COST SAVINGS OR OTHER BENEFITS TO U.S. CONSUMERS RESULTING FROM TEMPORARY DUTY SUSPENSIONS IN THE TRADE AND TARIFF ACT OF 1984

Report to the Committee on Ways and Means, U.S. House of Representatives on Investigation No. 332-247 Under Section 332(g) of the Tariff Act of 1930

USITC PUBLICATION 2060

FEBRUARY 1988

United States International Trade Commission / Washington, DC 20436

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PREFACE

On July 1, 1987, at the request of the Committee on Ways and Means of the U.S. House of Representatives, 1/ and in accordance with section 332(g) of the Tariff Act of 1930 (19 U.S.C. 1332(g)), the United States International Trade Commission instituted investigation No. 332-247, Cost Savings or Other Benefits to U.S. Consumers Resulting From Temporary Duty Suspensions in the Trade and Tariff Act of 1984. The Commission was asked to determine whether, and to what extent, miscellaneous temporary duty suspensions enacted in Public Law 98-573 (title I, subtitle C) 2/ have resulted in decreased costs to U.S. consumers or other economic benefits than would not have occurred had no duty suspensions been enacted.

More specifically, the Commission was asked to provide the following information on the articles covered by the duty suspensions: (1) the nature and use of the articles and whether each article is imported as an intermediate or end-use product, (2) description of the types of firms importing and using the subject articles as well as the sources of imports and the relationship of foreign suppliers to U.S. importers, (3) the trends in imports and domestic sales of the subject articles during 1984-86 and the influencing factors, and (4) the approximate tariff revenue lost during 1985-86 as a result of the temporary duty suspensions, any resulting cost savings passed on to consumers, the level of cost savings passed on to consumers of downstream, end-use products, and any other economic benefits that the intermediate or final consumer may obtain from tariff changes.

Notice of investigation was given by posting copies of the notice at the Office of the Secretary, U.S. International Trade Commission, Washington, DC, and by publishing the notice in the Federal Register of July 15, 1987, (52 F.R. 26576). 3/ The Commission held a public hearing 4/ on this investigation at the U.S. International Trade Commission Building in Washington, DC, on October 27, 1987.

In the course of this investigation, the Commission collected data from questionnaires sent to importers and/or consumers of the subject products. In addition, information was gathered from various public and private sources, industry meetings, interviews with company executives, public data in the Commission's files, and other sources.

1/ The request from the Committee on Ways and Means of the U.S. House of Representatives and the letter of reply from the Chairman of the U.S. International Trade Commission are reproduced in app. A.
2/ Excerpts from the Trade and Tariff Act of 1984 are reproduced in app. B.
3/ A copy of the Commission's Notice of Investigation is reproduced in app. C.
4/ There was no testimony presented at the hearing.

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EXECUTIVE SUMMARY

The Trade and Tariff Act of 1984, Public Law 98-573, provided for temporary changes in duty treatment for more than 65 products. 1/ These changes, generally for a period of 3 years and primarily affecting imports from countries eligible for column 1 rates of duty, were in the form of duty reductions and duty suspensions.

Duty suspensions, which accounted for more than 90 percent of the temporary duty changes and are the subject of this report, covered a wide variety of articles, including certain chemicals, minerals, and miscellaneous products, classified under many different item numbers of Tariff Schedules of the United States (TSUS). The value of all articles entered under the TSUS item numbers containing the affected articles, increased in 1986 to $1.6 billion from $1.57 billion in 1985, or by 4 percent. Chemicals accounted for 69 percent of the total in 1986; certain radios, textile machines, and magnetron tubes, 16 percent; and minerals and related products, 11 percent. The remaining 4 percent was accounted for by other miscellaneous products.

However, the value of articles entered duty free under these items as a result of duty suspensions provided for in the 1984 Act decreased from $419 million in 1985 to $408 million in 1986, or by 3 percent. In 1985, these temporary duty-free imports amounted to 26 percent of total imports entered under the specified TSUS item numbers, and in 1986 they accounted for 24 percent. Temporary duty-free imports of certain radios, textile machines, and magnetron tubes accounted for 48 percent of the total in 1986; chemicals, 29 percent; other miscellaneous products, 14 percent; and minerals, metals, and related products, 9 percent.

The tabulation on the following page gives the overall loss of revenue and the change in imports for the major product areas in this report for 1984-86 and the estimated cost savings passed on to the U.S. consumers in 1986 from questionnaire responses and staff calculations.

The principal findings of this investigation are as follows:

- The miscellaneous temporary duty suspensions enacted in P.L. 98-573 are estimated by the Commission to have resulted in cost savings to U.S. consumers which could have been as high as $14 million in 1986.

This estimate is based on a Commission analysis of the price responsiveness of U.S. consumers and foreign suppliers for the imported products subject to the duty suspensions and the Commission's questionnaire survey of importers and users of these products. U.S. consumers include ultimate consumers in the case of final consumer goods and consumer industries

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1/ In some cases, these products correspond to individual TSUS item numbers, while other products are included in "basket" TSUS item numbers.

Production area	Loss of revenue 2/ 1985	Loss of revenue 2/ 1986	Percentage change in imports Total (1986/84)	Percentage change in imports Temporary duty free (1986/84)	Percentage change in imports Temporary duty free (1986/85)	Cost savings 1/ to U.S. consumers in 1986
	1,000 dollars					1,000 dollars
Chemicals and related products:						
Pharmaceutical chemicals	2,268	2,100	+67	-2	-6	1,050
Intermediate chemicals	8,966	9,990	+12	+46	+5	4,995
Subtotal	11,234	12,090	+38	+28	+2	6,045
Minerals, metals, and related products	1,102	1,149	-25	-5	+14	575
Certain radios, textile machines and magnetron tubes	11,696	9,413	-8	-10	-9	4,707
Other miscellaneous products	5,224	5,283	-22	-17	-3	2,642
Total	29,256	27,935				13,969

1/ In this report the terms "duty savings" and "cost savings" refer to the income redistribution effects caused by temporary duty suspensions. This study uses two approaches to approximate this redistribution effect. The economic approach outlined in app. D assumes that when a duty is suspended the amount of duty revenue formerly collected by U.S. Customs is redistributed to U.S. consumers and foreign suppliers. The relative benefits to consumers and exporters depends on how the former duty revenue is divided between them. This division in turn depends largely on the price responsiveness of imports supply and import demand. For a general discussion of the effects of duty suspensions see p. 66 of this report. The other approach for measuring the redistribution effect was to request estimates from companies that imported and used the articles subject to duty suspensions as to how the cost savings were distributed. The results of this survey are discussed by product grouping in pp. 1-47.

2/ This estimated loss of revenue is considered to be the upper limit. Actual revenue loss could have been less since imports would likely have been lower without the duty suspensions.

in the case of intermediate capital goods. To the extent that consumer industries lower prices of goods produced from imported intermediate goods, the duty savings are received by the final consumers. For approximately 54 percent of the questionnaires containing relevant information about cost savings to the U.S. consumers, the Commission found that at least 50 percent of the duty savings was passed through to U.S. consumers, either by lowering prices or by maintaining the current end-use product price. According to staff estimates, 50 percent of the cost savings resulting from temporary duty suspensions was probably passed on when the demand elasticities were less than the supply elasticities for a specific grouping. This was generally the case for the chemical products, which constituted the majority of the products included in this report.Possible exceptions include items imported by U.S. subsidiaries from their foreign parent companies and magnetron tubes used in microwave cooking appliances (pp. 13, 22-23, 28, 38, 46, 51).

PHARMACEUTICALS:

- o U.S. imports of pharmaceutical chemicals included in the 1984 Act declined by 2 percent during 1984-86.

Imports of the pharmaceutical chemicals listed in the 1984 Act decreased by 2 percent during 1984-86, from $31.8 million to $31.1 million. According to staff calculations, the annual value of imports would have increased by approximately 7 percent after adjustment to the duty suspensions. U.S. imports of these products actually increased by 4 percent during 1984-85, from $31.8 million to $33.0 million. This was primarily attributed to both the duty suspensions and the increase in the strength of the U.S. dollar vis-a-vis certain other foreign currencies. These imports decreased by 6 percent in 1986, primarily because of a buildup in inventory of those chemicals awaiting Food and Drug Administration (FDA) approval and the decline in sales of some of the older end products manufactured from the imported chemicals (pp. 10-12).

- o Domestic firms stated that the savings resulting from the duty suspensions were primarily redistributed in the form of increased promotional expenditures, increased research and development outlays, and increased employment.

According to the responses to the Commission's questionnaire, pharmaceutical firms primarily realized increased promotional expenditures, increased research and development outlays, and increased employment as a means of redistributing the duty savings. Seven respondents to this question, or approximately 66 percent of total respondents, allocated more than 50 percent of the savings internally in the form of an offset of cost increases in other inputs so as to maintain constant end-product price, while two respondents, or approximately 25 percent, allocated 10-25 percent of the savings internally in the form of a reduction in price of end-use product. In 1986, 50 percent of the savings for this grouping would be roughly equivalent to $1 million. The staff estimates that approximately 50 percent of the cost savings resulting from the duty suspensions was probably passed on to

intermediate or end users of the imported items.The next two largest groups of respondents to this question, or about 50-75 percent in either case, allocated 10-25 percent of the savings to either advertising or increased investment (p. 13, 51).

- o Additional benefits that were said to be derived from the duty suspensions included improved cost competitiveness for the firm as well as improved quality, design, and marketing of the end products.

According to several of the responses to the Commission's questionnaire, some firms were able either to launch new products at a lower cost, resulting in increased consumer demand, or to maintain lowered prices as other manufacturing costs increased. In the aggregate, the unit values for the end products declined by 8 percent during 1984-86. Other benefits cited included increased capital spending, which was said to result in increased employment in sectors other than the pharmaceuticals industry (pp. 13-14).

INTERMEDIATE CHEMICALS:

- o Based on Commission staff estimates and responses to the Commission's questionnaire, U.S. imports of the intermediate chemicals subject to temporary duty suspensions increased by approximately 46 percent during 1984-86.

Imports of the intermediate chemicals listed in the 1984 Act increased by about 46 percent during 1984-86 from an estimated $52 million, to $77 million. However, according to responses to the Commission's questionnaire, such imports increased by only 5 percent during 1985-86, from $72.7 million to $76.5 million. According to staff calculations, the annual value of imports would have increased by approximately 20 percent after adjustment to the duty suspensions. However, other factors can influence imports thereby offsetting any effects of duty suspensions. According to the responses received to the Commission's questionnaire, the chemical firms importing/using these products imported only enough to match changes in end-product output during this period. The moderate upward trend in these imports coincides with the mature market conditions existing for most of the end products produced from the intermediate chemicals listed in the 1984 Act (pp. 20-22).

- o Approximately 72 percent of all related-party transactions in 1986 occurred between U.S. parents and their foreign subsidiaries.

Both the official import statistics of the U.S. Department of Commerce, and company responses to the Commission's questionnaire showed that the principal sources for imports of the intermediate chemicals listed in the 1984

Act during 1985-86 were West Germany, Italy, the United Kingdom, and Japan. Using information obtained from responses to the Commission's questionnaire, it was determined that about 35 percent of duty-free U.S. imports of the intermediate chemicals specified in the 1984 Act was trade between subsidiaries and their parent corporations (i.e. related-party transactions). In 1986, the major portion of these related-party transactions occurred between U.S. parents and their foreign subsidiaries, indicating that at least for this period, domestic multinational corporations received more benefits from the legislation than the U.S. subsidaries of foreign multinationals. The domestic multinationals using these related-party transactions stated that this type of trade also provides the corporation with an opportunity to increase its overall production efficiency thereby adding to corporate profits through better economies of scale (p. 21).

- o The major portion of duty savings were used to either stabilize or reduce end-product prices charged to consumers.

Of the 11 questionnaires providing useful information relating to the redistribution of savings realized from the temporary duty suspensions, about 55 percent of the responses indicated that the savings were used directly to reduce end-product prices and thereby increase the firm's price-competitiveness in the domestic market. In 1986, 50 percent of the savings for this grouping would be roughly equivalent to $4.9 million. The staff estimates that approximately 50 percent of the cost savings resulting from the duty suspensions was probably passed through to the U.S. consumers. The remaining firms said that the duty savings enabled them to minimize end-product price increases during 1985-86 by partially offsetting the effects of increases in other costs of manufacturing (pp. 22-23, 51).

MINERALS, METALS, AND RELATED PRODUCTS:

- o U.S. imports of products included in this group decreased by 5 percent during 1984-86.

Imports of minerals, metals, and related products listed in the 1984 Act decreased from $54 million in 1984 to $51 million in 1986, or by 5 percent. During 1984-85, imports also declined from $54 million to $45 million, or by 16 percent, before rising to $51 million in 1986. According to staff calculations, annual imports of these articles would have increased by approximately 6 percent after adjustment to the duty suspensions. Other factors, however, can influence the level of imports and obscure any effect of the duty suspensions. Responses to the Commission's questionnaire indicated that the decline in 1985 occurred as purchasers took advantage of low zinc prices in 1984 to rebuild inventories (pp. 26-27).

- o Questionnaire respondents stated that the temporary duty suspensions permitted end-product sales to take a greater share of a declining market.

During 1984-86, zinc production and prices declined significantly. U.S. production of zinc ores declined from $271 million in 1984, to $170 million in 1986. However, the users/importers of the zinc ores and concentrates given temporary duty-free status by the 1984 Act reported that they increased shipments of zinc metal from $22.3 million in 1984, to $23.8 million in 1986 (pp. 27-28).

- o The principal benefit derived from the temporary suspension of duties on minerals, metals, and related products was lower end-product prices.

Information developed from responses to the Commission's questionnaire indicated that domestic importers/users of certain mineral products were able to pass along part of the duty savings to their customers in the form of lower end-product prices. According to 13 of the 20 respondents, or 65 percent of total respondents, the temporary duty suspension enabled them to purchase intermediate materials at significantly lower prices and to expand their market shares by passing on these lower cost to end-users. Three of the 20 respondents indicated that over 50 percent of duty savings were passed on to consumers in the form of reductions in end-use product prices. The staff was not able to make any estimates on the percentage of savings passed on to the consumers. Firms using the graphite products listed in the 1984 Act stated that the duty savings enabled them to regain portions of their export markets previously lost to foreign competitors (pp. 28, 51-52).

CERTAIN RADIOS, TEXTILE MACHINES, AND MAGNETRON TUBES:

- o Temporary duty-free imports of clock radios, magnetron tubes, and textile machines declined by 10 percent during 1984-86.

The value of temporary duty-free imports declined from $204 million in 1984 to $182 million in 1986, or by 10 percent. According to staff calculations, the annual values of imports in this group would have increased by approximately 15 percent after adjustment to the duty suspensions. However, due to factors other than the duty suspensions, the value of temporary duty-free imports declined from $204 million in 1984 to $199 million in 1985, or by 2 percent. The decline in temporary duty-free imports during this period was primarily due to a decline in demand for clock radios, which accounted for a large share of these imports. Respondents to the Commission's questionnaire on clock radios reported that their levels of imports would have dropped more rapidly than they did if they had not received temporary duty-free treatment (pp. 33-34).

- o Sales of end-use products, such as clock radios, microwave ovens, and textile machines, increased by 116 percent during 1984-86.

Although there was no U.S. production of the imported intermediate products (certain radios, textile machines, and magnetron tubes) during 1984-86, sales of the end-use products increased from $1.5 billion to $3.2 billion during the period. Fourteen firms, approximately 41 percent of the firms responding to the Commission's questionnaire, stated that more than 50 percent of the duty savings resulting from the temporary duty suspensions was passed on to their customers through a reduction in the price of the end-use products. On an individual basis, the staff estimated the share of cost savings passed on to the consumers for clock radios could not be determined, while a large share was likely to be passed on for textile machines. The estimated share of cost savings passed on for magnetron tubes was likely to be small for imports purchased by unrelated parties.

Two categories, cost savings to intermediate purchasers using the product as an input and cost savings to end-use consumers, were ranked highest by 39 percent of the responding firms as being the most substantial benefits derived from this legislation. Improved cost competitiveness for the firm was ranked as the most substantial benefit by 34 percent of the respondents (pp. 30-33, 37-38, 52-53).

OTHER MISCELLANEOUS PRODUCTS:

- o Although the value of imports of the items covered under other miscellaneous products decreased, the quantity increased during 1984-86.

The decrease in the value of imports is attributable to a drop in unit value of feather and down products, which comprise the majority of the trade in this miscellaneous grouping. At the same time, the quantity of imports of feathers and down actually increased, however most of these imports were comprised of lesser quality feathers and downs. The other products in this grouping, umbrella frames and hovercraft skirt materials, showed an increase in imports in terms of value of more than 100 percent during the period 1985-86 (pp. 42-44).

- o The temporary duty suspensions for the intermediate products covered under miscellaneous products enabled domestic producers of end-use products to compete with foreign production of similar products with little effect on domestic production of the intermediate products, since there are no domestic production of two of the products, frames for hand-held umbrellas or fabric for use in hovercraft skirts, and demand for the third, feathers and downs, is greater than the supply.

According to the respondents to the Commission's questionnaire, 10 to 20 percent of the duty savings was passed on to the consumers of finished

umbrellas. Keeping the price down enabled the domestic producers to maintain market share against foreign producers, while maintaining company employment levels.

Four of the 11 domestic feathers and downs producers reported that 50 percent or more of the savings from the duty suspensions was passed on to the consumers of end products. The savings enabled the domestic producers to be more competitive with foreign producers.

The temporary duty suspensions allowed the domestic producers of hovercraft skirts to compete more effectively with foreign competitors by elimination of a production bottleneck. Since 95 percent of this market represented sales to the Department of Defense (DOD), both the finished skirt and the skirt fabric were eligible for duty-free treatment. However, in competing for DOD contracts, availability of the proper fabric and ability to assure timely delivery are paramount factors. The duty suspensions allowed domestic producers of the finished skirt to import and inventory proper fabric prior to negotiations on contracts, thereby minimizing the leadtime in filling customer orders (pp. 45-47).

INTRODUCTION

The Trade and Tariff Act of 1984, Public Law 98-573, 1/ among other things, provided for temporary changes in the tariff treatment for a number of articles. Subtitle C of title I of the 1984 Act entitled, "Temporary Changes in Tariff Treatment," provided for temporary duty suspensions, usually for a 3-year period, for articles described in 47 sections of the subtitle. The suspensions applied to a wide range of articles, including numerous chemicals, which accounted for 35 sections, and certain minerals, umbrella frames, clock radios, and textile machines. The temporary duty suspensions generally became effective in November 1984. 2/

Congress has passed legislation authorizing temporary reductions in or suspensions of duties on specific articles on numerous occasions. The number of articles covered by such legislation has increased in recent years, particularly since passage of the Trade Agreements Act of 1979. 3/ For the most part, these articles, which have been the subject of duty reductions or temporary suspensions, have tended to be intermediate products purchased by industrial users and have tended to involve products of a kind that are not produced domestically, are produced domestically in limited quantities, or are produced domestically but not to the specifications required by the user. In general, industrial users have been the principal parties requesting such reductions or suspensions. They generally argue that such reductions or suspensions will increase the competitiveness of their finished domestic products in domestic and foreign markets.

Trade acts passed in 1980 and 1983 also contained provisions providing for a significant number of temporary duty suspensions or extensions of existing suspensions. Public Law 96-609, enacted December 28, 1980, provided for duty suspensions on approximately 13 articles, 3 of which were extended or reintroduced in the 1984 Act. Public Law 97-446, enacted January 12, 1983, provided for suspensions on approximately 29 different articles, including 6 that were also subsequently listed in the 1984 Act.

As the number of articles subject to temporary duty suspensions increased during this period, the total loss of duty revenues decreased. In 1986, the revenue loss was approximately $27.9 million. However, this represented a decline of 5 percent compared with the revenue loss of $29.3 million in 1985.

To obtain information about the articles and the benefits derived from temporary duty suspensions, the Commission collected information and data from questionnaires sent to companies that imported and used these articles during

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1/ Enacted on Oct. 30, 1984.
2/ See app. B for the effective dates of the individual sections.
3/ Public Law 96-39, July 26, 1979.

1984-86. 1/ The Commission sent a total of 198 questionnaires to 174 companies.

Response rates to this questionnaire are shown in the following tabulation:

	Number	Percent
Questionnaires delivered.....	198	
Questionnaires returned.....	162	83
Questionnaires with usable information.....	118	60
Nonusers or brokers.....	44	22

The questionnaire sought information in four areas: (a) the nature of the article and importing firm, (b) the market structure of the imported article, (c) the market structure of articles directly made from the imported article, and (d) the nature of the benefits derived from duty reduction.

One issue addressed by the questionnaire was how the imported article was used. The articles could be (a) sold directly with little or no modification, (b) used (consumed) by the importing firm, or (c) used as an intermediate that is further processed by the importing company. If the article was an intermediate, the questionnaire then asked for the percent of cost of the end-use product(s). In this report, end-use product refers only to new products incorporating the imported product.

The questionnaire also sought information about the companies using the imported articles. Questions in this section related to the overall size of the company, the size of the division using the imported article, its multinational status, and its ability to produce the product domestically.

To understand a company's relation to the imported article, the respondents were asked whether or not they had any patents, if they had ever produced the imported article, if not, would it be feasible to manufacture the product domestically, and what percent of imports were from related-party transactions.

To understand the market structure of the imported article, questions were asked about the number of other domestic and foreign producers and the availability of competitive products. These questions were then asked about

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1/ Since these questionnaires were sent primarily to importers and users of the subject articles, the responses to certain questions (i.e., allocation of benefits from duty suspensions) could be biased. However, we require the questionnaires be verified and signed by an official of the responding firm. In addition, the Commission staff calculated demand elasticities for certain groups in this report. These elasticities were then used to calculate certain benefit allocations (i.e., cost savings), which were presented with the questionnaire responses.

articles made from the imported article. The issues of market structure are discussed in the body of the report on a section-by-section basis.

The section of the questionnaire pertaining to the benefits from the temporary duty suspensions had two purposes: first, to determine how the suspended tariffs affected purchases and prices of the imported article and prices and sales of the end-use product and, second, to give the respondents the opportunity to show how input cost savings 1/ were distributed.

In particular, the respondents were asked to indicate (a) how the firm redistributed the flow of the input-cost savings from the duty suspensions internally and (b) how the benefits from the flow of savings were distributed to the beneficiaries. The following tabulations present the two lists of choices pertaining to these questions that were in the questionnaire.

Line No.	Benefit
	Internal:
1	Increased price/cost competitiveness through reduction in price of end-use product
2	Offset of cost increases in other inputs so as to maintain constant end-use product price
3	Increased advertising, marketing, and/or distribution expenditures
4	Increased investments to:
	a Improve product design, quality, and diversity
	b Increase R&D on the product
	c Improve production efficiency of this product
	d Expand production of this product
	e Expand production of other products
	f Increased dividends or retained earnings
5	Other (specify)_____

1/ In this report the terms "duty savings" and "cost savings" refer to the income redistribution effects caused by temporary duty suspensions. This study uses two approaches to approximate this redistribution effect. The economic approach outlined in app. D assumes that when a duty is suspended the amount of duty revenue formerly collected by U.S. Customs is redistributed to U.S. consumers and foreign suppliers. The relative benefits to consumers and exporters depends on how the former duty revenue is divided between them. This division in turn depends largely on the price responsiveness of imports supply and import demand. For a general discussion of the effects of duty suspensions see p. 66 of this report. The other approach for measuring the redistribution effect was to request estimates from companies that imported and used the articles subject to duty suspensions as to how the cost savings were distributed. The results of this survey are discussed by product grouping in pp. 1-47.

Line No.	Benefit
	External:
1	Improved cost competitiveness for your firm
2	Improve quality/design/marketing, etc., for your firm
3	Increased demand for product (lower price-induced)
4	Cost savings to end-user purchaser using your product to produce another final product
5	Cost savings to end-user purchasers who buy product from your firm
6	Increase taxes paid to Federal/State Governments on higher volume or returns from duty savings
7	End-user gains from increased supply or quality made possible by duty suspension
8	Other (specify)_____

The Committee on Ways and Means specifically requested that the Commission examine those products, as enumerated in the Trade Act of 1984, which were granted temporary duty suspensions. Because data on individual tariff items would, in most cases, reveal confidential business information, the products have been divided into four general tariff categories: chemicals and related products; minerals, metals and related products; certain radios, textile machines, and magnetron tubes; and miscellaneous products, which includes umbrella frames, feathers and downs, and hovercraft skirts. Where possible, data and information on individual items are presented within the group. In addition, data on total imports of individual and "basket" TSUS items that contain the subject imports are included in the sections for each category. These data are useful in explaining factors other than the temporary duty suspensions that influence import trends.

CHEMICALS AND RELATED PRODUCTS

Overview

The chemicals and related products included in this report are primarily intermediate chemicals and pharmaceutical compounds that enter under approximately 38 different TSUS item numbers. The majority of these chemicals are not produced in the United States and are essential components in certain manufacturing processes in which no substitute products can be used without making major process modifications requiring heavy capital expenditures. The total value of U.S. imports during 1984-86 for the chemicals and related products listed in the 1984 Act are shown in table 1.

Imports increased from $827.5 million in 1984, to $1.0 billion in 1985. In 1986, imports increased to $1.1 billion compared with 1985. The major sources of these imports during this period were the European Community (EC) and Japan.

