

UNITED STATES INTERNATIONAL TRADE COMMISSION

STAINLESS STEEL AND ALLOY TOOL STEEL

Report to the President
On Investigation No. TA-203-3
Under Section 203(i)(2) of the Trade Act of 1974



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UNITED STATES INTERNATIONAL TRADE COMMISSION

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REPORT TO THE PRESIDENT

U.S. International Trade Commission,
October 14, 1977.

To the President:

In accordance with section 203(i) of the Trade Act of 1974 (88 Stat. 1978), the United States International Trade Commission herein reports the results of an investigation conducted under section 203(i)(2) of that act with respect to certain stainless and alloy tool steel.

The investigation to which this report relates was undertaken for the purpose of advising the President as to the Commission's judgment as to the probable economic effect on the domestic industry concerned if the relief provided by Presidential Proclamation 4445, as modified by Proclamation 4477, were to be reduced or terminated by (1) excluding from the quantitative restrictions imposed thereby any of the steel covered by TSUS items 923.20, 923.21, 923.22, 923.23, or 923.26; or (2) increasing the quantitative restrictions for the second and third restraint periods for any of the steel covered by the aforementioned five TSUS items. The Commission's advice in this matter is provided separately for the steel covered by each of these five TSUS items.

The investigation was instituted on June 17, 1977, following receipt on May 25, 1977, of a request for such advice from the Special Representative for Trade Negotiations.

Public notice of the investigation and hearing were given by publishing the original notice in the Federal Register of June 24, 1977, (42 F.R. 32323). On July 15, 1977, the Commission cancelled the hearings scheduled for August 23, 1977, and ordered the hearing to be held

on September 7, 1977. Notice of the change of the hearing date was published in the Federal Register on July 18, 1977 (42 F.R. 36897).

A public hearing in connection with the investigation was held during the period September 7-10, 1977, in the Commission's Hearing Room in Washington, D.C. All interested persons were afforded an opportunity to be present, to present evidence, and to be heard.

The information contained in this report was obtained from field-work and from the Commission's files, other Government agencies, and information presented at the hearing and in briefs filed by interested parties.

ADVICE OF THE COMMISSION 1/

Commissioners Moore and Bedell are of the judgment that the termination or reduction of the quantitative restrictions, imposed by Presidential Proclamation No. 4445, as modified by Proclamation No. 4477, on imports of stainless and alloy tool steel covered by TSUS items 923.20, 923.21, 923.22, 923.23, and 923.26, whether considered individually by each TSUS item or collectively with respect to all such items, would have a serious adverse economic effect on the domestic industry producing such articles.

Chairman Minchew is of the judgment that the reduction of the aforementioned import relief by increasing each of the quota quantities for each of the five TSUS items--

for the second restraint period, by 6.7 percent, and,
for the third restraint period, by a further 6.7
percent of the aforementioned amount for the
second restraint period

would not have a serious adverse economic effect on the domestic industry concerned, but he is of the judgment that the increasing of such quota quantities by more than 6.7 percent or the terminating of such quota quantities would have a serious adverse economic effect on such domestic industry. He is also of the judgment that the termination of import relief with respect to the chipper knife blade steel and band saw steel covered by TSUS item 923.26 would not have a serious adverse economic effect on the domestic industry.

1/ Vice Chairman Parker did not participate.

Commissioner Ablondi having taken in account all relevant economic factors determines that termination or reduction of the annual quantitative restrictions imposed by Presidential Proclamation 4445, as modified by Proclamation 4477, on imports of stainless and alloy tool steel as provided for in items 923.20, 923.21, 923.22, 923.23, and 923.26 of the TSUS will not have a substantial adverse impact on the domestic industry concerned.

Views of Commissioners
George M. Moore and Catherine Bedell

In our opinion, the termination or reduction of the quantitative restrictions, imposed by Presidential Proclamation No. 4445, as modified by Proclamation No. 4477, on imports of stainless and alloy tool steel covered by TSUS items 923.20, 923.21, 923.22, 923.23, and 923.26, whether considered individually by each TSUS item or collectively with respect to all such items, would have a serious adverse economic effect on the domestic industry producing such articles. The domestic specialty steel industry has made little significant progress in its recovery from the serious injury substantially caused by increased imports. The recovery period has been short and the progress and efforts of the industry have only begun. Production and shipments have yet to reach 1973-74 levels while employment and capacity utilization have not completely rebounded from 1975 lows. Programs requiring substantial increases in investment expenditures are currently in effect or have been planned which depend upon the financial benefits of a relatively safe market that would not exist if import quotas were liberalized or ~~terminated~~. Terminating or modifying quotas prematurely could, therefore, hamper the recovery process and have a negative impact on many aspects of the domestic industry's recovery efforts, not only in the short run, but also, and more importantly, in the longer-run. Soft demand abroad along with increased capacity by many foreign suppliers makes the U.S. market highly attractive. In the absence of quotas, it is likely that imports would increase sharply, employment and domestic producers' shipments would decline, and profits would fall.

Views of Chairman Daniel Minchew

On May 25, 1977, the United States International Trade Commission (Commission) received a request from the Special Representative for Trade Negotiations for advice with respect to stainless steel and alloy tool steel, in accordance with section 203(i)(2) of the Trade Act of 1974. Upon receipt of this request, the Commission, on June 17, 1977, instituted an investigation under section 203(i)(2) of the Trade Act of 1974, for the purpose of advising the President of the probable economic effects on the domestic industry concerned if the relief provided by Presidential Proclamation No. 4445, as modified by Proclamation No. 4477, were to be reduced or terminated.

Determination

On the basis of the information developed in this investigation, I have determined that the reduction or termination of the import relief set forth in Proclamation 4445, as modified by Proclamation 4477, applicable to certain stainless and alloy tool steel products provided for in items 923.20, 923.21, 923.22, 923.23, and 923.26 of the TSUS, would have the following effect.

The reduction of the aforementioned import relief by increasing each of the quota quantities for each of the five TSUS items --

for the second restraint period, by 6.7 percent, and,

for the third restraint period, by a further 6.7 percent of the aforementioned amount for the second restraint period

would not have a serious adverse economic effect on the domestic industry concerned, but I am of the judgment that the increasing of such quota quantities by more than 6.7 percent or the terminating of such quota

quantities would have a serious adverse economic effect on such domestic industry. I am also of the judgment that the termination of import relief with respect to the chipper knife blade steel and band saw steel, covered by TSUS item 923.26, would not have a serious adverse economic effect on the domestic industry.

The product

Stainless steel is an alloy steel containing, by weight, less than one percent of carbon and over 11.5 percent of chromium. Chromium imparts the corrosion resistant quality to the product. Other elements are generally mixed in the alloy to improve its performance under chemical or temperature stress. Stainless steels are used extensively in the food, chemical, textile, pollution control, and electrical power industries.

Alloy tool steels are comprised of alloy steels containing certain combinations of elements which impart characteristics useful for the processing and producing of other metal parts. The alloy tool steels are noted for their hardness and abrasion and heat resistance. These steels are used primarily to make tools capable of cutting, forming, or otherwise shaping other materials in the manufacture of virtually all products of industry.

The industry

The "industry concerned" in this investigation, in my opinion, is those facilities devoted to the production of stainless steel and alloy tool steel. During 1976, there were 21 companies with facilities devoted to the production of stainless steel and alloy tool steel.

Judgment as to the probable economic effects of terminating or reducing import relief

The request from the Special Representative for Trade Negotiations

was for the Commission to undertake an investigation under section 203(i)(2) of the Trade Act of 1974 and advise the President of its judgment as to --

the probable economic effect on the domestic industry concerned if the relief provided by Proclamation 4445, as modified by Proclamation 4477, were to be reduced or terminated by (1) excluding from the quantitative restrictions imposed thereby any of the steel covered by TSUS Items 923.20, 923.21, 923.22, 923.23, or 923.26; or (2) increasing the quantitative restrictions for the second and third restraint periods for any of the steel covered by the aforementioned five TSUS items. The Commission's advice in this matter should be provided separately for steel covered by each of these five TSUS items.

Section 203(i)(2) of the Trade Act of 1974 provides --

Upon request of the President or upon its own motion, the Commission shall advise the President of its judgment as to the probable economic effect on the industry concerned of the extension, reduction, or termination of the import relief provided pursuant to this section.

In determining the probable economic effect on the domestic industry concerned, the Commission must look to conditions that have prevailed in the past and to conditions to expect in the period remaining under the import restraints.

In my opinion, the domestic industry has made significant progress toward recovery since the imposition of import quotas. Sales volume was 1.0 million short tons in 1976 -- 25 percent higher than in 1975. The value of sales increased 23 percent from 1975 to 1976 -- amounting to \$1.7 billion. Employment of production and related workers also increased during this period, up 16 percent. And, from information developed during this investigation, it appears that the general recovery noted for 1976 is continuing through 1977. Profitability increased by 123 percent.

Analysis by the Commission staff shows that the relative contributions

of the business cycle and the import restraint program to the expansion of domestic sheet-and-strip production is that the estimated increase in U.S. shipments during the first quota year as a combined result of U.S. business expansion and quota restraint was approximately 72,000 tons. Of this amount, about 51,000 tons, or 71 percent, resulted from U.S. business expansion, and about 21,000 tons, or 29 percent, occurred at the expense of reduced imports.

Despite the improvement experienced by the U.S. industry -- partially due to business expansion, and partially to the restraint program -- any termination of the quota system, except for the items mentioned below, would catch the industry mid-stream in its progress and would therefore have a serious adverse economic effect.

However, the restraints have caused some difficulties to U.S. consumers which can be rectified without adverse economic effect on the U.S. industry. In my opinion, shifts to higher priced products have placed a hardship on importers of chipper knife blade and band saw steel, who must compete with foreign manufacturers who export the finished product. I do not believe termination of the restraints on these items would have a serious adverse economic effect on the U.S. industry concerned.

However, despite my feelings that the termination of the restraint program would have a serious adverse economic effect on the U.S. industry concerned, the progress mentioned above makes it impossible for me to say that some modification could not be made without having a serious adverse economic effect on the U.S. industry.

In attempting to arrive at a figure for such modification, I have taken note of possible shifts between products if the size of one quota is

increased more than others, and have concluded that a figure used across the board would be the most equitable. The largest amount of imports of the product lines is in stainless steel sheet and strip, and this would be the most crucial of all the product lines to the industry. My analysis shows that the quota for sheet and strip can be increased by approximately 5,000 short tons during the next quota period, and by a like percentage during the next year. This translates to approximately 6.7 percent per year; and, as stated before, I would apply this figure across the board to all product lines. This will allow imports to compete with the domestic industry for a share of some of the growth which is anticipated to occur by business expansion.

One further modification should be considered. The President did not choose to establish individual country quotas for members of the EEC. Consequently, the EEC was provided the opportunity of either designating quotas for its members or allowing each of its members to compete for its share of the EEC quota. The EEC chose the latter course, and, as a result, quotas on certain product categories have been rapidly filled as each country has scrambled to maintain its traditional market share. In the case of rod and alloy steel, the quotas for the EEC were filled in 1 to 4 days. There would be no serious adverse economic effect caused by placing all quotas on a country by country basis.

Views of Commissioner Ablondi

In my opinion, the termination or modification of the annual quantitative restrictions imposed on imports of stainless steel and alloy tool steel will not have a substantial adverse impact on the domestic industry producing such articles. Domestic production, shipments, and employment have increased sharply and the industry's profits have recovered substantially from the economic downturn which was the principal cause of the industry's problems. In the first half of 1977, compared with the corresponding period of the recession year of 1975, U.S. production increased by 72 percent, U.S. producers' shipments, by 62 percent, and employment, as measured by man-hours worked, by 19 percent, notwithstanding the increased use of laborsaving technology, which has sharply increased labor productivity. These levels achieved during the first half of 1977 exceed levels attained during any corresponding period except for the abnormal levels realized in 1974.

Furthermore, utilization of plant capacity is relatively high, investment has increased sharply, and modernization has continued at a rapid pace. The industry has increased its use of AOD-type technology from less than 60 percent in 1975 to almost 90 percent in 1977. The resultant substantial savings in the industry's operating costs will enable domestic producers to compete effectively with foreign producers. Evidence of domestic competitive capabilities is shown by the fact that domestic prices of some stainless steel and alloy tool steel articles are at levels which several foreign producers find unattractive. This conclusion is further supported by the fact that most quota categories have remained unfilled.

The domestic industry has acknowledged its capability to compete with fair imports. It has demonstrated this ability by bringing on stream some of the most efficient AOD units and rolling mills in the world. The fear of the domestic industry is not of fair imports but of alleged unfair imports. However, it is not

the province of a section 203 investigation to determine the validity of alleged unfair acts. Resorting to a fair-trade statute to limit alleged unfair imports is not the proper means to an end. If such alleged unfair imports indeed are causing or threatening injury to the industry, other appropriate statutory remedies should be applied.

Testimony before the Commission established that quotas have imposed hardships on numerous domestic consumers. Traditional supply patterns have been disrupted causing both uncertainty of supply and increased inventory costs. These conditions caused upward price pressures which in turn have an adverse effect not only on consumers but also on the competitive position of end-product manufacturers. Domestic producers of stainless steel and alloy tool steel have in some instances been unable, or find it unattractive, to supply end-product manufacturers with necessary specialty steel.

Almost 16 months of the total quota period of 36 months have transpired. An additional 3 months of the quota period will have transpired by the time a final determination is rendered. With this probable timetable, almost 19 months of the original 36 month quota period will have elapsed. A further 3-to-4-month lead time required for imports to reach the consumer allows the domestic industry additional time to improve its competitive position.

In the absence of quotas, foreign producers have indicated to the Commission that their future shipments to the United States will not be excessive, but will reflect only past market share with respect to traditional suppliers and only modest tonnages with respect to new suppliers. Foreign producers, however, should not be permitted to disrupt the domestic market or to increase shipments excessively as a result of the termination of the quota restrictions. Foreign suppliers must not construe this determination as a license to increase shipments to such an extent as would warrant severe remedial action.

To insure the orderly flow of imports of stainless steel and alloy tool steel, the level of imports should be monitored monthly by the Commission; this in turn will assure the domestic industry that voluminous or disruptive increases would not be countenanced.

RECEIVED
THE SPECIAL REPRESENTATIVE FOR
TRADE NEGOTIATIONS

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Dist. Com. 4-24-77
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Honorable Daniel Minchew
Chairman
U.S. International Trade Commission
Washington, D.C. 20436

Dear Mr. Chairman:

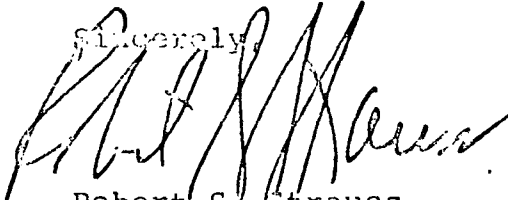
The President, on June 11, 1976, acted to provide import relief to U.S. producers of stainless and alloy tool steel, pursuant to section 203 of the Trade Act of 1974. For this purpose, Presidential Proclamation 4445, as modified by Presidential Proclamation 4477, inserted new provisions in the Appendix to the Tariff Schedules of the United States (TSUS) imposing temporary quantitative restrictions on imports of such steel under new TSUS Items 923.20, 923.21, 923.22, 923.23, and 923.26.

Pursuant to section 203 (i)(2) of the Trade Act of 1974, in accordance with section 5(a) of Executive Order 11846 of March 27, 1975, the President has directed me to request that the Commission advise the President of its judgment as to the probable economic effect on the domestic industry concerned if the relief provided by Proclamation 4445, as modified by Proclamation 4477, were to be reduced or terminated by (1) excluding from the quantitative restrictions imposed thereby any of the steel covered by TSUS Items 923.20, 923.21, 923.22, 923.23 or 923.26; or (2) increasing the quantitative restrictions for the second and third restraint periods for any of the steel covered by the aforementioned five TSUS Items. The Commission's advice in this matter should be provided separately for steel covered by each of these five TSUS Items.

I request the Commission in formulating its advice include, in its consideration and report, data on domestic production, shipments, and employment and manhours for the third and fourth quarters of 1976 and the first and second quarters of 1977. In addition, the Commission's investigation and report should include consideration of available data on: import and export volumes, inventories, unshipped orders, and prices of both domestic producers and U.S. importers, and domestic producers' profits, capacity, and capital expenditures.

This request does not indicate or in any way imply an Administration view or predetermination of this issue.

This matter is of considerable importance. I therefore request that the Commission's advice be provided at the earliest possible time.

Sincerely,

Robert S. Strauss

SUMMARY

Investigation No. TA-203-3 - Stainless Steel and Alloy Tool Steel

On May 25, 1977, the Special Representative for Trade Negotiations (STR) requested the Commission to undertake an investigation in order to advise the President as to the probable economic effect on the domestic industry of terminating or modifying quotas on the stainless and alloy tool steel provided for in items 923.20, 923.21, 923.22, 923.23, and 923.26 of the Tariff Schedules of the United States (TSUS). STR further requested that the Commission's advice be provided separately for steel covered by each of these five TSUS items.

Quotas on stainless steel sheet and strip, plate, bar, and rod, and alloy tool steel were proclaimed by the President, effective June 14, 1976, for a period of 3 years (Proclamation 4445, issued June 11, 1976, as modified by Proclamations 4477 and 4509, issued November 16, 1976, and June 15, 1977, respectively). The first-year quota totaled 147,000 tons, 4 percent below the 1975 import level. The quotas provided for a 3 percent increase in imports for each of the second and third quota years.

The import quotas have affected traditional supply patterns. In addition, foreign suppliers appear to have changed their product mix to maximize foreign exchange earnings within the quotas. Consuming industries most affected by these problems are wire manufacturers who consume stainless steel rod and knife manufacturers who consume cutter-blade steel, an item imported as alloy tool steel.

Discussion of recent trends

The domestic specialty steel industry exhibited a strong recovery in 1976 in line with the general improvement in the economy. Apparent consumption in 1976 increased 23 percent, U.S. producers' shipments increased 34 percent, and imports increased 9 percent. The increase in consumption occurred in all product lines except stainless steel plate and alloy tool steel.

A similar trend continued in the first 6 months of 1977. The increase in U.S. producers' shipments during this period was influenced by both the continuing improvement in the U.S. economy and restrictions on imports.

The level of employment has not improved as rapidly as U.S. producers' shipments because of productivity gains during the early stages of the recovery. However, there is some evidence to indicate that the level of employment has begun to accelerate.

Financial data

Profitability of the stainless steel and alloy tool steel industry has improved since 1975 with operating profits for all product categories except stainless steel plate, bar, and rod, increasing. Total operating profit increased from \$53.4 million in 1975 to \$73.4 million in 1976, an increase of 37 percent. Despite this improvement in profitability, net operating profits remained below

those of 1974.

Operating profits for the first half of 1977 indicate that the recovery which began in late 1976 has continued. Total net operating profit for stainless steel and alloy tool steel rose from \$33.4 million during the first half of 1976 to \$74.6 million during the first half of 1977, an increase of 123 percent. Stainless steel sheet and strip and stainless steel bar accounted for the bulk of the increase. Stainless steel plate and alloy tool steel experienced small decreases in net operating profits while the net operating profit for stainless steel rod increased by \$1.8 million.

The industry's gross profit is primarily influenced by changes in price and volume. The analysis contained in the report shows for the period January-June 1977 that increased industry gross profit was caused, in large part, by increased volume rather than increased prices, and relatively small changes in volume can have a significant impact upon gross profit.

INTRODUCTION

On May 25, 1977, the Special Representative for Trade Negotiations requested the U.S. International Trade Commission to undertake an investigation under section 203(i)(2) of the Trade Act of 1974 and advise the President of its judgment as to

the probable economic effect on the domestic industry concerned if the relief provided by Proclamation 4445, as modified by Proclamation 4477, were to be reduced or terminated by (1) excluding from the quantitative restrictions imposed thereby any of the steel covered by TSUS Items 923.20, 923.21, 923.22, 923.23, or 923.26; or (2) increasing the quantitative restrictions for the second and third restraint periods for any of the steel covered by the aforementioned five TSUS items. The Commission's advice in this matter should be provided separately for steel covered by each of these five TSUS Items.

The Commission, on June 17, 1977, instituted an investigation under section 203(i)(2) of the Trade Act of 1974 for the purpose of gathering data in order to advise the President of the probable economic effects of the possible actions listed above.

