts into the United States even after paying the one-hundred-percent-plus tariff? Our answer to the question, in short, is that it is quite unlikely to be profitable to import peanuts into the United States on such terms. Therefore, the imports to expect under the GATT are exactly the minimum access levels. Our conclusion is based on a historical comparison of world peanut prices with the U.S. edible support price.

A monthly series of observations on the Rotterdam c.i.f. price for U.S. runner peanuts is displayed in Figure 2 for January 1980 through January 1994. These are cleaned and shelled peanuts of a quality ready for processing into peanut candies or peanut butter, the former being the primary purpose for peanuts purchased in Rotterdam. The sample mean of the nominal prices is near \$1000 per ton. (The effects of deflating the series are discussed below.) The series displays the shape typical for storable commodity price series (Williams and Wright): typical levels low, near \$800, with sporadic jumps to quite high levels, two above \$2000 per ton. The two most prominent bursts, late 1980 and late 1990, followed short U.S. crops. During both episodes the U.S. import ban was relaxed and peanuts were imported.⁹

⁸ Given world prices, and assuming foreign peanuts are of sufficient quality, it is clear that raw peanuts will be imported at least up to the minimum access levels.

⁹ Under normal circumstances, the domestic support price serves as not only a floor to the U.S. price but as a ceiling as well. This results from the buyback provision of the peanut program. If U.S. production of quota peanuts is insufficient to meet demand at the edible support price then additional, non-quota, peanuts can be bought back from additional pools. Rucker and Thurman (1990) develop this point further. The circumstances under which the U.S. price can rise above the support prices are those where the U.S. crop is so short that the sum of quota peanuts and additional bought back is insufficient to

In addition to the time series of Rotterdam prices, Figure 2 displays a horizontal line labeled "Year 2000 Import Trigger Price." It represents the level to which world peanut prices would have to fall in order to trigger imports beyond the minimum access level from world markets into the United States. It is calculated as follows.

The U.S. support price for edible peanuts for the 1994-95 crop year is \$678.36 per ton on a farmer's stock basis: a price for peanuts in the shell. Using conversion coefficients developed by the U.S. International Trade Commission (1993), shelling peanuts results in a 25% loss in product weight while cleaning and culling results in an additional 12% loss. Therefore, \$678.36 in the shell is equivalent to a shelled price of $\$678.36 / [(0.75)(0.88)] = \$1,027.82$. Adding the estimate of shelling costs of \$200 used by the ITC gives a U.S. shelled-and-cleaned equivalent price of \$1,227.82. This price should be compared to the price of imported peanuts after paying the tariff for peanuts above the minimum access level.

The price of imported peanuts will be related to the Rotterdam price of peanuts as:

$$P_{\text{imports}} = (P_{\text{Rotterdam}} + \Delta \text{ transport cost}) (1 + \tau)$$

where τ is the tariff rate: 1.55 in 1995 falling to 1.318 in 2000. Δ transport cost is the difference in cost between shipping peanuts from, say, Argentina to Rotterdam and from Argentina to the United States.

As a reasonable approximation, assume that there is no change in transport cost if peanuts are redirected from Rotterdam to the United States. We can find the Rotterdam price that will trigger imports, P_{trigger} , by equating the expression for P_{imports} with the U.S. shelled-and-cleaned equivalent price:

$$P_{\text{trigger}}(1 + \tau) = \$1,227.82$$

or

$$P_{\text{trigger}} = \$1,227.82 / (1 + \tau).$$

The trigger price so calculated with the year 2000 tariff rate of 1.318 is \$529.69 and is displayed in Figure 2. For earlier years, the trigger price is lower.

The evident point from Figure 2 is that over the last decade and a half, the Rotterdam price has never fallen to the trigger level. Further, if one accounted for the decline in the purchasing power of the dollar over the period one would inflate earlier

meet domestic edible demand at the support price. This is what happened in 1980 and 1990.

year Rotterdam prices. Thus our conclusion: that imports of raw peanuts under that GATT should equal only the minimum access levels.

Our conclusion follows from assuming that the sum of quota production and additional placement into the pools is sufficient to meet U.S. domestic demand at the quota price. This is the condition that ensures that the U.S. domestic price will not rise above the support price. What would happen if the U.S. domestic price did rise above that level? What will happen when world market conditions are as they were in 1980 and 1990? If the U.S. crop is short and there exists a large enough price differential at the border to induce imports, then it is possible that imports will enter the country. This requires both an unusually short domestic crop and unusually low world prices. Because the domestic crop is assumed to be small, however, the role of imported peanuts would be to augment U.S. consumption to the level demanded at the support price rather than to displace U.S. peanuts in the domestic market. The effect on U.S. growers would be to lower their received price from one above the support level to one closer or equal to the support level.