Table 1
Total and temporary duty-free imports, and the estimated revenues lost on chemicals and related products listed in the Trade and Tariff Act of 1984, 1984-86

Imports	1984	1985	1986
Total imports 1/ (1,000 dollars)...	827,467	1,014,093	1,142,041
Temporary duty-free imports (1,000 dollars).....	2/ 84,169	105,699	107,621
Ratio of temporary duty-free imports to total imports (percent).....	3/	10	9
Loss of revenue (1,000 dollars)....	3/	11,234	12,090

1/ Includes the value of individual and "basket" TSUS item numbers that contain the products subject to temporary duty suspensions in the 1984 Act.
2/ This calculated value pertains to imports subject to the provisions of the 1984 Act prior to the first full year of duty suspensions. This value was calculated from questionnaire data and staff estimates using available trade data.
3/ The items covered by this investigation are those items granted duty-free status under the provisions of the Trade and Tariff Act of 1984, effective Oct. 30, 1984. For the purposes of this investigation, only full year 1985 and 1986 data are being analyzed.

Source: Compiled by the staff of the U.S. International Trade Commission from the official statistics of the U.S. Department of Commerce and from responses to the Commission's questionnaire.

Temporary duty-free imports of this group of articles increased from $84.2 million in 1984 to $105.7 million in 1985, or by about 26 percent. The ratio of duty-free imports to total imports decreased from 10 percent in 1985 to 9 percent in 1986. The greatest change in duty-free imports during 1985-86 was an increase in the group of intermediate chemicals, which increased from $72.6 million in 1985 to $76.5 million in 1986. Pharmaceutical chemical imports covered by temporary duty suspensions decreased from $33.0 million in 1985 to $31.1 million in 1986. Duty-free imports were mainly from the EC and Japan during 1985-86. A significant portion of this trade represented related-party transactions of foreign and domestic multinational chemical corporations.

The revenue lost during 1985-86 for chemicals and related products with temporary duty suspensions increased by 7.6 percent, from $11.2 million in 1985 to $12.1 million in 1986. In 1986, intermediate chemicals accounted for 83 percent of the total loss of revenue.

Cost savings as a result of the temporary duty suspensions were redistributed differently by intermediate chemical producers and pharmaceutical firms. A summary of the responses to the two questions in the Commission's

questionnaire on the redistribution of the benefits of cost savings resulting from the temporary duty suspensions for this group is shown in the following tabulation:

Item No.	Benefit	Number of responses
	Internal benefits of savings:	
1	Reduction in price of end-use product	24
2	Offset cost to maintain end-use product price	27
3	Increased distribution expenditures	29
4	Increased investments in various product area	27
5	Other	13
	External benefits of savings:	
1	Improved cost competitiveness for the firm	36
2	Improvement in marketing, etc., for the firm	33
3	Increased demand for product	33
4	Cost savings to intermediate user	33
5	Cost savings to end-use buyer	33
6	Increased taxes paid to Federal/State Governments	32
7	Increased supply or quality by end user	31
8	Other	13
	Total questionnaires received containing pertinent responses	40

The respondents were also requested to determine the degree or percentage of cost savings realized by these benefits. Their responses are discussed in more detail later in this section. According to the responses to the Commission's questionnaire, the chemical companies surveyed redistributed the duty savings to minimize end-product price increases by offsetting the cost increase in other inputs to production, whereas pharmaceutical firms directed the duties saved to increased investment primarily in research and development (R&D) and increased advertising. However, both chemical and pharmaceutical companies agreed that the principal benefits end-product consumers enjoyed from the duty suspension legislation were related to the lower costs made available through the increased price competitiveness of domestic manufacturers.

Survey coverage

For the chemicals and related products covered by this report, 55 questionnaires were sent to 33 importers and/or user companies. These 33 companies represent more than 95 percent of the total number of domestic companies using the chemicals and related products listed in the 1984 Act. These firms included 25 U.S. companies and 8 U.S.-based subsidiaries of foreign multinational corporations. Of the seven companies receiving questionnaires related to pharmaceutical chemicals, five are U.S.-based multinationals and two are U.S.-based subsidiaries of major foreign-multinational drug companies. Of the 31 chemical companies receiving

questionnaires related to the intermediate chemicals listed in the Trade and Tariff Act of 1984, 21 are U.S. chemical companies and 7 are U.S. subsidiaries of foreign-based, multinational chemical corporations.

Of the 55 questionnaires sent by the Commission staff to chemical and pharmaceutical companies, 50 were returned. The 50 questionnaires received included 10 from companies not producing the subject chemicals during 1984-86, hence, 40 questionnaires contained usable information.

Pharmaceutical Chemicals

The pharmaceutical products included in this group have a variety of therapeutic applications, ranging from the treatment of heart arrhythmias to the treatment of bacterial and microbial infections in humans and animals.

Most of these products are imported in bulk form and are formulated into dosage-form, end-use products for consumption. The bulk drug is usually the active ingredient in such end-use products. The formulation process generally involves the addition of excipients that give the drug a suitable consistency for the formation of the dosage form, i.e., tablets, capsules, ampoules, etcetera. The chemicals covered by this product grouping are shown in table 2.

Table 2
Pharmaceutical chemicals: Section numbers, TSUS item numbers, current col. 1 rates of duty, product descriptions, and temporary TSUS item numbers as listed in the Trade and Tariff Act of 1984

Sec. No.	TSUS No.	Col. 1 rate of duty	Description	Temporary TSUS No.
142	411.24	8%	Sulfamethazine	907.36
143	411.27	11.6%	Sulfaguanidine	907.37
144	411.58	9.2%	Terfenadine	907.25
145	411.80	15%	Sulfathiazole	907.19
146	411.82	10.8%	Sulfaquinoxaline and sulfanilamide	907.38
147	412.02	8.2%	Dicyclomine hydrochloride and mepenzolate bromide	906.53
148	412.12	8%	Amiodarone	907.18
149	412.12	8%	Desipramine hydrochloride	906.54
150	412.50	8.7%	Clomiphene citrate	907.42
154	437.13	3.7%	Nicotine resin complex	907.63
155	437.32	3.7%	Rifampin	906.99
156	439.50	3.7%	Lactulose	907.76
157	440.00	1/	Iron-dextran complex	907.79
172	412.12	8%	Flecainide acetate	907.21

1/Not less than 3.7 percent.

Source: Compiled from the Tariff Schedules of the United States and the Trade and Tariff Act of 1984 by the staff of the U.S. International Trade Commission.

Survey coverage

Nineteen questionnaires were sent to seven domestic pharmaceutical companies requesting information on 16 specific products. Five of these domestic companies are U.S.-based multinationals and two are subsidiaries of foreign multinationals.

The companies were sent the questionnaires on the basis that each obtains one or more of the particular products in bulk form, either through direct importation or through domestic brokers, and then formulates an end product in which the imported product is the active ingredient. One of the 16 products is imported in the final form and sold to the consumer.

All of the questionnaires were returned. Seventeen of which contained useful information. Each of the questionnaires represents a large segment of the consuming market, as many of the chemicals are utilized by a small number of domestic firms. Five of the chemicals were under license or patent protection by individual domestic companies during 1984-87 and were imported and consumed only by those companies.

Description and uses

The description and uses for each of the pharmaceutical chemicals covered in this aggregation of products by section number as listed in the Trade and Tariff Act of 1984 are as follows:

Sec. 142--Sulfamethazine is generally used in treating certain bacterial and microbial infections in humans and animals and, occasionally, as a low-level additive in cattle and other feeds as a growth promoter.

Sec. 143--Sulfaguanidine is generally used in treating certain bacterial and microbial infections in humans and animals and, occasionally, as a low-level additive in cattle and other feeds as a growth promoter.

Sec. 144--Terfenadine occurs as a white to off-white crystalline powder. It is a butyrophenone-derivative antihistamine and is structurally unrelated to other currently available antihistamines. Terfenadine is used to provide symptomatic relief of seasonal allergic rhinitis. It displays a lower incidence of central nervous system effects, such as sedation, than most other antihistamines. Merrell Dow holds the patent on terfenadine.

Sec. 145--Sulfathiazole is generally used in treating certain bacterial and microbial infections in humans and animals and, occasionally, as a low-level additive in cattle and other feeds as a growth promoter.

Sec. 146--Sulfaquinoxaline and sulfanilamide are generally used in treating certain bacterial and microbial infections in humans and animals and, occasionally, as low-level additives in cattle and other feeds as a growth promoter.

Sec. 147--Dicyclomine hydrochloride occurs as a white, odorless crystalline powder. It is an autonomic drug that acts as an anticholinergic agent. It is used in the symptomatic treatment of disorders of the gastrointestinal tract, such as spastic colitis, ulcerative colitis, diverticulitis, and formerly peptic ulcer.

Sec. 147--Mepenzolate bromide occurs as a white crystalline powder. It is an autonomic drug that inhibits the motility of the gastrointestinal and urinary tracts and diminishes the volume of perspiration, saliva, and gastric and pancreatic secretions. Mepenzolate bromide is used in the management of diseases of the colon associated with inflammation, hypermobility, and spasms.

Sec. 148--Amiodarone is an antiarrhythmic cardiovascular agent. The drug also acts as a coronary vasodilator. It is available as a white to cream-colored crystalline powder and as a solution to be administered intravenously.

Sec. 149--Desipramine hydrochloride occurs as a white to off-white crystalline powder. It is a derivative of dibenzazepine and is classified as a tricyclic antidepressant. Tricyclic antidepressants are used primarily in the treatment of endogenous depression.

Sec. 150--Clomiphene citrate occurs as a white to pale yellow, crystalline powder. It has both estrogenic and anti-estrogenic properties. The drug is used to induce ovulation in anovulary women. In addition, clomiphene citrate is used in small doses as a gonad stimulating agent in therapy for male infertility.

Sec. 154--Nicotine resin complex is generally used in conjunction with a medically supervised behavior modification program as a temporary adjunct in the cessation of cigarette smoking. It is commercially available, by prescription only, in a sugar-free, flavored chewing gum base, occurring as beige, square-shaped pieces. The product provides a substitute oral activity during cigarette withdrawal and an alternative source of nicotine that is free of tars, carbon monoxide, and respiratory irritants and that also helps reduce the withdrawal symptoms associated with nicotine dependence.

Sec. 155--Rifampin occurs as a reddish-brown crystalline powder. It is a semi-synthetic derivative of rifamycin B, an antibiotic derived from the bacterial organism streptomyces mediterranei. Rifampin is a broad-spectrum antibiotic effective against many bacteria. In the United States, rifampin is used in combination with at least one other antituberculosis agent in the treatment of tuberculosis. Rifampin is also used in the treatment of other mycobacterial diseases.

Sec. 156--Lactulose is generally available as a liquid and it is the active ingredient used in the manufacture of ethical pharmaceutical products sold by Merrell Dow as laxatives. The product is under license to Merrell Dow.

Sec. 157--Iron-dextran complex is used in the treatment of iron deficiency anemia, chiefly in pigs. The product is under license to Merrell Dow.

Sec. 172--Flecainide acetate, a local anesthetic-type antiarrhythmic agent, occurs as a white, crystalline powder. It is usually used in the

treatment of patients experiencing severe arrhythmias (disorder of heart rhythm). The consequences of arrhythmias can range from discomfort to death. Flecainide acetate is currently under patent by Riker Laboratories, a subsidiary of the 3M Co.

U.S. market profile

Six of the 16 products were manufactured domestically during 1984-86 (sec. Nos. 142, 143, 144, 145, 156, and 172). Production capability still exists for at least four of the chemicals. Of the remaining 10 chemicals, domestic production of at least 4 (sec. Nos. 147, 149, 150, and 172) ceased during or prior to 1982 for various reasons. According to the responses in the questionnaires, these reasons ranged from the relative age and inefficiency of the U.S. production facilities to the economic feasibility of continuing production.

In 1986, total U.S. production/shipments of these chemicals was valued at $20 to $30 million. The average value of total corporate sales in 1986 of the companies responding to the questionnaire was $2.26 billion. Of the seven companies responding, four had corporate sales of $2 to $4 billion, one had sales of less than $500 million, and the remaining two had sales of less than $100 million.

According to the questionnaire responses, in 1986, there were 413 workers employed in the production and/or the processing of these chemicals into the form in which they were distributed to the final consumer. An average of 59 workers per company were employed in producing and/or processing these chemicals.

U.S. imports

Imports of the products covered in this grouping during 1984-86 are shown in table 3.

Total imports of all products classified under the TSUS items covered by this grouping of pharmaceutical chemicals (table 2) increased from a value of $389 million in 1984 to $489 million in 1985 (table 3). Imports then increased to $652 million in 1986, or by 33 percent. The increasing trend in the value of these imports during 1984-86 was primarily attributed to the increased unit value of the individual products. The quantity of total imports classified under these TSUS items decreased by 10 percent during 1985-86. The principal sources for imports of these chemicals were the EC, some Eastern European countries, China, Hong Kong, and Japan.

On the basis of an estimated demand elasticity that was calculated by the Commission staff and an average ad valorem rate of 6.9 percent, the suspension of duties for the products covered in this grouping, would have increased imports by approximately 7 percent after adjustment to the duty suspensions. 1/

1/ For an explanation of the analytical methodology, see app. D, pp. 10-12.

Table 3
Total and temporary duty-free imports, and the estimated revenues lost on the pharmaceutical chemicals listed in the Trade and Tariff Act of 1984, 1984-86

U.S. imports	1984	1985	1986
Total imports 1/ (1,000 dollars)..	389,495	488,775	651,890
Temporary duty-free imports (1,000 dollars).....	2/ 31,823	33,010	31,090
Ratio of temporary duty-free imports to total imports (percent).....	3/	6.8	4.8
Loss of revenue (1,000 dollars)...	3/	2,268	2,100

1/ Includes the value of individual and "basket" TSUS item numbers that contain the products subject to temporary duty suspensions in the 1984 Act.
2/ This calculated value pertains to imports subject to the provisions of the 1984 Act prior to the first full year of duty suspensions. This value was calculated from questionnaire data and staff estimates using available trade data.
3/ The items covered by this investigation are those items granted duty-free status under the provisions of the Trade and Tariff Act of 1984, effective Oct. 30, 1984. For the purposes of this investigation, only full year 1985 and 1986 data are being analyzed.

Source: Compiled from the official statistics of the U.S. Department of Commerce and from responses to the Commission's questionnaires.

However, U.S. imports of these products actually increased by 4 percent during 1984-85, from $31.8 million to $33.0 million based on import data for 1984 as calculated by the Commission staff. The increase was primarily a result of both the duty suspensions and the appreciation of the U.S. dollar vis-a-vis certain foreign currencies. During 1985-86, however, these imports decreased by 6 percent, from $33.0 million to $31.1 million, resulting in a general decline of 2 percent by value during 1984-86 (table 3). The decrease in these imports during 1985-86 was attributed primarily to the buildup in inventory of several of the products, either as a result of pending Food and Drug Adminstration (FDA) approval or fluctuations in demand. The actual value of these imports in 1985 and 1986 was lower than it should have been because of a classification interpretation by the U.S. Customs Service that resulted in the entry of one of the chemicals under a basket TSUSA item number that had no provision for duty-free treatment for the chemical. As evidenced by the data and by 88 percent of the responses to the questionnaire, domestic firms did not buy more imported products in spite of the duty suspension. In fact, the ratio of the value of temporary duty-free trade to the value of total imports decreased from 6.8 percent in 1985 to 4.9 percent in 1986.

The unit value of the duty-free products increased from $6.60 per pound in 1985 to $8.00 per pound in 1986 (whereas the unit values for total imports were 35 cents per pound and 61 cents per pound, respectively). The increase

in the unit values of the imports was probably due to the decreasing strength of the U.S. dollar towards the end of 1986. The principal sources of duty-free imports during 1985-86 were the EC, some Eastern European countries, China, and Hong Kong. About 10 percent of the trade in these products was attributed to related-party transactions involving U.S. and foreign-based operations of multinational chemical firms. Many of the firms involved indicated that it would not be economically feasible to develop domestic production facilities, mainly because of the limited market satisfied by production at one facility and because of reluctance to duplicate the capital expenditures necessary to conform to FDA standards.

As shown in table 3, the overall loss of tariff revenue for this group of products decreased from $2.3 million in 1985 to $2.1 million in 1986, or by 7.4 percent.

Benefits to Consumers

A summary of the responses to the two questions in the Commission's questionnaire on the redistribution of the benefits of cost savings resulting from the temporary duty suspensions for this group is shown in the following tabulation:

Item No.	Benefit	Number of responses
	Internal benefits of savings:	
1	Reduction in price of end-use product	8
2	Offset cost to maintain end-use product price	9
3	Increased distribution expenditures	15
4	Increased investments in various product areas	15
5	Other	9
	External benefits of savings:	
1	Improved cost competitiveness for the firm	16
2	Improvement in marketing, etc., for the firm	15
3	Increased demand for product	15
4	Cost savings to intermediate user	15
5	Cost savings to end-use buyer	15
6	Increased taxes paid to Federal/State Governments	15
7	Increased supply or quality by end user	15
8	Other	10
	Total questionnaires received containing pertinent responses	16

The respondents were also requested to determine the degree or percentage of cost savings realized by these benefits. Their responses are discussed in more detail later in this section. According to the responses to the questionnaires, the benefits accrued to the firms as a result of the duty

suspensions were primarily in the areas of increased promotional expenditures, increased R&D expenditures, and increased employment.

Seven respondents (approximately 66 percent of toal respondents) allocated more than 50 percent of the savings internally in the form of an offset of cost increases in other inputs so as to maintain constant end-product price. In 1986, 50 percent of the savings for this grouping would be roughly equivalent to $1 million. Two allocated 10-25 percent or less than 5 percent.

Of the 8 responses to the question regarding the allocation of the savings internally in the form of a reduction in price of end-use product, two respondents stated that they allocated 10-25 percent of the savings, while six stated that they allocated less than 5 percent.

Of the remaining options, 12 respondents indicated that they allocated 10-25 percent of the savings to advertising, while 7 respondents indicated that they allocated the same amount to investment. The remainder of the responses to this question allocated less than 5 percent to either.

The firms specified miscellaneous expenditures such as increased employment, higher salaries, and the development of educational symposia on their end products for physicians.

An average of 71 percent of the respondents to the question of the external benefits derived from the savings cited improved cost competitiveness for the firm and improved quality, design, and marketing of their products. Tied in with the improved cost competitiveness was the belief held by a few of the companies that the duty suspension allowed their companies to launch their end-use product at a lower cost than expected, resulting in increased consumer demand, or to maintain lowered prices. Although an average of 77 percent of the respondents replied that cost savings to intermediate or end-use purchasers were not relevant, the staff estimates that approximately 50 percent of the cost savings resulting from the duty suspension could have been passed on to intermediate or end-users of the imported item. 1/ An analysis of the aggregate unit values of the end-use products indicates a decline in these unit values by 8 percent during 1984-86.

The majority of the respondents to this section of the questionnaire also cited other benefits resulting from the duty suspension, such as increased capital expenditures and increased income taxes. Some increase in income taxes paid to the Federal/State Governments was reported by 67 percent of the respondents. The increased capital outlays were said to result in increased employment in sectors other than the chemical industry, such as the construction industry.

Other comments include the statement of one firm that it really did not benefit from the duty suspension, as it was unaware that the duty suspension was in effect. Another firm expressed its belief that the levying of duties on products that were unique or not produced in the United States is

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1/ See p. 51 for a full discussion of the staff estimates.

inappropriate, and therefore, should not be considered a savings or a benefit to a firm.

Intermediate Chemicals

The chemicals included in this product grouping are generally known as "intermediate chemicals." These chemicals are used in the production of a semi-finished or finished product and are either chemically transformed in the process or compounded with other intermediate chemicals and sold as an end product. All of the intermediate chemicals included in this aggregation of products can be produced synthetically from petroleum products. However, certain of these chemicals, such as tartaric acid and related derivatives, can occur as natural products during fermentation processes as used in the wine industry. The chemicals covered by this product grouping with their section number and related tariff information are shown in table 4.

Table 4
Intermediate chemicals: Section numbers, TSUS item numbers, current col. 1 rates of duty, product descriptions, and temporary TSUS item numbers as listed in the Trade and Tariff Act of 1984

Sec. No.	TSUS No.	Col. 1 rate of duty	Description	Temporary TSUS No.
132	403.29	20%	ß-Naphthol	907.31
133	403.57	0.7¢/lb +19.4%	4-Chloro-3-methylphenol	907.08
134	404.90	13.5%	Tetra-aminobiphenyl	907.32
135	405.00	6.8%	6-Amino-1-naphthol-3-sulfonic acid	907.34
136	406.39	1.7¢/lb +16.2%	2-(4-Aminophenyl)-6-methylbenzothiazole-7-sulfonic acid	907.35
137	405.53	15%	Di-o-tolylguanidine and diphenylguanidine	906.50
138	406.42	13.5%	(6R,7R)-7-[(R)-2-Amino-2-phenylacetamido]-3-methyl-8-oxo-5-thia-1-azabicyclo[4.2.0]oct-2-ene-2-carboxylic acid disolvate	906.51
139	406.56	1.7¢/lb +18%	Acetylsulfaguanidine	907.33
140	408.38	0.8¢/lb +9.7%	Fenridazon-potassium	907.41
141	408.96	5.8%	Allyl resins	907.16
152	425.94	4.3%	Tartaric acid	907.65
152	426.72	1.8%	Potassium salts: Antimony tartrate (tartar emetic)	907.66
152	426.76	4.6%	Cream of tartar	907.68

Table 4--Continued
Intermediate chemicals: Section numbers, TSUS item numbers, current col. 1 rates of duty, product descriptions, and temporary TSUS item numbers as listed in the Trade and Tariff Act of 1984

Sec. No.	TSUS No.	Col. 1 rate of duty	Description	Temporary TSUS No.
152	426.82	4.1%	Sodium tartrate	907.69
153			(Rochelle salts)	
170	404.88	1.1¢/lb +18.8%	m-Xylenediamine	907.03
170	407.05	1.7¢/lb +16.8%	1,3-Bis(aminomethyl)-cyclohexane	907.04
171	404.88	1.1¢/lb +18.8%	4,4'-Bis-α,α-(dimethylbenzyl)-diphenylamine	907.06
177	407.19	1.7¢/lb +13.6%	Certain menthol feedstocks	907.13
178	403.57	0.7¢/lb +19.4%	2-Methyl-4-chlorophenol	906.97
181	408.16	11.1%	o-Benzyl-p-chlorophenol	907.13
182	405.31	1.7¢/lb +18.1%	p-Acetamidobenzenesulfonyl chloride	906.38
182	404.92	5.8%	m-Aminophenol	906.32
182	404.46	1.7¢/lb +17.9%	3,5,6-Trichlorosalicylic acid	906.30
183	404.28	1.7¢/lb +17.9%	m-Toluic acid	906.57

Source: Compiled from the Tariff Schedules of the United States and the Trade and Tariff Act of 1984 by the staff of the U.S. International Trade Commission.

Survey coverage

For the intermediate chemicals included in this study, 36 questionnaires were mailed to 28 companies that were importers and/or consumers of these products. These 28 firms represented more than 95 percent of all domestic chemical manufacturers using the intermediate chemicals listed in the 1984 Act. Thirty-one, or 86 percent, of the total number of questionnaires sent were returned to the Commission. Of the 31 questionnaires returned, 8 contained no information since the companies involved reported that they were not producers of the end products made from those intermediates during 1984-86. The remaining 23 questionnaires were completed and contained usable information. These 23 questionnaires represented 18 chemical companies, or about 64 percent of the total number of companies surveyed.

Description and uses

The description and uses for each of the intermediate chemicals covered in this aggregation of products by section number as listed in the Trade and Tariff Act of 1984 are as follows:

Sec. 132--B-Naphthol is a highly toxic substance derived from naphthalene and used as an intermediate in the production of pigments, dyes, fungicides, pharmaceuticals, and perfumes. Other uses for this chemical are as an antioxidant in synthetic rubber and as an antiseptic.

Sec. 133--4-Chloro-3-methylphenol is used primarily as a biocide, antioxidant, and emulsifier in the manufacture of oil-in-water machine cutting fluids, in certain specialty products such as antidandruff shampoos and hand lotions, and in sensitive films such as x-ray and microfilms to protect these products during prolonged storage.

Sec. 134--Tetra-aminobiphenyl is a synthetic organic chemical used as an intermediate in the production of a resin, polybenzimidazole. This resin has certain temperature characteristics that make the fibers made from the resin useful in providing fire protection in protective gear such as flight suits, crash rescue gear, and fire-blocking devices in combat aircraft.

Sec. 135--6-Amino-1-naphthol-3-sulfonic acid is principally used as an intermediate in the production of dyes, particularly acid and paper dyes.

Sec. 136--2-(4-Aminophenyl)-6-methylbenzothiazole-7-sulfonic acid is principally used as an intermediate in the production of dyes, especially paper dyes. Primary uses are for coloring bathroom tissues, paper towels, paper napkins, facial tissues, stationery, and business forms.

Sec. 137--Di-o-tolylguanidine (DOTG) and diphenylguanidine (DPG) are synthetic organic chemicals principally used as curing accelerators for synthetic and natural rubbers, which are ultimately used in the production of automobile tires and shoe soles.

Sec. 138--(6R,7R)-7-[(R)-2-Amino-2-phenylacetamido]-3-methyl-8-oxo-5-thia-1-azabicyclo[4.2.0]oct-2-ene-2-carboxylic acid disolvate is a complex synthetic organic chemical that is used as an intermediate chemical in the manufacture of an antibiotic, cephalexin monohydrate.