Public notice of the investigation and hearing was given by publishing the original notice in the Federal Register of June 24, 1977 (42 F.R. 32323). On July 15, 1977, the Commission canceled the hearing scheduled for August 23, 1977 and ordered the hearing to be held on September 7, 1977. Notice of the amendment of the hearing date was published in the Federal Register on July 18, 1977 (42 F.R. 36897).

A public hearing in connection with the investigation was held on September 7-9, 1977 in the Commission's hearing room in Washington, D.C.

The information contained in this report was obtained from fieldwork, from questionnaires sent to domestic manufacturers and importers, from the Commission's files, from other Government agencies, from information received at the hearing, and from briefs filed by interested parties.

Previous U.S. International Trade Commission investigations
of the specialty steel industry

On January 16, 1977, the Commission reported to the President the results of investigation No. TA-201-5, conducted under section 201(b) of the Trade Act of 1974, to determine whether ingots, blooms, billets, slabs, and sheet bars; bars; wire rods; and plates, sheets and strip, of stainless steel and alloy tool steel, were being imported into the United States in such increased quantities as to be a substantial cause of serious

injury, or the threat thereof, to the domestic industry producing an article like or directly competitive with the imported article. The Commission made an affirmative injury determination with respect to imports of such bars, wire rods, and plates, sheets and strip, and recommended to the President that import relief in the form of quantitative restrictions was necessary to prevent or remedy the injury. The Commission made a negative determination with respect to the imported ingots, blooms, billets, slabs, and sheet bars under investigation and accordingly made no recommendation with respect to import relief for such articles.

Following receipt of the Commission's report, the President proclaimed, effective June 14, 1976, import relief in the form of quantitative restrictions with respect to imports of such stainless steel bars, wire rods, plates, and sheets and strip, and alloy tool steel in the aforementioned forms.

In addition to investigation No. TA-201-5, the Commission has undertaken one previous 203(i)(2) investigation with regard to the subject quotas. On February 14, 1977, the Commission advised the President, following completion of investigation No. TA-203-2, Certain Alloy Tool Steel, that--

The termination of the annual quantitative restrictions imposed by Presidential proclamations 1/ on imports of certain alloy tool steel (bearing steel) 2/ will have a negligible effect on the industry producing such bearing steel by reason of the current limited production of such alloy tool steel and the fact that the annual volume of bearing steel imports amounts to less than half the annual import restrictions imposed by these Presidential proclamations.

Following receipt of such advice, the President, on June 15, 1977, issued Proclamation 4509 terminating the quantitative restrictions on alloy tool steel (bearing steel) provided for in item 923.25 of the TSUS.

As part of its quota monitoring program the Commission has published quarterly and annual reports containing key operating and financial data on the domestic industry since June 14, 1976.

1/ Presidential Proclamation No. 4445, as modified by Proclamation No. 4477.

2/ Provided for in item 923.25 of the TSUS.

Analysis and Principal Conclusions

The domestic specialty steel industry has made progress in its recovery from the serious injury substantially caused by increasing imports. The recovery period has been relatively short and the progress and efforts of the industry are just beginning. Production and shipments have yet to reach 1973-74 levels while employment and capacity utilization have not completely rebounded from 1975 lows. Substantial increases in investment expenditures are planned but according to the industry are based upon quotas remaining in effect for a full three years.

Only in the second half of the first quota year (December 14, 1976-June 14, 1977) did the industry actually benefit from the import restrictions. The surge of imports in the first and second quarters of 1976--to a significant degree in anticipation of the announced quotas--effectively watered down the relief expected for the first half of the initial quota year. Imports in calendar year 1976 totaled a record 167,000 tons even though quotas were in effect for more than 6 months of that year.

The impact on the domestic specialty steel industry of terminating or modifying the import relief program will depend upon two principal factors:

- (1) the level and structure of U.S. domestic demand for specialty steel during the next 21 months, and
- (2) the level of imports subsequent to termination or modification of the quotas.

Other important factors include the level of demand for these products in markets outside of the U.S., the relative prices of imported and domestically produced specialty steel, anticipated increases in imports from nontraditional supplying countries, and the ability of the domestic industry to meet any increased import competition in the absence of quotas.

Demand for specialty steel is derived from demand for the myriad of consumer, industrial, and capital goods into which it is incorporated. As a result of this characteristic, there is a close relationship between demand for specialty steel and such macroeconomic indicators as the Industrial Production Index. This comparison is

refined somewhat in figure A on the following page to show the close relationship between the level of demand for specialty steel items, as indicated in the index of U.S. producers' shipments of stainless steel sheets and strip, and the Durable Goods Production Index.

Figure A shows another important characteristic of the demand for specialty steel items, i.e., that a change in economic activity will result in a much greater change in demand for stainless steel sheet and strip in the same direction. Thus, a relatively small change in economic activity can have a substantial impact on firms in the specialty steel industry.

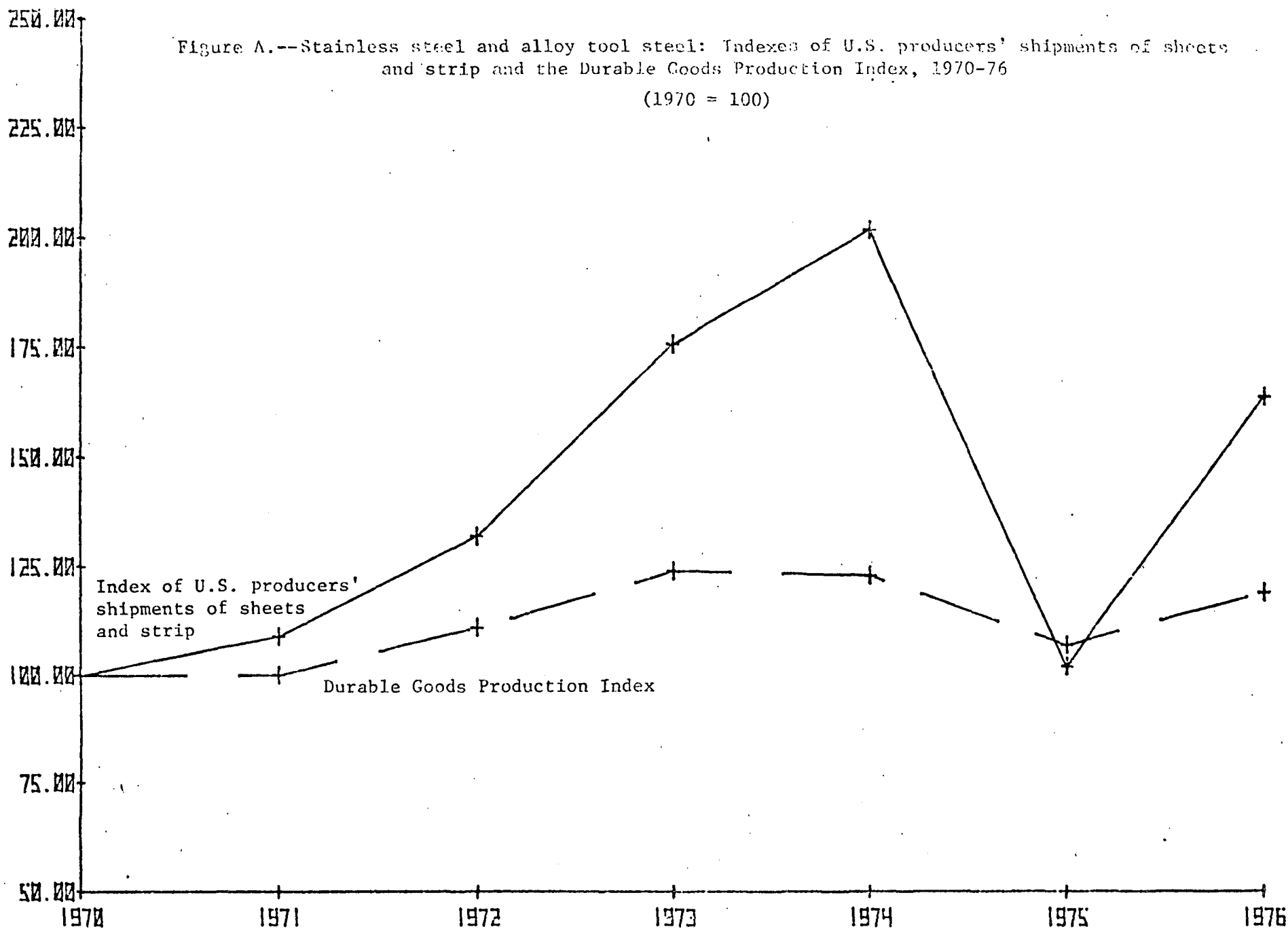
Structure of U.S. demand

During the past 18 months of recovery from the 1975 recession, changes in the level of U.S. demand have varied widely among the five specialty steel product categories. Stainless steel sheet and strip and rod led the industry's recovery in 1976 and January-June 1977. Demand for alloy tool steel recovered only minimally, and demand for plate declined. Strong growth in the demand for stainless steel bar did not begin until the first half of 1977.

Annual estimates of the market for specialty steel published by the International Nickel Co. (INCO) also reflect this diverse pattern of demand. Data in the table on the following page show that the consumer goods markets, such as automotive and appliances, are significantly important for sheet and strip but relatively unimportant for plate and bar where the capital goods market dominates. Thus, in the absence of quotas, the probable economic effect of changes in the structure of demand on the domestic industry can be expected to vary from producer to producer depending on whether the firm's production is broadly based, or whether the firm has rationalized production by concentrating on one or two products.

The table on the following page shows the growth patterns of market segments which constituted stainless steel demand during 1972-76. ^{1/} Consumer durable goods, which includes automobiles and appliances, constituted almost half the market for specialty steel and represented by far the largest consuming sector. Capital goods, which includes industrial equipment, tools, and so forth, accounted for the second largest sector of demand. Demand for consumer durable goods was strong in 1976, as is reflected in the sharp growth of apparent consumption of stainless steel by those market segments. In contrast, capital goods markets increased at a substantially lower rate.

^{1/} This aggregate apparent consumption time series includes stainless steel pipes and tubes and wire, products which are not included in this investigation.



A-7

Source: Index of U.S. producers' shipments of sheets and strip compiled from data contained in table 12; durable goods production index compiled from Federal Reserve Board Bulletin: Industrial Production Indices.

Stainless steel sheets and strip, plate, and bar: U.S. consumption, by market
classifications, 1975 and 1976

(In thousands of tons)

Market classification	Sheet and strip		Plate		Bar	
	1975	1976	1975	1976	1975	1976
Machinery, industrial equipment, tools and electrical equipment-----	83	137	37	37	49	52
Automotive-----	123	198	*	*	7	10
Other domestic and commercial equipment-----	58	97	7	6	8	10
Construction and contractors products-----	56	86	17	14	6	8
Appliances, utensils and cutlery-----	56	90	2	2	1	2
Industrial fasteners-----	1	2	*	*	13	18
Aircraft-----	10	15	2	2	6	5
Non-classified and others-----	47	77	38	29	30	27
Total domestic consumption-----	434	702	103	90	120	132

* Less than 1,000 tons.

Source: The International Nickel Co., Stainless Steel, a Five Year Summary, April 1977.

Stainless steel: U.S. consumption, by market classifications, 1972-76

(In thousands of tons)

Market classification	1972	1973	1974	1975	1976	Percent	% change 1975-1976
Machinery, industrial equipment, tools and electrical equipment---	248	308	383	220	283	25	+29
Automotive-----	141	166	199	139	214	19	+54
Other domestic and commercial equipment-----	123	146	176	98	134	12	+37
Construction and contractors' products-----	117	153	165	98	128	11	+31
Appliances, utensils and cutlery-----	94	116	115	67	98	9	+46
Industrial fasteners-----	40	49	60	31	45	4	+45
Aircraft-----	27	34	38	24	28	3	+17
Forgings-----	23	29	34	31	26	2	-16
Non-classified and others-----	128	166	214	140	164	15	+17
Total domestic consumption----	941	1,167	1,384	848	1,120	100	+32

Source: The International Nickel Co., Stainless Steel, a Five Year Summary, April 1977.

Note: This table covers stainless steel pipes and tubes and wire, products which are not subject to this investigation.

The economic effect on the domestic industry of terminating or modifying the quotas could be more serious in those product categories which have lagged in recovery, for which demand has fallen, or for which demand is anticipated to be weak in the short run. Any increase in imports in these categories will add to the domestic industry burden from soft demand. This does not imply that product categories which have recovered sharply from the low shipment levels in 1975 will be insulated from any adverse economic effects which may be generated by terminating or modifying the quotas. On the contrary, those specialty steel products which have shown the most recovery, such as stainless steel sheets and strip, and bar, could presumably be attractive targets for imports because of higher prices and wider profit margins.

Level of U.S. imports

Import pressure on the U.S. specialty steel market depends not only upon U.S. demand but also upon the level of market demand in the major foreign supplying countries and in their third country markets. A recent study concludes that the fluctuations of steel demand in home markets result in "intense competition" in foreign markets. ^{1/} These foreign markets, in effect, act as "buffers" for home market downturns illustrating that when world specialty steel demand and U.S. domestic demand are strong and synchronized as in 1973 and early 1974, home- and third-country markets become more attractive to foreign producers than the U.S. market.

In contrast, during the latter part of 1974, as world markets sank into recession ahead of the U.S., imports in the last quarter grew by more than 47 percent when compared to the third quarter and the ratio of imports to apparent consumption jumped from 11.3 percent to 17.2 percent. This ratio was maintained or exceeded throughout most of 1975, a recession year. Thus, when recovery in the U.S. is stronger than in most other industrial economies, the U.S. market becomes an attractive outlet to offset soft demand in supplying country markets. Consequently, it is reasonable to expect that if soft demand in foreign specialty steel markets continues, strong import pressure can be expected in the U.S. market when quotas are terminated or modified.

Recent demand for stainless steel in Western Europe and Japan

Predictions for economic growth in Western Europe during 1977 and 1978 by the Organization for Economic Cooperation and Development (OECD)

^{1/} J. Frieden, Instability in International Steel Trade, 1974.

are pessimistic and discouraging. The OECD has lowered its 1978 growth forecast from 5.0 percent to 1.75 percent for its European members. It estimates that unemployment in Western Europe will increase under such low growth conditions. Faced with declining, or, at least, little or no growth in production, and rising unemployment, it would appear that European specialty steel makers will be eager, if past patterns continue, to export increasing tonnages to a stronger U.S. market unhampered by any import restrictions.

Data on world stainless steel ingot production are shown in the table on the following page. The data show that production of stainless steel ingot in 1977 (based on January-August data) is expected to fall in West Germany and Sweden and to remain at about the prior year level in the United Kingdom. Only in France and Italy is ingot production expected to show an appreciable increase over the 1976 level.

In 1976, after the 1975 recession, France and Italy increased their exports to the United States in absolute terms and as a percentage of their total exports. Stainless steel exports from France to the United States increased from 8.3 percent of total stainless steel exports in 1975 to 11.5 percent in 1976. Italy's exports of stainless steel to the United States increased from 1.1 percent to 3.2 percent during the same period. In absolute terms imports from these countries together more than doubled in 1976.

Thus, if Western European ingot production in 1978 remains at or near the 1977 level as expected, and if the pessimistic OECD growth predictions do indeed occur, it can be anticipated that import pressures in the absence of quotas will increase.

In Japan, as in Europe, growth rates have not reached expected levels. If past patterns hold, there are clear indications that import pressure from Japan could sharply increase in the absence of voluntary restraint or orderly marketing agreements.

A comparison of changes in stainless steel ingot production levels in Japan in 1971 and 1975 and changes in export pressure on the U.S. market, as reflected in U.S. imports of stainless steel from Japan, gives an indication of what could happen if the import restraint program is terminated or modified. During past periods of slow economic growth in Japan, such as in 1971 and 1975, the level of Japan's exports of specialty steel to the United States increased. In 1971, Japan's economic growth slowed and its ingot production declined by almost 20 percent. Despite this reduction in ingot production, U.S. imports from Japan of articles covered by this investigation increased by 7 percent. The same pattern occurred in 1975 and exports to the United States increased by 25 percent. These increases in exports to the U.S. market helped Japan to offset its declining domestic demand in 1971 and 1975 and, in effect, propped up its level of stainless steel ingot production.

Stainless steel and alloy tool steel: Production of stainless steel ingots for selected countries in
Western Europe and Japan, 1970-76 and forecast for 1977

(In thousands of tons)

Country	1970	1971	1972	1973	1974	1975	1976	1977 <u>2/</u>
Western Europe:								
West Germany-----	555	408	571	683	758	482	742	705
France-----	507	434	529	574	628	462	543	623
Sweden-----	434	375	421	515	572	462	461	430
Italy-----	262	238	287	317	343	294	403	430
United Kingdom-----	284	180	216	264	247	163	245	248
Total-----	2,042	1,635	2,024	2,353	2,548	1,863	2,399	2,436
Japan-----	1,811	1,548	1,566	2,346	2,246	1,814	2,428	<u>2/</u>
Total, Western Europe and Japan-----	3,853	3,183	3,590	4,699	4,794	3,677	4,827	<u>2/</u>

1/ Projected on the basis of 8-month ingot production levels adjusted for 4th quarter trend.

2/ Not available.

Source: Market Research Department, International Nickel Company, World Stainless Steel Statistics, 1976.

Price competition in the absence of quotas

Demand for specialty steel is relatively insensitive to changes in price. 1/ A reason for this insensitivity is that specialty steel demand is derived from demand for articles incorporating specialty steel. Thus, a price reduction of imported or domestically produced specialty steel will not result in an appreciable shortrun increase in demand. 2/

The price difference between imported and domestically produced specialty steel, however, has a major influence on the consumer's purchasing decision. Data collected in investigation No. TA-201-5 (Stainless Steel and Alloy Tool Steel) show that when the price gap between imported and domestically produced specialty steel is large, as in the fourth quarter of 1974 and throughout 1975, consumer demand noticeably shifted to imports and the ratio of imports to apparent consumption sharply increased.

Thus, price differences play a key role in determining how aggregate demand for specialty steel will be shared between imported and domestically produced products. Increases in price differences caused by reduced prices of imports, in the absence of strong demand, result in increasing imports which reduce U.S. producers' shipments proportionally. It should be noted, however, that a similar result will occur if the domestic industry, in order to maintain profit levels, raises prices during periods of soft demand.

Assuming the import restraint program is terminated or modified, the price difference between competing grades, types, and sizes of imported and domestic stainless and alloy tool steel can be expected

1/ Forecasting Steel Consumption, Organization for Economic Cooperation and Development, Paris, 1974; Instability in International Steel Trade, J. Frieden, 1974.

2/ Imports may add to demand marginally. According to testimony at the hearing, the quotas have not only caused bottlenecks and shortages in some product forms and sizes, but have constrained the growth of demand for certain products. To the extent that this has occurred, terminating the quotas would add to the level of demand. In the absence of quotas, imports would gain this market growth if the domestic industry is unable (or unwilling) to satisfy these small islands of unsatisfied demand. Such distortions in supply or dampening of demand are not believed to represent significant tonnage. Examples of specific product shortages include 430 grade strip for flatware manufacturers, rod for independent wire drawers, chipper knife steel, and band-saw steel.

to widen. This conclusion rests on three basic criteria:

- (1) that foreign demand is soft and will continue to be soft in comparison with U.S. demand;
- (2) that the major foreign specialty steel producers will vigorously compete to capture a larger share of the U.S. market; and
- (3) that developing countries with new specialty steel mills will attempt to establish a U.S. market position or expand their presently small market shares.

Finland has reported to the Commission that the U.S. market is to be the export target for several thousand tons of specialty steel from its new mill. Spain, Brazil, and Korea have expanded specialty steel production capacity and were steadily expanding their stainless steel bar exports to the United States before quotas were imposed. Again, the most likely method to be used by these nations in order to expand or acquire U.S. market share will be price cutting. However, other marketing practices such as extended credit terms, quantity discounts based on collective purchases, and further processing of product forms at no extra cost could also be used.

Price data on individual products collected by the Commission indicate that, during periods of slack demand, fierce price competition among importers drives prices far below a level necessary to capture sales.