III.B. The Effects of the GATT on U.S. Imports of Peanut Butter

Imports of raw peanuts have virtually been banned under the authority of section 22 of the 1933 Agricultural Adjustment Act. Imports of processed peanut products have been treated differently. Historically, there have been no restrictions on imports of peanut butter in particular. The difference between U.S. and foreign peanut prices would appear to create considerable incentives to purchase peanuts and produce peanut butter outside the United States and then import into the country. Until recently, however, peanut butter imports have been insignificant. Table 1 shows that imports of peanut butter, primarily from Canada and Argentina, comprised less than one percent of estimated domestic consumption until 1990. After that time, Canadian imports rose rapidly.

Total imports comprised almost four percent of domestic consumption in crop year 1992, the bulk of those coming from Canada. In the current crop year (1993) Canadian imports appear still to be increasing at a similar rate. Through this period, and due to the CFTA, the tariff on imported Canadian peanut butter has decreased from \$60/ton in 1989 by 10% annual decrements.

The rapid increase in Canadian peanut butter imports has concerned U.S. peanut producers because of their effect on the derived demand for U.S. peanuts. (See cited articles in the Peanut Farmer and Southeast Farm Press.) Purchases of U.S. peanuts by peanut butter manufacturers have declined in crop year 1993 and the decline has been attributed, in part, to the surge in imports. Producer concern has led to an International Trade Commission (ITC) hearing in April 1994 on whether or not a Section 22 action limiting Canadian peanut butter imports is warranted.

Evidence that policy makers have responded to peanut growers' concern is found not only in April's ITC hearings, but also in statements from the executive branch. In response to one congressman's concerns over the deleterious effects NAFTA may have on U.S. peanut growers, the Secretary of Agriculture assured the congressman that he would "work vigorously ...to limit the volume of Canadian exports of peanut butter and paste, which would include your suggestion of a cap at 1 percent of U.S. domestic consumption." (IATRC and CNAS, p. 102.)

U.S. grower concern over imports led to a side-agreement, the most important provision of which limits imports of Canadian peanut butter into the United States to 31.9 million pounds per year, an amount roughly equal to that imported in the 1993 crop year. Imports above that level are to pay a tariff rate of 155%, the same as that imposed on imports of raw shelled peanuts above the minimum access level.¹⁰ This agreement coincides with the GATT and is scheduled to take effect on July 1, 1995. This leaves Canadian (and other) peanut butter imports uncontrolled for the 1994 crop year, a fact of obvious concern to U.S. growers and a likely reason for the ITC hearings.

With the discussion above as background, consider the task of analyzing the effects of the GATT on peanut trade. Should we attribute to the GATT the freezing of Canadian peanut butter imports at 1993 level, the effect of the side-agreement just discussed? This is the approach taken by U.S. Department of Agriculture analysts (see USDA, p. 20-21). They argue that recent trends in peanut butter imports would have continued absent GATT. They predict that, by the year 2000, imports would have increased roughly five-fold over the 1993 level, the level to which the side-agreement restricts imports. If viewed as an effect of GATT this restriction is an important counter, in terms of U.S. peanut producer welfare, to the deleterious effect of increased raw peanut imports. In fact, the USDA argues that the restrictions on peanut butter imports are worth more to domestic producers than the expansion of raw peanut imports. On net they argue that the GATT is a boon to domestic producers.

We find this a strange interpretation of the effects of GATT. Peanut producers clearly were concerned about peanut butter imports before the Uruguay round was near complete. They became concerned approximately when imports began to increase and some action to restrict Canadian peanut butter imports seemingly would have been inevitable, with or without the GATT. Therefore, our best estimate of the effect of the GATT on peanut butter imports is zero.

In the estimates we present below of the impacts of the GATT, we humor the reader who disagrees with our political prediction and consider two alternative scenarios for the effects of the GATT on peanut butter imports. One scenario corresponds to our

¹⁰ This agreement also limits imports of peanut butter from other sources as follows: Argentina, 8.03 million pounds; Less Developed Countries, 1.65 million pounds (increasing to 3.52 million pounds after six years); other countries, .55 million pounds.

belief that the GATT would have no effect on peanut butter imports — political pressures would have led to restrictions on imports even without the side agreement to the GATT. The other scenario corresponds to a situation where in the absence of the GATT, peanut butter imports would increase at a rate that we consider highly unlikely given current political conditions. We analyze this scenario for the purpose of demonstrating the range of possible outcomes of the GATT.

III.C. The Estimated Effects of the GATT on Domestic Demand, Producer Surplus, and Treasury Costs

The estimated effects of the GATT on the domestic demand for U.S.-grown peanuts, producer surplus, and treasury costs under four different scenarios are presented in tables 2-A through 2-D. The calculations underlying these tables can be understood by referring to figure 3. In that figure, the initial domestic demand for U.S.-grown peanuts is D_e^0 , and the initial national quota and quota support price are Q_0 and P_S . In this situation, the quantity demanded at the support price is exactly equal to the quantity supplied, implying that initially there will be neither treasury costs nor buybacks.