Sec. 139--Acetylsulfaguanidine is a synthetic organic chemical used in the production of sulfaguanidine. The latter chemical is then used primarily to produce a sulfa drug, sulfamethazine. In the United States, this drug is used mainly to combat bacterial infections in animals.

Sec. 140--Fenridazon-potassium is a synthetic organic chemical produced from specialty organic chemicals and then mixed with formulated adjuvants in an aqueous solution. At this time, its only known commercial use is as a plant growth regulator. This chemical inhibits the development of pollen on wheat, allowing the hybrid wheat seed to develop by selective cross- pollination.

Sec. 141--Allyl resins are a special class of polyester resins derived from esters of allyl alcohol and dibasic acids. The resins are prepolymers 1/

1/ Prepolymer--a polymer of relatively low molecular weight usually intermediate between that of a monomer of monomers and the final polymer or resin, which may be mixed with compounding additives and which is capable of being hardened by further polymerization during or after a forming process.

and include two compounds of commercial significance, diallyl phthalate and diallyl isophthalate, known by the acronyms DAP and DAIP, respectively. However, the simpler monomers 1/ from which these prepolymers are made are also known as DAP and DAIP. These monomers are made by reacting phthalic anhydride with allyl alcohol. In addition to being used in the manufacture of DAP and DAIP prepolymer resins, the monomers, especially DAP, also are used as cross-linking agents 2/ for unsaturated polyester resins.

The prepolymer resins are used to make molding compounds by combining them with fillers and other additives. The resins are usually sold as fusible prepolymers to plastics fabricators that incorporate reinforcing fibers, fillers, flame retardants, and other additives to make the molding compounds. These allyl molding compounds are normally sold to an end user that converts them to an infusible, thermoset allyl polymer, which is usually an integral part of an electrical/electronic component. Prepolymer resins are also used by the electrical/electronic industry to make components containing the final plastic product, which is an infusible thermoset resin. Industry sources report that about 90 percent of the domestically marketed, allyl prepolymer resins are used to produce allyl molding compounds, and 10 percent are used in such other applications as preimpregnated glass cloths and papers and sealants for metal castings. 3/

DAP and DAIP prepolymer resins exhibit excellent electrical properties such as high insulation resistance and low electrical losses at temperatures in excess of 400 °F, and are used in the high-performance end of the end-product line. Because of these properties, about 80 to 90 percent of the DAP and DAIP molding compounds is consumed domestically in the manufacture of high-performance, dielectric insulators for connector housings under Military Specifications (Mil. Spec.) M-14G, Naval Sea Systems, "Molded Plastics and Molded Plastic Parts," thermoset specification. 4/ The end products are

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1/ Monomer--a term used to describe a relatively simple chemical compound of low molecular weight that can react to become a plastics material (polymer) by combination with itself or with other similar compounds.

2/ Cross-linking agent--a substance that promotes or regulates the setting up of chemical links between the individual molecular chains. Cross-linking, when extensive, makes a single infusible super molecule of all the chains.

3/ Based on information developed during telephone conversations on May 19, 1987, May 20, 1987, and May 26, 1987, between a member of the U.S. International Trade Commission staff and industry representatives at Rogers Corp., Plaskon Electronic, and Durez Division.

4/ The representative of Rogers Corp. (May 19, 1987) said during a telephone conversation that in electronic applications for the military, DAP and DAIP have no competitive equal in plastics. However, the representative of Durez Div. (May 26, 1987) said during a telephone conversation that inroads into DAP and DAIP markets are being made by thermoplastic polyesters. A subsequent telephone conversation (Sept. 17, 1987) with the Rogers representative confirmed the encroachment of thermoplastic polyesters into this market as witnessed by the declining level of imports. However, this source reported that there is a new method of joining the electronic connectors to the circuit board that will reverse this trend as this new soldering process results in a higher quality product and favors the use of DAP and DAIP molding compounds. This new process is vapor phase soldering and it operates at temperatures high enough to melt the thermoplastic polyesters, which lessens the integrity of the thermoplastic polyesters.

certified to this Mil. Spec. even for commercial applications. The remainder is used in the manufacture of other electrical/electronic parts, such as bobbins, switches, and circuit boards, for use in computers, telecommunications, and other equipment.

Sec. 152--Tartaric acid is obtained commercially as a natural product from the sediments of the wine aging process. It is used in the food, photographic, tanning, printing, and pharmaceutical industries.

Sec. 152--Tartar emetic, also known as antimony potassium tartrate, is a poisonous, transparent, odorless, crystalline solid or a white powder used as a textile and leather mordant, as a medicine and perfumery component, and in insecticides.

Sec. 152--Cream of tartar is a white, crystalline powder produced from the sediments of the wine aging process. Cream of tartar is used in baking powder, the production of other tartrates, medicine, galvanizing metals, and in foods.

Sec. 152--Rochelle salts, also referred to as potassium-sodium tartrate, are produced from a solution of cream of tartar by saturation with sodium carbonate, followed by purification. Rochelle salts are used in medicine, the manufacture of Seidlitz powders, in baking powder, and in foods.

Sec. 170--1,3-Bis(aminomethyl)cyclohexane (also called 1,3-BAC) is used chiefly as an epoxy resin hardener in concrete patching preparations and in the manufacturing of specialty adhesives for aircraft and aerospace applications.

Sec. 171--4,4'-Bis(α,α-dimethylbenzyl)diphenylamine is used as an antioxidant to prolong the useful life of urethane polymers, elastomers, insulating cables, other plastics and resins, and lubricating oils.

Sec. 178--2-Methyl-4-chlorophenol is a synthetic organic chemical produced from o-cresol. It is used as a chemical intermediate in the production of the herbicides, 2-methyl-4-chlorophenoxyacetic acid (MCPA) and 2-(4-chloro-2-methylphenoxy)propanoic acid (MCPP). These herbicides are used in several preparations for the selective control of certain annual and perennial broadleaf weeds on ornamental turf and on some crops, including small grains and peas at certain periods during the growing cycle.

Sec. 181--o-Benzyl-p-chlorophenol is produced synthetically from phenol. It is used primarily as a disinfectant and bactericide in the health care market, especially in dealing with infectious diseases.

Sec. 182--3,5,6-Trichlorosalicylic acid is a benzenoid intermediate chemical derived from petroleum products. The chemical is used by at least one domestic chemical firm in the production of certain proprietary chemiluminescent products, and by other chemical firms as an intermediate in the production of medicinal chemicals.

Sec. 182--m-Aminophenol is a white, crystalline material produced from phenol. This chemical is used in the production of certain dyes and pigments by at least two domestic chemical firms.

Sec. 182--p-Acetamidobenzenesulfonyl chloride, also known as N-acetylsulfanilyl chloride or ASC, is a crystalline material, usually light tan in color, made by sulfonating the chemical acetanilide. ASC is used as an intermediate in the preparation of certain pharmaceuticals.

Sec. 183--m-Toluic acid is produced synthetically by the oxidation of meta-xylene with nitric acid. It is used primarily in the production of N,N-diethyl-meta-toluamide (DEET), a broad-spectrum insect repellent.

U.S. market profile

Of the 25 chemicals granted a temporary duty suspension in the Trade and 1984 Act, only 4 were produced domestically during 1984-86, namely: acetylsulfaguanidine (sec. 139) made by Salsbury Laboratories, Charles City, IA; fenridazon-potassium (sec. 140) made by Rohm and Haas Corp., Philadelphia, PA; allyl resins (sec. 141) made, in a limited number of grades and a limited quantity, by Cosmic Plastic, Inc., San Fernando, CA; sodium tartrate (Rochelle salts) (sec. 152) made by Pfizer, Inc., NY; and m-toluic acid (sec. 183) made by Witco Chemical Corp., Woodcliff Lake, NJ. With the exception of the Witco Chemical Corp., all the firms producing these chemicals have used these imports to supplement their own production. Witco objected to the temporary duty suspension for imports of m-toluic acid in December 1983, and in June 1987 when an extension of the temporary suspension of duty for m-toluic acid was proposed in S. 1202. However, in a telephone conversation with the Commission staff, the user and importer of m-toluic acid maintained that there was a significant quality difference between the imported product and the domestically produced chemical, and, also, that without imports, Witco would not have sufficient capacity to supply the entire U.S. end-product market.

The value of all production/shipments of end products, as determined by the analysis of all the responses to the Commission's questionnaire sent to the major importers and users of the subject chemicals, increased from $77.2 million in 1984 to $90.1 million in 1986, or by 17 percent.

In 1986, the average annual company/corporate sales for the 18 firms responding to the Commission's questionnaire were $1.7 billion. Seven of the 18 respondents had 1986 annual corporate sales greater than $1.0 billion. Eight of the 18 companies reported 1986 annual sales between $10 million and $100 million, and the remaining 3 companies reported sales in 1986 of between $1 million and $10 million.

Sixteen of the 18 companies responding to the Commission's questionnaire provided information regarding the number of production and related workers involved in the manufacture of end products from duty-free imports in 1986. The 16 reported an average of 32 production and related workers employed in 1986. Four of the 16 companies employed between 50 and 100 workers; 7 companies employed between 10 and 50 workers; and 5 companies employed between 1 and 10 workers.

U.S. imports

Imports of the products covered in this grouping during 1984-86 are shown in table 5.

Table 5
Total and temporary duty-free imports, and the estimated revenues lost on the intermediate chemicals listed in the Trade and Tariff Act of 1984, 1984-86

U.S. imports 1/	1984	1985	1986
Total imports 2/ (1,000 dollars)...	437,972	525,318	490,151
Temporary duty-free imports (1,000 dollars).....	3/ 52,346	72,689	76,531
Ratio of temporary duty-free imports to total imports (percent).....	4/	14	16
Loss of revenue (1,000 dollars)....	4/	8,966	9,990

1/ For comparative purposes the value of total imports does not include certain high-trade volume, low-valued aromatic hydrocarbon solvents and catalytic naphthas classifiable under TSUS item 407.16.
2/ Includes the value of individual and "basket" TSUS item numbers that contain the products subject to temporary duty suspensions in the 1984 Act.
3/ This calculated value pertains to imports subject to the provisions of the 1984 Act prior to the first full year of duty suspensions. This value was calculated from questionnaire data and staff estimates using available trade data.
4/ The items covered by this investigation are those items granted duty-free status under the provisions of the Trade and Tariff Act of 1984, effective Oct. 30, 1984. For the purposes of this investigation, only full year 1985 and 1986 data are being analyzed.

Source: Compiled by the staff of the U.S. International Trade Commission from the official statistics of the U.S. Department of Commerce and from responses to the Commission's questionnaire.

The total value of imports covered by this grouping of chemicals (table 4) increased from a value of $438 million in 1984, to $525.3 million in 1985 (table 5). The increase in imports in 1985 appears to have occurred largely as a result of the strengthening of the domestic economy over this period. However, imports declined by about 7 percent to a value of $490.2 million in 1986 compared with such imports in 1985, although the quantity of imports, decreased by less than 0.5 percent. The decline in value of imports during 1985-86 coincided with the decline in the world price of crude petroleum. As previously mentioned, these intermediate chemicals are produced from petroleum products, and feedstock costs represent a significant portion of the costs of production. The principal sources for imports of these chemicals were the EC and Japan. The importers of these chemicals were mostly U.S.-based multinational chemical firms and the U.S. subsidiaries of foreign-based multinational chemical firms.

On the basis of an estimated demand elasticity that was calculated by the Commission staff and an average ad valorem rate of 12.3 percent, the

suspension of duties for the products covered in this grouping, would have increased imports by approximately 20 percent after adjustment to the duty suspensions. 1/ Based on responses to the Commission's questionnaire and the official statistics of the U.S. Department of Commerce, the Commission staff calculated that in 1984, the value of temporary duty-free imports would have been approximately $52.3 million. Hence, imports of the temporary duty-free intermediate chemicals covered by the 1984 Act were estimated to have increased by about 39 percent over 1984-85, compared with the expected increase of 20 percent predicted from demand elasticity considerations. Significant growth in the domestic economy over 1984-85 leading to higher production and inventories coupled with the cost advantages provided by the temporary duty-free provisions of this Act accounted for the greater than predicted increase in imports. In 1986, imports of the temporary duty-free intermediate chemicals were valued at $76.5 million, or 46 percent greater than the estimated value of such imports in 1984. During 1984-86, the domestic economy continued to show strong growth, accounting for the increase in imports of these chemicals.

U.S. imports of the temporary duty-free intermediate chemicals increased from 28.0 million pounds, valued at $72.7 million in 1985, to 29.5 million pounds, valued at $76.5 million in 1986, or an increase of 6 percent in quantity, and 5 percent in value (table 5). The ratio of the value of temporary duty-free trade to the value of total imports went from 14 percent in 1985, to 16 percent in 1986. The unit value of the duty-free items changed from $2.60 per pound in 1985, to $2.59 per pound in 1986 (whereas the equivalent figures for total imports were $1.08 and $1.01 per pound, respectively). The principal sources of duty-free imports during 1985-86 were the EC and Japan. Approximately 35 percent of 1986 trade in these products were related-party transactions involving U.S.- and foreign-based operations of multinational chemical firms. 2/ From responses to the Commission's questionnaire, the major portion of related-party trade in 1986 was accounted for by U.S. parent corporations importing special chemicals from foreign subsidiaries. These latter transactions were valued at about $19 million in 1986 versus $8 million in related-party transactions between U.S. subsidiaries and their foreign parents.

Since the type of product represented by these particular chemicals was one in which there was no U.S. source and a limited market, the firms involved stated that it would not be economically sound to invest in new plant facilities to produce these intermediate chemicals domestically, and that a more reasonable approach would be to utilize foreign-based plants to maximize the effective use of present corporate assets.

It is expected, as stated by industry sources, that the growth rate during 1985-86 for these duty-free chemicals will change very little in the foreseeable future.

1/ For an explanation of the analytical methodology, see app. D, pp. 10-12.
2/ Based on responses to the Commission's questionnaire.

As shown in table 5, the overall loss of tariff revenue for this group of products changed from $9.0 million in 1985 to $10.0 million in 1986, or by 11 percent.

Benefits to Consumers

The Commission's questionnaire developed for this study contained a section that gave companies an opportunity to show how the benefits of cost savings realized from the temporary duty suspensions were redistributed between the firms manufacturing cost structure and the prices charged to their end-product customers. A summary of the responses to the two questions in the Commission's questionnaire on the redistribution of the benefits of cost savings resulting from the temporary duty suspensions for this group is shown in the following tabulation:

Item No.	Benefit	Number of responses
	Internal benefits of savings:	
1	Reduction in price of end-use product	17
2	Offset cost to maintain end-use product price	20
3	Increased distribution expenditures	14
4	Increased investments in various product areas	12
5	Other	4
	External benefits of savings:	
1	Improved cost competitiveness for the firm	20
2	Improvement in marketing, etc., for the firm	18
3	Increased demand for product	18
4	Cost savings to intermediate user	18
5	Cost savings to end-use buyer	18
6	Increased taxes paid to Federal/State Governments	17
7	Increased supply or quality by end user	16
8	Other	3
	Total questionnaires received containing pertinent responses	20

The respondents were also requested to determine the degree or percentage of cost savings realized by these benefits. Their responses are discussed in more detail later in this section. Of the 23 questionnaires completed and returned to the Commission, 20 contained useful information related to a firm's internal redistribution of duty savings. This multipart question asked the firms to estimate the proportion of the retained duty-savings allocated to each of five categories. Only 11 respondents indicated that they had redistributed greater than 50 percent of the duty savings realized to only one category. Three of these 11 respondents stated that the major portion of duty savings was used to offset cost increases in other inputs to production to maintain constant end-use product prices. Three of the 11 respondents

(approximately 27 percent of total respondents) allocated greater than 50 percent of the duty savings realized to reductions in the prices of their end products to increase their price competitiveness. In 1986, 50 percent of the savings for this grouping would be roughly equivalent to $4.9 million. The remaining five redistributed smaller proportions of their duty savings to more categories, with four out of these six firms choosing to redistribute between 25 to 50 percent of the savings to minimize the need for end-product price increases.

The second multipart question asked the firms to provide their best judgment on the benefits of duty savings to the end-product consumers of their products. Again, 20 of the 23 completed questionnaires returned gave useful information on this subject. The companies were asked to rank the benefits on a 1 to 5 numerical scale with 1 representing substantial benefit and 5 no benefit. Eight of the 20 responses to this question ranked the cost savings made available to their end-product customers as the most substantial benefit derived from temporary duty suspension measures. Seven of the 20 respondents ranked as most substantial the gains experienced by all end users from the increases in supply and improvements in product quality made possible by duty suspensions. Hence, 15 of the 20 responses show that the firms gaining duty savings as a result of the temporary suspensions consider that the greatest benefits resulting from this type of legislation are the improved quality and increased end-product capacity utilization aspects that lead to greater end-product price stability benefiting their customers.

The staff estimates that as much as 50 percent of the cost savings resulting from the temporary duty suspension was passed on to consumers. 1/ In a written submission to the Commission from the Synthetic Organic Chemical Manufacturers Association, Inc. (SOCMA), a nonprofit trade association of approximately 150 organic chemical companies, SOCMA expressed the opinion that the savings from duty suspensions passed on to the U.S. consumers are substantial. The association also remarked that, in their opinion, without the cost savings from duty suspensions, many of the smaller U.S. chemical producers would be forced to abandon the market. SOCMA defined a small chemical producer as one with sales of $50 million or less. Of the 18 companies returning completed questionnaires, 6 reported annual sales of $50 million or less in 1986, and, therefore fall into SOCMA's small business category.

MINERALS, METALS, AND RELATED PRODUCTS

Overview

The items in this product grouping include crude minerals, metals, materials produced from minerals, and other related products such as tool and drill blanks, which are made from synthetic industrial diamond crystals. The items covered by this product grouping with their section number, and related tariff information are shown in table 6.

1/ See p. 51 for a full discussion of staff estimates.

Table 6
Minerals, metals, and related products: Section numbers, TSUS item numbers, current col. 1 rates of duty, product descriptions, and temporary TSUS item numbers listed in the Trade and Tariff Act of 1984

Sec. No.	TSUS No.	Col. 1 rate of duty	Description	Temporary TSUS No.
		Cents per pound; percent ad valorem		
151	423.00	3.7%	Yttrium-bearing materials and compounds	907.51
151	423.96	Free		907.51
151	603.70	5%		907.51
158	517.21	3%	Crude and refined natural crystalline flake graphite, not including flake dust	909.01
158	517.24	0.3¢		909.01
159	602.20	0.3¢ 1/	Zinc	911.00
159	603.30	0.6¢		911.01
159	603.49	0.7¢ 2/ +0.5¢ 3/ +0.5¢ 1/		911.02
159	603.50	0.32¢ 2/ +0.3¢ 3/ +0.3¢ 1/		911.02
159	603.54	0.6¢ 2/ +0.4¢ 3/ +0.4¢ 1/		911.02
159	603.55	Free		911.01
159	626.10	2.1%		911.03
160	520.21	3%	Tool and drill blanks wholly or in chief value of industrial diamonds	910.00
160	523.9160	4.9%	Tool and drill blanks	910.00
179	632.88	5.5%	Unwrought alloys of cobalt	911.90

1/ On zinc content.
2/ On copper content.
3/ On lead content.

Source: Compiled from the Tariff Schedules of the United States and the Trade and Tariff Act of 1984 by the staff of the U.S. International Trade Commission.

Survey Coverage

For the minerals, metals, and related products included in this study, 53 questionnaires were mailed to 52 importers and/or consumers of these products. Forty-four questionnaires were returned from 15 firms with 20 questionnaires providing usable information.

Description and Uses

The description and uses of each product included in this grouping by section number as listed in the Trade and Tariff Act of 1984 are as follows:

Sec. 151--Yttrium-bearing materials and compounds are chemical elements produced from xenotime or monazite and are made into high purity yttrium that is primarily used to make color television phosphors. Product cost as a percent of total end-use cost averages approximately 50 percent.

Sec. 158--Crude and refined natural crystalline flake graphite, not including flake dust, are forms of graphite that are used to make crucibles, lubricants, foundry facings, and dry cells. Product cost as a percentage of total end-use cost averages approximately 20 percent.

Sec. 159--Zinc is an element found in the mineral sphalerite, which usually occurs in association with lead and copper sulfide materials. Almost 50 percent of all zinc consumed is used in the manufacture of construction materials, and 25 percent of all zinc consumed is used to manufacture machinery. Product cost as a percentage of total end-use cost averages approximately 50 to 55 percent.

Sec. 160--Tool and drill blanks wholly or in chief value of industrial diamonds are made of randomly oriented synthetic industrial diamond crystals that are bonded together by a high-pressure, high-temperature process, usually to a tungsten carbide substrate. Diamond tool and drill blanks are used by tool fabricators to produce tool products for turning, milling, boring, drilling, and cutting of nonmetallic material. Product cost as a percent of total end-use cost averages approximately 45 percent.

Sec. 179--Unwrought alloys of cobalt are produced from low-grade slag and normally contain between 90 and 96 percent cobalt. Major metallic uses are in permanent magnets, cemented carbides, cutting tools, jet engine parts, and electrical devices. Product cost as a percentage of total end-use cost averages approximately 20 percent.

U.S. Market Profile

Of the five commodities granted a temporary duty suspension in the Trade and Tariff Act of 1984, only Zinc ores and concentrates (sec. 159) and Tool and drill blanks (sec. 160) were domestically produced during 1984-86. There were approximately 25 U.S. producers of zinc ore and concentrates and four U.S. producers of tool and drill blanks during 1984-86. The total value of U.S. production of zinc ores and concentrates declined from $271 million in 1984 to $170 million in 1986. Zinc production declined during 1984-86 because of the continued closing of zinc mines, a direct result of strikes and low zinc prices. The world price of zinc declined from 48.6 cents per pound in 1984 to 38 cents per pound in 1986. Based on responses from 10 questionnaires, the total value of U.S. shipments of final products derived from imported intermediate products decreased from $347 million in 1984 to

$121.9 million in 1986. This decline was due mainly to declining end-use markets for zinc metal. U.S. shipments of zinc metal derived from imported zinc ores and concentrates (sec. 159) increased from $22.3 million in 1984 to $23.8 million in 1986, according to four questionnaire responses.

Average corporate sales for the 15 firms submitting questionnaire responses was $113 million in 1986, and the average division sales amounted to $33 million in 1986. Average corporate sales of the four importers of zinc ores and concentrates (sec. 159) submitting questionnaire responses was $56.5 million in 1986, and the average division sales amounted to $54.7 million.

A total of 14 firms responding to the Commission's questionnaire supplied data for the number of production and selected workers involved in the manufacture of end products from duty-free imports in 1986. These firms employed a total of 1,245 workers in 1986, with eight firms reporting fewer than 100 workers and six firms reporting more than 100 workers.

U.S. Imports

Imports of the products covered in this grouping during 1984-86 are shown in table 7.

Table 7
Total and temporary duty-free imports, and the estimated revenues lost on the minerals, metals, and related products listed in the Trade and Tariff Act of 1984, 1984-86

U.S. imports	1984	1985	1986
Total imports 1/ (1,000 dollars)..	228,498	222,096	171,694
Temporary duty-free imports (1,000 dollars).....	2/ 53,960	45,146	51,347
Ratio of temporary duty-free imports to total imports (percent).....	3/	23	20
Loss of revenue (1,000 dollars)...	3/	1,102	1,149

1/ Includes the value of individual and "basket" TSUS item numbers that contain the products subject to temporary duty suspensions in the 1984 Act.
2/ This calculated value pertains to imports subject to the provisions of the 1984 Act prior to the first full year of duty suspensions. This value was calculated from questionnaire data and staff estimates using available trade data.
3/ The items covered by this investigation are those items granted duty-free status under the provisions of the Trade and Tariff Act of 1984, effective Oct. 30, 1984. For the purpose of this investigation, only full-year 1985 and 1986 data are being analyzed.

Source: Data is from official statistics of the U.S. Department of Commerce and from responses to the Commission's questionnaire.

The total value of imports included in this grouping declined from $228.5 million in 1984 to $171.7 million in 1986. On the basis of an estimated demand elasticity that was calculated by the Commission staff and an average ad valorem rate of 3.6 percent, the suspension of duties for the products covered in this grouping, would have increased imports by approximately 6 percent after adjustment to the duty suspensions. 1/ However, temporary duty-free imports declined from $54 million in 1984 to $45 million in 1985 as purchasers took advantage of low zinc prices in 1984 to rebuild inventories. Respondents have indicated that duty rates are not an important factor in their decision to purchase zinc. Temporary duty-free imports increased to $51.3 million in 1986, as temporary duty-free imports of zinc (sec. 159) increased due largely to increased U.S. demand for zinc metal combined with a shortage of domestic zinc ore. Canada supplied over 50 percent of total imports of products included in this product grouping in 1986.

As shown in table 7, the overall tariff revenue lost as a result of temporary duty suspensions for this group of products increased from $1.10 million in 1985 to $1.15 million in 1986, or by 4 percent.

Benefits to Consumers

A summary of the responses to the two questions in the Commission's questionnaire on the redistribution of the benefits of cost savings resulting from the temporary duty suspensions for this group is shown in the following tabulation:

Item No.	Benefit	Number of responses
	Internal benefits of savings:	
1	Reduction in price of end-use product	13
2	Offset cost to maintain end-use product price	12
3	Increased distribution expenditures	7
4	Increase investments in various product area	7
5	Other	2
	External benefits of savings:	
1	Improved cost competitiveness for the firm	16
2	Improvement in marketing, etc., for the firm	12
3	Increased demand for product	12
4	Cost savings to intermediate user	12
5	Cost savings to end-use buyer	12
6	Increased taxes paid to Federal/State Governments	12
7	Increased supply or quality by end user	12
8	Other	1
	Total questionnaires received containing pertinent responses	20

1/ For an explanation of the analytical methodology, see app. D, pp. 10-12.