Stainless steel and alloy tool steel: U.S. producers' shipments, exports, imports for consumption, and apparent consumption, by types, 1976, projected 1977, 1/ and estimated 1978, 2/ with quotas

(In thousands of tons)

Item and period	U.S. producers' shipments	Exports	Imports	Apparent consumption
Sheet and strip:				
1976-----	692	47	78	723
Projected 1977--	761	47	69	783
Estimated 1978:				
A <u>3/</u> -----	800	47	71	824
B <u>4/</u> -----	795	47	71	819
C <u>4/</u> -----	765	47	71	789
D <u>3/</u> -----	769	47	71	793
Plate				
1976-----	94	3	19	110
Projected 1977--	97	3	8	102
Estimated 1978:				
A <u>3/</u> -----	95	3	10	102
B <u>4/</u> -----	105	3	10	112
C <u>4/</u> -----	93	3	10	100
D <u>3/</u> -----	83	3	10	90
Bar:				
1976-----	121	5	23	139
Projected 1977--	135	4	25	156
Estimated 1978:				
A <u>3/</u> -----	142	4	26	164
B <u>4/</u> -----	150	4	26	172
C <u>4/</u> -----	133	4	26	155
D <u>3/</u> -----	127	4	26	149
Rod:				
1976-----	17	0.5	20	37
Projected 1977--	23	1	19	41
Estimated 1978:				
A-----	-	-	-	-
B <u>4/</u> -----	25	1	19	43
C <u>4/</u> -----	20	1	19	38
D <u>3/</u> -----	24	1	19	42
Alloy tool steel:				
1976-----	69	4	27	92
Projected 1977--	76	4	22	94
Estimated 1978:				
A <u>3/</u> -----	85	4	22	103
B-----	-	-	-	-
C <u>4/</u> -----	88	4	22	106
D <u>3/</u> -----	81	4	22	99

1/ Based on January-August data.

2/ Estimates for 1978 were obtained from a leading specialty steel firm, the composite for the specialty steel industry excluding that firm, the composite for the steel service center industry, and a major raw material supplier to the specialty steel industry.

3/ Demand forecast based on estimates of apparent consumption in 1978.

4/ Demand forecast based on estimates of domestic shipments in 1978.

Source: Compiled from responses to inquiries of the U.S. International Trade Commission.

Stainless steel and alloy tool steel: U.S. producers' shipments, exports, imports for consumption, and apparent consumption, by types, 1976, projected 1977, 1/ and estimated 1978, 2/ without quotas

(In thousands of tons)

Item and period	U.S. producers' shipments	Exports	Imports	Apparent consumption
Sheet and strip:				
1976 <u>3/</u> -----:	692	47	78	723
Projected 1977 <u>3/</u> -----:	761	47	69	783
Estimated 1978:-----:				
A-----:	774	47	97	824
B-----:	769	47	97	819
C-----:	743	47	93	789
D-----:	746	47	94	793
Plates:				
1976 <u>3/</u> -----:	94	3	19	110
Projected 1977 <u>3/</u> -----:	97	3	8	102
Estimated 1978:-----:				
A-----:	89	3	16	102
B-----:	98	3	17	112
C-----:	88	3	15	100
D-----:	79	3	14	90
Bar:				
1976 <u>3/</u> -----:	121	5	23	139
Projected 1977 <u>3/</u> -----:	135	4	25	156
Estimated 1978:-----:				
A-----:	137	4	31	164
B-----:	144	4	32	172
C-----:	130	4	29	155
D-----:	125	4	28	149
Rod:				
1976 <u>3/</u> -----:	17	0.5	20	37
Projected 1977 <u>3/</u> -----:	23	1	19	41
Estimated 1978:-----:				
A-----:	-	-	-	-
B-----:	21	1	23	43
C-----:	19	1	20	38
D-----:	20	1	23	42
Alloy tool steel:				
1976 <u>3/</u> -----:	69	4	27	92
Projected 1977 <u>3/</u> -----:	76	4	22	94
Estimated 1978:-----:				
A-----:	76	4	31	103
B-----:	-	-	-	-
C-----:	78	4	32	106
D-----:	73	4	30	99

1/ Based on January-August data.

2/ Estimates for 1978 were obtained from a leading specialty steel firm, the composite for the specialty steel industry excluding that firm, the composite for the steel service center industry, and a major raw material supplier to the specialty steel industry.

3/ Figures for 1976 and projected 1977 are actual numbers under quota conditions and are included to serve as benchmarks for 1978 estimates.

Source: Compiled from responses to inquiries of the U.S. International Trade Commission

Thus, in the absence of quotas, strong competition among importers for orders would push prices down and the gap between prices of the domestically produced and imported products would widen.

Estimated 1978 apparent consumption, imports, and U.S. producers' shipments

Projected demand for specialty steel product categories for 1977 (based on January-August data) and 1978 forecasts are provided in tables on pages 15 & 16. These tables contain (1) a leading specialty steel firm's forecast, (2) a composite forecast by the specialty steel industry, excluding that firm, (3) a composite forecast by the steel service center industry, and (4) a forecast by a major supplier of raw material to the specialty steel industry.

Data in the following table (based on the preceding tables) show that the apparent consumption forecasts for stainless steel and alloy tool steel in calendar year 1978 range between 1,165,000 tons and 1,257,000 tons. Within this range, if the quotas remain in effect, U.S. producers' shipments will be between 1,076,000 tons assuming low growth estimates, and 1,168,000 tons assuming high growth estimates. Imports, restricted by the quotas, would total an estimated 148,000 tons in either case. 1/

Data in the following table also provide a similar analysis of the probable range of imports and domestic shipments under the same forecast of high and low growth of apparent consumption in 1978 but with the assumption that the import restraint program is terminated or modified. If apparent consumption is at the low end of the forecasted range in 1978 (1,165,000 tons) then it is estimated that U.S. producers' shipments will fall 5 percent to 1,039,000 tons and imports are estimated to increase 29 percent to 185,000 tons. If, on the other hand, apparent consumption is at the high end of the forecast range (1,257,000 tons) then U.S. producers' shipments are estimated to increase 2 percent to 1,115,000 tons with imports rising 41 percent to an estimated 201,000 tons.

The key assumptions for determining import levels in the absence of quotas was that apparent consumption would not change, whether or not quotas were terminated or modified, and that imports would, at least, achieve their average ratio of apparent consumption during the 1971-75 period. This time period reflects the fluctuations in demand over one complete business cycle and is thus representative. Furthermore, foreign suppliers have indicated that, in the absence of quotas, historic market share will be their minimum target level. (See Appendix C).

The table on the following page details the estimated changes in U.S. producers' shipments, U.S. imports, and apparent consumption from 1977 to 1978 and the import share of the change in U.S. apparent consumption. Total U.S. apparent consumption declines by an estimated 11,000 tons (1 percent) under the low growth assumption and increases an estimated 81,000 tons (7 percent) under the high growth assumption. As stated earlier, the apparent consumption forecasts were the same whether or not quotas were terminated or modified.

1/ This estimate is based on the level of imports during the first quota year and is approximately 4,000 tons below the level permitted under the quota.

Stainless steel and alloy tool steel: Estimated ranges of U.S. producers' shipments, exports, imports for consumption, and apparent consumption, by types, 1978
(In thousands of tons)

Item	: U.S. : : producers' : Exports : Imports : : shipments : : : : : : : : : : : : :	: Apparent : consumption
With quotas:	:	:
Sheet and strip-----	: 765-800 : 47 : 71 : 789-824	
Plate-----	: 83-105 : 3 : 10 : 90-112	
Bar-----	: 127-150 : 4 : 26 : 149-172	
Rod-----	: 20-25 : 1 : 19 : 38-43	
Alloy tool steel-----	: 81-88 : 4 : 22 : 99-106	
Total-----	: 1,076-1,163 : 59 : 148 : 1,165-1,257	
Without quotas:	:	:
Sheet and strip-----	: 743-774 : 47 : 93-97 : 789-824	
Plate-----	: 79-98 : 3 : 14-17 : 90-112	
Bar-----	: 125-144 : 4 : 28-32 : 149-172	
Rod-----	: 19-21 : 1 : 20-23 : 38-43	
Alloy tool steel-----	: 73-78 : 4 : 30-32 : 99-106	
Total-----	: 1,039-1,115 : 59 : 185-201 : 1,165-1,257	

Source: Compiled by the U.S. International Trade Commission from detailed estimates in tables on pages 20 and 21.

Stainless steel and alloy tool steel: Increase or (decrease) in U.S. producers' shipments, imports, apparent consumption, and the import share of the increase (decrease) in apparent consumption, low and high rates of growth, with and without quotas, by types, 1977 to 1978

Type	Low growth				:	High growth			
	U.S.	Imports	Apparent	Import share		U.S.	Imports	Apparent	Import share
	producers' shipments		consumption	of increase in apparent consumption		producers' shipments		consumption	of increase in apparent consumption
	<u>1,000 tons</u>	<u>1,000 tons</u>	<u>1,000 tons</u>	<u>Percent</u>		<u>1,000 tons</u>	<u>1,000 tons</u>	<u>1,000 tons</u>	<u>Percent</u>
With quotas:									
Steels									
strip-----	4	2	6	33		39	2	41	5
Plates-----	(14)	2	(12)	1/		8	2	10	20
Bar-----	(8)	1	(7)	1/		15	1	16	6
Rod-----	(3)	0	(3)	1/		2	0	2	0
Alloy tool steel-----	5	0	5	0		12	0	12	0
Total--	(16)	5	(11)	1/		76	5	81	6
Without quotas:									
Steels									
strip-----	(18)	24	6	400		13	28	41	68
Plates-----	(18)	6	(12)	1/		1	9	10	90
Bar-----	(10)	3	(7)	1/		9	7	16	44
Rod-----	(4)	1	(3)	1/		(2)	4	2	80
Alloy tool steel-----	(3)	8	5	160		2	10	12	83
Total--	(53)	42	(11)	1/		23	58	81	78

1/ Unable to calculate due to an increase in imports and a decline in apparent consumption.

Source: Compiled by the U.S. International Trade Commission from tables on pages 20 and 21.

Under the assumption of low growth, total U.S. shipments decline by an estimated 16,000 tons (1 percent) with quotas and by an estimated 53,000 tons (5 percent) without quotas. The estimated increase in U.S. imports would range between 5,000 tons (3 percent) with quotas and 42,000 tons (29 percent) without quotas.

Under the assumption of high growth, total U.S. shipments would increase an estimated 76,000 tons (7 percent) with quotas but only 23,000 tons (2 percent) without quotas. The increase in U.S. producers' shipments with high growth but without quotas would range from 13 percent to 67 percent below the increases recorded under the same growth assumption without termination or modification of the quotas. For example, shipments of stainless steel sheets and strip would increase 39,000 tons under high-growth conditions and with quotas but only 13,000 tons under the same growth assumption but without quotas. The loss in shipments without quotas would therefore total 26,000 tons, or 67 percent less than shipments with quotas. The estimated increase in U.S. imports would range between 5,000 tons (3 percent) with quotas, and 58,000 tons (41 percent) without quotas.

Stainless steel rod is the only product category for which shipments would decline, assuming high-growth conditions without quotas. Despite an estimated increase of 2,000 tons in apparent U.S. consumption of rod under these assumptions, shipments would decline by an estimated 2,000 tons.

The table on the following page converts the preceding estimates of changes in U.S. producers' shipments into projected changes in man-hours worked and gross profit in 1978 compared with 1977. These projections are based on the assumption that changes in shipments will be reflected in parallel changes in production.

Estimated changes in man-hours worked

Using the assumptions of low growth and continued quotas, man-hours worked increase only for stainless steel sheet and strip and alloy tool steel. Under the quotas and high growth assumptions all products exhibit increases in man-hours worked.

Using the assumption of low growth and no quotas, total man-hours worked for all product categories decline by 430,000. However, if quotas were terminated or modified, man-hours worked would decline by more than four times that amount. Under the high-growth assumption with quotas, man-hours worked would increase for all product categories. Under the same growth assumption but with termination of the quotas, man-hours worked would increase for all product categories except rods. However, the level of increase would range from 12 to 60 percent below the increases recorded under the high growth assumption with quotas. Man-hours worked on stainless steel rod would decline by 61,000.

Estimated changes in gross profit

Under the assumption of low growth with quotas, gross profit would increase only on stainless steel sheet and strip and alloy tool steel. Under quotas and the high growth assumption, all product categories would achieve increases in gross profits.

Stainless steel and alloy tool steel: Increase or (decrease) in U.S. producers' man-hours worked and gross profit based on low and high rates of growth, with and without quotas, by types, 1977 to 1978

Type	With quota		Without quota	
	Low growth	High growth	Low growth	High growth
	Man-hours (thousands)			
Sheet and strip-----	90.3	880.1	(406.2)	293.4
Plate-----	(393.8)	225.0	(506.3)	28.1
Bar-----	(449.6)	843.0	(562.0)	505.8
Rod-----	(91.4)	61.0	(121.9)	(61.0)
Tool steel-----	414.1	993.9	(248.5)	165.6
Total-----	(430.4)	3,003.0	(1,844.9)	931.9
	Gross profit (million dollars)			
Sheet and strip-----	1.2	18.2	(8.5)	6.1
Plate-----	(9.0)	5.4	(11.6)	0.4
Bar-----	(7.8)	14.1	(9.7)	8.8
Rod-----	(1.5)	1.0	(2.0)	(1.0)
Tool steel-----	4.8	11.5	(2.9)	1.9
Total-----	(12.3)	50.2	(34.7)	15.2

Source: Estimated by the U.S. International Trade Commission.

Using the assumption of low growth without quotas, the gross profit for all categories would decline. This decline is 2.8 times the decline recorded under low growth conditions with quotas. Under the high growth assumption without quotas, all product categories except stainless steel rod would achieve increases in gross profit. The level of increase would range from 7 to 62 percent below the increase recorded under the same growth assumption but with quotas. The gross profit for stainless rod however, would decline an estimated \$1.0 million.

In summary, under low growth assumptions the above analysis indicates that if quotas are terminated or modified, imports will have an effect upon U.S. producers' shipments which, in turn, could depress levels of production man-hours worked, and profitability. If, in 1978, the growth in demand for stainless steel sheets and strip, plates, rods, and bars and alloy tool steel is at the low end of the projected range, imports could not only take the growth but could also reduce U.S. producers' shipments to levels below those in 1977. On the other hand, under high growth assumptions, the preceding analysis indicates that both U.S. producers' shipments and imports will increase. Imports, however, will take the bulk of such growth. Thus, under either low or high growth assumptions, termination or modification of the quotas will result in an increased import penetration of the U.S. specialty steel market.

Results of Econometric Analysis of U.S. Shipments and U.S.
Imports of Stainless Steel Sheets and Strip

As an aid in evaluating the impact on the domestic industry of the specialty steel import restraint program, an empirical analysis of U.S. demand for domestically produced sheets and strip and foreign-produced sheets and strip was undertaken. Demand was assumed to be a function of a business activity variable that reflected the input needs of user industries, and also of a price variable that reflected the degree of cost advantage in substituting foreign sheets and strip for the domestic product. Demand functions for domestic and imported products were estimated accordingly, and with the aid of these functions quantitative estimates were made as to how U.S. shipments and imports would have behaved during the first quota year if the import restraint program had not been instituted, and how shipments and imports would behave over the second and third quota years in the absence of quota restraint. 1/

The estimated volumes of U.S. shipments and U.S. imports during the first, second, and third quota years are presented in the following table. Briefly, the estimates for the first quota year are based on the change in U.S. production of durable manufactured goods during the first quota year, and estimates for the second and third quota years are based on forecasted changes in the durable manufactures index for those periods. 2/ All estimates assume no change in foreign export prices of sheet and strip relative to domestic prices as of the imposition of quotas.

Stainless steel sheets and strip: Conditional estimates of U.S. producers' shipments and U.S. imports during the first, second, and third quota years assuming absence of quota restraint

(In tons)				
Item	1st quota year	2d quota year	3d quota year	
U.S. producers' shipments-----	700,330	778,490	803,540	
U.S. imports-----	89,040	98,980	102,160	
Total-----	789,370	877,470	905,700	

This assumption of no change in foreign prices relative to domestic prices means that the estimates are conditional, rather than absolute, and estimates are labeled accordingly in the table. Nevertheless, the estimates are extremely useful because they provide a firm point of reference for assessing the quantitative impact of the import restraint program; also they can be readily adjusted according to an assessment of likely changes in prices.

1/ The econometric demand analysis is presented in app. D, along with a detailed description of the methodology by which U.S. shipments and imports were projected (assuming no quotas) with the aid of the estimated demand relationships.

2/ Forecasts by Data Resources, Inc.

Impact of quotas during first quota year

The following table presents actual and estimated tonnages of U.S. shipments and U.S. imports during the first quota year. The estimates suggest that in the absence of quota restraint, U.S. shipments of sheets and strip during July-December 1976 and January-June 1977 would have been approximately 700,300 tons, imports about 89,000 tons, and the total demand as represented by U.S. shipments plus imports, 1/ about 789,400 tons.

Stainless steel sheets and strip: Actual volume of U.S. producers' shipments and U.S. imports during the first quota year and conditional estimates assuming absence of quota restraint

(In tons)			
Item	Actual volume	Estimated volume	Actual volume less estimated volume
U.S. producers' shipments-----	748,300	700,330	47,970
U.S. imports-----	67,700	89,040	-21,340
Total-----	816,000	789,370	25,630
	-		

The more interesting figures, of course, are the differences between actual and estimated values. Actual imports in the first quota year fell short of estimated imports by about 21,000 tons. Unless there is reason to believe that, in the absence of quotas, foreign prices would have risen substantially relative to domestic prices, the implication is that the import restraint program did restrain imports. The term "substantial" means a relative price increase of at least 6 percent, because according to the estimated price elasticity of substitution of imported for domestic sheets and strip (-.77), the increase in relative foreign prices needed to bring estimated imports down to the level allowed under the quota is roughly 6 percent.

Actual U.S. shipments during the first quota year exceeded estimated shipments by about 48,000 tons. Of this difference, 21,000 tons can be accounted for by the estimated reduction in imports due to the quota. The amount remaining (27,000 tons) probably indicates that the estimated values of U.S. shipments and U.S. imports during the first quota year were slightly low.

A likely explanation for slightly low estimates is that in connection with the U.S. business expansion in 1976, an inventory buildup began (by purchasers of sheets and strip) that was not completely accounted for by the estimating equations for sheet-and-strip demand. 2/ If the estimates in the preceding table were revised on the basis of an upgraded inventory buildup so as to eliminate the difference between actual and estimated U.S. shipments unaccounted for by the previous figures, the revised estimate of U.S. shipments during the first quota year (without quotas) would be 727,000 tons, and the revised estimate of imports would be 92,400 tons.

1/ Shipments plus imports overstate total demand slightly by including U.S. exports which average roughly 6 percent of apparent U.S. consumption.

2/ An analysis of consumers' inventories is provided on page A-36.

These alternative figures represent an increase of approximately 3 percent over the figures in the preceding table, and the revised estimate of the reduction in imports due to the quota would be 24,700 tons, as compared with 21,300 tons from the preceding table. Thus, the revised estimates would imply a slightly larger impact of the import restraint program on holding down imports during the first quota year.

In evaluating the relative contributions of the business cycle and the import restraint program to the expansion of domestic sheet-and-strip production during the first quota year, the evaluation must be based on an explicit estimate of the increase in U.S. shipments in the absence of quota restraint, and on an explicit estimate of the reduction in U.S. imports due to the quota. 1/

Following this approach, and using the figures from the preceding table, the estimated increase in U.S. shipments during the first quota year as a combined result of U.S. business expansion and quota restraint was approximately 72,000 tons. Of this amount, about 51,000 tons, or 71 percent, resulted from U.S. business expansion, and about 21,000 tons, or 29 percent, occurred at the expense of reduced imports.

In summary, the econometric demand analysis suggests that U.S. business expansion accounted for the greater part of the expansion of U.S. sheet-and-strip production during the first year of import quotas, but that the contribution of the import-restraint program was not negligible, and in quantitative terms approached half the contribution of the business cycle. This conclusion, of course, hinges on the assumption that foreign prices relative to domestic prices would have been stable during this period.

The question of how prices would have behaved in the absence of quotas is a difficult one. Further econometric work could result in price equations which, for example, relate changes in foreign prices to changes in foreign business activity. Further research in this area would be of great benefit.