As the preceding discussion suggests, the primary impact of the GATT on U.S. peanut markets will be through its effects on the domestic demand for U.S.-grown peanuts. These effects originate from three distinct sources: the decreased demand due to increased imports of foreign-grown raw peanuts, the increased demand due to (possible) reductions in peanut butter imports, and the increased demand resulting from GATT-induced increases in U.S. income levels. In each of tables 2-A through 2-D, the net effects of these factors are shown under the assumptions listed. In all of the tables, it is assumed that raw peanut imports increase as prescribed in the minimum access provisions of the GATT and that the effect of the GATT is to increase aggregate U.S. income by 1 percent.¹¹ The factors that are allowed to vary are the effects of the GATT on peanut butter imports and whether treasury costs are allowed to increase.

In table 2-A, it is assumed that the GATT has no effect on peanut butter imports (as indicated above, this is based on the belief that political factors would limit these imports without the GATT). It is also assumed that the aggregate quota and price support do not change, so that the primary effect of reductions in demand is to increase treasury costs. As seen in the column of table 2-A labeled "net change in demand" the net effect of the increased imports of raw peanuts and the increased U.S. income is to decrease the domestic demand for U.S.-grown peanuts. In figure 3, this corresponds to a shift in demand from D_e^0 to D_e' . With no change in either the quota level or the support price, producer surplus remains constant and treasury costs increase by the area ABCD (Q_0 - Q_1 quota peanuts are purchased by the association pools for the quota support price

¹¹This impact of the GATT on aggregate U.S. income is consistent with the assumptions made in the analysis by the USDA (1994, Appendix 1).

and then sold at the crush price), the dollar value of which appears in the last column of the table.

In table 2-B an alternative scenario is presented in which the assumption is maintained that the GATT will not affect peanut butter imports, but treasury costs are no longer allowed to increase. Here, as demand falls the quota level is reduced and producer surplus falls. In figure 3, as demand decreases from D_e^0 to D_e' , the quota is reduced from Q_0 to Q_1 . This quantity of peanuts is now sold at the foreign price (P_e^f) rather than the quota price (P_S) and producer surplus falls by ABEF, or the dollar values indicated in the sixth column in table 2-B.¹²

Table 2-C shows the effects of the GATT under the assumptions that the quota level and support price remain constant and that in the absence of the GATT peanut butter imports would increase by 20 percent per year from their (assumed) 1993 level. This assumed level of increase in peanut butter imports, which we view as highly improbable given recent political discussions concerning this issue, is a level at which the demand-increasing factors roughly offset demand-decreasing factors late in the 1995-2000 period. In this scenario, treasury costs are seen to increase (by declining amounts) until 1999, after which the net change in demand becomes positive and treasury costs are unaffected relative to the no-GATT situation.¹³

Table 2-D shows the effects of the GATT under assumptions similar to those made in table 2-C, except that the quota level is adjusted to maintain the initial level of treasury costs (zero in figure 3). In this case, producer surplus is seen to decrease (by declining amounts) until 1999 when the net change in demand becomes positive. For 1999 and 2000, producer surplus actually increases, albeit by relatively small amounts.¹⁴

¹²In the present analysis, reductions in the allowed production of quota peanuts are exactly offset by increases in the production of additional peanuts. Given that peanut quota cannot be transferred across county lines, the aggregate effects shown are "exact" only if all counties produce additional. Insofar as some counties do not produce additional, total peanut production will fall as the quota is reduced and it can be demonstrated that the estimates presented in table 2-B represent upper bounds on the actual reductions in producer surplus.

¹³Note that treasury costs do not decrease as a result of the GATT in 1999 and 2000. This is because when the net effect of the GATT is to increase the domestic demand for peanuts (from the initial situation shown in figure 3), the buyback provisions of the peanut program take effect (see Rucker and Thurman).

¹⁴Again, after 1999 the buyback provisions of the peanut program would take effect. As demonstrated in Rucker and Thurman, the increases in producer surplus in 1999 and 2000 would actually be dissipated through competition among growers for the increased revenues associated with selling their additional for the quota support price. The present analysis assumes that the quota level is not increased when demand shifts to the right of D_e^0 in figure 3.

In tables 2-A and 2-B it is assumed that the recent growth in peanut butter imports will not continue even in the absence of the GATT. These tables can be viewed as approximating a "worst case" scenario for the effects of the GATT from the perspective of peanut growers. Another political unknown is the viability of a peanut program that incurs large treasury costs, as in scenario 2A. Historically, political factors have limited the size of the allowable treasury costs resulting from this program (Rucker and Thurman). Whether the program would remain intact with the increases in annual treasury costs in table 2-A of \$12 to \$23 million is unclear. If political pressures would keep treasury costs from increasing by such amounts, then quota levels likely would be reduced, causing producer surplus to decline. Given our view that it is highly unlikely that absent the GATT annual increases in peanut butter imports will be as large as 20 percent, reasonable upper bounds on the annual reductions in producer surplus are those shown in table 2-B — \$10-18 million. Such reductions translate into less than 1 ¢/lb of quota peanuts produced.