The respondents were also requested to determine the degree or percentage of cost savings realized by these benefits. Their responses are discussed in more detail later in this section. According to 13 of the 20 respondents, or 65 percent, the temporary duty suspension on imported products enabled these companies to purchase intermediate materials at significantly lower prices and to expand their market shares by passing on these lower costs to end-users in the form of lower final product prices. Three of the 20 respondents (approximately 15 percent of total respondents) indicated that over 50 percent of duty savings resulting from temporary duty suspensions were passed on to consumers in the form of a reduction in end-use product price. In 1986, 50 percent of the savings for this grouping would be roughly equivalent to $575,000. According to the importers of natural crystalline flake graphite (sec. 158), which represent 33 percent of all respondents, the temporary duty suspension of flake graphite enabled these companies to sell graphite at more competitive prices and to remain competitive with foreign producers selling comparable products in the U.S. market. One firm importing flake graphite also noted that savings from temporary duty suspensions enabled it to export finished products competitively. Two of the 20 respondents stated that the temporary duty suspensions increased demand for end-use products by inducing lower prices. A total of 5 of the 20 respondents also stated that the duty suspensions improved product quality available to end-users, and 6 of the respondents stated that the duty suspensions resulted in increased taxes paid to Federal and state governments.

According to four respondents that import zinc ores and concentrates (sec. 159), the temporary duty suspensions resulted in a modest cost savings for zinc processors and has enabled these firms to lower their final product prices somewhat (by less than 5 percent). However, these firms indicated that the duty suspensions offer very little economic benefit because the duty savings amount to only a very small proportion of the final price of zinc metal. The decision to purchase imported zinc ores and concentrates, they said, is affected more by the strength of demand in end-use markets than by the propects of duty savings on imported zinc concentrate.

CERTAIN RADIOS, TEXTILE MACHINES, AND MAGNETRON TUBES

Overview

The products covered in this product grouping are clock radios, magnetron tubes for microwave ovens, and certain textile knitting and braiding machinery and looms. In table 8, these products are listed with their section number and related tariff information.

Survey Coverage

In surveying the products included in this group, the Commission mailed out 54 questionnaires to 46 major importers and/or consumers of clock radios, magnetron tubes, and certain textile machinery. Replies were received from 40 respondents for a response rate of 74 percent. All but six of the respondents provided useful information in their replies to the Commission's questionnaire.

Table 8
Certain radios, textile machines, and magnetron tubes: Section numbers, TSUS(A) item numbers, current col. 1 rates of duty, product descriptions, and temporary TSUS item numbers listed in the Trade and Tariff Act of 1984

Sec. No.	TSUS(A) No.	Col. 1 rate of duty	Description	Temporary TSUS No.
161	685.14	6% ad val.	Clock radios	911.95
162	670.25	4.7% ad val.	Lace-braiding machines	912.11
163	684.2880	Free	Magnetron tubes	912.02
164	670.14	4.7% ad val.	Narrow fabric looms	912.04
176	670.19	5.1% ad val.	Flat knitting machines	912.13
	670.20	Free		
180	670.17	4.2% ad val.	Circular knitting machines	912.17

Source: Compiled from the Tariff Schedules of the United States and the Trade and Tariff Act of 1984 by the staff of the U.S. International Trade Commission.

Description and Uses

The description and uses for each of the products covered in this aggregation by section number as listed in the Trade and Tariff Act of 1984 are as follows:

Sec. 161--Clock radios that are eligible for temporary duty-free treatment are solid-state (tubeless) radio receivers, incorporating a clock or timing mechanism within the same housing (or case), and valued at not over $40 each. These radios are designed to operate on batteries or household current and are capable of receiving signals in the entertainment broadcast band. Certain types of these radios are also capable of receiving signals in weather, police, fire, or aviation bands. Clock radios are imported as complete units ready for sale to retail customers.

Sec. 162--Lace-braiding machines consist of three general types: the simple Maypole type used to produce such articles as sash cords, fire hose covering, shoe laces, ornamental braid, fiberglass, sutures, optical fibers, and pacemaker leads; the high-speed type used chiefly for making materials for insulating electrical wires and cables; and the Barmen lace-braider type used to produce a fabric that is similar to handmade laces. These machines produce fabric by interlacing diagonally a series of threads of strands in a maypole fashion.

Sec. 163--Magnetron tubes are devices that convert household electric current into high-frequency energy called microwaves and are used to cook food when installed in an oven. These tubes are intermediate products used in the production of microwave cooking appliances and account for approximately 5 to 10 percent of the production cost of the end-use product.

Sec. 164--Narrow fabric looms produce woven fabric by interlacing warp yarns, which run lengthwise through woven fabric, with filling yarns, which

run crosswise at right angles, by weaving over and under the yarns. Narrow fabrics (fabrics not over 12 inches in width) can be produced on either a conventional shuttle loom or on a shuttleless (needle) loom. Narrow fabric looms are used to produce flat goods of varying weights, yarns, construction, and finish. These looms produce items such as lightweight nonelastic tapes (ribbons), elastic webbing, elastic fibers, and bonded or slit tapes.

Sec. 176--Flat knitting machines are distinguished by the flat rather than circular configuration of the needle bed. Two major types of flat knitting machines are the V-bed machine and the link- and links machine. V-bed machines are very versatile and can be used to manufacture garment fronts, backs, and sleeves for sweaters, as well as straight yarn goods. In the United States, V-bed are typically used to manufacture collars, cuffs, and trim.

The link- and links machine has a characteristic purl stitch that produces a "stretchy" fabric identical on both sides. More intricate cam settings can result in complicated stitching sequences that can duplicate virtually any hand-knit design.

Sec. 180--There are two basic types of circular knitting machines: cylinder and dial machines and double-cylinder machines. Cylinder and dial machines are designed with two circular opposed needle housings called cylinder and dial. The dial is the needle housing in which needles are arranged horizontally and radially. Needles contained in the cylinder are arranged vertically. Cylinder and dial machines used to produce sweaters and garment-length knitting are also known as sweater-strip machines, garment-length machines, body-strip machines, and body-length machines.

As noted, the textile machines covered herein produce a variety of textile products, but such machines are inputs used in the production process, not intermediates in the same sense as magnetron tubes.

U.S. Market Profile

None of the products covered in this aggregation are currently produced in the United States. Individual market profiles of the products included in this group are as follows:

Sec. 161--Clock radios are not produced in the United States. During 1976-79, the Bureau of the Census, U.S. Department of Commerce reported that there were three or four U.S. firms producing clock radios with annual shipments ranging from $8 million to $10 million. In 1980, Commerce reported that two U.S. firms remained in the industry. Since that time, no U.S. production has been reported.

In response to the Commission's questionnaire, only one firm reported that it had produced clock radios in the United States. The firm stated that it ceased production in 1972 because its production costs were no longer competitive. None of the firms responding to the Commission's questionnaire said that they had any patents on clock radios.

Sec. 162--According to industry sources, the major U.S. producers of braiding machines were the New England Butt Co. of Providence, RI, and Wardwell Braiding Machine Company of Central Falls, RI. Neither firm currently produces lace-braiding machines; the last U.S. machines were produced in the United States in 1984. Wardell Braiding employed 103 workers in the manufacture of all other types of braiding machines in 1984. Wardell Braiding officials estimated that, prior to 1984, exports constituted approximately 50 to 60 percent of their annual sales, destined mainly for Japan, Korea, Taiwan, the United Kingdom, Czechoslovakia, Yugoslavia, and France. According to Wardell, foreign producers presently dominate both the domestic and world markets for these machines. These firms produce a much more sophisticated machine than the U.S. produces, which results in much higher productivity for the end user. The increased productivity available from these machines was a major reason for the decline in the competitiveness of the domestic product in the U.S. and world markets. 1/ Wilhelm Steeger, a West German firm, was Wardell's major foreign competitor, producing a more sophisticated machine than Wardell's at a higher price. New England Butt Company officials estimated that, before ending their production, their average sales of all braiding machines ranged between $1 million and $1.5 million per year. Demand lagged for lace-braiders over the last 5 years because of the decline in the demand for braided and lace products and shifts to new methods of production, such as using narrow fabric looms to produce flat braiding. 2/ Company officials indicated that they initiated an unsuccessful patent infringment case before the U.S. International Trade Commission (investigation No. 337-TA-130), alleging that Kokuban Iron Works of Japan marketed a copy of their lace-braider in the United States. Officials also indicated that parts for the two machines are interchangeable and that owners of the Kokuban machine are using New England Butt as the parts supplier. Kokuban is New England Butt's major foreign competitor, according to company officials.

Sec. 163--There has been no U.S. production of magnetron tubes for use in microwave cooking appliances since April 1982, when Amperex Electronics Corp., a subsidiary of North American Phillips Corp., ceased its manufacturing operations. Litton Industries and Raytheon, the other domestic sources of magnetron tubes used in microwave cooking appliances, ceased production in 1977 and 1979, respectively. Respondents to the Commission's questionnaires reported no known domestic manufacturer of magnetron tubes. Some industry officials have stated that domestic producers of magnetron tubes had problems with quality control, forcing U.S. manufacturers of microwave ovens (the end-user of this product) to import from Japan.

There are approximately 10 manufacturers of microwave ovens in the United States, 5 of which are subsidiaries of foreign producers. All benefited from the duty suspension on imports of magnetron tubes. Three respondents to the Commission's questionnaires reported that they have current patents on microwave ovens. The United States is the world's leading consumer of

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1/ Officials of the Northern Textile Association.
2/ Ibid.

microwave ovens. Domestic sales of microwave ovens increased to approximately 11 million units in 1985 from 9 million units in 1984. In 1986, domestic sales were estimated to be 12 million units, representing a 36-percent increase over that reported in 1984.

Sec. 164--According to loom industry sources, the last known U.S. producers of narrow fabric looms were Fletcher Industries of Southern Pines, NC, and the Leesona Corp. of Charlotte, NC. Fletcher Industries ceased production of narrow fabric looms in 1973. Officials of these companies indicated that their narrow fabric looms were made obsolete with the introduction of needle looms. Officials also indicated that domestic demand is presently being satisfied by imports, or by used or reconditioned looms. The Leesona Corp. manufactured a limited number of narrow fabric needle looms and a complete line of parts. Leesona Corp. officials said that parts manufactured for narrow looms are interchangeable with parts from looms producing regular fabric widths. Parts manufacturers such as Steel Heddle Manufacturing Co. of Greenville, SC; Pioneer Heddle & Reed Co., Inc., of Atlanta, GA; and A.B. Carter, Inc., of Gastonia, NC, indicated that the parts they produced for regular-size fabric looms can also be used on narrow fabric looms. Loom industry sources indicate that there are no domestic manufacturers of the type of machines covered by this section.

Sec. 176--The last known domestic manufacturer of power-driven flat knitting machines was the Lamb Knitting Machine Corp. of Chicopee, MA. The Lamb Knitting Machine Corp. manufactured a negligible amount of such knitting machines. Lamb, which employed 10 to 20 people, stated that they produced a few narrow-bed V-bed flat knitting machines for the manufacture of braiding, strapping, and trimming materials. Lamb reported limited exports of its machines to at least four countries--France, West Germany, Greece, and South Africa. There are no other known exports of new machines. There were no domestic producers of power-driven flat knitting machines over 20 inches in width in 1985 or 1986.

Sec. 180--In recent years, U.S. producers of textile machines have ceased production of cylinder and dial and double cylinder circular knitting machines. The last three known domestic producers of these machines were Scott & Williams, Inc., of Laconia, NH; Vanguard Supreme Machine Corp. of Monroe, NC; and Wildman Jacquard of Norristown, PA. Vanguard and Scott & Williams ceased production of these machines in 1980 and 1981, respectively. Wildman Jacquard not only ceased production but also is no longer in operation. Industry sources indicated that these companies ceased production primarily because of adverse economic conditions existing at the time and because of competition from lower priced imported machinery. Officials of Scott & Williams reported that domestically produced machines were as durable as those produced by foreign firms, but were not as technically sophisticated because U.S. producers lacked funds for R&D. Scott & Williams' officials also reported that the low level of wage rates in foreign countries was the primary reason why imported machinery could be sold at lower prices. According to industry sources, cylinder and dial or double cylinder circular knitting machines were not produced in the United States during 1982-86.

Respondents to the Commission's questionnaire reported total corporate sales of about $94 billion in 1986. Total corporate sales for the individual firms ranged from $37 billion to $791,000, with an average of $3 billion.

The principal importers and/or consumers of clock radios (sec. 161) responding to the Commission's questionnaire reported corporate sales ranging from $13 million to $37 billion; total corporate sales for these respondents amounted to $73 billion. The median value of corporate sales was $1.5 billion.

The major importers and/or consumers of magnetron tubes (sec. 163) responding to the Commission's questionnaire reported corporate sales ranging from $18 million to $37 billion, with a median of $945 million. Corporate sales for all respondents totaled $54 billion.

The major importers and/or consumers of narrow fabric looms (sec. 164) responding to the Commission's questionnaire reported corporate sales ranging from $791,473 to $15 million; corporate sales for all respondents totaled $20 million. The median value of corporate sales was $2.1 million.

Sales of the end-use products such as clock radios, microwave ovens, and textile products, as reported by questionnaire respondents, increased from $1.5 billion in 1984 to $3.2 billion in 1986, or by 116 percent. Sales of the end-use product as a percent of total corporate sales was approximately 3 percent in 1986.

The number of production and related workers engaged in the manufacture of end-use products totaled 3,600 employees in 1986, according to questionnaire responses. Most of these workers were engaged in the production of microwave ovens.

U.S. Imports

Imports of the products covered by this grouping during 1984-86 are shown in table 9.

The value of total imports of products included in this overview decreased by 8 percent from 1984 to 1986, declining from $279 million to $256 million (table 9). The decline resulted from a decrease in demand for clock radios; the value of such imports declined by 30 percent during the period, falling from $197 million to $139 million. The share of total imports accounted for by clock radios also declined, falling from 70 percent in 1984 to 54 percent in 1986. Imports of magnetron tubes were essentially flat during the period at $36 million. However, imports of textile machines increased by 107 percent during the period, rising from $39 million to $81 million.

On the basis of an estimated demand elasticity that was calculated by the Commission staff and an average ad valorem rate of 5.9 percent, the suspension of duties for the products covered in this grouping, would have increased imports by approximately 15 percent after adjustment to the duty suspensions. 1/ However, due to factors other than the duty suspensions, the value of temporary duty-free imports declined from $204 million in 1984 to $199 million in 1985, or by 2 percent. The decline in the value of imports continued in 1986 when temporary duty-free imports fell to $182 million, or by

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1/ For an explanation of the analytical methodology, see app. D, pp. 10-12.

Table 9
Total and temporary duty-free imports, and the estimated revenues lost on certain radios, textiles machines, and magnetron tubes listed in the Trade and Tariff Act of 1984, 1984-86

U.S. imports	1984	1985	1986
Total imports 1/ (1,000 dollars)....	278,840	266,760	256,444
Temporary duty-free imports (1,000 dollars)..... 2/	203,689	199,463	182,424
Ratio of temporary duty-free imports to total imports (percent).....	3/	75	71
Loss of revenue (1,000 dollars).....	3/	11,696	9,413

1/ Includes the value of individual and "basket" TSUS item numbers that contain the products subject to temporary duty suspensions in the 1984 Act.
2/ This calculated value pertains to imports subject to the provisions of the 1984 Act prior to the first full year of duty suspensions. This value was calculated from questionnaire data and staff estimates using available trade data.
3/ The items covered by this investigation are those items granted duty-free status under the provisions of the Trade and Tariff Act of 1984, effective Oct. 30, 1984. For the purposes of this investigation, only full-year 1985 and 1986 data are being analyzed.

Source: Compiled from the official statistics of the U.S. Department of Commerce and from responses to the Commission's questionnaire.

10 percent from the 1984 level. The decline in temporary duty-free imports also reflects the previously mentioned decline in demand for clock radios. Respondents to the Commission's questionnaire on clock radios reported that their levels of imports would have dropped more rapidly than they did if they had not received temporary duty-free treatment.

Sec. 161--The principal sources of imports of clock radios are Hong Kong, Taiwan, Malaysia, Singapore, and China. These five countries together accounted for over 90 percent of total U.S. imports during 1984-86. Hong Kong has been the major supplier, accounting for 40 percent or more of total imports each year during the period. Imports of clock radios that were entered duty free under TSUS item 911.95 accounted for over 70 percent of the total during 1984-86. The principal sources for duty-free imports were the same as those for total imports, and these five countries accounted for over 90 percent of the duty-free imports during the period.

The principal importers of clock radios are large retail outlet chains, mass merchandisers, discount chains, and companies specializing in the sale of consumer electronic products. These companies frequently have clock radios manufactured to their specifications by producers located in these foreign countries. The importer may sell the clock radio directly to the final purchaser, as retail outlet chains do; or the importer may sell clock radios at the wholesale level, as do foreign-based firms with consumer electronics

divisions. Multinational firms accounted for 67 percent of the respondents to the questionnaire; of these, about 63 percent were foreign-based. Only one-half of the multinational firms reported that they imported clock radios from foreign subsidiaries.

The value of imports of clock radios declined by 30 percent from 1984 to 1986, while both the quantity and unit values fluctuated. Unit values generally declined as China became a more significant source because of its lower production costs. Imports of these items under the GSP have been minimal throughout the period. The total value of imports reported by respondents to the Commission's questionnaire represented over 75 percent of the value of all imports in each year during the period. The average unit value reported by questionnaire respondents fell from $18.60 in 1984 to $15.09 in 1986, or by 19 percent.

Sales of imported clock radios, as reported by questionnaire respondents, declined each year during 1984-86, falling from $152 million to $150 million or by 1 percent. The average unit value of such sales also declined, falling from $19.93 to $15.01, or by 25 percent.

Sec. 162--Mexico, Peru, and South Korea were the principal sources of imports of lace-braiding machines, accounting for 65 percent of the value of total U.S. imports. Imports of lace-braiding machines that entered duty free under item 912.11 accounted for 11 percent of total imports in 1985 and 14 percent in 1986. The principal sources for duty-free imports were the same as those for total imports. The value of imports of lace-braiding machines decreased by 21 percent from 1984 to 1986.

Sec. 163--Since there is no known U.S. production of magnetron tubes, imports represent the entire source of apparent U.S. consumption. Japan, the only supplier of U.S. imports of magnetron tubes used in microwave cooking appliances, is also the leader in world production of these tubes, accounting for over 75 percent of output in 1986. Three Japanese multinational manufacturers, Matsushita (Quasar and Panasonic), Toshiba, and Hitachi supply virtually 100 percent of the U.S. market for magnetron tubes for microwave cooking appliances. Sanyo of Japan also produces magnetron tubes, but primarily for its own production of microwave ovens. Japan's dominance in the world market is a result of its major role in the development of the microwave oven, in which the magnetron tube is an integral part. The only other known producers of magnetron tubes used for microwave cooking appliances, Samsung and Goldstar of the Republic of Korea, are not believed to be exporting to the U.S. market at this time. Virtually all of the producers of the imported product have subsidiaries located in the United States that manufacture microwave ovens.

In 1986, imports that entered duty free under TSUS item 912.02 represented nearly 90 percent of total value. Imports of magnetron tubes used in cooking appliances declined to an estimated 3.0 million units, valued at $36.2 million in 1985, from 3.3 million units valued at $42.9 million in 1984. Imports increased marginally in 1986 to 3.3 million units valued at $36.4 million. The total value of imports reported by respondents to the Commission's questionnaire presented 60 percent of the value of duty-free imports during the period. Imports of magnetron tubes tend to decline when U.S. producers increase imports of microwave ovens for domestic consumption;

they tend to need fewer magnetron tubes for domestic production during these periods. Approximately 21 percent of total world trade of magnetron tubes is accounted for by the United States.

Importers of magnetron tubes used in cooking appliances are typically manufacturers of microwave ovens. These companies generally import the product for use as an intermediate product and/or as a replacement product. However, domestic subsidiaries of foreign producers of magnetron tubes will also sell directly to other manufacturers of microwave ovens.

Sec. 164--In 1986, West Germany, Switzerland, and Italy were the primary sources of imports of narrow fabric looms, accounting for 87 percent of the value of total U.S. imports. Imports of narrow fabric looms that entered duty free under item 912.04 accounted for over 59 percent of the total during 1986. The principal sources for duty-free imports were Switzerland, West Germany, and the United Kingdom. Switzerland and West Germany accounted for 76 percent of duty-free imports during 1985 and 82 percent during 1986.

The principal importers of narrow fabric looms are textile mills that use these looms to manufacture woven and printed labels for the domestic garment and shoe industries.

The value of imports of narrow fabric looms increased by 76 percent from 1984 to 1986. Imports of narrow fabric looms under the GSP have been minimal throughout the period. The total value of imports reported by respondents to the Commission's questionnaire represented 43 percent of the value of duty-free imports during 1986. Corporate sales of woven labels by respondents to the Commission's questionnaire increased annually during this period.

Sec. 176--According to the U.S. Customs Import Specialist, approximately 30 percent of the imports entered under item 670.20 during 1982-86 may be attributed to flat-knitting machines. In 1986, the leading sources of U.S. imports of V-bed flat-knitting machines (item 670.19) were Italy and West Germany, which combined, accounted for 47 percent of total U.S. imports of V-bed flat-knitting machines. West Germany and Japan accounted for 87 percent of U.S. imports entered under item 670.20 during 1986. Imports of flat knitting machines that entered duty free under TSUS item 912.13 accounted for 53 percent of total imports in 1985 and 57 percent in 1986. The principal sources for duty-free imports were West Germany, Switzerland, and Japan, which accounted for 93 percent of the total in 1985 and in 1986. The value of U.S. imports of flat-knitting machines increased by 104 percent from 1984 to 1986.

Sec. 180--Spain and the United Kingdom accounted for 56 percent of total U.S. imports of cylinder and dial and double cylinder knitting machines during 1985 and 63 percent in 1986. Industry sources indicated that five of the most prominent foreign manufacturers were Jumberca S.A. of Spain, Georges Lebocey of France, Fukuhara of Japan, Myer of West Germany, and Orizio of Italy. According to industry sources, Monarch Knitting Machine Corp. of Glendale, NY, is the largest domestic importer of these machines, accounting for approximately 40 percent of total industry sales. Monarch represents Fukuhara of Japan. Officials of Monarch Knitting Machines Corp. are of the opinion that import competition would remain about the same even with duty-free imports under item 670.17. The only impact foreseen by Monarch officials would be a possible reduction in the price of these machines to domestic purchasers.

Industry sources indicated that in the next 2 to 5 years, it is possible that a U.S. textile machinery manufacturer will begin producing its own cylinder and dial and double cylinder circular knitting machinery domestically.

Imports of circular knitting machines that entered duty-free under item 912.17 accounted for over 87 percent of the total in 1985 and 82 percent in 1986. The principal sources for duty-free imports were Italy, the United Kingdom, and Spain. Italy accounted for 42 percent of duty-free imports during 1985 and 82 percent in 1986.

The principal importers of circular knitting machines are textile mills that use these machines to manufacture sweaters.

The value of imports of circular knitting machines increased annually, increasing by 160 percent from 1984 to 1986. Imports of circular knitting machines under the GSP have been minimal throughout the period.

As shown in table 9, the total tariff revenue lost as a result of duty-free treatment for these products declined from $11.7 million in 1985 to $9.4 million in 1986, or by 20 percent.

Benefits to Consumers

The Commission's questionnaire gave companies an opportunity to show how the benefits of cost savings realized from the temporary duty suspensions were redistributed between manufacturing costs and the prices charged end-use customers. A summary of the responses to the two questions in the Commission's questionnaire on the redistribution of the benefits of cost savings resulting from the temporary duty suspensions for this group is shown in the following tabulation:

Item No.	Benefit	Number of responses
	Internal benefits of savings:	
1	Reduction in price of end-use product	29
2	Offset cost to maintain end-use product price	24
3	Increased distribution expenditures	25
4	Increase investments in various product area	23
5	Other	10
	External benefits of savings:	
1	Improved cost competitiveness for the firm	28
2	Improvement in marketing, etc., for the firm	26
3	Increased demand for product	26
4	Cost savings to intermediate user	26
5	Cost savings to end-use buyer	26
6	Increase taxes paid to Federal/State Governments	25
7	Increased supply or quality by end-user	22
8	Other	7
	Total questionnaires received containing pertinent responses	34

The respondents were also requested to determine the degree or percentage of cost savings realized by these benefits. Of the 40 questionnaires returned to the Commission, 34 contained useful information relating the internal redistribution of the duty savings. Fourteen firms (approximately 22 percent of total respondents) responded that more than 50 percent of the cost saving (roughly totalling $4.7 million in 1986) was passed on through a reduction in the price of the end-use product. In 1986, 50 percent of the savings for this grouping would be roughly equivalent to $4.7 million. These result were similar to the staff estimates that a major portion of the duty savings which resulted from the temporary duty suspensions on certain textile machines was passed on to consumers; the estimated share of the duty savings passed on to consumers of magnetron tubes was relatively small. 1/

A second multipart question asked firms to rank how the flow of savings were distributed among factors other than internal redistribution. Two categories, cost savings to intermediate purchasers using the product as an input and cost savings to end-use consumers, were ranked highest by 39 percent (10 of 26) of the responding firms; these firms indicated that these were the most substantial benefits.