For the present, it is felt that no change in relative prices is an appropriate working assumption for the period covering late 1976 and early 1977. Historically, foreign export prices of sheets and strip (as reflected in the unit value of U.S. imports) have tended to drop when world demand falls off, i.e., when the U.S. economy and major foreign economies go into recession. Given that 1976-77 was a period of expansion, there is little reason to believe that foreign export prices would have fallen. At the same time, by mid-1977 the world economic expansion had not proceeded so far as to cause suspicion that foreign production capacities were being strained. Thus, any increase in foreign export prices presumably would not have exceeded the long-run inflationary trend, particularly since competition in export markets was sharp.

1/ Parenthetically, the increase in U.S. shipments must be calculated as an increase above the annualized volume of (fitted) shipments for quarter-year immediately preceding the imposition of quotas, and not as an increase above the actual volume of shipments registered during the 12 months preceding the imposition of quotas.

Impact of quotas during second and third quota years

The following table compares conditional estimates of U.S. imports during the first, second, and third quota years with corresponding figures in allowable imports under the import-restraint program:

Stainless steel sheets and strip: Conditional estimates of U.S. imports during first, second, and third quota years, compared with allowable imports under import-restraint program

(In tons)				
Item	1st quota year	2d quota year	3d quota year	
Estimated imports				
in absence of quota:				
restraint-----	89,040	98,977	102,160	
Imports permitted				
under import re-				
straint program----	1/ 67,700	74,000	75,900	
Reduction in imports				
due to quota-----	21,340	24,980	26,260	
1/ Actual volume of U.S. imports during first quota year.				

The estimated reductions in U.S. imports in the second and third quota years were somewhat higher than in the first quota year. This is essentially because the forecasted rate of growth in production levels of sheet-and-strip user industries was larger than the rate of growth in allowable imports under the restraint program.

Some indirect evidence on how foreign export prices might behave during the second quota year is provided by a comparison of forecasted changes in foreign industrial production over the second quota year with actual changes in foreign industrial production in recent years.

The table on the following page presents OECD historical data and forecasts of percentage changes in total industrial production levels of Japan, France, West Germany, the United Kingdom, Italy, and Canada. The historical figures cover the period from the second half of 1975 through the first half of 1977, and forecasts are given for the last half of 1978.

Total industrial production, of course, reflects the level of production of a country's entire industrial structure, and, therefore, is only a crude proxy for the level of production in user industries of stainless steel sheets and strip. Nevertheless, the figures provide some point of reference for assessing the likely behavior of foreign demand for sheets and strip during the second quota year, so as to make an informal judgment about the likely behavior of foreign export prices for sheets and strip over that period. Also, price changes in individual industries such as the stainless steel industry to some extent tend to follow changes in average prices via cost-of-living induced changes in wage rates.

Industrial production in selected foreign countries: Recent changes and OECD forecasts of future changes 1/

(In percentage changes from previous half year)

Country	1975	1976		1977		1978
	July-Dec.	Jan.-June	July-Dec.	Jan.-June	July-Dec.	Jan.-Dec.
Japan-----	4.0	8.5	9.8	4.2	12.7	9.2
France-----	0.0	15.4	2.5	4.0	3.5	3.5
West Germany-----	0.1	11.6	3.6	5.2	5.7	5.0
United Kingdom-----	1.9	5.3	2.3	2.0	1.7	2.2
Italy-----	0.0	19.9	11.6	3.2	-1.5	2.5
Canada-----	0.0	9.1	1.3	4.0	4.0	5.2

1/ Figures for the United Kingdom refer to industrial production of manufacturing industries. All other figures refer to total industrial production (excluding construction).

Source: Organization for Economic Cooperation and Development, Main Economic Indicators (Dec. 1976 issue) and Economic Outlook (July 1977 issue).

The industrial production figures vary substantially from country to country, but in general they show a rapid expansion in industrial production in the first half of 1976, followed by continued expansion at a moderate pace in the second half of 1976 and the first half of 1977. As of this point in time, the figures would seem to be fairly consistent with the assumption previously made that U.S. import prices of sheets and strip would not have risen substantially or fallen substantially during the first quota year, if quotas had not been imposed.

The forecasted figures for foreign industrial production over the second quota year show continued expansion at a slightly stepped-up pace for Japan, continued expansion, at a moderate rate for Germany and Canada, and a slowing down in the rate of expansion for France, the United Kingdom, and Italy--especially the latter two countries. It is difficult to make firm projections on the basis of these forecasts. A reasonable evaluation is that foreign export prices will not rise, and might be expected to fall somewhat, though not dramatically. When these price considerations are taken into effect, the estimate previously made of the reduction in imports in the second quota-year due to the import-restraint program can be viewed as a conservative estimate.

Information Obtained in the Investigation

Description and uses 1/

Stainless steel is an alloy steel containing, by weight, less than 1 percent of carbon and over 11.5 percent of chromium. Although the alloy mix generally includes nickel, molybdenum, and manganese, which improve its performance under chemical or temperature stress, it is primarily the addition of chromium which imparts the corrosion resistant quality to the product.

Stainless steel can be readily fabricated or welded and can be tempered to many times the strength of ordinary carbon steel. It has an attractive silvery color and is furnished in dull, brushed, or polished finishes. It is used in products which require exceptional strength and resistance to oxidation.

Stainless steels are used extensively in the food, chemical, textile, pollution control, and electrical power industries. Most of the mass transportation systems utilize significant quantities of stainless steel because of its strength, durability, and corrosion resistance. It is widely used in contemporary furniture design, as well as in modern sculpture and architecture.

Generally, the domestic and imported products covered herein are comparable in quality. All the items imported into the United States in significant quantities, except razor blade steel, 2/ are produced in the United States by domestic mills.

Stainless steel is generally manufactured from scrap by means of the electric-furnace process. Other agents are added to the heat when the steel furnace is being charged, or during melting, or after tapping but before pouring from ladle to ingot mold. The alloying ingredients are added only to supplement those already present in the alloy scrap carefully selected for the charge.

Tool steel is defined as alloy steel containing, by weight, any of the following combinations of elements: (1) Not less than 1.0 percent carbon and over 11.0 percent chromium; or (2) not less than 0.3 percent carbon and 1.25 percent to 11.0 percent, inclusive, chromium; or (3) not less than 0.85 percent carbon and 1.0 percent to 1.8 percent, inclusive, manganese; or (4) 0.9 percent to 1.2 percent, inclusive, chromium and 0.9 percent to 1.4 percent, inclusive, molybdenum; or (5) not less than 0.5 percent carbon and not less than 3.5 percent molybdenum; or not less than 0.5 percent carbon and not less than 5.5 percent tungsten.

Tool steels are used primarily to make tools capable of cutting, forming, or otherwise shaping other materials in the manufacture of virtually all products of industry. They are made in small lots and under the highest quality-control conditions. Tool steels, produced largely in the form of rods or bars, are noted for their hardness and abrasion and heat resistance.

1/ For a more detailed discussion on description and uses, see USITC Publication 756, Stainless Steel and Alloy Tool Steel, January 1976.

2/ Razor blade steel is imported in the form of stainless strip, flat wire, and carbon strip, and was excluded from the specialty steel quotas imposed by Presidential Proclamation 4445.

U.S. Tariff Treatment

The imported stainless steel and alloy tool steel articles covered by the notice of this investigation are classified under TSUS items 608.52, 608.76, 608.78, 608.85, 608.88, 609.06, 609.07, and 609.08. The present rates of duty range from 0.25 cent per pound plus 4 percent ad valorem (certain wire rods) to 11.5 percent ad valorem (stainless strip over 0.05 inch in thickness). All the products are subject to additional duties on their alloy content under the provisions of items 607.01, 607.02, 607.03, and 607.04. The additional duties range from 0.75 cent per pound on chromium content in excess of 0.2 percent to 25 cent per pound on tungsten content in excess of 0.3 percent.

All rates of duty applicable to products covered in the investigation, except those on stainless and tool steel rod, were reduced pursuant to the Kennedy Round negotiations under the General Agreement on Tariffs and Trade (GATT) and are shown in the following table.

Stainless steel and alloy tool steel in specified forms: U.S. col. 1 rates of duty applicable to imports from most-favored nations, Dec. 31, 1967, and Dec. 31, 1976..

(Cents per pound; percent ad valorem)			
Product form and TSUS item No.	Col. 1 rate applicable		
	on Dec. 31--		
	1967 <u>1/</u>		1976 <u>1/</u>
Bars (608.52)-----	14.5%	:	10.5%
Wire rods:		:	
Not tempered, treated, or partly		:	
manufactured (608.76)-----	0.25 + 4%	:	0.25 + 4%
Other (608.78)-----	0.375 + 4%	:	0.375 + 4%
Plates and sheets:		:	
Not pickled or cold rolled (608.85)--	12%	:	9.5%
Other (608.88)-----	0.1 + 12%	:	10%
Strip, in thickness--		:	
Not over 0.01 inch (609.06)-----	10%	:	8%
Over 0.01, but not over 0.05 inch		:	
(609.07)-----	12.5%	:	10.5%
Over 0.05 inch (609.08)-----	13.5%	:	11.5%

1/ Imports are also subject to duty on alloy content as follows:

(Cents per pound)			
Item	Dec. 31--		
	1967		1976
Chromium content in excess of 0.2		:	
percent (607.01)-----	1.5	:	0.75
Molybdenum content in excess of 0.1		:	
percent (607.02)-----	35	:	17.5
Tungsten content in excess of 0.3		:	
percent (607.03)-----	50	:	25
Vanadium content in excess of 0.1		:	
percent (607.04)-----	40	:	20

Effects of Specialty Steel Quotas on U.S. Imports

Background

On January 16, 1976, the Commission reported to the President that imports of certain stainless steel and alloy tool steel were--

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

The Commission recommended that quotas be imposed on various specialty steel products for a period not to exceed 5 years.

On March 16, 1976, the President directed his Special Representative for Trade Negotiations (STR) to attempt to negotiate orderly marketing agreements (OMA's) with key supplying countries for the five specialty steel product categories. Attempts at negotiating OMA's were successful with Japan (which supplied more than 50 percent of the imports in 1975), but not with other principal supplying countries.

On June 11, 1976, the President proclaimed (Pres. Proc. 4445) that an OMA had been negotiated with Japan and that import quotas were being imposed on shipments of specialty steel from other countries, effective June 14, 1976, for a period not to exceed 3 years. Table 1 in Appendix B compares the recommendations of the U.S. International Trade Commission with those implemented by the President. The following table compares the first year quota levels recommended by the Commission with the actual quota levels implemented by Proclamation 4445.

Stainless steel and alloy tool steel: Comparison between quota levels recommended by the U.S. International Trade Commission and actual quota levels implemented by Presidential Proclamation 4445, quota year beginning June 14, 1976.

Item	Commission recommendation	Presidential Proclamation 4445	Difference
Stainless steel:			
Sheet and strip-----	79,000	72,500	(6,500)
Plate-----	13,000	12,900	(100)
Bar-----	19,600	23,600	4,000
Rod-----	16,000	17,100	1,100
Alloy tool steel-----	18,400	20,900	2,500
Total-----	146,000	147,000	1,000

Source: USITC Publication 756 and Presidential Proclamation 4445.

On November 16, 1976, the President created a new quota category--bearing-type alloy tool steel--by issuing Proclamation 4477. This action was taken in order to correct classification problems which were discovered after the original quotas were implemented.

On February 14, 1977, the Commission reported to the President that the termination of the quotas on bearing-type alloy tool steel would have a negligible effect on the domestic industry producing such steel. On June 15, 1977, Presidential Proclamation 4509 terminated this quota.

Overall assessment of the quota program

Although quotas were in effect for more than 6 months of the year, U.S. imports of all specialty steel products in 1976 reached a record high of 167,300 tons, a 9-percent increase over 1975. A substantial percentage of this increase can be related to the quota program. Foreign suppliers anticipated implementation of the quotas and shipped near-record-high levels of product in the second quarter of the year. The result was that imports increased in all product categories except stainless steel bar. Total imports and imports by countries are shown in tables 2-7.

The total specialty steel quota ^{1/} was 94 percent filled during the first quota year (table 8). Stainless steel rod was the only quota category 100 percent filled during that period. The percentages of quota filled for the other product categories ranged from a low of 79 percent (stainless steel plate) to a high of 99.7 percent (alloy tool steel). An analysis of the quota by principal supplying countries or areas follows.

Japan

Japan's exports to the United States totaled 61,675 tons during the first quota year. Japan filled 93 percent of its allocation, completely filling only the stainless steel rod category. Percentages of the remaining product categories filled ranged from a low of 87 percent (stainless steel plate) to a high of 99 percent (alloy tool steel).

European Economic Community

Exports from the European Economic Community (EEC) to the United States, (31,768 tons) were slightly higher during the first quota year than its 1971-75 average. The EEC filled 92 percent of its aggregate quota. EEC quotas were 100 percent filled for both stainless steel rod and alloy tool steel. Percentages of the remaining product categories filled ranged from a low of 65 percent (stainless steel plate) to a high of 95 percent (stainless steel bar). Problems which have arisen within the EEC as a result of the imposition of U.S. specialty steel quotas are discussed in the later section on special quota problems.

^{1/} Quota after adjustment for shortfall reallocations.

^{2/} Average imports for 1971-75 was the basis used for establishing quota levels.

Canada

Canada's exports to the U.S. during the first quota year (10,073 tons) were 12 percent higher than its 1971-75 average. Canada filled 97 percent of its aggregate quota, completely filling only the stainless steel bar category. Percentages of the other product categories filled ranged from a low of 51 percent (stainless steel plate) to a high of 99.9 percent (alloy tool steel).

Sweden

Sweden filled 99 percent of its aggregate quota, completely filling more product categories--plate, rod, and alloy tool steel--than any other foreign supplier. Sweden's exports to the United States (22,160 tons) were 4 percent lower during the first quota year than its 1971-75 average.

Other countries

Principal suppliers under the category "other countries" include Spain, Brazil, and the Republic of Korea. These countries' exports to the United States during the first quota year (12,599 tons) increased 12 percent when compared to their 1971-75 average. Countries in this grouping filling 95 percent of their aggregate quota. Two quota categories--bar and alloy tool steel--were 100 percent filled.

Quota reallocations 1/

As the quota year progressed, it became evident that certain countries would not fill their quotas while others would have available tonnages which could enter the U.S. market. As a result, certain quota shortfall reallocations were made by the STR, under authority of Presidential Proclamation 4445, and are summarized in the table on the following page.

1/ As provided for in Presidential Proclamation 4445, shortfall reallocations are made after 9 months if two-thirds of the quota is not filled or after 10 months if 80 percent is not filled.

Summary of shortfall reallocations, by countries or group, quota year
June 14, 1976-June 13, 1977 1/

(In short tons)						
Country or group	Sheet and strip	Plate	Bar	Tool steel	Net change	
EEC-----	1,741	1,900	-1,035	0	2,606	
Canada-----	-1,500	-200	-515	0	-2,215	
Sweden-----	-300	-1,700	+345	0	-1,655	
Col. 1 <u>2/</u> -----	+62	0	+1,207	0	1,269	
Austria <u>3/</u> -----	0	0	0	+6	-6	
Col. 2 <u>2/</u> <u>4/</u> -----	-3	-2	0	-6	-11	

1/ Not shortfall reallocations were made in the rod and bearing steel categories.

2/ Column 2 rates of duty are applicable to certain designated communist countries; column 1 rates of duty are applicable to all other countries.

3/ Austria was originally included in the other column 1 country ("basket") quota of 3,600 tons.

4/ The 11-ton quota given to Col. 2 countries was reallocated to various other countries.

Source: U.S. Department of Commerce, Bureau of Resources and Trade Assistance.

Factors responsible for the failure to completely fill the sheet and strip and bar product categories relate primarily to shipment sizes, storage costs, and lack of knowledge on the part of certain foreign suppliers as to when a product quota would be filled. In the case of stainless plate, weakness in domestic demand appears to have been a primary consideration.

Storage costs and lack of knowledge as to when quotas would be filled are interrelated considerations which had their greatest impact upon the EEC and "other countries" categories. Without knowledge of the amount of product shipped by each supplying country within these categories, suppliers were required to weigh the advantages of having their shipments enter against the disadvantages of having them arrive only to find the quota filled. In the latter instance, the product would be placed in bonded warehouses and the title holder would incur costs associated with storage until such time as the product is allowed entry.

Special Quotas Problems

The specialty steel quota program has created a number of changes in trends and patterns of supply and distribution both here and abroad. Domestically, the quotas have caused distortions in normal supply patterns and product availability problems for certain consumers. Internationally, suppliers have changed the product

mix of exports and, particularly in the case of EEC countries, have shipped more product than is allowed under the quotas in an effort to maintain their traditional market share.

Distortions in normal supply pattern

The most apparent problem created by the imposition of specialty steel quotas is the rush by foreign suppliers to quickly fill a substantial percentage of their quota at the start of the quota year. The most recent example of this situation occurred during April-June 1977 when 45,000 tons of specialty steel were imported, 91 percent more than in January-March 1977. A substantial portion of this increase in imports entered during the last 2 weeks of June, the start of the second quota year. A contributing factor to the increase in second quarter imports was the reallocation of quotas to countries which had stored material in bonded warehouses prior to this period.

Individual country quota problems

The quotas have, in some cases, affected imports from certain countries, particularly countries with relatively new production facilities, such as Finland (sheet and strip), the Republic of Korea (bar), Brazil (bar), Argentina (tool steel), and Spain (bar). In most cases these countries did not begin to export the subject articles to the United States until late in the 1971-75 period which was used to determine quota levels. Thus, quota allocations did not take into account their recent entry into the U.S. market.

The President did not choose to establish individual country quotas for members of the EEC. Consequently, the EEC was provided the opportunity of either designating quotas for its members or allowing each of its members to compete for its share of the EEC quota. The EEC chose the latter course and, as a result, quotas on certain product categories have been rapidly filled as each country has attempted to maintain its traditional market share. At the start of the second quota year on June 14, 1977, quotas for the EEC on rod and alloy tool steel were filled in 1 to 4 days. This situation is not confined to the EEC and is also true for the "other countries" category.

U.S. consumer quota problems ^{1/}

The surge of imports at the beginning of the quota year has caused consumers of the articles under quota to make adjustments which reportedly reduce the competitiveness of their end products in the domestic marketplace with similar imported articles.

^{1/} Interested parties requested that the following items be exempted from quotas: Grade 430 stainless steel, alloy tool steel bar over 6 inches in diameter, alloy tool steel grade 52100 (bearing grade), alloy tool steel for band-saws (RM81), and alloy tool steel for chipper knives.

Inventories of specialty steel raw materials have increased, to six times the normal level in one instance, which, in turn, increases financing and storage costs. Inventory levels are based upon the consumers projected production of end products produced from stainless steel during the quota year. Thus, high inventory levels for one firm can compound a shortage situation which may develop for other firms in the industry. Those that are too low may result in the firms being unable to supply the demand for end products made from the specialty steel items under quota.

There are also indications that foreign suppliers have upgraded their product mix to export as many high value products as possible to maximize their earnings on quota restrained articles and to dampen the impact of quota categories which are rapidly filled. The reduction in imports of steels used in the manufacture of cutting blades, one of the many items imported as alloy tool steel is one such example. As a result, some consumers of this product buy higher priced raw materials from domestic sources which tend to make their end products, knives, less competitive with imported knives. Difficulties experienced by certain tableware manufacturers in obtaining sufficient stainless steel in the 400 series is a further example of product upgrading and its effect upon stainless steel consumers.

A change in product mix has also occurred wherein the foreign supplier of specialty steel items under quota reduces exports of these items and increases exports of end products made from specialty steel. The U.S. stainless steel wire producing industry has been severely affected by this response from foreign suppliers. Wire is drawn from stainless steel rods, which are under quota. The rod quota has rapidly filled, yet there is some indication that rod consumers have been unable to obtain sufficient raw materials. In addition, wire imports have increased, and price increases of imported wire have not kept pace with the price increases for imported rod. The result is that the U.S. stainless steel wire producing industry is caught between tight supplies and rising prices of its raw material, which is under quota, and increased availability and more favorable prices from imports of its end product, wire, which is not under quota.