III.D. Other Effects of the GATT

The primary effects of the GATT and related treaties come through increased imports of raw peanuts and decreased imports of peanut butter, which act to shift the demand for U.S.-grown peanuts in opposite directions. Secondary impacts may arise from terms of the GATT that act to shift the foreign demand for U.S.-grown peanuts. For example, Thailand, Korea, and Switzerland all have agreed to reduce or eliminate tariffs on imported peanuts. Also, the requirements that countries must have a scientific basis for establishing health-based measures may increase the European demand for U.S. peanuts insofar as these requirements lead to less stringent aflatoxin standards for imported peanuts.

Finally, the GATT is expected to increase foreign incomes. An increase in foreign demand from any of these sources will increase the foreign price of U.S. peanuts and increase domestic producer surplus. Although the magnitude of any increase in foreign prices is purely speculative, it is straightforward to obtain a lower-bound estimate on the increase in domestic producer surplus associated with any given increase in foreign price. This estimate is simply the pre-GATT level of exports multiplied by the increase in the foreign price. The average of U.S. edible peanut exports over the last ten years is about 570 million pounds. An increase in the foreign price of, say 3¢/lb (about a 15 percent increase), would increase domestic producer surplus by at least \$17 million.¹⁵

¹⁵In figure 3, it can be seen that an increase in the foreign price increases domestic producer surplus by a trapezoid-shaped area bounded by the level of quota, the old and new foreign prices and the domestic supply. The estimate in the text of the increased producer surplus from an increased foreign price would be exact if the domestic supply were vertical. The actual increase in producer surplus increases with the elasticity of the domestic supply.

III.E. Relations Among Peanut Provisions under the GATT, CFTA, and NAFTA

In addition to being affected by the GATT, U.S. peanut markets have also been affected by the CFTA and NAFTA. A full understanding of the effects of the GATT requires knowledge of how the GATT peanut provisions affect the relevant provisions of the CFTA and NAFTA.

Peanut imports have been restricted under Section 22. The GATT, NAFTA, and CFTA all relax, either directly or indirectly, the nature of the protection provided for U.S. peanut markets. The CFTA, which went into effect in 1989, affected U.S. peanut markets through its provisions regarding peanut butter imports. Prior to 1989, the duty (tariff) on peanut butter from any source was \$60/ton (6.6¢/kg or 3¢/lb). For Canada, the initial duty was set at \$53.52/ton (5.9¢/kg or 2.7¢/lb) and was scheduled to decrease by \$5.99/ton (.66 ¢/kg or .3¢/lb) per year until the duty fell to zero. The only restriction on imports from Canada is that some form of processing must take place in Canada. Thus, raw peanuts can be imported into Canada, processed into peanut butter, and exported to the United States at the lower Canadian duty rate. Peanut butter made in Argentina, transferred into Canada and then to the United States, however, is taxed at the higher rate of \$59.87/ton (6.6 ¢/kg or 3¢/lb).

Under the NAFTA, which was implemented on January 1, 1994, Mexico was granted an initial duty-free import quota of 3,723 tons (7.45 million pounds) of peanuts. This quota is scheduled to increase by about 3% annually for fifteen years. In 2007 the quota is to be 5,466 tons (10.9 million pounds). In 2008 there is no limit to imports without tariff. Before then imports above the annual quota will be subject to tariffs equal to the maximum of 120 percent ad valorem or \$710.40/ton for shelled peanuts and the maximum of 181.4 percent ad valorem or \$469/ton for inshell peanuts. These rates will be reduced by 15 percent over the first six years, and then eliminated completely by linear annual decrements over the next nine years. All peanut imports from Mexico must be Mexican grown and all peanut butter imported from Mexico must be made from Mexican peanuts.

The side agreement to the GATT concerning peanut butter imports alters the related provisions of the CFTA. The unlimited imports and the declining tariff rate schedule under the CFTA is replaced with an import quota equal to the level of 1993 imports. In addition, an over-quota ad valorem tariff rate of 155% is established. The terms of the NAFTA concerning peanut imports from Mexico are not affected by the GATT — the Mexican import quotas and the tariff schedule described above will apply. However, Mexican peanut imports, while not directly limited by the GATT, do count against the GATT quota and so constrain imports from other countries.

IV. CONCLUSIONS

Two previous analyses have been undertaken of the impacts of the GATT on U.S. peanut markets. The first of these is an article by Carley and Fletcher (1993) who look at the impacts of the GATT and NAFTA. A primary conclusion of their study is that the gross incomes of peanut farmers will fall by a total (undiscounted) of about \$70 million over the first six years the GATT is in effect. The second previous analysis, which was published by the USDA Economic Research Service (March 1994), provides very different estimates of the effects of the GATT. Their analysis suggests that by the year 2000, the annual value of production will be \$170 million greater under the GATT than in its absence. They also suggest that government peanut program costs may be as much as \$200 million per year lower under the GATT.