Improved cost competitiveness for the firm was ranked as a most substantial benefit by 43 percent (12 of 28) of the respondents. In the remaining categories, more firms responded with an answer of "no benefit" than with any other answer.

OTHER MISCELLANEOUS PRODUCTS

Overview

Other products that received duty-free status under the provisions of the Trade and Tariff Act of 1984 were umbrella frames, certain feathers and downs, and textile fabrics used in the manufacture of hovercraft skirts. These products are listed with their section number and related tariff information in table 10.

Survey Coverage

For the miscellaneous products section of this report, 36 questionnaires were sent to the U.S. importers/users of the products covered.

Sec. 165--Questionnaires were sent to 15 companies importing frames for metal, hand-held umbellas. Of the 15 questionnaires, 12 were returned, and 10 were considered to have beneficial information.

Sec. 166--Questionnaires were sent to 15 companies importing feathers and downs. All 11 respondents to the questionnaire were deemed to have useful information.

1/ See pp. 52-53 for a full discussion of staff estimates.

Table 10
Other miscellaneous products: Section numbers, TSUS item numbers, current col. 1 rates of duty, product descriptions, and temporary TSUS item numbers listed in the Trade and Tariff Act of 1984

Sec. No.	TSUS No.	Col. 1 rate of duty	Description	Temporary TSUS No.
165	751.20	12% ad. val.	Frames for metal, hand-held umbrellas chiefly used for protection against rain	912.45
166	186.15	7.5% ad. val.	Feathers and downs, other than ostrich feathers and downs	903.70/80
168	359.50	3¢/lb. + 18% ad. val.	Textile fabrics of manmade fibers, coated or filled or laminated with natural rubber, for use in the manufacture of skirts for hovercraft	905.40

Source: Compiled from the Tariff Schedules of the United States and the Trade and Tariff Act of 1984 by the staff of the U.S. International Trade Commission.

Sec. 168--Questionnaires were sent to six companies importing textile fabrics of manmade fibers for use in the manufacture of skirts for hovercraft. Of the five respondents, two were not covered under this duty suspension, while the remaining three responses contained useful information.

Description and Uses

The description and uses for each of the products covered in this aggregation of products, by section number as listed in the Trade and Tariff Act of 1984, are as follows:

Sec. 165--Umbrella frames and skeletons are made principally of metal; the radiating frame collapses around a central supporting shaft. Additional material, usually fabric, paper, or plastic, is attached to the frame to form a completed umbrella that is chiefly used as a device for protection against the weather.

According to the respondents of the Commission's questionnaire, the cost of the metal frames is equivalent to between 10 and 30 percent of the product cost of the finished umbrella.

Sec. 166--Feathers and downs are unique to birds and are composed of the protein substance keratin. They are valued for their light weight and

insulating qualities. Feathers are the plumage or out-growth forming the contour and external covering of fowl, which are whole in structure. Feathers are elongated and flat and consist of a rigid stem (quill) with fibers extending on opposing sides. There are two principal types of feathers--fancy and bedding. The fancy type usually is composed of large wing or tail feathers from various wild birds, chickens, ducks, and geese. Bedding feathers are generally body feathers of chickens and other landfowl and waterfowl.

Downs are the undercoating of waterfowl, consisting of clusters of light, fluffy filaments, i.e., barbs, growing from the quill point but without any quill shafts. Downs are softer, more resilient, and have better insulating characteristics than feathers and are in more limited supply, thus making them more valuable. Downs are far more expensive than feathers.

The bulk of domestic production of feathers and downs is from chickens and is used either as fertilizer or animal feed. Most imports of feathers and downs are from waterfowl and are used for decorative purposes and for the filling of bedding and garments. Waterfowl feathers and downs (especially those from geese) have better insulating characteristics than do feathers from chickens and other birds and, therefore, are in greater demand in the garment industry and are more expensive. Although there are no apparent qualitative or functional differences, white feathers and downs generally command a higher price than do those of other colors. Fancy feathers are used for decorative purposes such as millinery and fancy clothing. Some fancy feathers, especially neck feathers (hackles) of certain birds, are used to make artificial flies for fishing.

The principal use of bedding feathers and downs is in pillows. Chicken feathers are used in low-priced pillows. Waterfowl feathers and downs are used in more expensive pillows and in expensive comforters, sleeping bags, and cold-weather clothing. In recent years, there has been increased demand for downs for sporting goods and clothing. Downs alone are customarily used in medium- and high-priced pillows.

As a result of the large variety of end-use products, the intermediate product cost as a percentage of the total end-use product cost varies widely. According to respondents, the range is between 20 and 70 percent.

Sec. 168--Textile fabrics used in the manufacture of skirts for hovercraft are manmade fibers coated, filled, or laminated with natural rubber. Hovercraft or air cushion vehicle (ACV) is an amphibious craft supported by a cushion of pressured air that lifts the vehicle above its operating surface. The air cushion is contained in a flexible skirt around the periphery of the craft. The hovercraft is particularly useful in transporting passengers and cargo by skimming over water, land, ice, snow, and marshes. The coated fabric used in the production of the finished skirt must have high quality in tensile strength, tear resistance, wicking resistance (ability of water or moisture to penetrate the substrate textile fabric), and wear resistance.

According to the respondents of the Commission's questionnaire, textile fabric cost comprises between 30 and 40 percent of the hovercraft skirt.

However, the fabric cost makes up less than 1 percent of the end-use hovercraft vehicle.

U.S. Market Profile

The U.S. market profile for each of the products covered in this aggregation of products, by section number as listed in the Trade and Tariff Act of 1984, are as follows:

Sec. 165--There are no known manufacturers of metal frames for hand-held umbrellas in the United States. The last remaining producer, located in Philadelphia, Pa, went out of business in 1981. Prior to that time, its production was reported as negligible. The hand-held rain umbrella industry in the United States consists of approximately 10 firms, which principally manufacture specialty or golf umbrellas. These firms purchase imported metal frames or skeletons and attach the protective covering materials to the frames. The frame is an integral part of the finished product and has no substitute. According to the respondents to the Commission's questionnaire, the domestic industry producing finished umbrellas had corporate sales of approximately $30 million in 1986, employing approximately 300 people.

Sec. 166--Almost all domestically produced feathers and downs are obtained as a by-product of raising chickens, turkeys, ducks, and geese for meat. U.S. poultrymen, except those raising ducks and geese, give relatively little consideration to the price of feathers and downs in determining the size of their flocks, as the price for chicken and turkey feathers is quite low. At current price levels, the sale of waterfowl feathers and downs appears to provide a significant source of income for domestic duck and goose producers. The bulk of chicken feathers are collected at broiler-processing plants in the Southeast; most of the waterfowl feathers and downs are collected at duck-processing plants on Long Island, NY, the Midwest, and North Carolina; and at goose-processing plants in the Midwest. A small quantity of feathers and downs is salvaged annually from wild pheasants and ducks.

Several concerns specialize in the collection, cleaning, and sorting of domestic bedding feathers and downs in the United States; many of them also handle imported feathers and downs. Most operate near Chicago, New York City, and Los Angeles.

Data submitted in response to the Commission's questionnaire indicate that approximately 2,500 people are employed in the processing and/or manufacturing of imported feathers and down.

The collection and sorting of domestic fancy feathers and the importing of foreign fancy feathers are done largely by importer-dealers, which maintain large stocks of both crude feathers and feathers dyed or further advanced in condition. These importer-dealers sell chiefly to millinery manufacturers, which may also import fancy feathers on their own account.

U.S. production of feathers and downs is estimated to have been about 15 million pounds annually in recent years. 1/ The bulk of such production is of chicken feathers. The total also includes an estimated 5 million to 6 million pounds of waterfowl feathers and downs, the bulk of which is from ducks, with U.S. production of goose feathers and downs estimated at less than 0.5 million pounds annually. A small amount of feathers from pheasant is produced. As the prices of different types of feathers and downs vary greatly, no value can be reasonably estimated for domestic production.

Questionnaire responses indicate that the average corporate sales by domestic firms importing feathers and downs was approximately $37 million. Of the 11 firms responding to the questionnaire, 4 firms accounted for 74 percent of the total corporate sales, and the remaining 7 firms accounted for 26 percent of the total corporate sales.

Sec. 168--Purchasers of fabric for producing skirts for hovercrafts state that there is no domestic production of such fabric of the required quality. 2/ They state that the volume of fabric needed is too small for domestic manufacturers of similar fabrics to be interested in producing a high-quality, low-volume product. However, one domestic manufacturer of coated-rubberized fabric stated recently that they have already completed some orders for these materials and now are negotiating additional business. There are five domestic manufacturers of hovercraft. All have stated that they import either the skirt fabric or the finished skirt from England. Recently, a subsidiary of an English firm that produces the fabric has established a facility in the United States to fabricate the finished hovercraft skirts using imported fabric. There is no data available at present on the domestic production of hovercrafts.

U.S. Imports

Imports of the products covered by this product grouping during 1984-86 are shown in table 11.

Total U.S. imports of these items decreased from $92 million in 1984 to $71 million in 1986. Duty-free imports accounted for 94 percent of the total imports in 1985 and in 1986, as shown in table 11.

The U.S. imports of other miscellaneous products are listed by section number as follows:

Sec. 165--During 1984-86, the primary source of imports of metal, hand-held umbrella frames and skeletons was Taiwan. In 1986, U.S. imports of

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1/ The total U.S. output of feathers and downs produced by the poultry industry is estimated to have been about 1 billion pounds annually in recent years, the great bulk of which is chicken feathers. However, chicken feathers, which have very low unit values compared with waterfowl feathers and downs, are used primarily for fertilizer or for animal feed. The 15 million pound figure includes the quantity of chicken feathers estimated to have been used annually as bedding feathers.

2/ Domestic producers of hovercraft skirts stated that they have not used any U.S.-produced fabrics. However, a U.S. firm recently stated that it produces fabrics that could be used to make hovercraft skirts.

Table 11
Total and temporary duty-free imports, and the estimated revenues lost on other miscellaneous products listed in the Trade and Tariff Act of 1984, 1984-86

U.S. imports	1984	1985	1986
Total imports 1/ (1,000 dollars)...	$91,911	$73,192	$71,395
Temporary duty-free imports (1,000 dollars).....	2/ 81,020	68,971	67,037
Ratio of temporary duty-free imports to total imports (percent).....	3/	94	94
Loss of revenue (1,000 dollars)....	3/	5,224	5,283

1/ Includes the value of individual and "basket" TSUS item numbers that contain the products subject to temporary duty suspensions in the 1984 Act.
2/ This calculated value pertains to imports subject to the provisions of the 1984 Act prior to the first full year of duty suspensions. This value was calculated from questionnaire data and staff estimates using available trade data.
3/ The items covered by this investigation are those items granted duty-free status under the provisions of the Trade and Tariff Act of 1984, effective Oct. 30, 1984. For the purposes of this investigation, only full-year 1985 and 1986 data are being analyzed.

Source: Compiled from the official statistics of the U.S. Department of Commerce and from responses to the Commission's questionnaire.

this product from Taiwan accounted for the bulk of total imports (96 percent). Taiwan was also the primary source of duty-free frames and skeletons for hand-held umbrellas (83 percent) during this period. Based on data obtained from the questionnaire, the quantity of imports increased 24 percent during 1984-86, and the total value rose by 20 percent.

Sec. 166--Virtually all U.S. imports consist of waterfowl feathers and downs that are largely imported in the unprocessed and crude state. Most are baled and shipped in the unprocessed state because if feathers and downs are baled after being cleaned they must be reprocessed to regain their bulk, thus adding an additional expense. The world supply of raw waterfowl feathers and downs in 1986 amounted to 82.4 million pounds. The United States imported 20.5 million pounds, or 25 percent of the world supply that year.

U.S. imports of feathers and downs decreased 6 percent in terms of quantity in 1985 from 1984, then rose 13 percent in 1986. The value of such imports decreased steadily, or by 20 percent during 1984-86. The unit value of feathers and downs declined from $3.99 a pound in 1984 to $3.02 a pound in 1986. The decrease in unit value is in part an indication of changes in the composition of the feathers and downs imported.

During 1984-86, China was the leading U.S. supplier of feathers and downs in terms of quantity. Such imports consisted mainly of uncleaned feathers. China is the world's major producer of waterfowl feathers and downs. U.S. imports of feathers and down from China increased from 4.7 million pounds in 1984 to 9.9 million pounds in 1986, accounting for 48 percent of the 20.5 million pounds imported in 1986. Other major U.S. suppliers, in terms of quantity, included West Germany (which averaged 3.5 million pounds annually during 1984-86) and France. U.S. imports from France declined steadily from 3.0 million pounds in 1984 to 1.9 million pounds in 1986, accounting for 9 percent of the total quantity of all feathers and downs imported by the United States in 1986.

France generally was the leading U.S. supplier of feathers and downs in terms of value during 1984-86. Such imports from France consisted mainly of downs. Downs generally command a higher price than feathers. France accounted for an annual average of about 25 percent of the total value of all feathers and downs imported by the United States during 1984-86. China was the second leading U.S. supplier, in terms of value, accounting for an annual average of 24 percent during the period.

The major sources of duty-free imports were China, France, and West Germany, accounting for 37 percent, 21 percent, and 12 percent, respectively, of total duty-free imports during 1986.

The major importers of feathers and downs include brokers, processors, processors/manufacturers (known in the industry as hybrids), and manufacturers of feather- and down-filled articles.

Sec. 168--U.S. imports of textile fabrics used in the manufacture of hovercraft skirts increased during 1984-86, and was accompanied by a 25-percent increase in unit value during 1985-86. In 1984, Haiti was listed as the sole U.S. supplier of the fabric, whereas during 1985-86, the United Kingdom was the only supplier.

As shown in table 11, the overall loss of tariff revenue for this group of products increased from $5.2 million in 1985 to $5.3 million in 1986.

Benefits to Consumers

A summary of the responses to the two questions in the Commission's questionnaire on the redistribution of the benefits of cost savings resulting from the temporary duty suspensions for this group is shown in the following tabulation:

Item No.	Benefit	Number of responses
	Internal benefits of savings:	
1	Reduction in price of end-use product	18
2	Offset cost to maintain end-use product price	12
3	Increased distribution expenditures	3
4	Increased investments in various product areas	3
5	Other	1
	External benefits of savings:	
1	Improved cost competitiveness for the firm	19
2	Improvement in marketing, etc., for the firm	6
3	Increased demand for product	6
4	Cost savings to intermediate user	6
5	Cost savings to end-use buyer	6
6	Increased taxes paid to Federal/State Governments	6
7	Increased supply or quality by end user	5
8	Other	2
	Total questionnaires received containing pertinent responses	23

The respondents were also requested to determine the degree or percentage of cost savings realized by these benefits. Their responses are discussed in more detail later in this section.

The benefits to consumers of the products in this grouping are listed by section number, as follows:

Sec. 165--The consumers of these metal frames and skeletons are the manufacturers of hand-held umbrellas. The duty suspension was initially legislated as a result of Taiwan losing its GSP eligibility on April 1, 1985. At the time, the majority of imports came from Taiwan. However, Taiwan regained eligibility on July 1, 1985, based on a de minimis waiver. In 1985, duty-free imports from Taiwan amounted to 82 percent of total imports as a result of the temporary duty suspension. Based on inputs obtained from questionnaires, the levels of cost savings passed on to consumers of the final products, hand-held umbrellas ranged from about 10 to 25 percent.

The temporary duty suspension helped to maintain the current level of U.S. employment in the hand-held umbrella industry. The U.S. umbrella industry is relatively labor intensive. Foreign umbrella manufacturers generally face lower labor costs, and consequently have a competitive advantage over the U.S. industry. Thus, any cost savings that can be realized will most likely help the U.S. industry to compete with foreign manufacturers. At present, the only U.S. companies that have remained competitive are those that have carved out niches in specialty markets. A 28-percent increase in the production of domestic end-use hand-held umbrellas during 1984-86 appears to substantiate the maintained employment level. Also, 20 percent of the respondents of the questionnaire increased the proportion of imported products as a result of the duty suspension.

Sec. 166--For feathers and downs, the "consumer" can be defined as one who processes crude feathers and downs into cleaned feathers and downs only (a generator of feathers and downs--washes and separates feathers from down); one who processes crude feathers and downs into cleaned feathers and downs and then manufactures them into feather- and down-filled articles; and one who buys cleaned feathers and downs and manufactures them into feather- and down-filled articles.

The duty suspension made it possible for the domestic consumer (processor and processor/manufacturer) to compete more effectively with foreign suppliers. If the duties are reinstated, the feathers and downs consumer that produces feather- and down-filled articles would have to increase prices to cover the duties.

As a result of the temporary duty suspension, 4 of the 11 firms (approximately 36 percent of total respondents) reporting indicated that more than 50 percent of the duty savings was passed on to the consumers through a reduction in price of the end-use product, enabling the firms to be more price/cost competitive. In 1986, 50 percent of savings for these products would be roughly equivalent to $1.9 million. Another major economic benefit derived from the duty suspension, according to the respondents, includes gains from increased supply. As domestic production of feathers and down cannot meet manufacturers' needs, imports are a necessity for the manufacturers' livelihoods. Demand for the finished products has also increased as domestic manufacturers pass on the duty savings to the end consumer, thus making the domestic end products more competitive with the imported end products.

Sec. 168--Since the cost of the fabric is relatively small in comparison with the value of the total value of the completed hovercraft, the final consumer or purchaser would not receive any significant benefit (in terms of unit value) from the cost saving resulting from a duty suspension; however, the staff estimates that at least 50 percent of the duty savings resulting from the temporary duty suspension was passed on to the final consumer. 1/ For the first level consumer, the producer of the hovercraft skirt, the price of the textile makes up 30 to 40 percent of the finished product. According to a questionnaire respondent, a possible 4-percent savings on the end-use product skirt is passed on to the producer of the complete vehicle. In the absence of the temporary duty suspension, importing the finished skirt becomes more desirable.

According to a respondent to the Commission's questionnaire, the duty suspension also nurtures the small commercial sector of the market, which is expected to grow. Currently, approximately 95 percent of the market, is purchased by the DOD and is already granted duty-free status under TSUS item 832.00. However, the questionnaire respondents acknowledged that less administration is required when the fabric is imported wholly under TSUS item 905.40. The duty suspension allows the domestic producers to inventory a surplus of fabric, which can be allocated to DOD or commercial applications.

1/ See p. 53 for a full discussion of staff estimates.

This enables the producer to meet demands for the rapidly growing replacement segment of the hovercraft skirt market. Proper fabric and timely delivery are two major concerns in the awarding of contracts of replacement skirts. Foreign competitiors can file for DOD status while building the skirts, whereas the domestic producer would have to get DOD status before receiving the fabric, producing a time lag.

Several domestic producers of the skirt stated that the duty suspension does not cover all fabric used in hovercraft skirts. Currently, only natural rubber-coated skirts fall under section 168 of the 1984 Act. The alternative skirt fabric, neoprene-coated fabrics, are covered under TSUSA item 774.5585, therefore these producers are required to import these products under TSUS 832.00, which can only be used in DOD applications.

THE EFFECT OF TEMPORARY DUTY SUSPENSIONS ON U.S. CONSUMERS

A temporary duty suspension reduces the supply price of an imported product to U.S. consumers. That is, it causes a downward shift in the import supply curve facing U.S. consumers by the amount of the tariff. As U.S. consumers respond to this downward shift in the supply curve by increasing the quantity demanded, a new price results in the U.S. market. In the end, a share of the suspended duty may be passed through to U.S. consumers in the form of lower prices, and the remainder is absorbed by foreign suppliers.

The extent to which the duty suspension is passed through to U.S. consumers depends on the price responsiveness of buyers compared with foreign sellers in the U.S. market. The price responsiveness of foreign suppliers depends on the share of their market accounted for by the United States and on their ability to expand production without hitting capacity constraints or causing the price of inputs to rise. The smaller the share of the market accounted for by the United States and the greater the ability of foreign suppliers to expand output without causing an increase in the unit cost of production, the more likely that a small percentage change in price will lead to a large percentage change in the quantity supplied in the U.S. market, with a large share of the cost savings being passed on to U.S. consumers in the form of lower prices.

The extent to which the cost savings are passed on to U.S. consumers also depends on price responsiveness of U.S. consumers of the imported good. U.S. consumers include consumer industries in the case of imported intermediate or capital goods and ultimate consumers in the case of end-use goods. The cost savings realized by consumer industries may also be passed on to ultimate consumers.

A major factor determining the price responsiveness of U.S. consumers is the extent to which there are close substitutes for the product. The more close substitutes, the more sensitive will consumers be to changes in price. In the case of an imported intermediate or capital good, the price responsiveness of U.S. consumer industries will also depend on the share of the value of the imported good in the total value of output and on the price sensitivity of demand in the market for the output. Generally, the smaller

the share of the imported input relative to the value of the output, and the less price sensitive the demand for the output, the less price sensitive is the demand for the input. If the demand for the imported product is insensitive to price, then a large share of the duty savings will most likely be passed on to U.S. consumers, either the consuming manufacturer or the ultimate consumers.

If, however, U.S. imports of the product account for a large share of the world market, or if the products are proprietary (produced under patent for which there are no close substitutes), then most likely only part of the duty suspension will be passed on to U.S. consumers. 1/

The cost savings on imported intermediate inputs captured by U.S. consumers will be split between the consumer industries and ultimate consumers. The amount of this cost savings that is passed through to ultimate consumers depends on the price responsiveness of U.S. suppliers 2/ of the end-use product relative to that of the ultimate consumer and on the market structure for the final product.

Another factor determining the amount of the pass-through is whether the imports were made by related or unrelated parties. For related-party transactions, the share of the cost savings that is passed through to U.S. consumers, both U.S. consumer industries and ultimate consumers, depends on the extent to which the company is foreign owned, as explained in appendix D. If the U.S. importing company is the parent company with a wholly owned foreign subsidiary, then it is likely that 100 percent of the cost savings is passed through to all U.S. consumers, either the industry or ultimate consumers. If, conversely, the U.S. company is a wholly owned subsidiary of a foreign parent company, then the gain to the subsidiary is likely to ultimately revert back to the foreign shareholders of that company. Otherwise, the duty savings gained by the company and its subsidiary will be distributed among its shareholders in the United States and abroad.

In addition to the duty savings, the duty suspension results in an efficiency gain, which is split between U.S. consumers and foreign producers. That is, the duty suspension results in a larger quantity purchased in the U.S. market at lower prices than would occur if the duties were in place. Foreign producers are also able to sell a larger quantity at higher realized prices than they would if the duties were in place. The value of this efficiency gain to U.S. consumers and foreign suppliers is included in the estimates of the lost tariff revenues provided in this study. This is because the calculated lost tariff revenues are estimated by multiplying the tariff rate by the actual value of imports during the period of the duty suspension

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1/ Note that in the case of a foreign subsidiary producing a specialty product to be used as an input in the production of another intermediate product or an end-use product by the U.S. company, most likely the cost savings will be realized by the U.S. company. This cost savings may be passed through to the final end user, as discussed below.

2/ Included in consumer industries are all owners of factors of production, including labor.

rather than the value that would have occurred with the duties in place. Note, finally, that not only do the estimates of the lost tariff revenues provided in this study include the value of the gain in efficiency and therefore overstate the amount of duties that would have been collected, but these estimates also overstate the value of the total gain to U.S. consumers and foreign producers, as explained in the appendix. However, this overstatement is likely to be fairly small.

Demand and Supply Considerations

Demand

The bulk of the items covered in this study are intermediate products. Of these intermediate products, a subset are used to produce a specific end-use product in fixed proportions. These include a large share of the chemical products and products in most of the other industry categories. The other products are used to produce a wide number of goods. These include the rest of the chemical products, minerals and metals products, and feathers and downs. For most of the products receiving the duty suspension, there is no domestic production.

Intermediate chemical products that have specific applications are "specialty" chemicals in that they have certain properties that differentiate them from other products in the market with similar applications. For example, terphenadine is the active ingredient in an antihistamine that displays a lower incidence of central nervous system effects such as drowsiness than most other antihistamines. It is currently produced and processed under patent by one multinational firm. However, there exist a large number of other antihistamines that compete with this product in the U.S. market. Therefore, the demand for the end-use product is likely to be sensitive to price. It is only to the extent that such products have unique characteristics that differentiate them from other competitive products that manufacturers may have some degree of market power, because demand will be less sensitive to price.

Other products with specific applications include industrial knitting, weaving, and braiding machines for the production of certain textiles; magnetron tubes used in microwave cooking appliances; umbrella frames; and skirts for hovercrafts.

Because these intermediate products are used in fixed proportions to other imports, the price sensitivity of import demand for the products will depend on the demand for the end-use product and the cost of the input as a share of the total cost of the end-use product, as explained in the appendix. The less the cost of the intermediate input relative to the total cost of the end-use product, the less price sensitive is the demand for the imported intermediate input. If costs rise as output expands for both the intermediate and end-use products, it will generally hold that the smaller the share of the cost of the intermediate input used to produce the end-use product, the greater the share of the total cost savings that is absorbed by U.S. consumer industries.

Supply

The price sensitivity of supply in both the import market and the end-use market depends on the ability of producers to expand output without causing the price of inputs to rise, and on the production technology. With the possible exception of minerals and metals products, most of the items covered by this study are highly disaggregated manufactured products that collectively probably account for a very small share of total manufacturing in the supplying countries. Therefore, producers are able to expand production without bidding up the cost of resources.