Domestic Producers

Domestic producers of stainless and alloy tool steel are often referred to as specialty steel producers. These specialty producers, in addition to producing stainless steel and alloy tool steel, manufacture a wide variety of silicon electrical steels, magnetic materials, high temperature and high strength metals, valve and bearing steels, super alloys, and exotic metals. Yet the great bulk of their total production is represented by stainless and alloy tool steel.

There are 21 domestic producers of stainless or alloy tool steel, of which 16 produce stainless steel and 11 produce alloy tool steel, with 6 firms producing both, 10 firms producing only stainless, and 5 firms producing only alloy tool steel.

Most of the domestic producers manufacture a narrow product line consisting of only one or two products. Most of them have two manufacturing divisions, one which produces flat-rolled products, consisting of stainless-steel plate, sheet, or strip, and a bar-and-rod division, which produces stainless bar and rod or alloy tool steel bar and rod or both.

Producers' efforts to compete with imports

The stainless steel and alloy tool steel industry has made a number of substantive changes, many of which occurred subsequent to the granting of import relief on June 14, 1976, to meet import competition. These changes are evident in various aspects of the industry's operations, including organizational structure, implementation of more efficient technology, and increases in capital expenditures.

Organizational changes

One of the most dramatic organizational changes occurred on August 2, 1976, when Allegheny Ludlum Steel Company sold its Bar Products Division to a group of the division's management employees for \$25 million, a figure reportedly far below either book or replacement value. The new company--Al Tech Specialty Steel Corp.--appears to have benefited from its status as a separate company by operating with lower costs and more flexibility as a result of direct managerial control. In addition, the subject sale allowed Allegheny Ludlum to concentrate its remaining assets and management on flat-rolled stainless products. Thus, Allegheny Ludlum appears to have improved its competitive position in flat-rolled products as the result of the sale while, at the same time, establishing a viable new domestic steel producer.

James & Laughlin Steel Corp., on December 7, 1976, announced that it would no longer produce stainless steel bar, rod, and wire so as to concentrate on flat rolled stainless steel products. The company cited low priced imports, increased labor, raw material, and energy costs as reasons for its action. Approximately 550 job opportunities were affected by the firm's decision. Elimination of the above-mentioned product lines contributed to improvement in the profitability of Jones & Laughlin's remaining stainless steel operations and indirectly contributed to improvement in the financial performance of other U.S. firms producing the discontinued items.

Other firms in the industry, such as Armco, Republic, and McLouth, have consolidated their specialty steel operations into separate divisions, permitting increased coordination and the ability to respond more readily to changing market conditions.

In addition to changes described above, firms have improved their product mix and adjusted their production capacity in line with market conditions. These changes, as well as those previously described, have contributed to the improvement in the financial health of the industry as a whole.

Technological changes

Increased use of the Argon-Oxygen-Decarburization process (AOD) for stainless steel production represents an example of industry investment in technology to compete with imports. The industry has increased its use of AOD-type technology from less than 60 percent in 1975 to almost 90 percent in 1977. Increased utilization of AOD technology represents substantial savings in industry operating costs. In addition, investments have been made by numerous U.S. firms in new continuous casting systems, new computer controls for the production process, in the development

of a new, more economic dolomite refractory brick, new induction heating for stainless steel slabs, and increased use of scrap, fine dust, grinding swarf, and mill scale.

Capital expenditures

Implementing the operating improvements previously discussed is an expensive process requiring substantial capital expenditures. As shown in the table below, capital expenditures increased from \$71 million in 1975 to \$109 million in 1976, and \$125 million has been budgeted for 1977. These expenditures represent 133 percent of the industry's net operating profit in 1975, 163 percent in 1976, and an estimated 88 percent in 1977. According to industry spokesmen, a high level of capital expenditures will not be sustained without improvement in the industry's earnings and rate of return.

Stainless steel and alloy tool steel: U.S. producers' capital expenditures for facilities used in the manufacture, warehousing, and marketing of stainless steel and alloy tool steel, 1974-76 and budgeted figures for 1977

(In thousands of dollars)								
Item	:	1974	:	1975	:	1976	:	Budgeted
	:		:		:		:	1977
Land and land improvements-----	:	563	:	567	:	795	:	780
Building and leasehold improvements--	:	7,227	:	6,723	:	9,493	:	10,251
Machinery, equipment, and fixtures---	:	59,522	:	55,670	:	86,861	:	93,406
Environmental expenditures-----	:	13,854	:	7,998	:	12,305	:	20,278
Total-----	:	81,166	:	70,958	:	109,454	:	124,715
	:		:		:		:	

Source: Compiled from data submitted to the U.S. International Trade Commission by the domestic producers.

Discussion of Recent Trends

Domestic market conditions

The domestic specialty steel industry exhibited a strong recovery in 1976 as apparent consumption of articles produced by the industry increased 30 percent over depressed 1975 levels (tables 9 and 10). As a result of the increase in consumption, U.S. producers' shipments increased 34 percent (table 11), and imports increased 9 percent.

Quarterly data reveal that the fastest growth came in January-June 1976 the period in which expansion of U.S. economic activity was at its highest level. As the year progressed, the rate of growth in producers' shipments declined as the economic recovery slowed and the impact of record-high imports of specialty steel items began to have their full effect on the domestic market.

Quarterly domestic shipments and total imports for consumption of specialty steel for the period January 1974-June 1977 are shown in figure 1 on the following page. Imports are presented on a larger scale in figure 2 in order to observe tonnage changes more easily.

Significant increases in specialty steel shipments began again during January-June 1977, as the restriction on imports enabled domestic specialty steel items to satisfy practically all of increased demand. Despite increased consumption during January-June 1977, imports were about 23,000 tons lower than during the corresponding period in 1976. This figure represents 32 percent of the increase in U.S. producers' shipments which occurred during January-June 1977.

Sheet and strip

Stainless steel sheet and strip led the industry's recovery in 1976. Apparent consumption of these items increased 51 percent, U.S. producers' shipments increased 57 percent, and imports increased 20 percent (table 12). The quarterly sheet and strip trends for 1976 and 1977 are essentially the same as those described above for the entire industry (see figures 3 and 4). Again, the restriction on imports during January-June 1977, resulting in a decrease in imports of about 12,000 tons from January-June 1976 levels, was a factor affecting the increase in producers' shipments. This decrease in imports represented 21 percent of the increase in U.S. producers' shipments which occurred in January-June 1977.

Stainless steel plate

Stainless steel plate, on the other hand, continued to suffer effects of the 1974-75 recession throughout 1976, as the construction and capital goods industries, its principal consumers, lagged the economy in recovery (table 13). Apparent consumption of stainless steel plate declined 11 percent while U.S. producers' shipments declined 15 percent. Imports, however, increased 6 percent. A possible explanation for the increase in imports during a period of reduced consumption is that the price of the imported product, which was already significantly below U.S. producers' price levels, was further reduced in relation to the domestically produced product.

Figure 1--Stainless steel, total: U.S. producers' shipments and imports for consumption, by quarters, January 1974-June 1977.

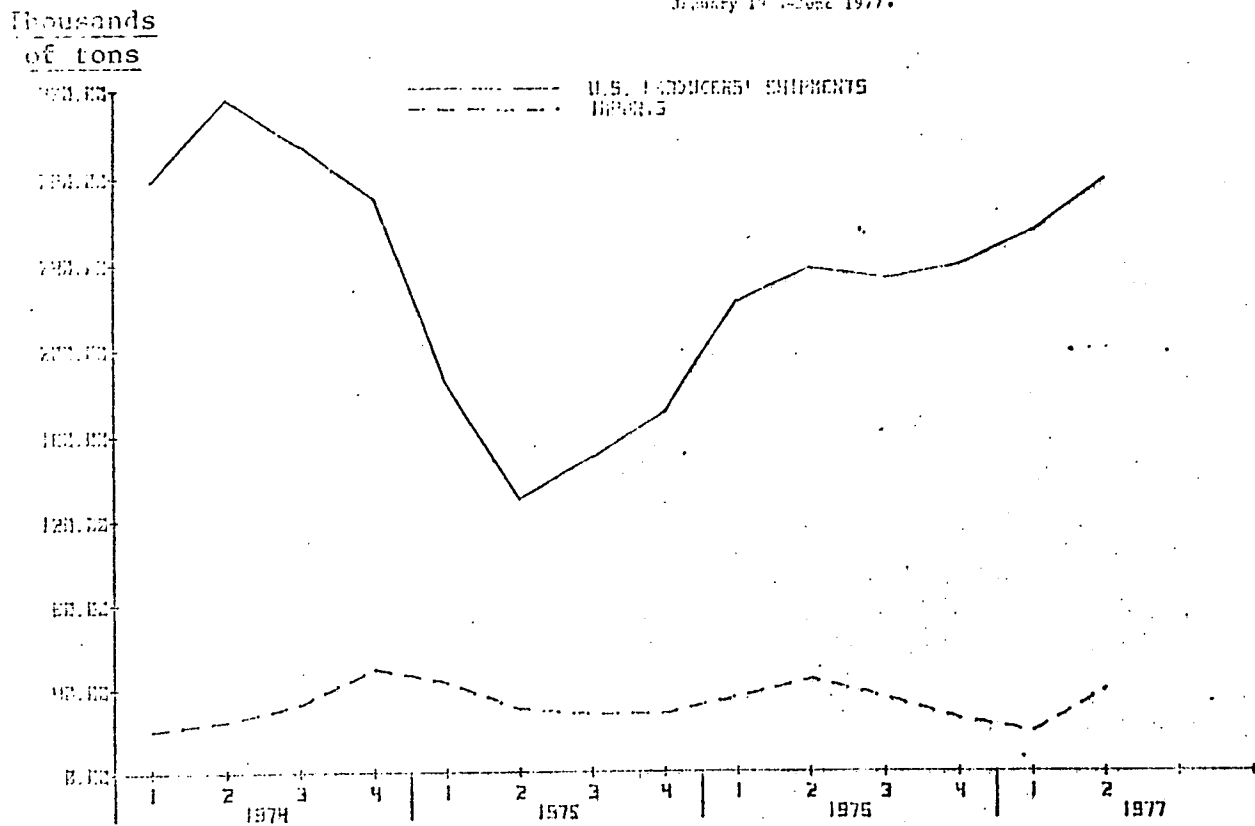
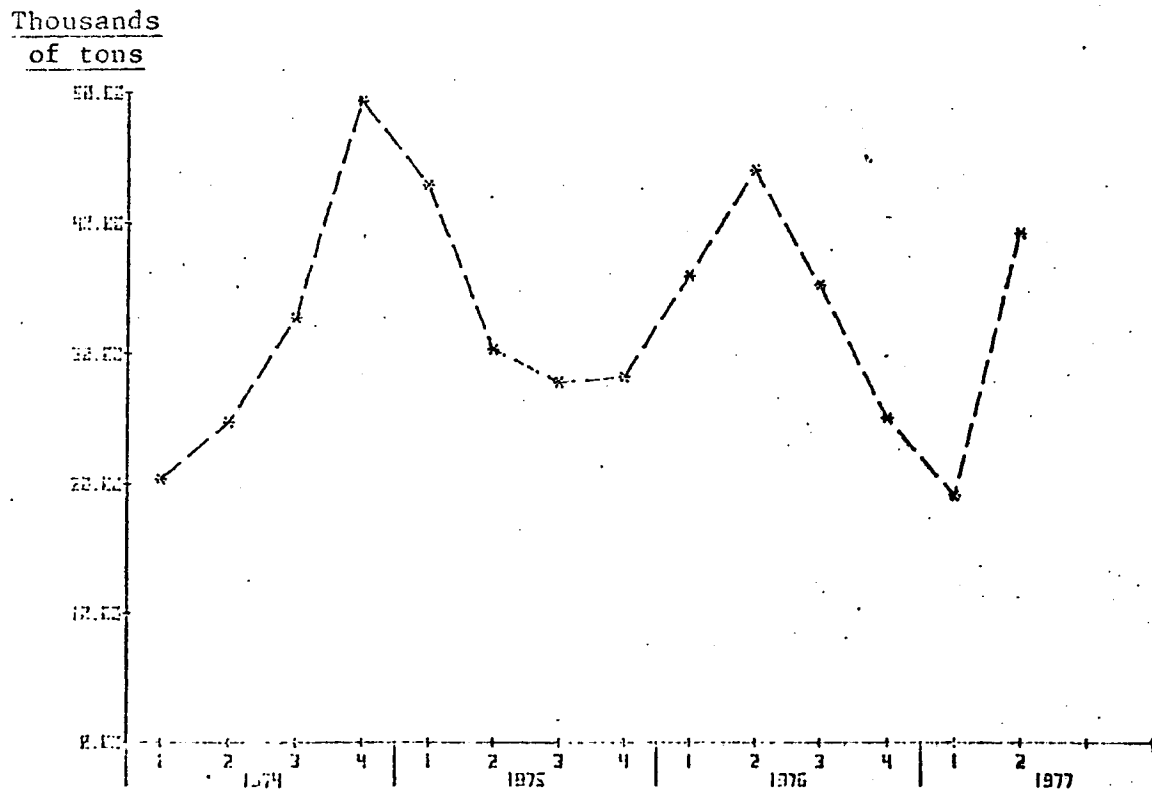
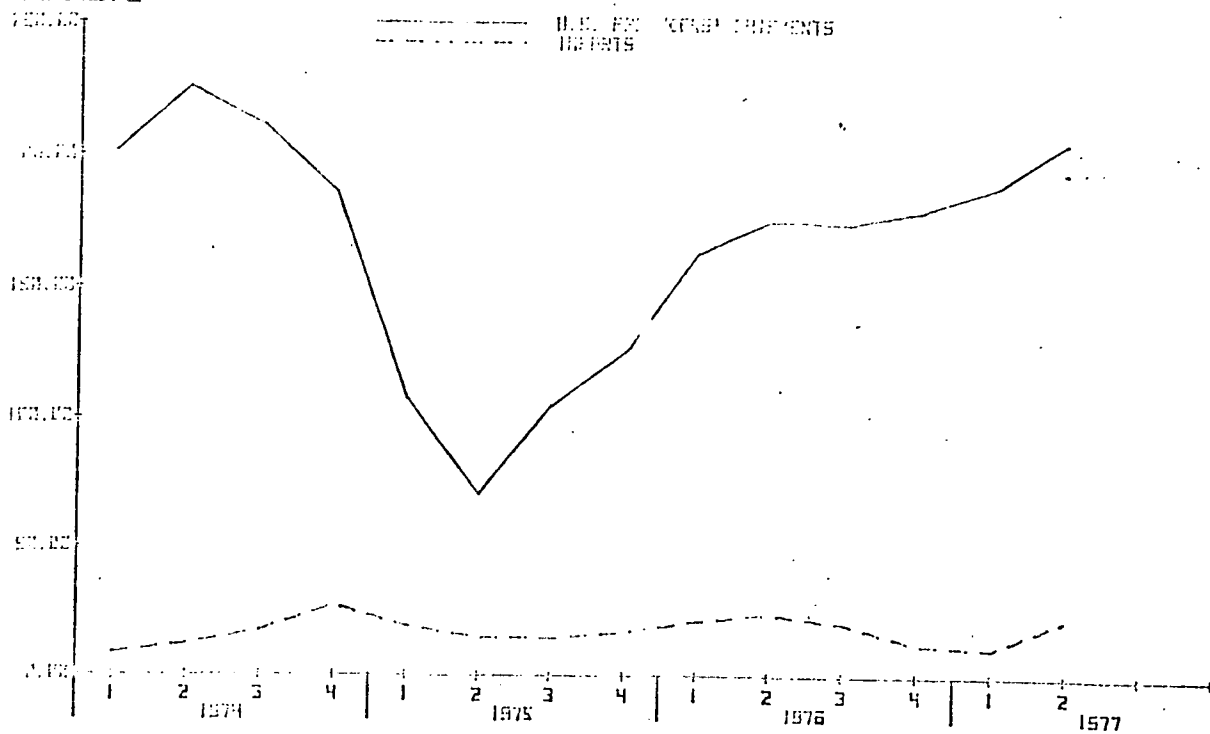


Figure 2--Stainless steel, total: U.S. imports for consumption, by quarters, January 1974-June 1977.



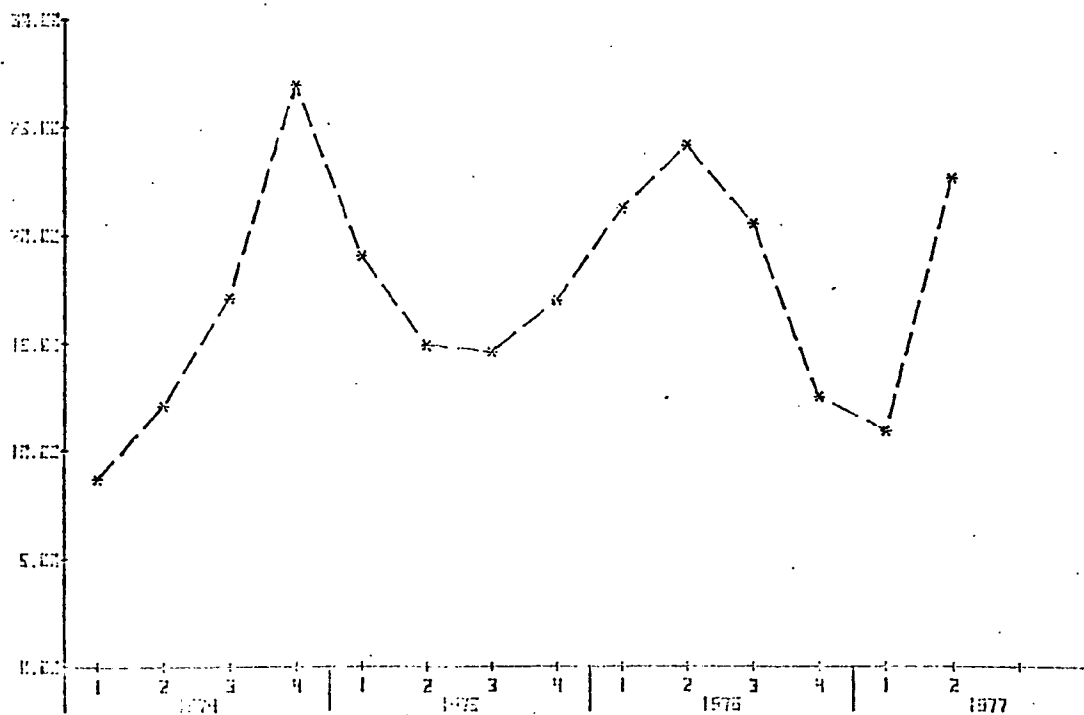
Thousands
of tons

Figure 3.--Stainless steel sheets and strips: U.S. producers' shipments and imports for consumption, by quarter, January 1974-June 1977.



Thousands
of tons

Figure 4.--Stainless steel sheets and strip: U.S. imports for consumption, by quarters, January 1974-June 1977.



Source: Based on data contained in Table 12.

This product category exhibited significant recovery in the second quarter of 1977 as a result of increased consumption and the cumulative effect of imports being at unusually low levels during the fourth quarter of 1976 and the first 6 months of 1977 (see figures 5 and 6). During the latter period imports declined by 9,000 tons while U.S. producers' shipments declined 700 tons from the corresponding period in 1976.

Stainless steel bar

As shown in table 14, this category followed the overall industry trend in 1976. However, stainless steel bar was the only category in which imports increased during January-June 1977 (about 900 tons), when compared with the corresponding period in 1976 (see figures 7 and 8).

Stainless steel rod

In 1976, apparent consumption and U.S. producers' shipments of stainless steel rod increased 47 and 66 percent, respectively, when compared with 1975 levels (table 15). Imports increased only 19 percent during the same period. The 1,700-ton decrease in imports during January-June 1977 when compared with January-June 1976 accounted for 29 percent of the increase in U.S. producers' shipments during January-June 1977 (see figures 9 and 10).

Alloy tool steel

As shown in table 16, apparent consumption, imports, and U.S. producers' shipments were little changed in 1976 when compared with 1975 levels. Imports during January-June 1977, however, were 1,700 tons less than in the corresponding period of 1976. This figure accounts for 29 percent of the increase in U.S. producers' shipments during this period (see figures 11 and 12).