The large differences in the conclusions of these two studies can be attributed to their treatment of peanut butter imports. Carley and Fletcher's analysis was conducted prior to the negotiation of the side agreement that limits peanut butter imports. Their analysis, therefore, ignores the possibility that peanut butter imports will fall, thereby increasing grower incomes. The USDA analysis, on the other hand, accounts for the peanut butter import restrictions. In fact, under their analysis, the impacts of these restrictions are substantial. They assume that, in the absence of the GATT, peanut butter imports would have continued to grow exponentially. Our estimates of the impacts of the GATT fall between the estimates of the previous analyses. We account for the restrictions on peanut butter, but argue that peanut butter imports would not have continued their exponential increases of recent years.

A large unknown in the future of domestic peanut markets is the role that Mexico will take as a supplier of both raw peanuts and peanut products, particularly peanut butter. The GATT has little effect on U.S.-Mexico peanut trade because it is superseded by the NAFTA. However, the effects of the GATT, with its peanut import quota of 5% of 1993 domestic consumption could be dwarfed by the effects on bilateral U.S.-Mexico trade from the NAFTA. After the full 15-year implementation period of the NAFTA, imports of both raw and processed peanuts from Mexico will not be restricted.

Currently, Mexico is not a major peanut producer, but casual perusal of their production statistics raises the possibility that Mexico may increase exports to the U.S. dramatically. In the 1991-92 crop year, Mexican peanut acreage was 210,000 acres, approximately ten percent of U.S. peanut acreage. The average Mexican yield was less than half the average U.S. yield, implying that Mexican production was one-twentieth that of the United States. The Mexican average yield of 1,050 pounds per acre, while low by the standards of intensive U.S. agriculture, is fairly high in the range of yields from less-developed peanut-producing countries (USDA, 1992).

Mexican producers currently sell their product at non-U.S. prices, roughly half the U.S. supported price. As the NAFTA faces them with the incentive of the U.S. support

price, one can predict that they, too, will intensify their cultivation and increase their planted acreage. A doubling of Mexican yields and a doubling of acreage would result in total Mexican production equaling one-fifth of U.S. production. Such a level of production, primarily targeted for export to the United States, would have large effects on either quota levels (hence growers' profits) or U.S. treasury costs or both.

REFERENCES

- IATRC and CNAS. "NAFTA: Dead or Alive?" p. 102.
- Peanut Farmer. "Solution Sought to Limit Imports." March 1994, p. 12.
- Rucker, Randal R. and Walter N. Thurman. "The Economic Effects of Supply Controls: The Simple Analytics of the U.S. Peanut Program." Journal of Law and Economics 33 (1990): 483-515.
- Southeast Farm Press. "Global Market is Key to Farm Income." February 16, 1994, p. 16.
- U.S. Department of Agriculture, Economic Research Service. Effects of the Uruguay Round Agreement on U.S. Agricultural Commodities. March 1994.
- U.S. Department of Agriculture, Foreign Agricultural Service. Agricultural Provisions of the Uruguay Round. January 1994.
- U.S.D.A., Agricultural Statistics 1992. U.S. Government Printing Office, Washington, D.C.
- U.S. International Trade Commission. "The Economic Effects of Significant U.S. Imports Restraints." Pub. 2699, November 1993.
- Williams, Jeffrey C. and Brian D. Wright. Storage and Commodity Markets. Cambridge University Press, Cambridge. 1991.