The other major determinant of supply responsiveness is the production technology. In the short run, capital and plant capacity are fixed, and firms will expand output by increasing their use of variable inputs such as labor and intermediate inputs. If the capacity utilization of such plants is low, then firms will most likely expand output without causing an appreciable increase in marginal production costs. However, if firms are operating at or near full capacity, then as output expands further, marginal costs are likely to rise.

A third factor determining the price sensitivity of supply of the imported product is the share of the world market accounted for by the United States. If the U.S. market accounts for only a small share of the world market, then foreign producers will most likely supply the product in the U.S. market at prevailing world prices, i.e., supply to the U.S. market will be perfectly elastic.

Method used to estimate the pass-through

The methodology used to determine the share of the cost savings that was passed through to U.S. consumers consisted of the following. Import demand or supply elasticities were estimated for selected products in the study using a statistical methodology described in the appendix. This methodology provided upper and lower bound estimates of either the demand or the supply elasticity of a product, but not both. When possible, other information gathered from questionnaires and industry analysts was used to make an educated guess about the relative import demand or supply elasticity that could not be obtained from the statistical methodology. From this information, a rough estimate was made of the share of the cost saving from the duty suspension that was passed through to all U.S. consumers. Of the share that was passed through to all U.S. consumers, a portion was passed through to ultimate consumers. Again, this depends on the relative supply and demand elasticities in the output market. Unfortunately, there was not sufficient data to determine the pass-through to ultimate consumers. 1/

1/ Alternative estimates were also considered. Assuming that U.S. consumer industries pass-through 100 percent of their share of the cost savings, the amount of the price reduction to ultimate consumers could be estimate with information on the share of the cost of the imported intermediate product in the total cost of output. Unfortunately, data provided in the questionnaire were not sufficient to make these estimates.

Pharmaceutical and Intermediate Chemicals

The share of the cost savings from the temporary duty suspension on pharmaceutical and intermediate chemicals that was passed through to U.S. consumers depends on whether the imports were related-party or arms-length transactions and on relative import demand and supply elasticities. Of the products covered by the study, an estimated $20.9 million of pharmaceutical and intermediate chemicals were imported in 1986 by a U.S. parent company from its foreign subsidiary, with total estimated lost tariff revenues amounting to $1.7 million in 1986. Another $7.5 million of such products were imported by U.S. subsidiaries from foreign parent companies in 1986 with total estimated lost tariff revenues amounting to $0.9 million. For related-party imports, the share of the cost savings absorbed by the subsidiary and parent company was distributed among its U.S. and foreign shareholders.

To obtain an estimate of the share of the cost savings passed through to U.S. consumers for arm's-length transactions, import demand elasticities were estimated for selected chemical products, using the methodology outlined in the appendix. Estimates of import demand elasticities for pharmaceutical chemicals ranged from highly inelastic, with low values generally less than 1.0, to moderately elastic, with high values generally ranging between 1.0 and 2.5. Estimates of import demand elasticities for intermediate chemicals were slightly more elastic, with low values generally ranging between 1.0 and 2.0 and high values ranging from 2.2 to 5.5.

With the exception of two products, the methodology did not provide estimates of import supply elasticities. However, the import supply elasticities of these types of chemicals are generally believed to be high. This is because such chemicals are produced in low volume, using batch processing by firms that produce a large number of chemicals. Therefore, barring severe capacity constraints, these firms can readily substitute production of one chemical for another, thus increasing supply without appreciably increasing unit costs. That the supply elasticities of these products are relatively elastic is further supported by estimates of elasticities for the two products obtained from regressions, ranging from 11.4 to 11.6 and 3.1 to 5.3.

Therefore, it is reasonable to conclude that the demand elasticities of these chemical products are less than the supply elasticities. As indicated in the appendix, at least 50 percent of the cost savings resulting from the temporary duty suspension was probably passed through to U.S. consumers.

MINERALS, METALS, AND RELATED PRODUCTS

Import demand elasticities were obtained for yttrium-bearing materials and compounds, zinc, and tool drill blanks wholly or in chief value of industrial diamonds. These demand elasticities ranged from inelastic, with low values ranging from 1.0 to 1.3, to moderately elastic with high values ranging from 1.9 to 3.7. Although regression results were not significant for crude and refined natural crystalline flake graphite, the import demand elasticity is highly inelastic because there are no commercially viable U.S.

sources of this mineral and there are no known substitutes for it. The import supply elasticities for graphite and zinc are highly elastic because U.S. imports are believed to account for a very small share of total world imports. Similarly, the import supply of yttrium-bearing materials and compounds is highly elastic because producers of this product are operating well below capacity. Therefore, most of the cost savings of these three mineral and related products was probably passed through to U.S. consumers.

There was not sufficient information to determine the relative elasticity of import supply for tool and drill blanks wholly or in chief value of industrial diamonds or for unwrought alloys of cobalt. Therefore, the share of the cost savings that was passed through to U.S. consumers could not be determined.

CERTAIN CLOCK RADIOS, TEXTILE MACHINES, AND MAGNETRON TUBES

Certain clock radios

Roughly two-thirds of questionnaire respondents that imported certain clock radios indicated that they were multinationals. Of these, one-half reported that they purchased the product from their foreign subsidiaries. For these related-party imports, the share of the cost savings absorbed by the subsidiary and parent company was distributed among its U.S. and foreign shareholders. However, the total value of such imports is not known.

The import demand elasticity for clock radios ranged from 0.90 to 2.95. However, there was not sufficient information to determine the relative elasticity of import supply for this product. For imports made by unrelated parties, therefore, the share of the cost savings that was passed through to U.S. consumers could not be determined.

Certain textile machines

The import demand elasticities for lace-braiding machines, narrow fabric looms, and flat-knitting machines ranged from low values of around unity to high values between 1.3 and 2.2. The responsiveness of import supply is probably fairly elastic. Although the U.S. textile industry is the largest in the world and spends more on new machinery and equipment than the textile industries in any other country, 1/ world capacity utilization for the production of these machines is believed to be only about 70 percent. Therefore, it is likely that a large share of the duty savings was passed through to U.S. consumers.

Magnetron tubes used in microwave cooking appliances

Three Japanese multinational companies supply virtually all imports of magnetron tubes used in microwave cooking appliances and there was no domestic

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1/ USITC, U.S. Global Competitive Assessment Study (public version soon to be released).

production. A large share of such magnetron tubes are believed to have been imported by U.S. subsidiaries. Therefore, any share of the cost savings retained by these subsidiaries and the foreign parent companies was distributed among U.S. and foreign shareholders.

For arm's-length transactions, estimates of the demand elasticity for magnetron tubes indicate that the demand is fairly sensitive to price, ranging from 2.7 to 3.2. Since magnetron tubes are used in fixed proportions in the production of microwave cooking appliances and account for only 10 percent of the value added in production, the demand for microwave cooking appliances is highly sensitive to price, as explained in the appendix. Therefore, it is most likely that the share of the duty savings that was passed through to U.S. consumers was small for imports purchased by unrelated parties.

Other Miscellaneous Products

Frames for metal, hand-held umbrellas chiefly used for protection against the rain

Estimates of the import demand elasticity for umbrella frames ranged from 1.6 to 2.4. However, no information is known about world capacity, the share of world imports accounted for by the United States, or other supply factors. Therefore, it was not possible to determine the share of the cost savings passed through to U.S. consumers.

Feathers and downs, other than ostrich feathers and downs

There was not sufficient information on either the supply or the demand elasticity to determine the share of the cost savings that was passed through to U.S. consumers for this product.

Textile fabrics of manmade fibers, coated or filled or laminated with natural rubber, for use in the manufacture of skirts for hovercrafts

Significant regression results were not obtained for this product. However, it is likely that the import supply for this product is more elastic than the import demand. Textile fabrics for use in the manufacture of skirts for hovercrafts account for less than 0.1 percent of the total cost of the end-use product; there are no close substitutes for the imported product; and the imported product is not produced in the United States. Therefore, the import demand is highly inelastic. Such textile fabrics are a low-volume, high-quality product produced by foreign manufacturers that also produce a variety of other textile fabrics. It is likely that such producers can increase the production of this textile product without appreciably increasing unit costs, or that supply is relatively elastic. Therefore based the model in appendix D, more than 50 percent of the duty savings was passed through to U.S. consumers.

APPENDIX A

LETTERS FROM THE CHAIRMAN OF THE COMMITTEE ON WAYS AND MEANS OF THE U.S. HOUSE OF REPRESENTATIVES AND THE CHAIRMAN OF THE U.S. INTERNATIONAL TRADE COMMISSION

COMMITTEE ON WAYS AND MEANS

U.S. HOUSE OF REPRESENTATIVES
WASHINGTON, DC 20515

May 12, 1987

The Honorable Susan Liebeler
Chairman
U.S. International Trade Commission
701 E Street, N.W.
Washington, D.C. 20436

Dear Madam Chairman:

The Committee on Ways and Means requests that the U.S. International Trade Commission conduct an investigation under section 332 of the Tariff Act of 1930 to determine whether, and to what extent, miscellaneous temporary duty suspensions enacted in P.L. 98-573 (Title I, Subtitle C) have resulted in decreased costs to U.S. consumers or other economic benefits that would not have occurred had no duty suspensions been enacted.

While many factors may mask the effect of such duty suspensions, including such factors as inflation, currency fluctuations, related party transactions, and cost changes in other factors of production, it is important that the Committee receive as good an indication as possible of the separate effects of duty suspensions since requests for such suspensions occur frequently.

The Committee requests that the Commission's report provide the following information for the products covered by the duty suspensions:

(1) Product--
- Nature and use of the articles, including an indication of whether they are imported as: (1) end-use products or (2) intermediate or capital goods.

- If the affected article is an intermediate good, its importance in the production of an end product, e.g., what proportion of the costs of production of the end product is accounted for by the affected import.

(2) U.S. importers--
- Description of the importers (excluding brokers) that use the subject article, i.e., number of firms, number of employees, line of business, etc.

- Relationship, if any, of foreign suppliers to U.S. importers.

- Trend in the source of the product mix for U.S. purchasers.

(3) Import and domestic sales trends--
- Quantity and value trend of subject imports during 1984-86; estimate of imports, if any, traded between related firms.

- Changes in wholesale unit values of imports during 1984-86.

- Explanation of above import trends, including factors other than the duty suspension which influence trends.

- Trends in domestic sales and price of subject articles or end products produced from the subject articles; influencing factors.

(4) Duty suspension effects--
- Approximate tariff revenue lost as a result of temporary tariff changes during 1985-86.

- Cost savings, if any, obtained from the temporary tariff changes by the intermediate consumer.

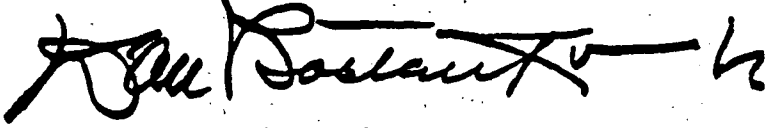
- Level of cost savings passed on to consumers of "downstream" end-use products.

- Other economic benefits that the intermediate or final consumer may obtain from the tariff changes.

The Committee recommends that the Commission survey, as appropriate, the domestic firms which import and use the subject articles in order to obtain the information required for an evaluation of the impact of the temporary duty suspensions. Further, in order to obtain the widest possible input from these firms and the public in general, it is suggested that the Commission hold a public hearing in Washington, D.C., during the course of the investigation.

It is requested that the Commission provide its report to the Committee on Ways and Means and the Senate Committee on Finance within nine months of receipt of this request. If the Commission encounters delays during the course of the study, please contact the Committee staff regarding adjustment to the due date.

Sincerely yours,



Dan Rostenkowski
Chairman

DR/mbr

CHAIRMAN

UNITED STATES INTERNATIONAL TRADE COMMISSION

WASHINGTON, D.C. 20436

July 7, 1987

Honorable Daniel Rostenkowski, Chairman
U.S. House of Representatives
Committee on Ways and Means
Washington, D.C. 20515

Dear Mr. Chairman:

This is in reply to your letter of May 12, 1987, in which you requested the U.S. International Trade Commission to conduct an investigation under section 332 of the Tariff Act of 1930 to determine whether, and to what extent, miscellaneous temporary duty suspensions enacted in P.L. 98-573 (Title I, Subtitle C) have resulted in decreased costs to U.S. consumers or other economic benefits that would not have occurred had no suspensions been enacted.

In response to your request, the Commission has instituted investigation No. 332-247, entitled "Cost Savings or Other Benefits to U.S. Consumers Resulting from Temporary Duty Suspensions in the Trade and Tariff Act of 1984." The study will provide, to the extent possible, the requested information for products on which all the duties were temporarily suspended as a result of this Act. This information will include the nature and use of the articles, a description of U.S. importers and their relationship, if any, to foreign suppliers; domestic and import sales trends of the products during 1984-86; and the effects of the duty suspensions on tariff revenues and on costs to consumers. In addition, the study will examine, as available, other economic benefits that the intermediate or final consumer may have obtained from the temporary duty suspensions. All the requested information will be provided on the product or section level as long as it does not disclose business confidential information. If disclosure of such information would occur at the individual product level, products will be combined into groups, which will not reveal business confidential information.

Honorable Daniel Rostenkowski--Page 2

The Commission will make every effort to obtain all the requested information on the specified products. However, because much of the information requested on cost savings and other economic effects to the consumers will have to be developed from primary data sources, principally questionnaires, the Commission will require until February 19, 1988, to produce a quality study. OMB is permitted to take three months to review and revise the questionnaire. An additional extension might be necessary if the Office of Management and Budget (OMB) requires more than the 45 days we have allotted to obtain approval for the study questionnaire. In addition to the questionnaires, the Commission will hold a public hearing in Washington, D.C., during the course of the investigation to obtain additional information from interested parties.

Please continue to call on us whenever we can be of assistance to you.

Sincerely,

Susan Liebeler

Susan Liebeler
Chairman

Enclosures

APPENDIX B

EXCERPTS FROM THE TRADE AND TARIFF ACT OF 1984, PUBLIC LAW 98-573

PUBLIC LAW 98-573—OCT. 30, 1984

TRADE AND TARIFF ACT OF 1984

51-139 O - 85 (627)

Subtitle C—Temporary Changes in Tariff Treatment

SEC. 131. FRESH, CHILLED, OR FROZEN BRUSSELS SPROUTS.

Subpart B of part 1 of the Appendix is amended by inserting in numerical sequence the following new items:

"	903.29	Brussels sprouts, fresh, chilled, or frozen, but not reduced in size and not otherwise prepared or preserved (provided for in item 137.71, part 8A, schedule 1)	12.5% ad val.	No change	On or before 12/31/87	
	903.33	Brussels sprouts, fresh, chilled, or frozen, and cut, sliced or otherwise reduced in size, but not otherwise prepared or preserved (provided for in item 139.46, part 8A, schedule 1)	7% ad val.	No change	On or before 12/31/87	"

SEC. 132. β-NAPHTHOL.

Subpart B of part 1 of the Appendix is amended by inserting in numerical sequence the following new item:

"	907.31	β-Naphthol (provided for in item 403.29, part 1B, schedule 4)	Free	No change	On or before 12/31/87	"

SEC. 133. 4-CHLORO-3-METHYLPHENOL.

Item 907.08 of the Appendix is amended by striking out "6/30/84" and inserting in lieu thereof "12/31/87".

SEC. 134. TETRAAMINO BIPHENYL.

Subpart B of part 1 of the Appendix is amended by inserting in numerical sequence the following new item:

"	907.32	3,3'-Diaminobenzidine (provided for in item 404.90, part 1C, schedule 4)	Free	No change	On or before 12/31/88	"

SEC. 135. 6-AMINO-1-NAPHTHOL-3-SULFONIC ACID.

Subpart B of part 1 of the Appendix is amended by inserting in numerical sequence the following new item:

"	907.34	6-Amino-1-naphthol-3-sulfonic acid (provided for in item 405.00, part 1B, schedule 4)	Free	No change	On or before 12/31/87	"

SEC. 136. DSA.

Subpart B of part 1 of the Appendix is amended by inserting in numerical sequence the following new item:

"	907.35	2-(4-Aminophenyl)-6-methylbenzo-thiazole-7-sulfonic acid (provided for in item 406.39, part 1B, schedule 4)	Free	No change	On or before 12/31/87	"

SEC. 137. GUANIDINES.

Subpart B of part 1 of the Appendix is amended by inserting in numerical sequence the following new item:

"	906.50	Diphenyl guanidine and di-o-tolyl guanidine (provided for in item 405.52, part 1B, schedule 4)	Free	No change	On or before 12/31/87	"

SEC. 138. CERTAIN ANTIBIOTICS.

Subpart B of part 1 of the Appendix is amended by inserting in numerical sequence the following new item:

"	906.51	(6R,7R)-7-[(R)-2-Amino-2-phenylacetamido]-3-methyl-8-oxo-5-thia-1-azabicyclo(4.2.0)oct-2-eno-2-carboxylic acid dieal-vate (provided for in item 406.42, part 1B, schedule 4)	Free	No change	On or before 12/31/87	"

SEC. 139. ACETYLSULFAGUANIDINE.

Subpart B of part 1 of the Appendix is amended by inserting in numerical sequence the following new item:

"	907.33	Acetylsulfaguanidine (provided for in item 406.56, part 1B, schedule 4)	Free	No change	On or before 12/31/87	"

SEC. 140. FENRIDAZON-POTASSIUM.

Subpart B of part 1 of the Appendix is amended by inserting in numerical sequence the following new item:

"	907.41	Mixtures of potassium 1-(p-chlorophenyl)-1,4-dihydro-6-methyl-4-oxopyridazine-3-carboxylate ('fenridazon-potassium') and formulation adjuvants (provided for in item 408.38, part 1C, schedule 4)	Free	No change	On or before 12/31/87	"

SEC. 141. UNCOMPOUNDED ALLYL RESINS.

Item 907.16 of the Appendix is amended by striking out "9/30/84" and inserting in lieu thereof "12/31/87".

SEC. 142. SULFAMETHAZINE.

Subpart B of part 1 of the Appendix is amended by inserting in numerical sequence the following new item:

"	907.36	Sulfamethazine (provided for in item 411.34, part 1C, schedule 4).....	Free	Free	On or before 12/31/87	"

SEC. 143. SULFAGUANIDINE.

Subpart B of part 1 of the Appendix is amended by inserting in numerical sequence the following new item:

"	907.37	Sulfaguanidine (provided for in item 411.37, part 1C, schedule 4).....	Free	Free	On or before 12/31/87	"

SEC. 144. TERFENADINE.

Subpart B of part 1 of the Appendix is amended by inserting in numerical sequence the following new item:

"	907.25	Terfenadine (provided for in item 411.50, part 1C, schedule 4).....	Free	No change	On or before 12/31/87	"

SEC. 145. SULFATHIAZOLE.

(a) Item 907.19 is amended to read as follows:

"	907.19	Sulfathiazole (provided for in item 411.30, part 1C, schedule 4).....	Free	Free	On or before 12/31/87	"

(b) Section 136 (b) and (c) of the Act entitled "An Act to reduce certain duties, to suspend temporarily certain duties, to extend certain existing suspensions of duties, and for other purposes" (approved January 12, 1983; Public Law 97-446) is repealed.

98 Stat. 2411

SEC. 146. SULFAQUINOXALINE AND SULFANILAMIDE.

Subpart B of part 1 of the Appendix is amended by inserting in numerical sequence the following new item:

"	907.38	Sulfaquinoxaline and sulfanilamide (provided for in item 411.67, part 1C, schedule 4).....	Free	Free	On or before 12/31/87	"

SEC. 147. DICYCLOMINE HYDROCHLORIDE AND MEPENZOLATE BROMIDE.

Subpart B of part 1 of the Appendix is amended by inserting in numerical sequence the following new item:

"	907.53	Dicyclomine hydrochloride and mepenzolate bromide (provided for in item 412.62, part 1C, schedule 4).....	Free	No change	On or before 12/31/87	"

SEC. 148. AMIODARONE.

Subpart B of part 1 of the Appendix is amended by inserting in numerical sequence the following:

"	907.18	Amiodarone (provided for in item 412.12, part 1C, schedule 4).....	Free	No change	On or before 12/31/87	"

SEC. 149. DESIPRAMINE HYDROCHLORIDE.

Subpart B of part 1 of the Appendix is amended by inserting in numerical sequence the following new item:

"	907.54	Desipramine hydrochloride (provided for in item 412.35, part 1C, schedule 4).....	Free	No change	On or before 12/31/87	"

SEC. 150. CLOMIPHENE CITRATE.

Subpart B of part 1 of the Appendix is amended by inserting in numerical sequence the following new item:

"	907.42	Clomiphene citrate (provided for in item 412.60, part 1C, schedule 4).....	Free	No change	On or before 12/31/87	"

SEC. 151. YTTRIUM BEARING MATERIALS AND COMPOUNDS.

Subpart B of part 1 of the Appendix is amended by inserting in numerical sequence the following new item:

"	907.51	Yttrium bearing materials and compounds containing by weight more than 19% but less than 85% yttrium oxide equivalent (provided for in items 423.60 or 423.96, part 2C, schedule 4, or item 603.70, part 1, schedule 6)	Free	No change	On or before 12/31/88	"

SEC. 152. TARTARIC ACID AND CHEMICALS.

Items 907.65, 907.66, 907.68, and 907.69 of the Appendix are each amended by striking out "6/30/84" and inserting in lieu thereof "12/31/88".

SEC. 153. CERTAIN MIXTURES OF MAGNESIUM CHLORIDE AND MAGNESIUM NITRATE.

Subpart B of part 1 of the Appendix is amended by inserting in numerical sequence the following new item:

"	906.52	Mixtures of 5-chloro-2-methyl-4-isothiazolin-3-one, 2-methyl-4-isothiazolin-3-one, magnesium chloride, and magnesium nitrate (provided for in item 432.25, part 2E, schedule 4)	Free	No change	On or before 12/31/87	"

SEC. 154. NICOTINE RESIN COMPLEX.

Subpart B of part 1 of the Appendix is amended by inserting in numerical sequence the following new item:

"	907.63	Nicotine resin complex (provided for in item 437.13, part 2B, schedule 4)	Free	No change	On or before 12/31/87	"

SEC. 155. RIFAMPIN.

Subpart B of part 1 of the Appendix is amended by inserting in numerical sequence the following new item:

"	906.99	Rifampin (provided for in item 437.32, part 2B, schedule 4)	Free	No change	On or before 12/31/87	"

SEC. 156. LACTULOSE.

Subpart B of part 1 of the Appendix is amended by inserting in numerical sequence the following new item:

"	907.76	Lactulose (provided for in item 438.50, part 2C, schedule 4)	Free	No change	On or before 12/31/87	"

SEC. 157. IRON-DEXTRAN COMPLEX.

Subpart B of part 1 of the Appendix is amended by inserting in numerical sequence the following new item:

"	907.79	Iron-dextran complex (provided for in item 440.60, part 2C, schedule 4)	Free	No change	On or before 12/31/87	"

SEC. 158. NATURAL GRAPHITE.

Item 909.01 of the Appendix is amended by striking out "12/31/84" and inserting in lieu thereof "12/31/87".

SEC. 159. ZINC.

Items 911.00, 911.01, 911.02, and 911.03 of the Appendix are each amended by striking out "6/30/84" and inserting in lieu thereof "12/31/89".

SEC. 160. CERTAIN DIAMOND TOOL BLANKS.

Subpart B of part 1 of the Appendix is amended by inserting in numerical sequence the following new item:

"	910.60	Tool blanks and drill blanks, wholly or in chief value of industrial diamonds (provided for in item 529.21, part 1H, or item 522.91, part 1K, schedule 5)	Free	30% ad val.	On or before 12/31/87	"

SEC. 161. CLOCK RADIOS.

Item 911.95 of the Appendix is amended by striking out "9/30/84" and inserting in lieu thereof "12/31/86".

SEC. 162. LACE-BRAIDING MACHINES.

Subpart B of part 1 of the Appendix is amended by inserting in numerical sequence the following new item:

"	912.11	Decorative lace-braiding machines using the jacquard system, and parts thereof (provided for in items 670.25 and 670.74, part 4E, schedule 6)	Free	No change	On or before 12/31/87	"

SEC. 163. CERTAIN MAGNETRON TUBES.

Subpart B of part 1 of the Appendix is amended by inserting in numerical sequence the following new item:

"	912.02	Magnetron tubes with an operating frequency of 2.450 GHz and a minimum power of at least 300 watts and a maximum power not greater than 2000 watts (provided for in item 684.28, part 5, schedule 6)	Free	No change	On or before 12/31/86	"

SEC. 164. NARROW FABRIC LOOMS.

(a) Subpart B of part 1 of the Appendix is amended by inserting in numerical sequence the following new item:

"	912.04	Power driven weaving machines for weaving fabrics not over 12 inches in width (provided for in item 670.14, part 4E, schedule 6)	Free	No change	On or before 12/31/87	"

(b) Subpart E of part 4 of schedule 6 is amended by adding the following new headnote:

		"Subpart E headnote: 1. For purposes of applying item 670.74 to parts of articles provided for under item 912.04, any such part that is entered, or withdrawn from warehouse for consumption, during the effective period of item 912.04 shall be dutiable at the rate that would apply if that item had not been enacted.".			

SEC. 165. UMBRELLA FRAMES.

Subpart B of part 1 of the Appendix is amended by inserting in numerical order the following new item:

"	912.45	Frames for hand-held umbrellas chiefly used for protection against rain (provided for in item 751.20, part 6B, schedule 7)	Free	No change	On or before 12/31/86	"

SEC. 166. CRUDE FEATHERS AND DOWN.