Capacity and capacity utilization 1/

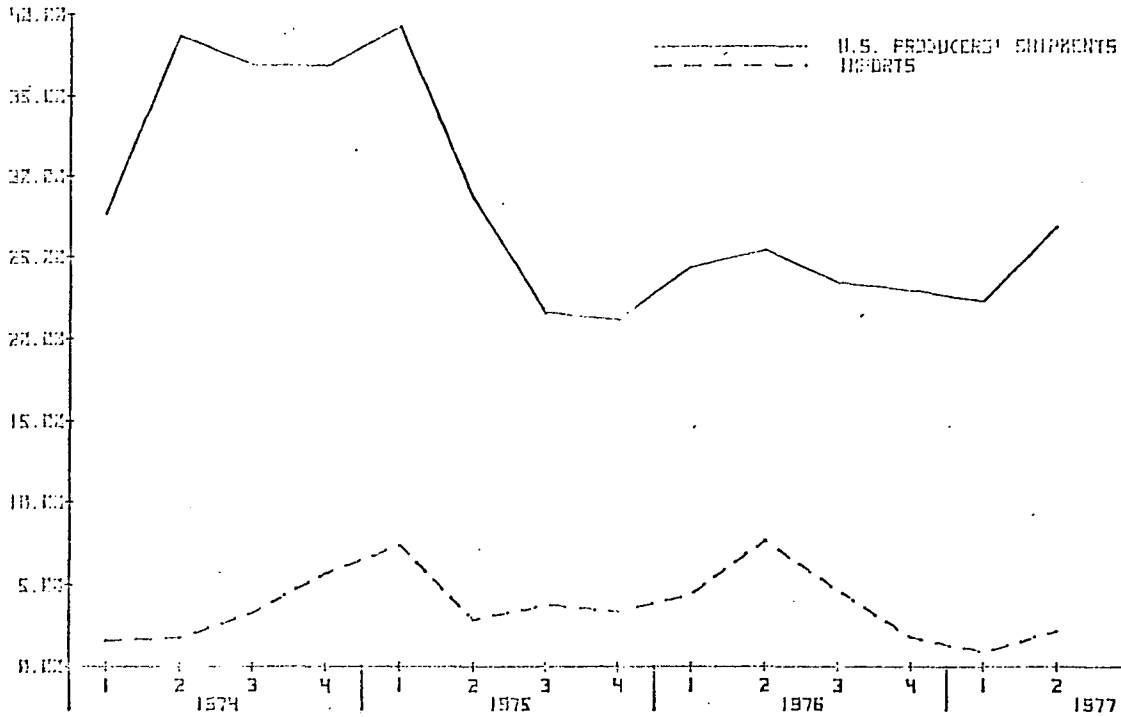
Melting, rolling, and manufacturing capacity in the specialty steel industry increased modestly in 1976 (table 17). During January-June 1977, however, all such capacity measurements, except stainless steel plate rolling capacity, declined.

In 1976, capacity utilization improved over 1975 in all product areas except stainless steel plate and alloy tool steel (table 18). This improvement resulted primarily from increased U.S. production in 1976 (table 19). Capacity utilization for all categories continued to improve during the first and second quarters of 1977. Although the reduction in capacity which occurred during the first half of the year was responsible for part of increased capacity utilization, increased U.S. production was, again, the primary factor.

1/ Rolling and manufacturing capacities are difficult to measure in the specialty steel industry because the type of product produced will vary depending upon the level of demand. In its questionnaire to the industry, the Commission defined capacity as "maximum sustainable output." Thus, the data obtained is most useful in determining capacity trends.

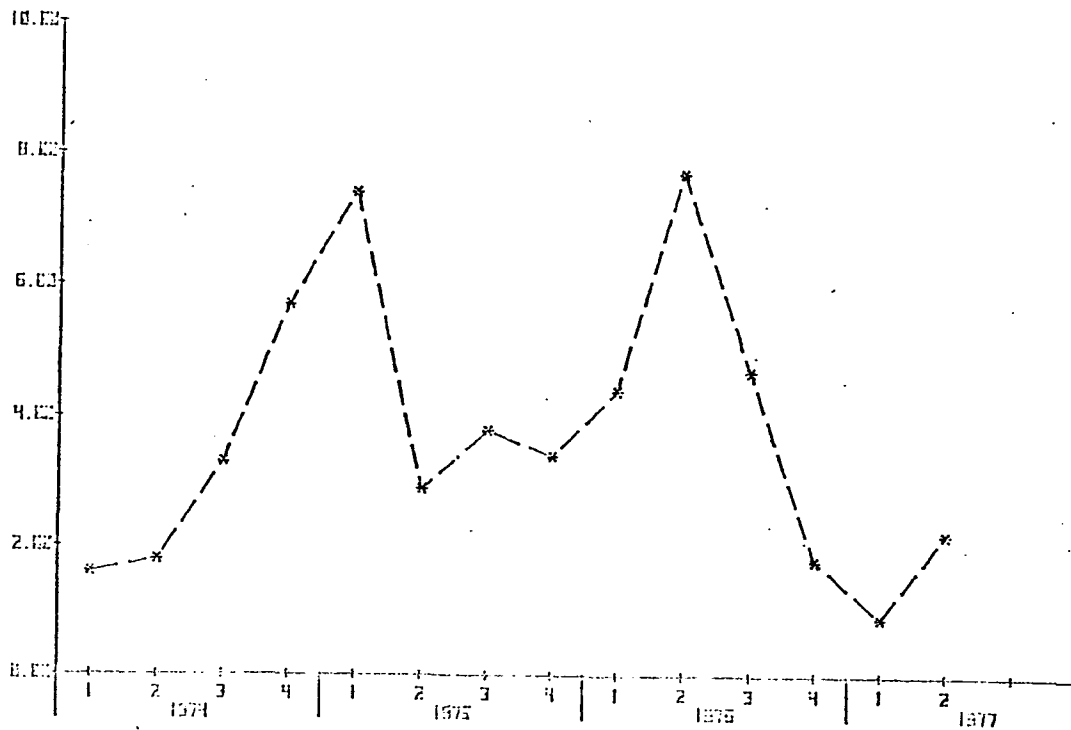
Thousands
of tons

Figure 5.--Stainless steel plates: U.S. producers' shipments and imports for consumption, by quarters, January 1974-June 1977.



Thousands
of tons

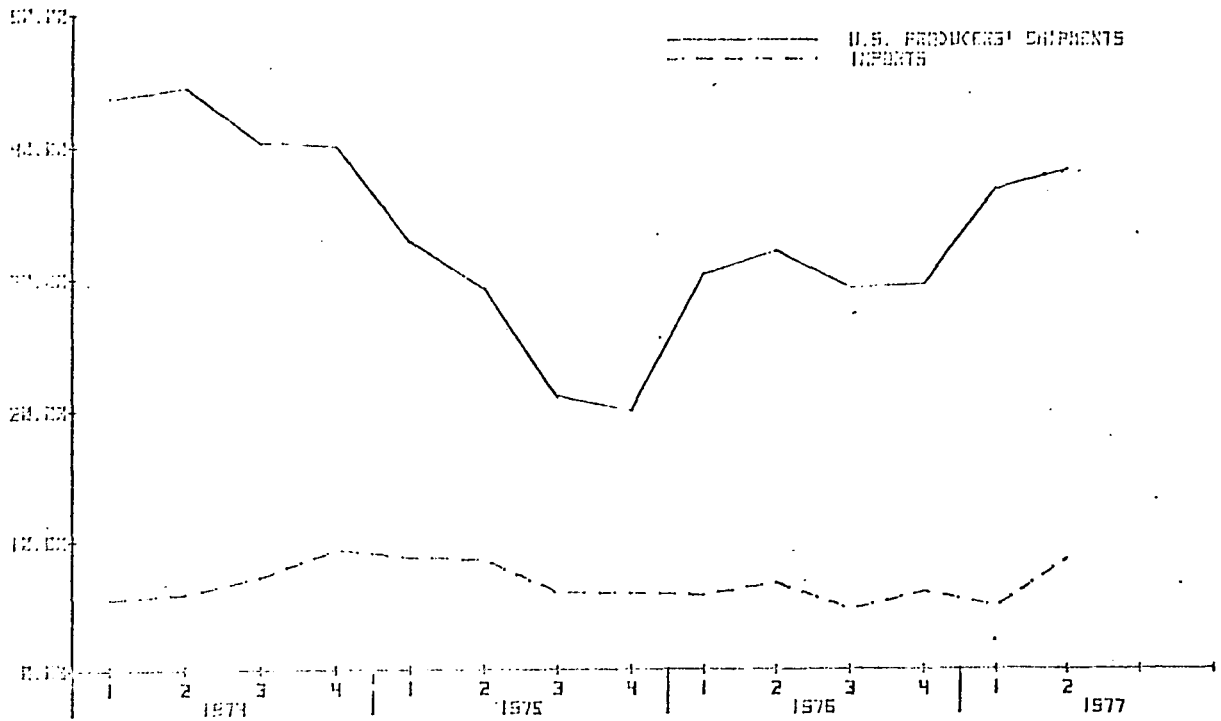
Figure 6.--Stainless steel plates: U.S. imports for consumption, by quarters, January 1974-June 1977.



Source: Earlier data contained in Table 13.

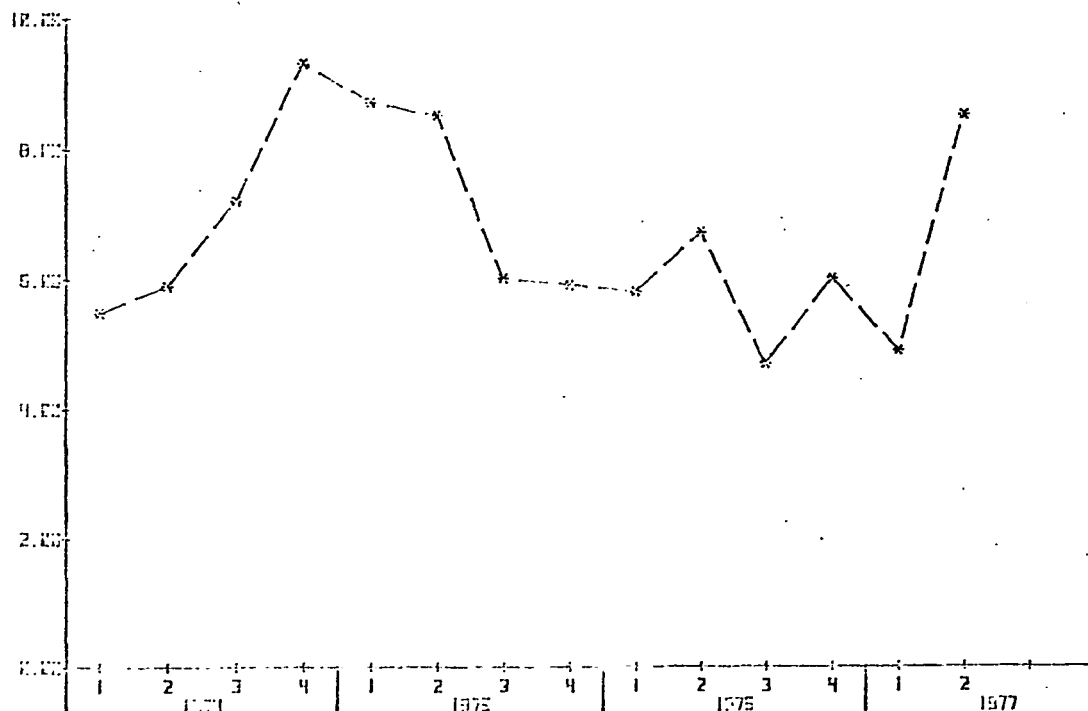
Thousands
of tons

Figure 7.--Stainless steel bars: U.S. producers' shipments and imports for consumption, by quarters, January 1974-June 1977.



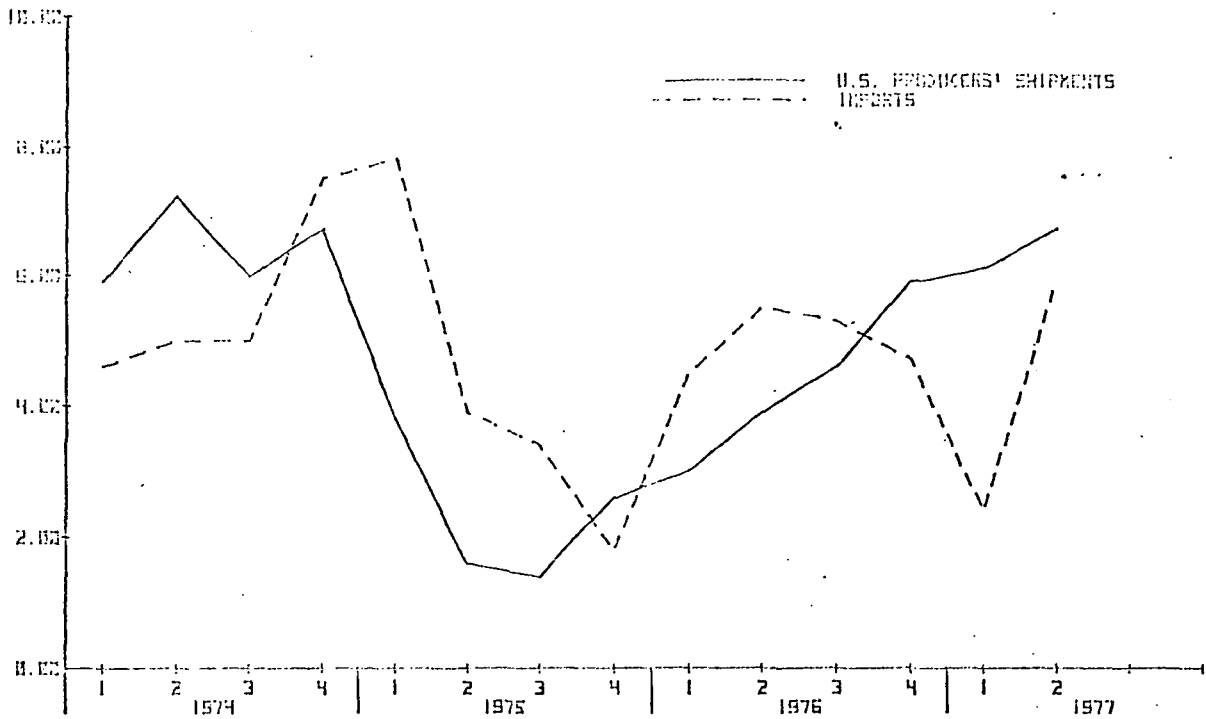
Thousands
of tons

Figure 8.--Stainless steel bars: U.S. imports for consumption, by quarters, January 1974-June 1977.



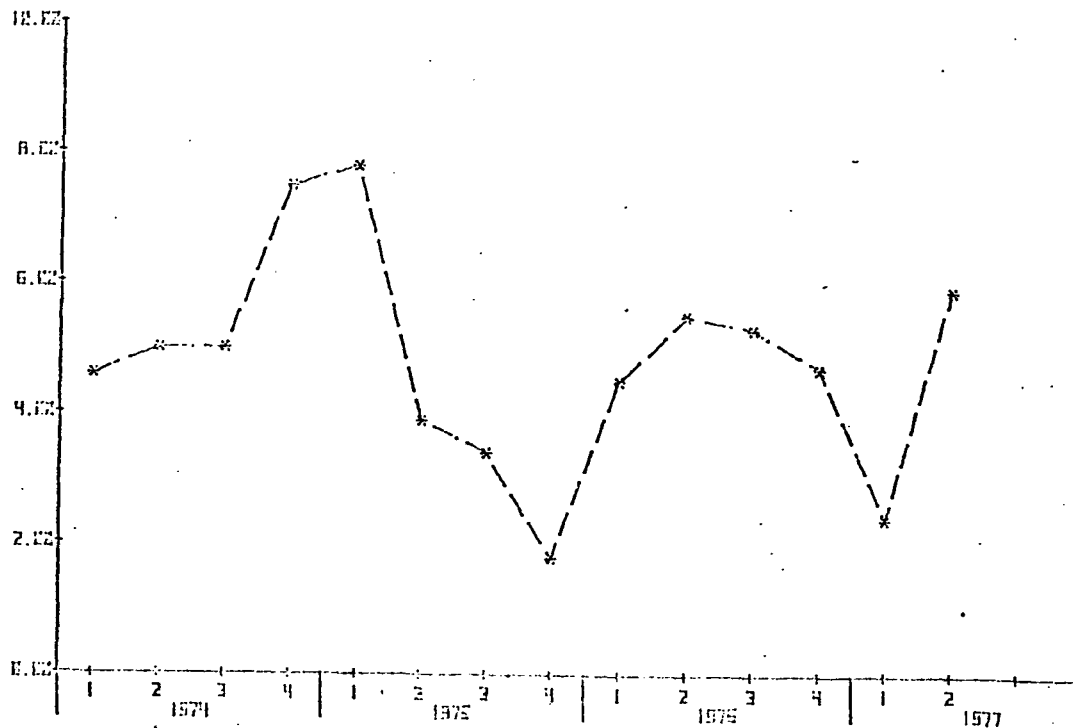
Thousands
of tons

Figure 9.--Stainless steel rods: U.S. producers' shipments and imports for consumption, by quarters, January 1974-June 1977.



Thousands
of tons

Figure 10.--Stainless steel rods: U.S. imports for consumption, by quarters, January 1974-June 1977.



Source: Based on data contained in Table 15.

Thousands
of tons

Figure 11.--Alloy tool steel--U.S. producers' shipments and imports for consumption, by quarters, January 1974-June 1977.

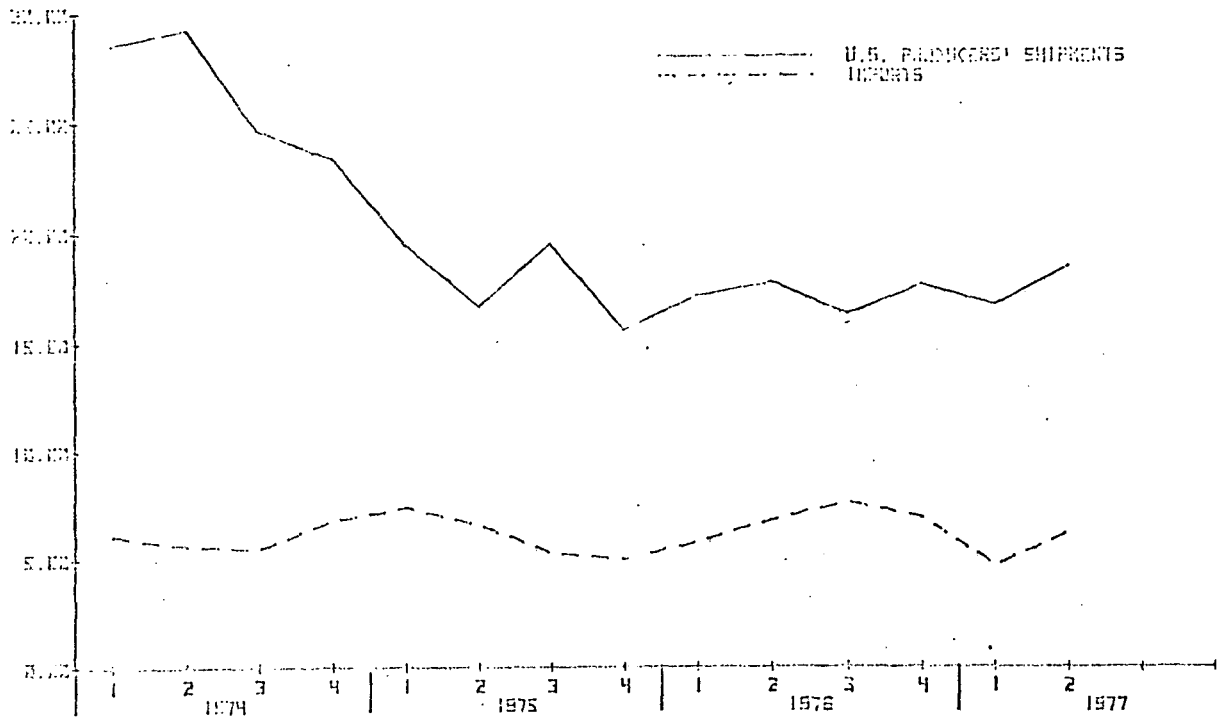
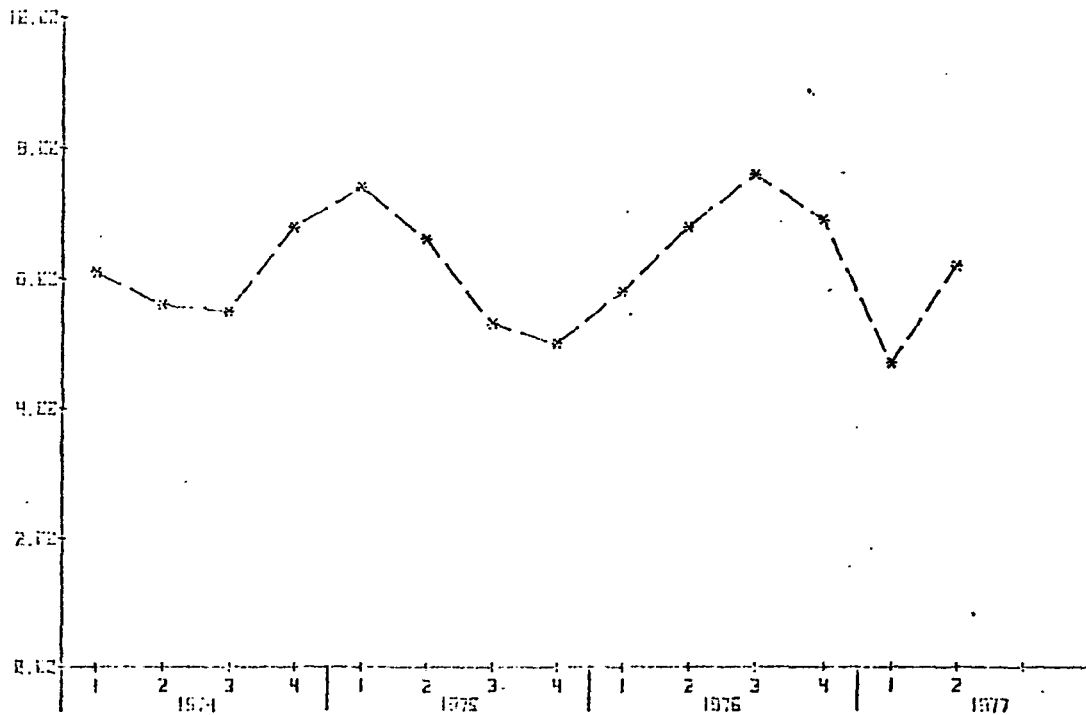
Thousands
of tons

Figure 12.--Alloy tool steel: U.S. imports for consumption, U.S. imports for consumption, by quarters, January 1974-June 1977.