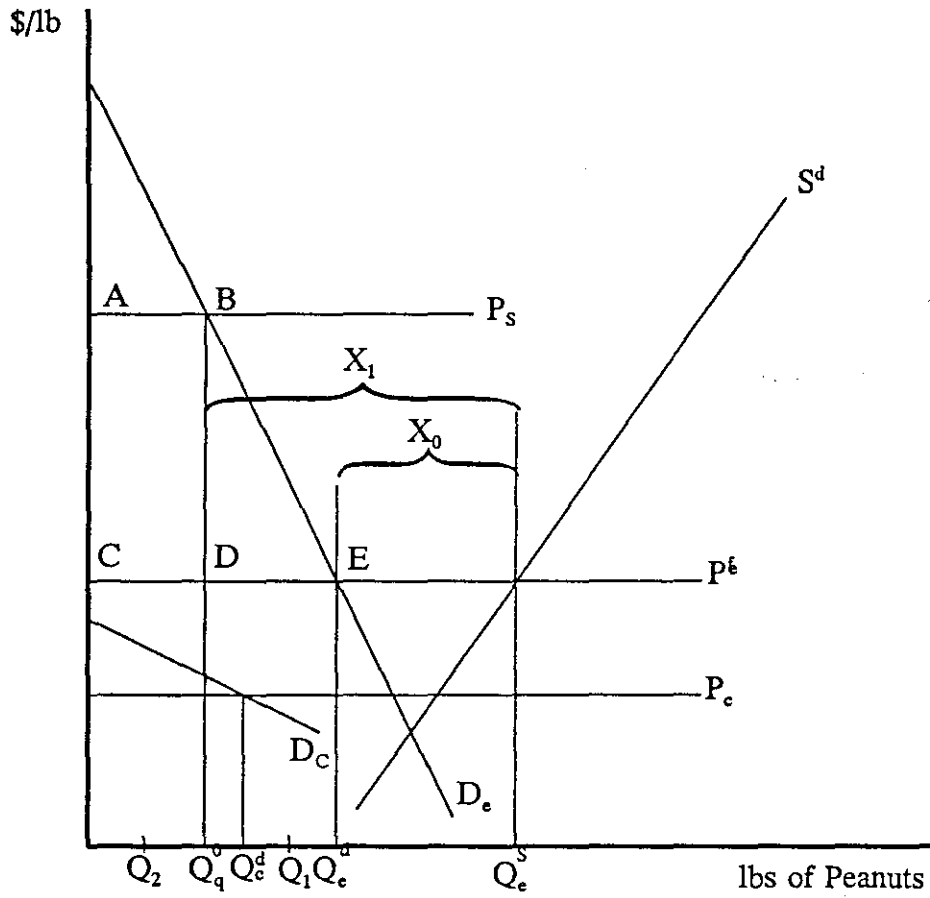


Figure 1

Effects of the U.S. Peanut Program

U.S. Runners on the Rotterdam Market

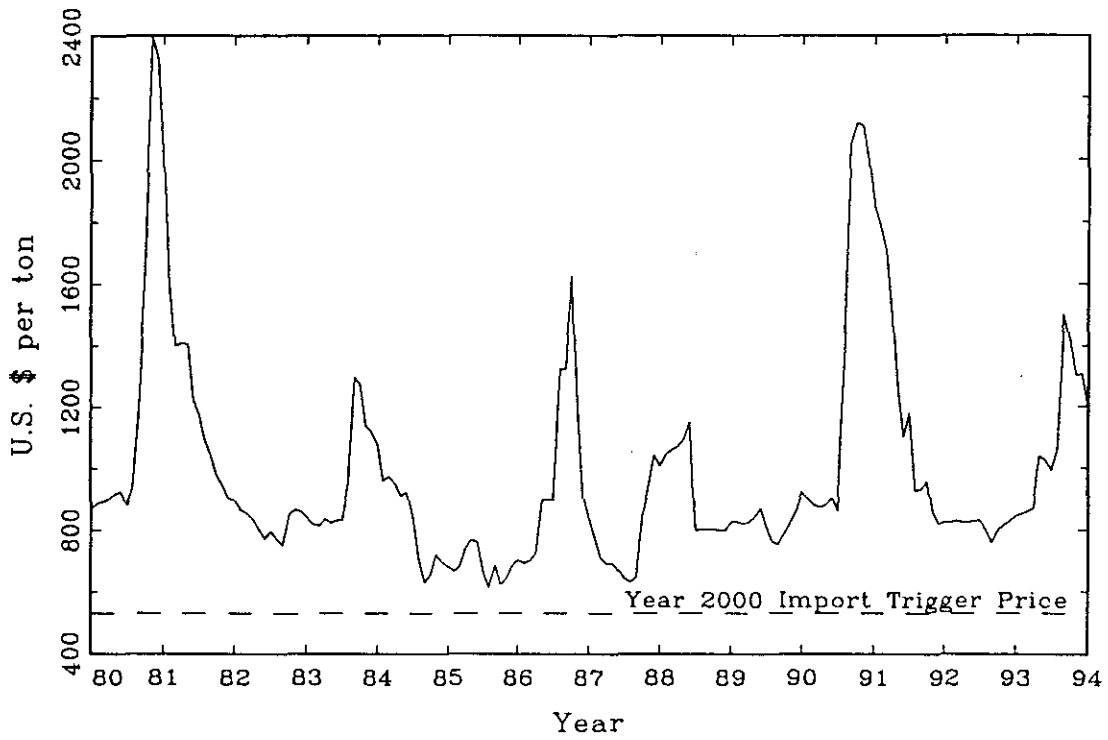


Figure 2

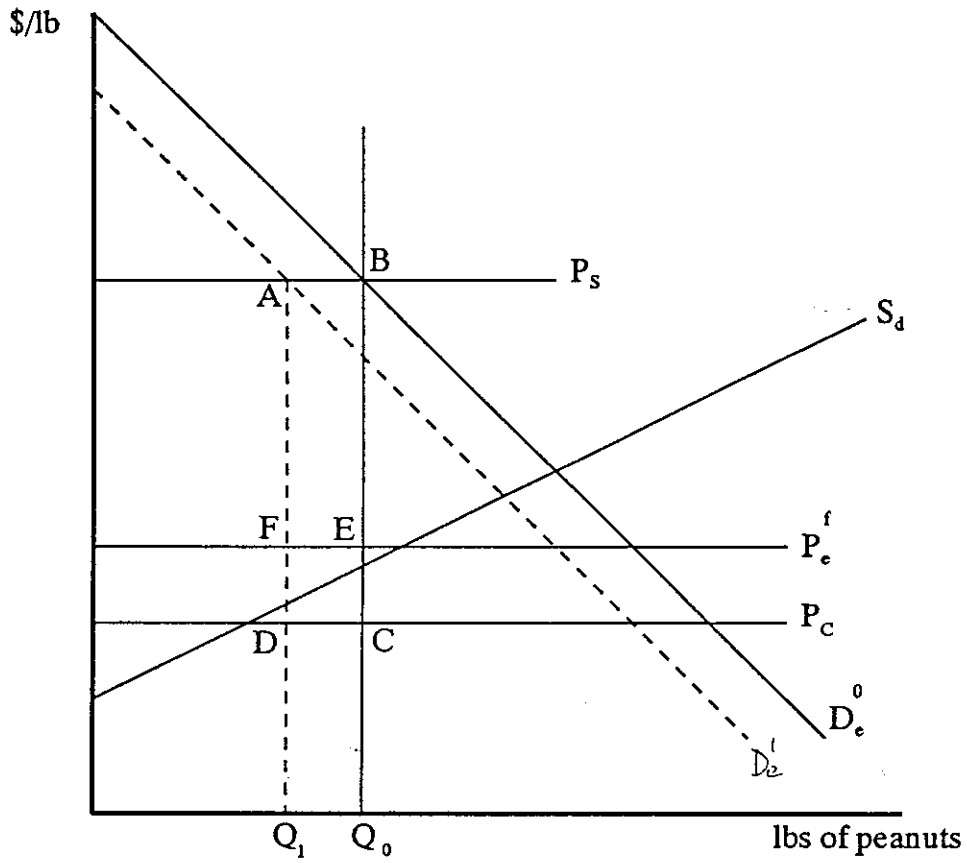


Figure 3

Graphical Depiction of the Effects of the GATT

Table 1 - Peanut Butter: U.S. Imports and Domestic Consumption

| Year | <u>Peanut Butter Imports</u> | | | <u>Peanut Butter Consumption</u> | | | <u>Food Use of Peanuts</u> | |
|------|------------------------------|-----------|-------|----------------------------------|----------------|--------|----------------------------|------------------|
| | Canada | Argentina | Total | Estimated Domestic Consumption | Imports as a % | Price | Total Food Use | In Peanut Butter |
| 1982 | 0.1 | | 0.1 | 685 | 0.0% | | 1,849 | 700 |
| 1983 | 0.0 | | 0.0 | 670 | 0.0% | \$1.48 | 1,856 | 696 |
| 1984 | 0.1 | 0.1 | 0.2 | 794 | 0.0% | \$1.53 | 1,911 | 723 |
| 1985 | 0.3 | 0.5 | 0.8 | 700 | 0.1% | \$1.55 | 2,023 | 726 |