Items 903.70 and 903.80 of the Appendix are each amended by striking out "On or before 6/30/84" and inserting in lieu thereof "On or before 12/31/87".

SEC. 167. CANNED CORNED BEEF.

Subpart B of part 1 of the Appendix is amended by inserting in numerical sequence the following new item:

"	903.15	Corned beef in airtight containers (provided for in item 107.60, part 2B, schedule 1)	3% ad val.	No change	On or before 12/31/89	"

SEC. 168. HOVERCRAFT SKIRTS.

Item 905.40 of the Appendix is amended—

(1) by striking out "manmade" and inserting in lieu thereof "man-made", and

(2) by striking out "6/30/83" and inserting in lieu thereof "12/31/87".

SEC. 169. DISPOSABLE SURGICAL DRAPES AND STERILE GOWNS.

Subpart B of part 1 of the Appendix is amended by inserting in numerical sequence the following new item:

"	905.50	Bonded fiber fabric disposable gowns, sterilized or in immediate packings ready for sterilization, for use in performing surgical procedures, of manmade fibers (provided for in items 379.95 and 383.92, part 6F, schedule 3) and bonded fiber fabric disposable surgical drapes, of manmade fibers (provided for in item 389.62, part 7B, schedule 3)	6.6% ad val.	26.5% ad val.	On or before 12/31/88	"

SEC. 170. MXDA.

Subpart B of part 1 of the Appendix is amended by inserting in numerical sequence the following new items:

"	907.03	m-Xylenediamine (provided for in item 404.38, part 1B, schedule 4)	Free	No change	On or before 12/31/87	
	907.04	1,3-Bis(aminomethyl) cyclohexane (provided for in item 907.05, part 1B, schedule 4)	Free	No change	On or before 12/31/87	"

SEC. 171. 4,4-BIS(α,α-DIMETHYLBENZYL) DIPHENYLAMINE.

Subpart B of part 1 of the Appendix is amended by inserting in numerical sequence the following item:

"	907.06	4,4'-Bis(α,α-dimethylbenzyl) diphenylamine (provided for in item 404.38, part 1B, schedule 4)	Free	No change	On or before 12/31/87	"

SEC. 172. FLECAINIDE ACETATE.

Subpart B of part 1 of the Appendix is amended by inserting in numerical sequence the following new item:

"	907.21	Flecainide acetate (provided for in item 412.12, part 1C, schedule 4)	Free	No change	On or before 12/31/87	"

SEC. 173. CAFFEINE.

Item 907.22 of the Appendix is amended—

(1) by striking out "6% ad val." and inserting in lieu thereof "4.1% ad val."; and

(2) by striking out "12/31/83" and inserting in lieu thereof "12/31/87".

SEC. 174. WATCH CRYSTALS.

(a) Subpart B of part 1 of the Appendix is amended by inserting in numerical sequence the following new item:

			Rates of Duty			
			1	LDDC	2	
"	909.40	Watch glasses other than round watch glasses (provided for in item 547.13, part 2C, schedule 5)	5.9% ad val.	4.9% ad val.	No change	On or before 12/31/87 "

(b) Effective with respect to articles provided for in item 909.40 (as added by subsection (a)) that are entered, or withdrawn from warehouse for consumption, on or after each of the dates set forth below, column 1 for such item is amended by striking out the rate of duty in effect on the day before such date and inserting in lieu thereof the rate of duty appearing below next to each such date:

Date:	Rate of duty:
January 1, 1985	5.6% ad val.
January 1, 1986	5.2% ad val.

SEC. 175. UNWROUGHT LEAD.

(a) Item 911.50 of the Appendix is amended by striking out "6/30/83" and inserting in lieu thereof "12/31/88".

94 Stat. 3557 (b) Section 114 of Public Law 96-609 is amended by striking out "July 1, 1983" in subsection (b) and inserting in lieu thereof "January 1, 1989".

SEC. 176. FLAT KNITTING MACHINES.

Item 912.13 of the Appendix is amended—

(1) by striking out "(provided for in item 670.19 or 670.20," and inserting in lieu thereof ", and parts thereof (provided for in items 670.19, 670.20, and 670.74,"; and

(2) by striking out "6/30/83" and inserting in lieu thereof "12/31/88".

SEC. 177. CERTAIN MENTHOL FEEDSTOCKS.

Subpart B of part 1 of the Appendix is amended by inserting in numerical sequence the following new item:

"	907.13	Mixtures containing not less than 90 percent by weight of stereoisomers of 2-isopropyl-5-methylcyclohexanol, but containing not more than 20 percent by weight of any one such stereoisomer (provided for in item 487.16, part 1B, schedule 4)	Free	No change	On or before 12/31/87	"

SEC. 178. 2-METHYL-4-CHLOROPHENOL.

Subpart B of part 1 of the Appendix is amended by inserting in numerical sequence the following new item:

"	906.97	2-Methyl-4-chlorophenol (provided for in item 403.56, part 1B, schedule 4)	Free	No change	On or before 12/31/87	"

SEC. 179. UNWROUGHT ALLOYS OF COBALT.

Item 911.90 of the Appendix is amended by striking out "6/30/83" and inserting in lieu thereof "12/31/87".

SEC. 180. CIRCULAR KNITTING MACHINES.

Subpart B of part 1 of the Appendix is amended by inserting in numerical sequence the following new item with a superior heading that has the same indentation as "Powerdriven" in item 912.13:

"	912.17	Cylinder, double cylinder, and dial knitting machines and parts thereof, all the foregoing designed for sweater strip or garment length knitting (provided for in items 670.17 and 670.74, part 4E, schedule 6)	Free	No change	On or before 12/31/89	"

SEC. 181. o-BENZYL-p-CHLOROPHENOL.

Subpart B of part 1 of the Appendix is amended by inserting in numerical sequence the following new item:

"	907.23	o-Benzyl-p-chlorophenol (provided for in item 408.16, part 1C, schedule 4)	Free	No change	On or before 12/31/87	"

SEC. 182. CERTAIN BENZENOID CHEMICALS.

Subpart B of part 1 of the Appendix is amended by inserting in numerical sequence the following new items:

"	906.30	3,5,6-Trichlorosalicylic acid (provided for in item 404.46, part 1B, schedule 4)	Free	Free	On or before 12/31/87	
	906.32	m-Aminophenol (provided for in item 404.52, part 1B, schedule 4)	Free	Free	On or before 12/31/87	
	906.38	p-Acetamidobenzenesulfonyl chloride (N-Acetylsulfanilyl chloride) (provided for in item 405.33, part 1B, schedule 4)	Free	Free	On or before 12/31/87	"

SEC. 183. m-TOLUIC ACID.

Subpart B of part 1 of the Appendix is amended by inserting in numerical sequence the following new item:

"	906.57	m-Toluic acid (provided for in item 404.28, part 1B, schedule 4)	Free	No change	On or before 12/31/87	"

Subtitle E—Effective Dates

SEC. 195. EFFECTIVE DATES.

19 USC 1322 note.

(a) Except as provided in section 126 and in subsections (b) and (c), the amendments made by subtitles B, C, and D shall apply with respect to articles entered on or after the 15th day after the date of the enactment of this Act.

19 USC 1322 note.

(b)(1) The amendment made by sections 117 and 124 shall apply with respect to articles entered on or after January 1, 1985.

(2) The amendments made by section 127 shall apply with respect to articles entered on or after a date to be proclaimed by the President which shall be consonant with the entering into force for the United States of the Customs Convention on Containers, 1972.

29 UST 3707.

19 USC 1514.

(c)(1) Notwithstanding section 514 of the Tariff Act of 1930 or any other provision of law, upon proper request filed with the customs officer concerned on or before the 90th day after the date of the enactment of this Act the entry of any article described in paragraph (2) shall be treated as provided in such paragraph.

(2)(A) In the case of the application of any amendment made by section 133, 141, 145, 152, 159, 161, 166, 168, 173, 175, 176, or 191 (a) or (b) to any entry—

(i) which was made after the applicable date and before the 15th day after the date of the enactment of this Act; and

(ii) with respect to which there would have been no duty or a lesser duty if the amendment made by such section applied to such entry;

such entry shall be liquidated or reliquidated as though such entry had been made on the 15th day after the date of the enactment of this Act.

(B) For purposes of subparagraph (A), the term "applicable date" means—

(i) in the case of section 191 (a) or (b), January 12, 1983,

(ii) in the case of sections 168, 175, and 176, June 30, 1983,

(iii) in the case of section 173, December 31, 1983,

(iv) in the case of sections 133, 152, 159, and 166, June 30, 1984,

(v) in the case of section 145, January 1, 1984, and

(vi) in the case of sections 141 and 161, September 30, 1984.

(C) In the case of the application of any amendment made by section 140 or 153 to any entry—

(1) that was made before the 15th day after the date of the enactment of this Act;

(2) that was unliquidated, or the liquidation of which was not final, on such 15th day; and

(3) with respect to which there would have been no duty if the amendment made by such section applied to such entry;

such entry shall be liquidated as though the entry had been made on such 15th day

19 USC 1322 note.

(d) For purposes of this section—

(1) The term "entered" means entered, or withdrawn from warehouse for consumption in the customs territory of the United States.

(2) The term "entry" includes any withdrawal from warehouse.

APPENDIX C

NOTICE OF INVESTIGATION

UNITED STATES INTERNATIONAL TRADE COMMISSION
Washington, D.C.

(332-247)

Cost Savings or Other Benefits to U.S. Consumers Resulting from Temporary Duty Suspensions in the Trade and Tariff Act of 1984

AGENCY: United States International Trade Commission

ACTION: Institution of investigation and notice of public hearing

EFFECTIVE DATE: July 1, 1987

FOR FURTHER INFORMATION CONTACT: Mr. Edmund D. Cappuccilli (telephone 202-523-0490) or Ms. Cynthia B. Foreso (telephone 202-523-1230).

BACKGROUND AND SCOPE OF INVESTIGATION: The Commission on July 1, 1987, instituted investigation No. 332-247, following receipt of a letter on May 21, 1987, from the Committee on Ways and Means of the U.S. House of Representatives requesting that the Commission conduct an investigation under section 332(g) of the Tariff Act of 1930 (19 U.S.C. 1332(g)) concerning whether temporary duty suspensions enacted in P.L. 98-573 have resulted in decreased costs to U.S. consumers or other economic benefits that would not have occurred had no duty suspensions been enacted.

As requested by the Committee, the Commission will develop in its investigation, to the extent practical, specific information on the products enumerated in P.L. 98-573 (Title I, Subtitle C) as to their nature and use (including whether imported as an intermediate or end-use product), the importers (number of firms, employment, and so forth) (excluding brokers) that use the subject products, sources of imports, and the relationship of foreign suppliers to U.S. importers. The Commission will also seek to develop information on the quantity and value of the imports, including related party transactions; changes in wholesale unit values; and trends in domestic sales and prices of the end-use products manufactured from the imported intermediates. Further, the Commission will seek to estimate the tariff revenue lost as a result of the temporary duty suspensions, the cost savings passed on to intermediate and downstream consumers, and other economic benefits that the intermediate or final consumer may have obtained from the temporary duty suspensions.

PUBLIC HEARING: The Commission will hold a public hearing on this investigation at the United States International Trade Commission Building, 701 E Street NW., Washington, D.C., beginning at 9:30 a.m. on October 27, 1987. All persons shall have the right to appear in person or be represented by counsel, to present information, and to be heard. Persons wishing to appear at the public hearing should file requests to appear and should file prehearing briefs (original and 14 copies) with the Secretary, U.S. International Trade Commission, 701 E Street NW., Washington, D.C. 20436, not later than noon, October 16, 1987. Persons with mobility impairments who will need special assistance in gaining access to the Commission should contact the Office of the Secretary at (202) 523-0161.

WRITTEN SUBMISSIONS: Interested persons are invited to submit written statements concerning the investigation. Written statements should be received by the close of business of November 10, 1987. Commercial or financial information which a submitter desires the Commission to treat as confidential must be submitted on separate sheets of paper, each clearly marked "Confidential Business Information" at the top. All submissions requesting confidential treatment must conform with the requirements of section 201.6 of the Commission's Rules of Practice and Procedure (19 CFR 201.6). All written submissions, except for confidential business information, will be made available for inspection by interested persons. All submissions should be addressed to the Secretary, United States International Trade Commission, 701 E Street NW., Washington, D.C. 20436.

Hearing-impaired individuals are advised that information on this matter can be obtained by contacting our TDD terminal on (202) 724-0002.

By order of the Commission

Kenneth R. Mason
Secretary

Issued: July 6, 1987

APPENDIX D

METHODOLOGY FOR ESTIMATING THE EFFECT OF TEMPORARY DUTY SUSPENSIONS ON U.S. CONSUMERS

Geometric Presentation

The suspension of duties relieves U.S. importers of the legal liability to pay the import duty. Logically, to determine the benefits passed through to final consumers of products made with imported goods no longer subject to duty collections, it is necessary to assess what portion of the initial suspended duties are either retained by importers or passed backwards in the form of greater revenue to foreign exporting firms. Using the tools of economics, we can measure the distribution of the duty suspension benefits to these three parties: the importers, the downstream consumers of products made in part from the imports, and the upstream foreign exporters. 1/ The goal of this analysis is to (1) determine the amount of the benefit available to be divided among these three parties, in order to (2) determine which portion of the benefit accrues to the consumer.

In economic terms, the distribution of benefits is effected through changes in prices brought about by the duty suspension. The duty suspension might result in a higher supply price received by exporters, a lower demand price paid by importers, and a lower price charged for downstream products that use the imports as an input. 2/ This is because the duty rate constituted the difference between the supply and demand prices. With the suspension of the duty, exporters perceive an increase in demand and thus are able to raise their supply and increase shipments. Importers, on the other hand, perceive an increase in supply and thus are willing to purchase more at the new, lower demand price. The new, undistorted price will, in general, fall between the old supply and demand prices. Since importers pay less per unit of the imported input, their production costs fall. Competition in the downstream product market allows consumers to share in the benefits of this cost reduction through lower finished product prices. This appendix shows analytically how the benefits of the duty suspensions are distributed when

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1/ The benefits of the duty suspension exceed the duty payments saved. This is because elimination of the duty results in more efficient use of scarce resources. These additional benefits are also shared by importers, exporters, and downstream consumers. This is discussed more extensively later in this appendix.

2/ The supply price is the price on exporter's supply curve corresponding to the quantity sold. The supply price is equivalent to the exporter's per unit revenue. The demand price is the price on the importer's demand curve corresponding to the quantity purchased.

induced changes in the prices of the intermediate and final goods are taken into account. 1/

The share of a duty suspension that is passed on to U.S. consumers depends on the relative elasticities of supply and demand. This is most easily shown geometrically.

Pass-through to all consumers

Figure D-1a shows the demand and supply of an imported good X. For simplicity, a fixed tariff is assumed. Before the duty reduction, the equilibrium price and quantity sold in the U.S. market are shown by the intersection of the demand curve D and the foreign supply curve plus the tariff, S_f+t, at quantity X_1. U.S. consumers pay the price P_1 and foreign suppliers receive the price P_3 with the difference amounting to the tariff t. The duty suspension causes the foreign supply curve as seen by U.S. consumers to shift down by the amount of the tariff from S_f+t to S_f. U.S. consumers, faced with a lower price of X for any given quantity, respond by increasing purchases of X, reflected by a movement along the demand curve. A new equilibrium price and quantity are obtained in the market at price P_2 and quantity X_2. The elimination of the duty results in a duty savings amounting to the old quantity purchased, X_1, times the amount of the tariff, t, or the rectangular area P_1abP_3. This savings is shared by U.S. consumers and foreign suppliers, with the amount going to U.S. consumers being the difference between the old price P_1 and the new price P_2 times the old quantity purchased X_1 or the area P_1acP_2. Similarly, the amount going to foreign suppliers is the difference between the old price received, P_3,

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1/ For more elaborate treatment of the distinction between the party legally responsible for paying a tax, and the parties who ultimately bear the burden of the tax, see Richard W. Tresch, Public Finance: A Normative Theory, Business Publications, Inc., 1981, especially Chapter 17, pages 373ff.:

> When an economic agent sends a tax payment to a government it is said to bear the impact of a tax. But public sector economists have long recognized that the actual tax payment may not be a very good measure of the true economic burden arising as a consequence of the tax. The problem, of course, is that the tax payment will initiate an entire chain of general equilibrium market effects that will change the vectors of equilibrium consumer and producer prices. These price changes, in turn, will generate welfare losses and gains throughout the economy affecting, potentially, every economic agent, not just the person(s) who paid the tax. The incidence of a tax, then, is a measure of the full changes in welfare arising from the tax...

Page 373.

In the present analysis, the duty suspension tends to reverse the price effects of the original duty, which is a tax, particularly as time passes.

and the new price received, P_2, times the old quantity consumed X_1 or P_2cbP_3. The proportion of the duty savings that is passed on to U.S. consumers is given by $(P_1-P_2)/t$. In addition, the duty suspension results in an efficiency gain equal to the triangular area adb. Again, this efficiency gain is split between foreign suppliers and U.S. consumers. With linear demand and supply curves, the share of the efficiency gain detained by U.S. consumers in the form of consumer surplus is the same as the share of the duty savings obtained by consumers, or $(P_1-P_2)/t$.

In figure D-1a, the share of the duty savings passed through to U.S. consumers is greater than the share absorbed by foreign suppliers. This is because the slope of the supply curve is less than the absolute value of the slope of the demand curve. This means that for any given quantity of X, the elasticity of supply is greater than the elasticity of demand. To show that the share of cost savings that is passed through to U.S. consumers depends on the relative elasticities of supply and demand, figure D-1b depicts a market where the elasticity of supply is relatively less elastic than in figure D-1a and demand is the same. Prior to the duty suspension, the equilibrium price and quantity are shown by the intersection of the demand curve D and the supply curve plus the tariff, S_f+t at point a. The price paid by U.S. consumers is P_1, the price received by foreign suppliers is P_3, and the equilibrium quantity sold in the market is X_1, as in figure D-1a. The suspension of the tariff causes the foreign supply curve to shift down by the same amount t. However, in figure D-1b, because the foreign supply curve is relatively less elastic than in figure D-1a, the price of X declines by P_1-P_4, an amount that is less than the amount P_1-P_2 in figure D-1a, and the quantity consumed increases by X_4-X_1. The share of the duty savings passed on to U.S. consumers is given by $(P_1-P_4)/t$, which is less than the share passed through to U.S. consumers in figure D-1a, $(P_1-P_2)/t$. In the extreme case of a perfectly elastic foreign supply curve, the entire amount of the cost savings will be passed through to U.S. consumers.

Pass-through for imported intermediate products

The cost savings that is passed through to U.S. consumers depicted in figure D-1 is the total cost savings to all domestic consumers, both ultimate consumers and consumer industries. In the case of imported intermediate inputs, the demand curve shown in figure D-1 is the derived demand for the imported input. The share of the cost savings that is captured by U.S. consumer industries and that is passed through to ultimate consumers depends on the relative elasticities of the supply and demand curves in the input and output markets.

Figure D-2d shows the domestic market for an imported good X that is used in the production of good Y, shown in figure D-2b. The import supply curve for X is assumed to be exogenously determined, whereas the import demand curve for X ultimately derives from the demand for Y. To show this, the firm's response to a change in the price of X is depicted in figures D-2a and D-2c.

Figure D-1.--Partial equilibrium analysis of the effects on U.S. consumers of a temporary duty suspension

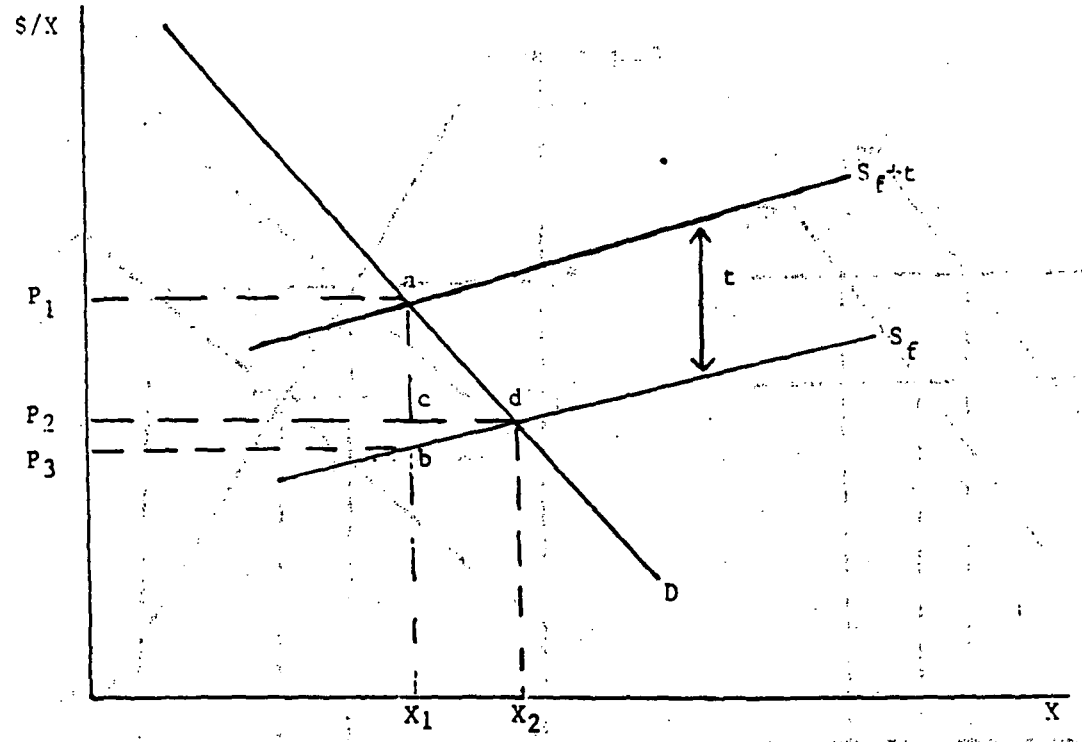

Figure D-1a

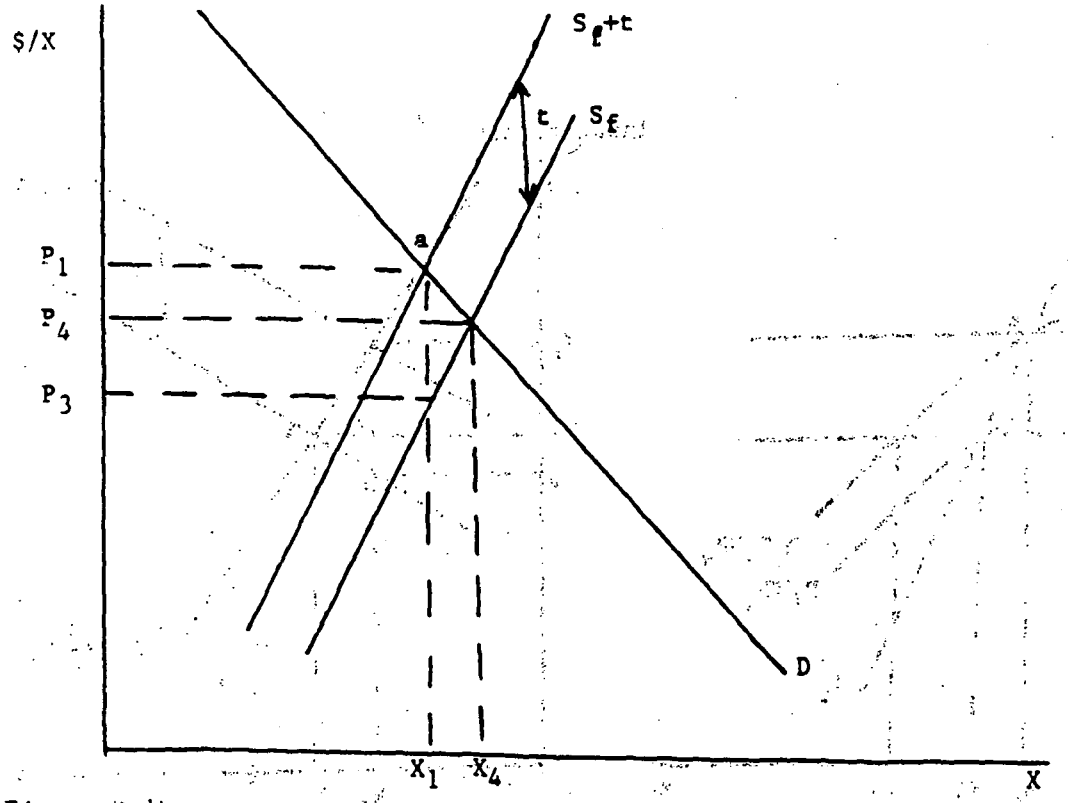

Figure D-1b

Figure D-2.--Partial equilibrium analysis of the effects on U.S. consumer industries and ultimate consumers of a temporary duty suspension on an intermediate input