Source: Based on data contained in Table 16.

U.S. exports

Total U.S. exports, which include exports by such firms as steel service centers, increased from 47,400 tons in 1975 to 59,500 tons in 1976, or 26 percent. Exports of sheet and strip were responsible for most of the increase. In January-June 1977, however, exports declined by 3,300 tons (12 percent), when compared with exports in the corresponding period of 1976. Exports during January-June 1977 declined in all product categories except rods.

During the period 1970-76, U.S. producers' exports accounted for about 50 percent of total exports. During January-June 1977, however, U.S. producers' exports accounted for virtually all outbound shipments of the concerned articles (table 20). This change is presumably an attempt by the domestic industry to increase its return on export shipments by eliminating middlemen.

Inventories

U.S. producers.--From July 1, 1976, to July 1, 1977, U.S. producers' inventories increased 27,200 tons or about 8 percent (table 21). Sheet and strip, bar, and alloy tool steel were primarily responsible for the increase. Increased producers' shipments of sheet and strip and bar during this period and the anticipation that increased shipments would continue necessitated a buildup in inventories. However, increased inventories of alloy tool steel resulted from producers' shipments being below anticipated levels.

U.S. importers.--From July 1, 1976, to July 1, 1977, importers' aggregate inventories declined 7,700 tons, or about 19 percent (table 22). Such inventories for stainless steel plate were virtually exhausted because imports in the last quarter of 1976 and the first half of 1977 were at unusually low levels. Stainless steel bar inventories declined 41 percent during this period, closely corresponding to the increase in apparent consumption. Alloy tool steel inventories declined 37 percent as a result, in part, of an unusually low level of imports during the first quarter of 1977.

Conversely, inventories of stainless sheet and strip and rods increased during the period. In both instances, a substantially larger share of consumption was supplied by the domestic industry during the last quarter of 1976 and the first quarter of 1977.

By July 1, 1977, importers' inventories had increased 3,300 tons or about 11 percent, when compared with April 1, 1977, levels. This increase occurred in all product categories except plates, but was most pronounced for stainless steel rods. Increased imports which occurred subsequent to June 14, the start of the second quota year, was responsible for this turnaround in inventory levels.

Unshipped orders

U.S. producers.--U.S. producers' unshipped orders of stainless steel products have been increasing since early 1976 and, on July 1, 1977, were 41 percent above the April 1, 1976, level (table 23). Unshipped orders of stainless steel rods led the advance with a 118 percent increase, followed by sheets and strip

(43 percent), bars (43 percent), and plates (19 percent). The bulk of increased orders for stainless steel products occurred between April and October 1976. The rate of increase in unshipped orders noticeably slowed in October-December 1976 and continued to increase slowly through June 1977.

U.S. producers' unshipped orders of alloy tool steel steadily declined after late 1974. Beginning on January 1, 1977, however, a noticeable turnaround occurred and unshipped orders for that product category continued to increase through June 1977.

U.S. importers.--U.S. importers' unshipped orders of stainless steel showed little change after 1974, except for noticeable declines on October 1, 1976, and January 1, 1977 (table 24).

Lead times

U.S. producers.--U.S. producers' delivery lead times during 1975, 1976, and January-June 1977 were about 50 percent below those which prevailed during the peak demand period of 1974 (table 25). The bulk of this decline, however, occurred at the start of 1975; changes since that time have been small.

U.S. importers.--U.S. importers' lead times have not significantly changed from those which prevailed in October-December 1975 (table 26). Such lead times are now about 25 percent below lead times during the peak demand period of 1974.

U.S. employment

Total employment.--In 1976 the average number of all persons employed in U.S. establishments producing stainless steel and alloy tool steel increased 18 percent over the 1975 level (table 27). Employment rose in all stainless steel product categories, although sheets and strip and rods were primarily responsible for the increase. Total employment, however, slightly declined for alloy tool steel.

During April-June 1977, total employment for stainless steel products was about 8 percent higher than the average for 1976 but 16 percent below that in the peak year of 1974. Total employment for alloy tool steel during April-June 1977, however, declined 1 percent from the 1976 average and 25 percent from that in the peak year of 1974.

Production and related workers.--In 1976, employment of production and related workers was 19 percent higher for stainless steel products and 2 percent higher for alloy tool steel, when compared with employment in 1975. Employment increases occurred in all product categories except stainless steel plate (table 28). During April-June 1977, such employment on stainless steel products was 10 percent higher than the average for 1976, but only slightly higher on alloy tool steel. When compared to 1974, such employment declined 15 percent and 19 percent, respectively.

Man-hours.--Man-hours worked by production and related workers followed the same trend as employment except in the third and fourth quarters of 1975 and the first quarter of 1977 for stainless steel products (table 29). When compared with 1976 data, annualized data for 1977 indicate a 15-percent improvement for stainless steel and a 2-percent improvement for alloy tool steel, but are 16 percent and 38 percent, respectively, below those in the 1974 peak year.

Output per man-hour.--The specialty steel industry has made substantial gains in productivity as shown in the table below. Productivity in the industry increased sharply after 1970 except for stainless steel products in 1975 and in January-June 1977 and alloy tool steel in 1975 and 1976.

Indexes of output per man-hour for stainless steel and alloy tool steel,
1970-76, January-June 1976, and January-June 1977

(1970=100)		
Period	Stainless steel	Alloy tool steel
1970-----	100	100
1971-----	108	117
1972-----	126	123
1973-----	129	130
1974-----	134	133
1975-----	118	123
1976-----	151	121
January-June--		
1976-----	154	112
1977-----	149	127

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

The economic recession in 1975 caused a substantial cutback in specialty steel production which dampened productivity in that year. In 1976 recovery from the recession and slow growth in new employment caused productivity to increase sharply. As production continued to increase during January-June 1977, less experienced employees were employed and less efficient equipment was utilized, causing productivity to decrease from the 1976 level.

As a result of decreased shipments of alloy tool steel, increases in productivity for these items have been considerably less than the increases in stainless steel products during the 1975-77 period. However, productivity substantially improved in January-June 1977, in line with increased shipments.

Average unit values and price comparisons

Differentials between the average unit values of U.S. producers' shipments and U.S. importers' sales prices to consumers have varied widely among the five product categories since the imposition of quotas (tables 30 and 33). The degree to which these differentials have narrowed or broadened reflect, to a large extent, the strength or weaknesses of demand for each of the product categories.

The average unit value of importers' sales prices for sheet and strip have been close to or, in some cases, above the average unit value of U.S. producers' shipments during the first quota year. Demand during this period was strong and importers appear to have filled their quotas with increased quantities of higher valued items. The lowest net selling price for grade 304 sheet shows that the price for the imported article was above the price for the comparable domestic article during July-September 1976, and at or slightly below the domestic price

from October 1976 to June 1977 (table 36). In contrast, such price differentials of certain sheets in the 400 series have widened during the first quota year, giving the imported article an advantage of almost 20 percent (table 36).

Differentials in average unit values of stainless steel plate narrowed during June-December 1976, but markedly widened from January to June 1977, due to softness in plate demand. Differentials in lowest net selling prices for grade 304 plate also narrowed during the first half of the quota year. The lowest net selling price of the imported plate was almost 10 percent below the U.S. producers' price in the first half of 1977 (table 38).

Differentials in the average unit value of stainless steel bar have not significantly changed during the first quota year. Differentials in the lowest net selling price for certain bar narrowed so that the price of the imports was within a few cents of the domestic price and remained at that level through June 1977 (table 39); for others the price differential narrowed but widened again during April-June 1977 (table 40).

Differentials in the average unit values of stainless steel rod narrowed during the first half of the first quota year but increased as the year progressed. Lowest net selling prices for rods are not available.

Differentials in the average unit values for alloy tool steel remained about the same level during the first three quarters of the first quota year but markedly increased in the last quarter. However, differentials in the lowest net selling price in favor of imports disappeared by the second quarter of 1977 when the price of imports exceeded the domestic price (tables 42 and 43).

Profit-and-loss experience

Total establishment operations.--Net sales in establishments producing stainless steel and alloy tool steel increased from \$2.0 billion in 1975 to \$2.3 billion in 1976. Such sales in 1976 were 7 percent below the record-high level in 1974 (table 44). Total establishment operations, in addition to the concerned articles, include high alloy steel, certain other specialized steel products, and metal alloys.

In 1976, net profit totaled \$86.6 million, 8 percent above the previous year but 39 percent below the record 1974 level. Thus, the ratio of net profit to net sales was 3.8 percent in 1976, slightly below the 1975 figure but 64 percent below the record 10.6 percent in 1974.

Quarterly data indicate a substantial improvement in profit for these facilities during January-June 1977 (table 45). Net sales and net profit for January-June 1977 were up 16 percent and 56 percent, respectively, when compared with January-June 1976 figures. At the same time, return on sales increased from 3.5 percent to 6.6 percent.

Stainless steel and alloy tool steel.--Profitability of the stainless steel and alloy tool steel industry has markedly improved since 1975 (table 46). Total operating profit increased from \$53.4 million in 1975 to \$73.4 million in 1976, or by 46 percent. Operating profit for all product categories except stainless steel plate, bar, and rod increased. Despite this improvement in profitability, net operating profit remained far below that of 1974.

Operating profit for January-June 1977 indicate that the recovery which began in late 1975 has continued. Total net operating profit for stainless steel and alloy tool steel rose from \$33.4 million during January-June 1975 to \$74.6 million during January-June 1977, or by 123 percent. Stainless steel sheets and strip and bar accounted for the bulk of the increase. Stainless steel plate and alloy tool steel experienced small decreases in net operating profit while the net operating profit for stainless steel rod increased by only \$1.8 million. Figures 13-18 show U.S. producers' net operating profit and/or loss for 1970 through 1977.

Investment in production facilities

As of yearend 1975, U.S. producers' investment in production facilities on an original-cost, net-book-value, and replacement-cost basis totaled \$1.0 billion, \$0.4 billion, and \$2.2 billion, respectively (table 47). According to industry spokesmen, the magnitude of the increase in replacement cost for these facilities demonstrates the industry's need for increased earnings in order to construct new plant and equipment needed to meet future demand requirements.

Return on investment

The beneficial effects of a stronger U.S. economy and the specialty steel quotas are shown in table 48. This table provides the industry rate of return on investment on an original-cost, book-value, and replacement-cost basis and demonstrates that there was no appreciable change in the industry rate of return until January-June 1977. ^{1/} According to industry spokesmen, rates of return substantially higher than the 1976 level are necessary to justify increased capital investments.

Influences of price and volume changes on gross profit

In the first half of 1977, the U.S. specialty steel industry's gross profit totaled \$140 million, 62 percent higher than in the same period in 1976 (table 46). Table 49 demonstrates the effects that changes in volume and price had upon the industry's profitability.

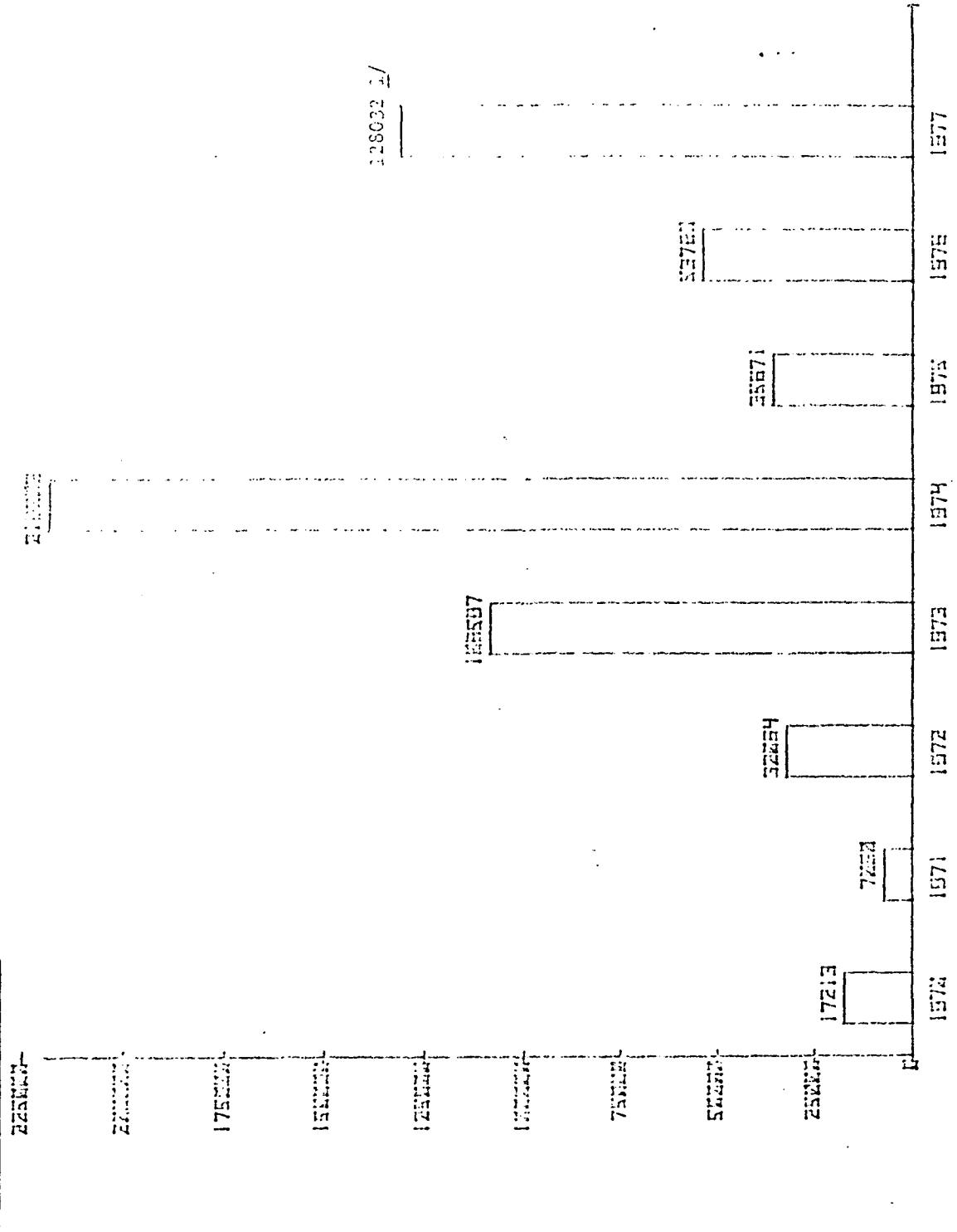
During the first half of 1977 U.S. producers' shipments increased 74,600 tons, or 15.2 percent over the same period in 1976. This change in volume alone accounted for \$21.6 million of the industry's first half 1977 gross profit.

The beneficial effect of this additional tonnage was even more pronounced on the industry's unit costs. The ratio of fixed costs to total costs is high in the specialty steel industry and each ton of steel produced must carry its share of the industry's fixed cost burden. Thus, each additional ton of steel produced reduces the fixed cost burden carried by all other tons produced, thereby reducing the unit cost to the producer. This reduction in unit cost of goods sold on the industry's total first half 1977 production amounted to \$31 million. Thus, the 15.2 percent increase in volume generated \$52.6 million ^{2/} in gross profit which accounted for

^{1/} Investment figures shown are for plant and equipment only. They do not include investment in inventories or receivables. The operating-income figure used to calculate this return on investment was not adjusted for income taxes, interest charges, or general corporate overhead. Consequently, these figures are overstated when compared with traditional return-on-investment figures.

^{2/} \$21.6 million from volume alone, \$31.0 million from unit cost of goods sold.

Figure 13.--Stainless steel, total: U.S. producers' net operating profit or loss, 1970-77

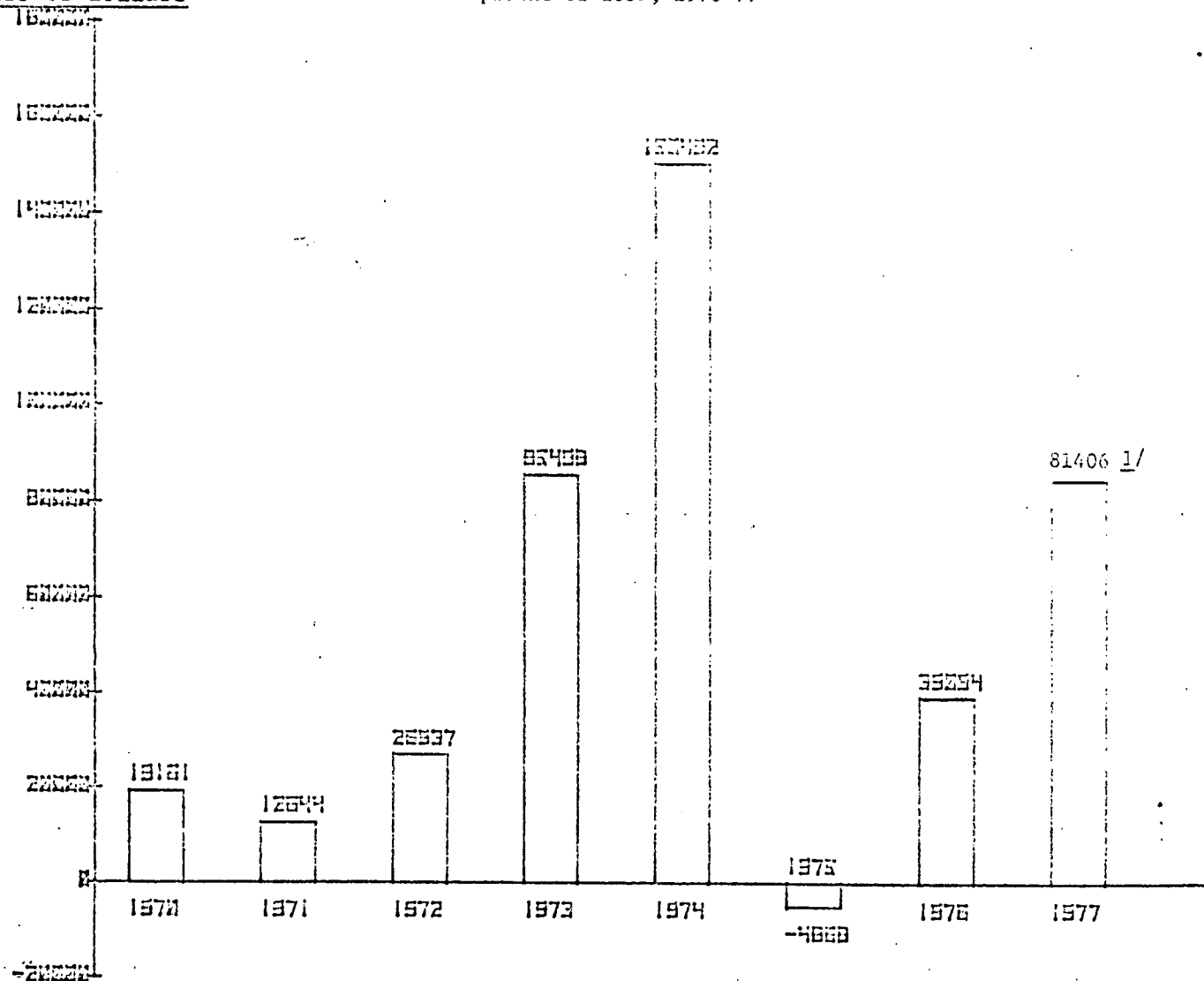


1/ Based on January-June data.