| 1986 | 0.2 | 3.9 | 4.5 | 689 | 0.7% | \$1.73 | 2,073 | 713 |
| 1987 | 0.6 | 2.5 | 3.5 | 721 | 0.5% | \$1.80 | 2,071 | 747 |
| 1988 | 1.7 | 3.4 | 5.3 | 832 | 0.6% | \$1.79 | 2,254 | 860 |
| 1989 | 3.7 | 2.2 | 5.9 | 864 | 0.7% | \$1.84 | 2,312 | 897 |
| 1990 | 7.9 | 6.0 | 14.3 | 721 | 2.0% | \$2.07 | 2,020 | 742 |
| 1991 | 11.6 | 6.7 | 19.6 | 863 | 2.3% | \$2.03 | 2,207 | 886 |
| 1992 | 28.1 | 6.9 | 35.7 | 793 | 4.5% | \$1.87 | 2,122 | 798 |
| 1993 | 12.5 | 3.1 | 15.9 | | | \$1.82 | 2,035 | |

Notes:

Units are millions of pounds.

Import data are from Commerce Dept.; August-July crop years.

Price data are crop year averages of retail CPI component.

1993 quantities are only through November 1993.

Peanuts in peanut butter: shelled basis.

Estimated peanut butter consumption = (peanuts used in peanuts) (.88/.9)

+ imports - exports. The factor .88 accounts for cleaning losses.

The factor .9 accounts for non-peanut inputs into peanut butter.