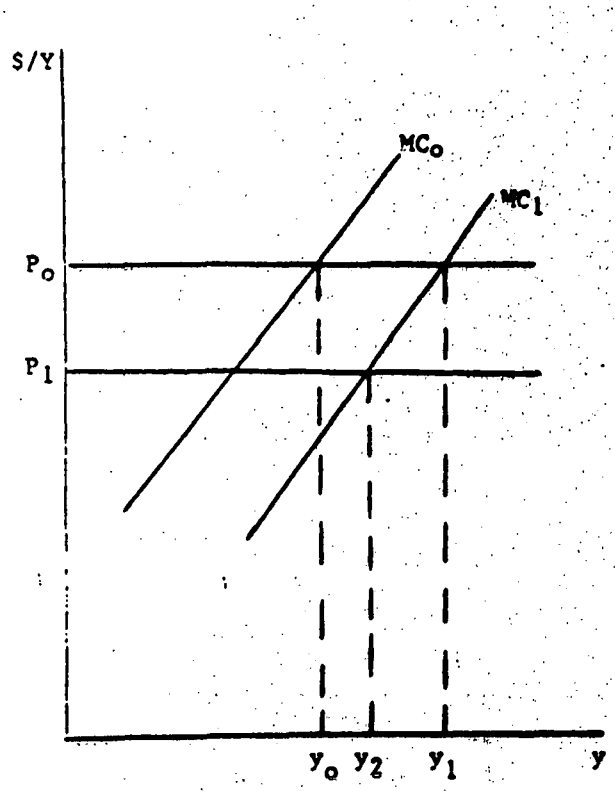

Figure D-2a. Firm

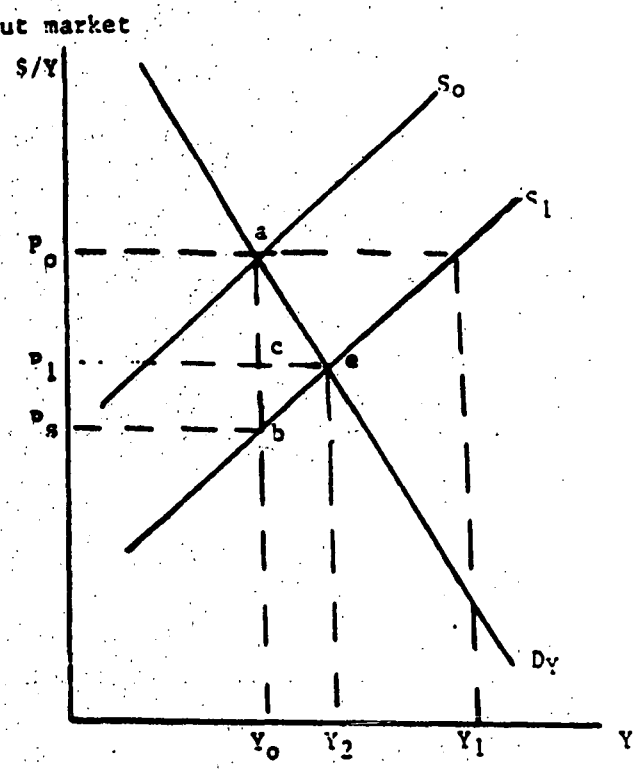

Figure D-2b. Industry

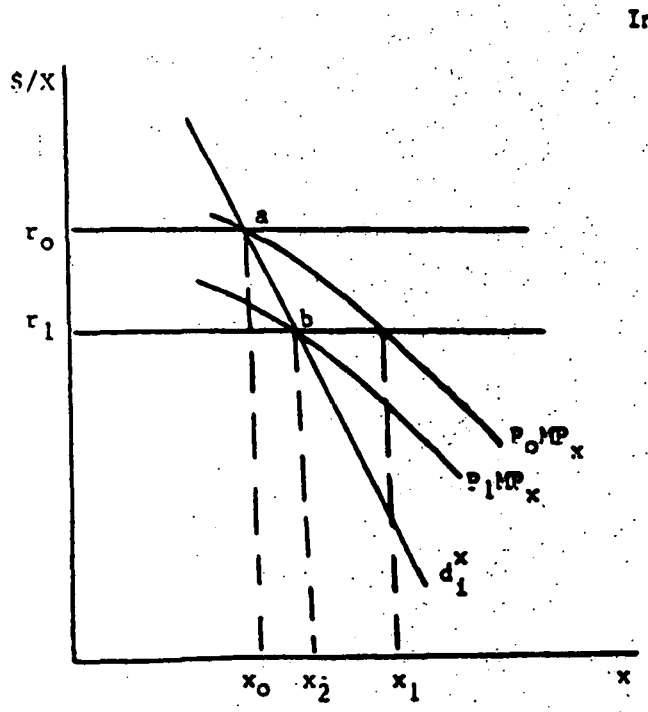

Figure D-2c. Firm

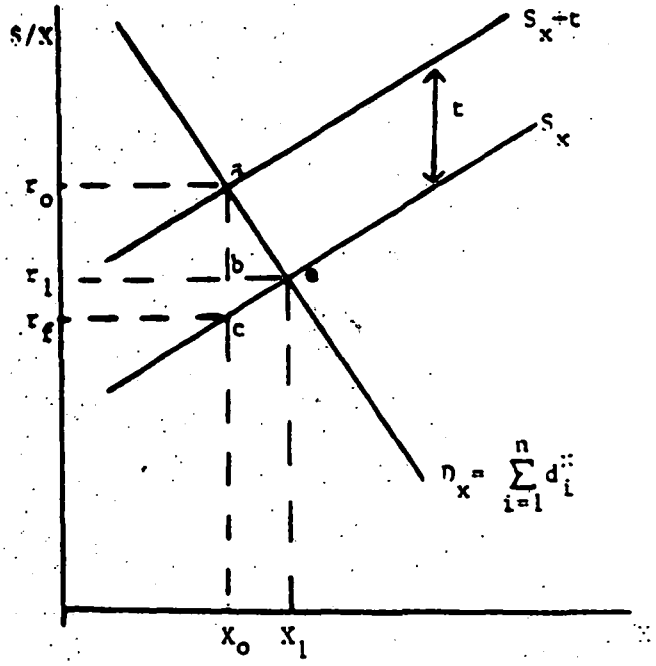

Figure D-2d. Industry

For simplicity, it is assumed that a change in the price of X causes a proportionate shift in the marginal cost curve for Y. 1/

A temporary duty reduction causes the import supply curve to shift downward from S_X+t to S_X in figure D-2d, causing the price of X in the domestic market to decline. A decline in the price of X causes the firm's marginal cost curve for Y to shift from MC_0 to MC_1 in figure D-2a. In the absence of any change in the price of Y, firms would increase output from y_0 to y_1, where price equals marginal cost and increase the quantity purchased of X from x_0 to x_1 in figure D-2c, as indicated by the movement along the value marginal product curve at output price P_0.

However, figure D-2b shows that an industrywide decline in the price of X would cause a downward shift in the industry Y supply curve from S_0 to S_1, creating a surplus of Y_1-Y_0 at output price P_0. This surplus would force the output price down to P_1, which would reduce industry output to Y_2 in figure D-2b and reduce the desired output of the individual firm to y_1.

The lower price in the output market is also shown to cause a downward shift in the value marginal product curve in figure D-2c from P_0MP_X to P_1MC_X, causing firms to purchase x_2, which corresponds to output level y_2, rather than x_1. The curve connecting points a and b in figure D-2c defines the firms' derived demand for the input X, and the horizontal summation of the firms' demand curves defines the industry demand curve in figure D-2d.

These events occur simultaneously until the equilibrium prices and quantities in the two markets are obtained. The total cost savings is rectangle r_0acr_f, in figure D-2d. The cost savings that is passed through to U.S. consumers, both consumer industries and ultimate consumers, is rectangle r_0abr_1, in figure D-2d, which equals P_0abP_S in figure D-2b. Of the cost savings passed through to U.S. consumers, the share passed through to the ultimate consumer is $(P_0-P_1)/(P_0-P_S)$. In addition, as in figure D-1, ultimate consumers also benefit from an efficiency gain equal to triangle ace and U.S. consumer industries gain triangle ceb. Note, finally, that the total gain in producer surplus, equal to area P_1ebP_S in figure D-2b, does not, in the long run, result in economic profits for firms in the U.S. industry, but is instead shared between owners of capital and labor. 2/

For an imported intermediate input, several factors will most likely affect the U.S. demand elasticity, derived ultimately from the demand for

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1/ With fixed factor proportions, a change in the cost of an input causes a proportionate shift in the marginal cost curve. The Wong-Viner theorem states that, for small increases in a factor price, the increase in the cost of the output of the consumer industry is virtually the same, whether or not the input proportions are altered in response to the price change.

2/ For a thorough discussion of the effect of an input price change on the price of output, see Eugene Silberberg, The Structure of Economics, McGraw-Hill Book Co., 1978, especially section 7.10, "Analysis of Firms in Long-run Competitive Equilibrium."

domestic output. Under certain perfectly competitive conditions, this demand can be expressed as the following equation:

$$n_x = (1-a_x)s + a_x n_o$$

Where a_x is the proportion of the total cost of output expended on the imported input X, s is the elasticity of technical substitution, and n_o is the elasticity of demand for the output. This expression gives three Marshall-Hicks rules concerning the elasticity of derived input demand: the demand for the input is likely to be more elastic, the more readily substitutes for the input can be obtained; the demand for an input is likely to be more elastic, the more elastic the demand for output is; and, finally, the demand for the input is likely to be less elastic, the less the proportion of total cost expended on the input, provided the elasticity of demand for the output, n_o, is greater than the elasticity of technical substitution, s. For example, if the imported input is used in fixed proportions, then the import demand elasticity will be a fraction of the demand elasticity for the final good. It can be easily seen that the share of cost savings passed through to consumer industries and ultimate consumers depends on the relative elasticities of supply and demand in the input and output markets. The greater the elasticity of supply relative to demand in the import input good X, the greater the share of the cost savings passed through to all U.S. consumers. Similarily, the greater the elasticity of supply relative to demand for the domestic output good Y, the greater the share of cost savings passed through to ultimate consumers. Unfortunately, whereas we are frequently able to estimate import and domestic demand elasticities, we lack reliable information on supply elasticities. Therefore, it is commonly assumed that with perfect competition over the long run, supply elasticities in both markets are perfectly elastic. This condition leads to a complete pass-through of the cost savings to ultimate consumers.

However, this procedure is not always appropriate, particularily in the short run in the domestic market or when the U.S. import market accounts for a substantial share of the world market. Another common practice is to make an educated guess as to the relative supply and demand elasticities and consequent proportion of the cost savings that will be passed through to the two groups of consumers. This may be accomplished if we have some knowledge of the characteristics of the markets. For example, if the import is a final good for which there are close substitutes in consumption and if the United States accounts for a large share of the world market, then one might expect the elasticity of import demand to be greater than the elasticity of import supply. In this case, only a small share of the cost savings will be passed on to U.S. consumers in the form of lower prices.

Tables D-1 and D-2 show the shares of the cost savings that are passed through to all U.S. consumers and ultimate consumers, assuming several alternate elasticities of supply and demand in the two markets.

Related-party transactions

A few of the products were imported by related parties, i.e., a U.S. parent company imported the product from its foreign subsidiary, or a U.S.

Table D-1
Share of cost savings passed through to all consumers using several alternate elasticities of supply and demand in the import market

Elasticity of import demand	Elasticity of import supply				
	0.5	1.0	2.5	5.0	Infinity
0.5	0.50	0.66	0.83	0.91	1.00
1.0	0.33	0.50	0.71	0.83	1.00
2.5	0.17	0.29	0.50	0.67	1.00
5.0	0.09	0.17	0.33	0.50	1.00

Source: Compiled by the staff of the U.S. International Trade Commission.

Table D-2
Share of cost savings passed through to all consumers and ultimate consumers using several alternate elasticities of supply and demand in the import and domestic output market

Elasticity of import demand	Elasticity of import supply				
	0.5	1.0	2.5	5.0	Infinity
	Share to all consumers				
Import market:					
1.0	0.33	0.50	0.71	0.83	1.00
	Share to ultimate consumers				
Output market:					
0.5	0.17	0.33	0.59	0.76	1.00
1.0	0.11	0.26	0.51	0.69	1.00
5.0	0.03	0.09	0.24	0.42	1.00

Source: Compiled from the staff of the U.S. International Trade Commission.

subsidiary imported the product from its foreign parent company. In such cases, the share of the cost savings and efficiency gain that is passed through to U.S. consumers in the output market as depicted in figure D-2b remains unchanged. The share of U.S. producer surplus that is gained by the owners of capital reverts back to the parent company and is eventually distributed to its shareholders. Assuming that the supply of labor is perfectly elastic, then the entire gain in total producer surplus, i.e., the sum of areas P_1ebP_s in figure D-2b and r_1ecr_f in figure D-2d is retained by the parent company. This means that if the parent company is in the United States with a wholly owned foreign subsidiary, the entire cost savings and efficiency gain is passed through to U.S. consumers. If, however, the U.S. company is a subsidiary of a foreign parent company, U.S. consumers gain only the share passed through to ultimate consumers and that which is distributed to U.S. shareholders.

Estimates of the lost tariff revenues

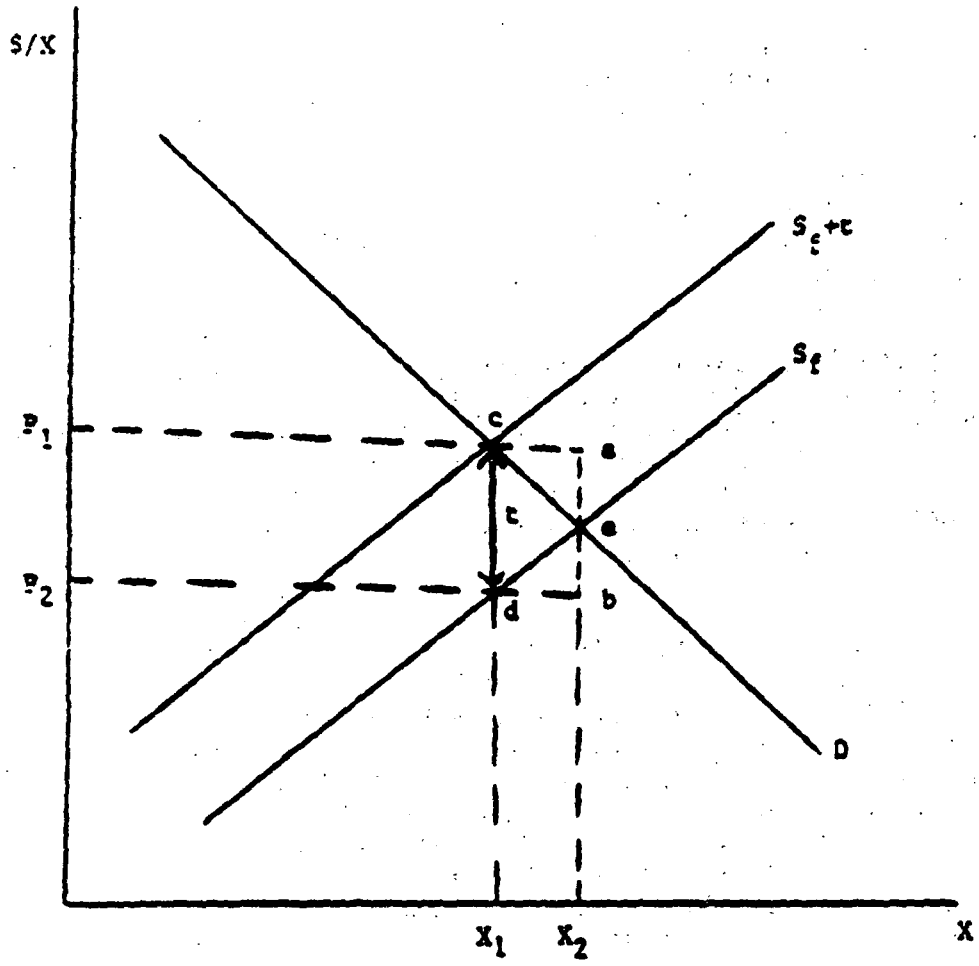
Estimates of the lost tariff revenues reported in this study were calculated by multiplying the tariff rate by the value of imports that entered duty free during the period of the duty suspension. These estimates have the advantage of taking into account all other factors that may have affected supply and demand during the period. However, they overstate the amount of the duties that would have been collected had the duties been in effect, as explained in figure D-3. The suspension of the duty effectively causes the supply curve as seen by U.S. consumers to shift from S+t to S and the equilibrium quantity sold in the U.S. market to increase from X_1 to X_2. The estimated lost tariff revenues are given by the rectangular area P_1abP_2 when in fact the true level of lost tariff revenues is the rectangular area P_1cdP_2. Note also that the estimate of the lost tariff revenues provided in the study includes the efficiency gain to U.S. consumers and foreign producers equal to the triangular area cbe.

Estimates of temporary duty suspensions on the value of imports

Many forces in the market affect the level of imports. These forces may obscure any observable effect of the duty suspension on the level of imports. In fact, such forces often outweigh the effect of the duty suspension, such that the actual level of imports declines when the duty is suspended. This does not mean that the duty suspension had no effect on imports. Had there been no duty suspension, the level of imports could have been even lower.

It is, however, possible to calculate some estimates of the effect of the duty suspension on the annual value of imports after adjustment to the duty suspension. This was done by estimating the average ad valorem equivalent tariff rate for each of the major product groups--pharmaceutical chemicals, intermediate chemicals, and so forth. By estimating weighted average import demand elasticities for the groups, and assuming that the import supply elasticities are perfectly elastic (which is likely to overstate the true change in the level of imports), it is possible to obtain some reasonable

Figure D-3.--Graphic presentation of calculated lost tariff revenues versus true lost tariff revenues



indication of the effect of the duty suspension on the value of imports, which is isolated from all other effects. These estimates are provided in the following tabulation.

Product	Average ad valorem tariff rate	Midpoint of weighted average (import demand elasticities)	Estimated percent change in value of imports
Pharmaceutical chemicals..	6.9	1.10	7.1
Intermediate chemicals....	12.3	1.86	20.4
Minerals, metals, and related products.....	3.6	1.66	5.8
Certain radios, textile machines, and magnetron tubes.....	5.9	2.72	15.1

Although these estimates are admittedly very rough, they demonstrate that in the absence of the duty suspension, the value of imports of intermediate chemicals and certain machinery and equipment would have been considerably less. In the case of intermediate chemicals, the effect is large because the average tariff rate is quite high; in the case of certain radios,textile machines, and magnetron tubes, the effect is large because U.S. consumers are highly responsive to price.

Empirical Estimate of Elasticities

Recently, Leamer 1/ provided a methodology for obtaining upper and lower bound estimates for either the supply elasticity or the demand elasticity from a simple regression of quantity on price. Unfortunately, it does not provide estimates of the demand and the supply elasticity for a given product, both of which are necessary to determine the share of the cost savings that is passed through to all U.S. consumers. However, it does provide information about at least one of these elasticities. Given some knowledge about the market for the product, it may be possible to make an educated guess as to the relative value of the other elasticity.

The form of the regression equation is as follows:

$$\ln(\text{quantity}_t) = a + b \ln(\text{price}_t) + u_t$$

where the subscript refers to the time period and the error term u_t is assumed to satisfy the usual requirements for ordinary least squares

1/ E.E. Leamer, "Is It a Demand Curve or a Supply Curve? Partial Identification Through Inequality Constraints," Review of Economics and Statistics, 1981, vol. 63, pp. 319-327.

regressions. It is also assumed that the supply curve does not slope downward and the demand curve does not slope upward. Then, if the least squares estimate of b is negative, it is an attenuated estimate of the elasticity of demand (-n), and the maximum likelihood estimate of the demand elasticity must lie within the range

$$b/[t^2/(t^2 + f)] < -n < b < 0,$$

where t is the t-statistic for the coefficient b and f is the degrees of freedom. If the least squares estimate of b is positive, then it is an attenuated estimate of the supply elasticity (e), and the maximum likelihood estimate of the true supply elasticity must lie within the range

$$0 < b < e < b/[t^2/(t^2 + f)].$$

Regressions were done for all 7-digit TSUSA items pertaining to all products in the study. The results of the regressions that conform to the following criteria are reported in tables D-3 through D-6:

(1) The t-statistics on the coefficient b must be greater than or equal to 1.96.

(2) The Durbin-Watson statistic must be greater than one.

In some cases , the 7-digit TSUSA item included a range of products, only some of which were eligible for the duty suspension. It was not possible to obtain estimates at a more dissagregated level. Other products eligible for the duty suspension were comprised of a number of 7-digit TSUSA items. Elasticity estimates were obtained for these products by calculating a value weighted average of the low and high estimates. Estimates for the products derived from regression results that are shown in tables D-3 through D-6 are provided in table D-7.

Table D-3
Pharmaceutical chemicals: Results of regressions used to derive elasticity estimates by the Leamer method for selected 7-digit TSUSA items, by section number 1/

Sec. No. and TSUSA No.	Price elasticity estimate	t-Statistic	Durbin-Watson	Observations
143:				
4112700.....	-0.61	-2.30	1.66	17
144:				
4115800.....	-0.69	-5.43	1.38	28
145:				
4118009.....	11.35	13.11	1.63	5
154:				
4371300.....	-1.31	-3.86	1.23	34
155:				
4373220.....	-1.14	-5.76	1.46	38
4373230.....	-0.82	-3.38	1.63	38
4373250.....	-0.33	-3.46	1.12	38
156:				
4395015.....	-0.46	-3.67	1.03	38
4395045.....	-1.07	-8.19	1.08	35
4395070.....	-0.94	-5.00	1.97	38
4395083.....	-1.55	-8.86	1.85	38
4395085.....	-1.03	-4.04	1.12	38
4395090.....	-0.56	-3.38	1.34	38

1/ Regression results reported only if t-statistic greater than 1.96 and Durbin-Watson statistic greater than 1.0.

Source: Compiled by the staff of the U.S. International Trade Commission.

Table D-4
Intermediate chemicals: Results of regressions used to derive elasticity estimates by the Leamer method for selected 7-digit TSUSA items, by section number 1/

Sec. No. and TSUSA No.	Price elasticity estimate	t-Statistic	Durbin-Watson	Observations
132:				
4032900.....	3.09	4.60	1.58	17
133:				
4035700.....	-1.92	-4.18	1.24	8
135:				
4050000.....	-1.22	-3.26	1.28	28
139:				
4065600.....	-0.46	-2.21	1.18	28
141:				
4089600.....	-1.54	-3.36	1.41	28
152:				
4267200.....	-0.97	-2.68	2.31	32
177:				
4071910.....	-1.25	-2.05	1.36	5
178:				
4035700.....	-1.92	-4.18	1.24	8

1/ Regression results reported only if t-statistic greater than 1.96 and Durbin-Watson statistic greater than 1.0.

Source: Compiled by the staff of the U.S. International Trade Commission.

Table D-5
Minerals, metals, and related products: Results of regressions used to derive elasticity estimates by the Leamer method for selected 7-digit TSUSA items, by section number 1/

Sec. No. and TSUSA No.	Price elasticity estimate	t-Statistic	Durbin-Watson	Observations
151:				
4230050	-0.48	-5.19	1.25	38
4230092	-2.71	-8.82	1.09	34
6037010	-1.09	-3.44	2.22	34
6037040	-1.22	-5.37	1.52	26
159:				
6022022	1.00	2.17	1.12	38
6035010	-1.25	-7.37	2.20	21
6035060	1.34	2.19	2.44	16
6035520	1.51	4.88	1.76	5
6035560	-0.97	-2.82	2.20	26
160:				
5202100	-1.26	-8.26	1.03	38

1/ Regression results reported only if t-statistic greater than 1.96 and Durbin-Watson statistic greater than 1.0.

Source: Compiled by the staff of the U.S. International Trade Commission.

Table D-6
Certain radios, textile machines, and magnetron tubes: Results of regressions used to derive elasticity estimates by the Leamer method for selected 7-digit TSUSA items, by section number 1/

Sec. No. and TSUSA No.	Price elasticity estimate	t-Statistic	Durbin-Watson	Observations
161:				
6851415.....	-0.90	-2.50	1.40	9
162:				
6702500.....	-1.27	-9.35	2.25	38
163:				
6842880.....	-1.69	-3.48	2.70	4
164:				
6701410.....	-0.83	-4.72	1.57	38
176:				
6702000.....	-1.17	-22.53	1.32	38
180:				
6701760.....	0.62	3.66	1.49	24

1/ Regression results reported only if t-statistic greater than 1.96 and Durbin-Watson statistic greater than 1.0.

Source: Compiled by the staff of the U.S. International Trade Commission.

Table D-7
Ranges of supply and demand elasticities derived by the Leamer method for selected section numbers

Product group and section number	Demand elasticity estimates		Supply elasticity estimates	
	Low	High	Low	High
Pharmaceutical chemicals:				
143	0.61	2.33	1/	1/
144	0.69	1.30	1/	1/
145	1/	1/	11.35	11.55
154	1.31	4.11	1/	1/
155	0.43	1.64	1/	1/
156	0.87	2.47	1/	1/
Intermediate chemicals:				
132	1/	1/	3.09	5.28
133	1.92	2.58	1/	1/
135	1.22	4.22	1/	1/
139	0.46	2.91	1/	1/
141	1.54	5.10	1/	1/
152	0.97	5.03	1/	1/
177	1.25	2.15	1/	1/
178	1.92	2.58	1/	1/
Minerals, metals, and related products:				
151	0.98	2.27	1/	1/
159	0.99	3.72	1/	1/
160	1.26	1.92	1/	1/
Certain radios, textile machines, and magnetron tubes:				
161	0.90	2.95	1/	1/
162	1.27	1.79	1/	1/
163	2.70	3.16	1/	1/
164	0.83	2.17	1/	1/
176	1.17	1.25	1/	1/
180	1/	1/	0.62	1.63

1/ Not available.

Source: Compiled by the staff of the U.S. International Trade Commission.

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