Table 2-A
Estimated Effects of the GATT

Scenario Assumptions:

- (1) Absent the GATT, no increase in peanut butter imports, and
- (2) Treasury costs are allowed to increase (aggregate quota remains constant).

| Year | Change in Domestic Demand (million lbs) Due to: | | | Net Change in Demand (mill lbs) | Change in Producer Surplus (\$ mill) | Change in Treasury Costs (\$ mill) |
|------|---|----------------------------------|-----------------------|---------------------------------|--------------------------------------|------------------------------------|
| | Increased Imports of Raw Peanuts | Reduced Imports of Peanut Butter | Increased U.S. Income | | | |
| 1995 | -72.6 | — | +11.6 | -61.0 | 0 | +12.6 |
| 1996 | -82.5 | — | +11.6 | -70.9 | 0 | +14.7 |
| 1997 | -92.4 | — | +11.6 | -80.8 | 0 | +16.7 |
| 1998 | -102.3 | — | +11.6 | -90.7 | 0 | +18.8 |
| 1999 | -112.2 | — | +11.6 | -100.6 | 0 | +20.8 |
| 2000 | -122.1 | — | +11.6 | -110.5 | 0 | +22.9 |

Additional Assumptions that apply to Tables 2-A through 2-D:

- Initial U.S. consumption of peanuts for nuts = 2,100 million lbs.
- Initial level of buybacks = 0.
- Raw peanut imports increase as prescribed in the GATT and there is a one-for-one tradeoff between foreign and U.S.-grown peanuts.
- GATT increases U.S. income by 1%; income elasticity of U.S. demand for peanuts = 0.55 (Rucker and Thurman).
- Real support price remains constant.
- The treasury cost per pound of quota peanuts placed in the pool and sold for crush (the difference between the quota and crush prices) is 20.7¢ (1992 dollars) for the period 1995-2000. This amount (20.7¢) is the average of the differences between these prices for the years 1987-92. Source for quota price and crush price (a weighted average of peanut oil and meal prices is Oil Crops Situation and Outlook, USDA.
- The difference between the quota price and the foreign price is 16.5¢/lb (1992 dollars) for the period 1995-2000 (this is the average difference in these prices for 1987-92). The measure used for foreign price is the contract additional price obtained from surveys of county extension agents.

Table 2-B
Estimated Effects of the GATT

Scenario Assumptions:

- (1) Absent the GATT, no increase in peanut butter imports, and
 (2) Treasury costs are not allowed to increase (aggregate quota is reduced).

| Year | Change in Domestic Demand (million lbs) Due to: | | | Net Change in Demand (mill lbs) | Change in Producer Surplus (\$ mill) | Change in Treasury Costs (\$ mill) |
|------|---|----------------------------------|-----------------------|---------------------------------|--------------------------------------|------------------------------------|
| | Increased Imports of Raw Peanuts | Reduced Imports of Peanut Butter | Increased U.S. Income | | | |
| 1995 | -72.6 | — | +11.6 | -61.0 | -10.1 | 0 |
| 1996 | -82.5 | — | +11.6 | -70.9 | -11.7 | 0 |
| 1997 | -92.4 | — | +11.6 | -80.8 | -13.3 | 0 |
| 1998 | -102.3 | — | +11.6 | -90.7 | -15.0 | 0 |
| 1999 | -112.2 | — | +11.6 | -100.6 | -16.6 | 0 |
| 2000 | -122.1 | — | +11.6 | -110.5 | -18.2 | 0 |

Table 2-C
Estimated Effects of the GATT

Scenario Assumptions:

- (1) Absent the GATT, total peanut butter imports increase at an annual rate of 20% (from an assumed base of 42 million lbs in 1993). With the GATT, peanut butter imports remain constant at 42 million lbs. Also, each pound of imported peanut butter is assumed to displace .9 lbs of domestic peanuts.
- (2) Treasury costs are allowed to increase (aggregate quota remains constant).

| Year | Change in Domestic Demand (million lbs) Due to: | | | Net Change in Demand (mill lbs) | Change in Producer Surplus (\$ mill) | Change in Treasury Costs (\$ mill) |
|------|---|----------------------------------|-----------------------|---------------------------------|--------------------------------------|------------------------------------|
| | Increased Imports of Raw Peanuts | Reduced Imports of Peanut Butter | Increased U.S. Income | | | |
| 1995 | -72.6 | +21.3 | +11.6 | -39.7 | 0 | +8.2 |
| 1996 | -82.5 | +36.0 | +11.6 | -34.9 | 0 | +7.2 |
| 1997 | -92.4 | +54.5 | +11.6 | -26.3 | 0 | +5.4 |
| 1998 | -102.3 | +77.6 | +11.6 | -13.1 | 0 | +2.7 |
| 1999 | -112.2 | +106.7 | +11.6 | +6.1 | 0 | 0.0 |
| 2000 | -122.1 | +143.3 | +11.6 | +32.8 | 0 | 0.0 |