Source: Based on data contained in table 46.

Figure 14.--Stainless steel sheets and strip: U.S. producers' net operating profit or loss, 1970-77

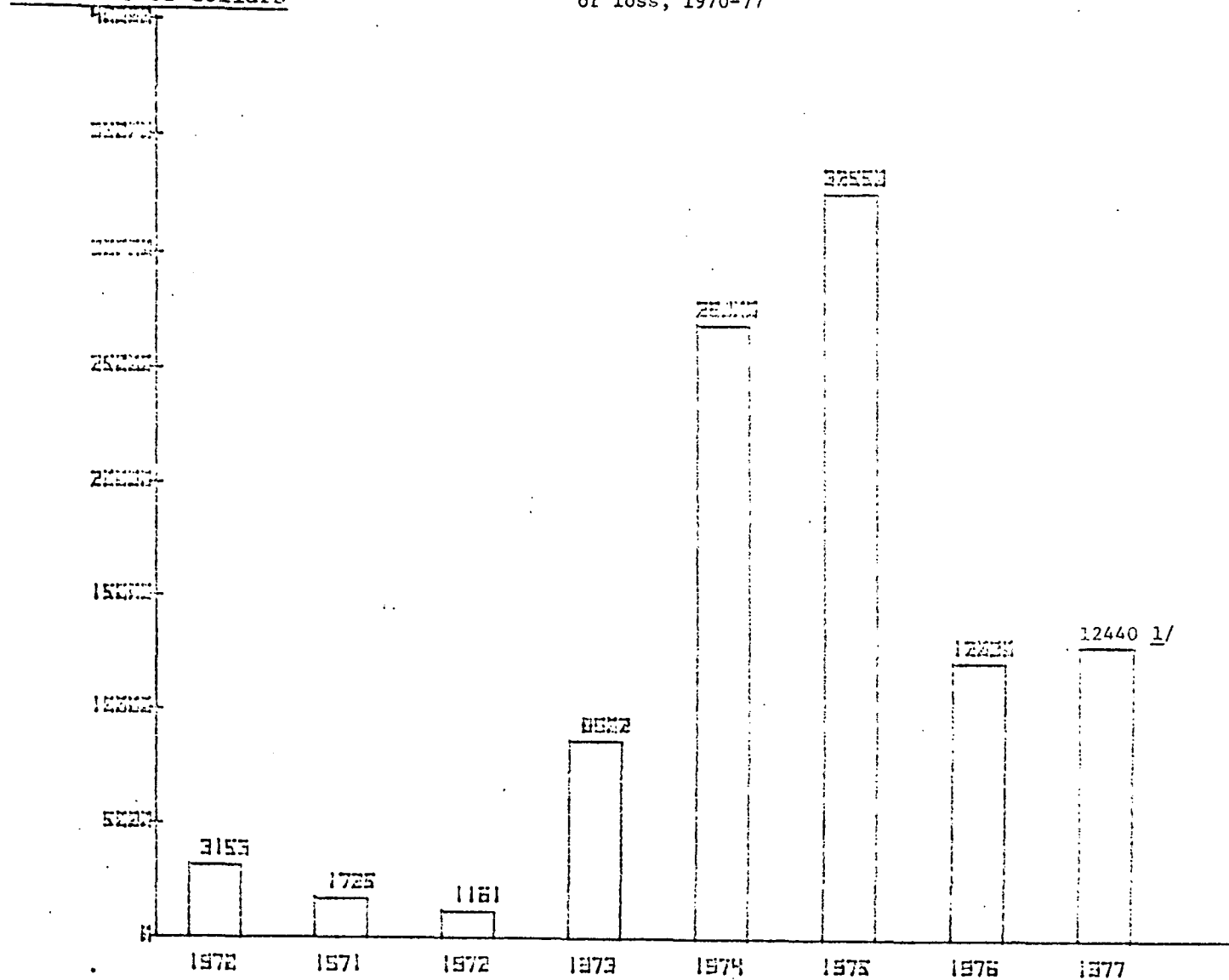
Thousands of dollars



^{1/} Based on January-June data.

Source: Based on data contained in table 46.

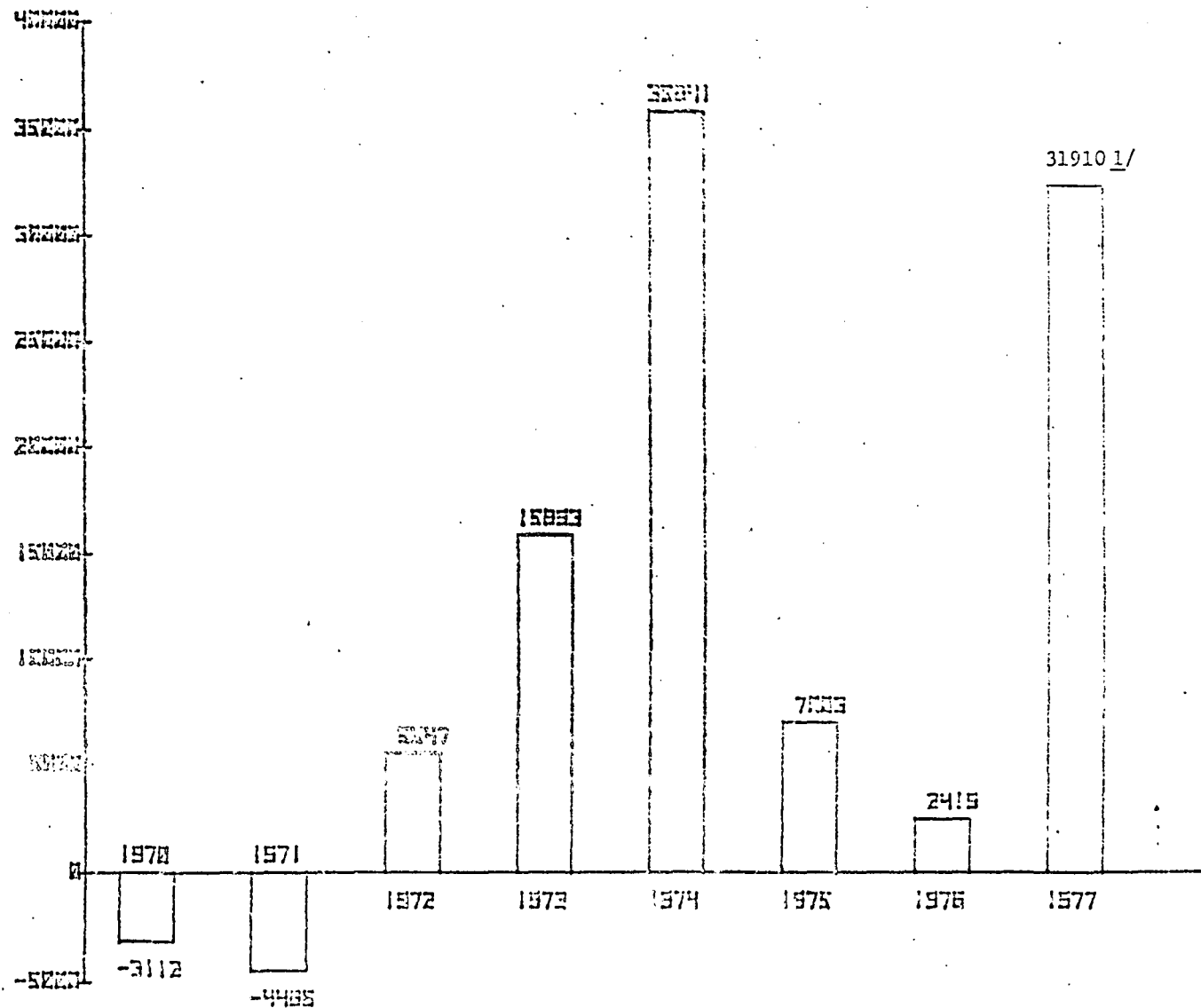
Figure 15.--Stainless steel plate: U.S. producers' net operating profit
or loss, 1970-77



^{1/2} Based on January-June data.

Source: Based on data contained in table 46.

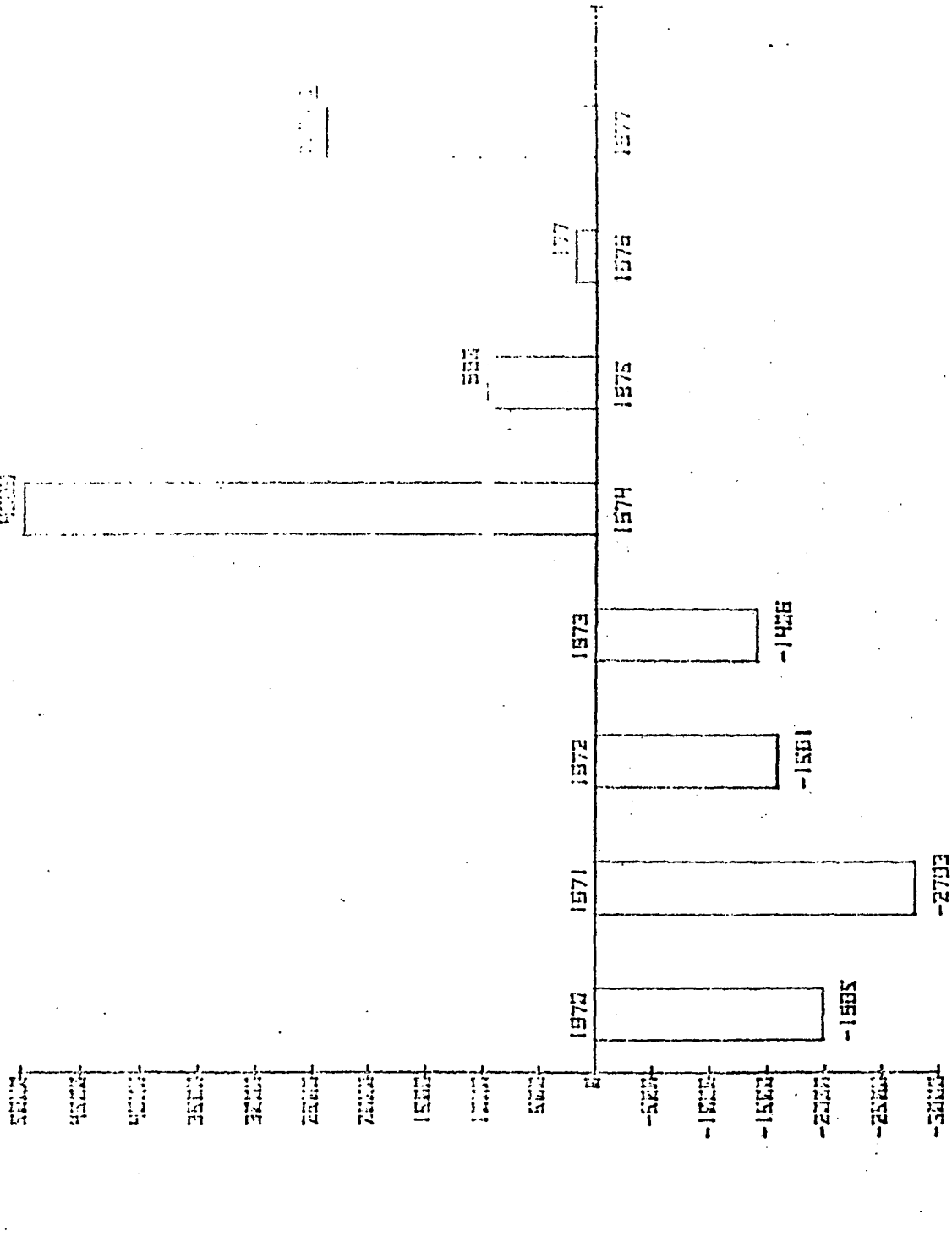
Thousands of dollars Figure 16.--Stainless steel bar: U.S. producers' net operating profit or loss, 1970-77



1/ Based on January-June data.

Source: Based on data contained in table 46.

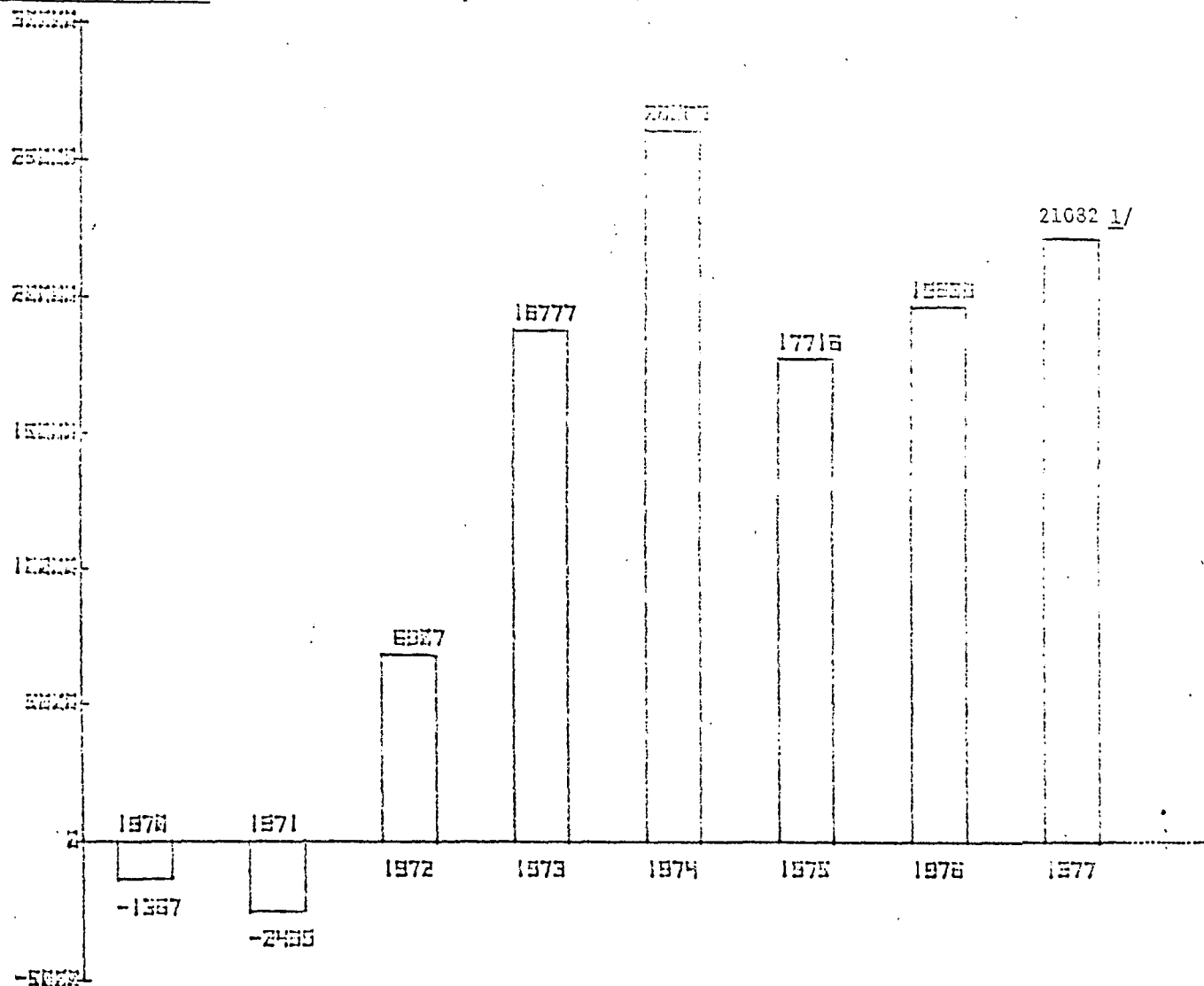
Figure 17.--Stainless steel rod: U.S. producers' net operating profit or loss, 1970-77



1/ Based on January-June data.

Source: Based on data contained in table 46.

Thousands of dollars Figure 18.--Alloy tool steel: U.S. producers' net operating profit or loss, 1970-77



^{1/} Based on January-June data.

Source: Based on data contained in table 46.

38 percent of the industry's first half 1977 gross profit. The foregoing illustrates that a relatively small change in volume can have a substantial impact on the industry's profitability.

During the first half of 1977 the industry increased prices by 5.6 percent for stainless steel products and 12.7 percent for alloy tool steel. These price increases accounted for \$44.5 million or 32 percent of the industry's gross profit during that period. Thus, increased volume, with its associated reduction in unit costs, contributed more to the industry's profitability during the first half of 1977 than increased prices.

APPENDIX A
STATISTICAL TABLES

Table 1.—Stainless steel and alloy tool steel: Comparison
between Commission recommendations to the President and
Presidential Proclamation No. 4445

Item	Commission	President
Duration-----	5 years-----	3 years, unless terminated sooner.
Exclusions-----	None-----	Razor blade steel.
Timing-----	No more than 60% of total quota during any 6 months.	Same.
Shortfall-----	If quota not filled at end of year for any country, next years allocation would be reduced and reallocated to all other countries.	If 2/3 of quota is not used in 9 months or 80% in 10 months, unfilled quota may be reallocated to other countries.
Carryover-----	None-----	Japan may carry over 4% of its quota for 30 days into next quota year.
Adjustments within quota year.	None-----	Japan may readjust quota during quota year by certain percentages.
Base periods:		
Quota-----	1970-74-----	1971-75, all countries except Canada; 1971-74, Canada.
Country allocations.	1972-74-----	No definite method.
Increase in quotas---	Based on increased consumption.	3% annually.
Provision for non-supplying countries.	None-----	Included in "other" country quota category.
Provision for EEC---	By country-----	In total.

Table 2.--Stainless steel total: U.S. imports for consumption, by principal sources, 1970-76

Source	1970	1971	1972	1973	1974	1975	1976
Quantity (tons)							
Japan-----	86,319	92,159	42,140	33,976	59,191	73,819	73,427
France-----	13,509	18,682	20,798	14,054	16,893	11,103	20,787
Canada-----	10,909	10,860	8,200	9,164	11,278	8,963	6,278
Sweden-----	8,473	12,645	21,295	16,497	15,046	11,962	10,984
West Germany----	1,124	5,120	2,910	1,844	4,161	4,405	6,072
Republic of Korea--	34	-	1,550	1,400	1,641	2,133	4,421
United Kingdom---	1,929	2,780	3,363	3,932	5,906	4,380	3,610
Austria-----	134	457	557	655	821	427	672
Spain-----	850	661	1,641	3,557	4,659	5,133	5,267
Belgium-----	1,764	2,237	2,635	2,550	1,797	3,775	3,207
Brazil-----	251	106	192	1,491	2,434	1,221	1,182
All other-----	962	1,430	2,995	3,733	3,373	2,164	4,269
Total-----	126,258	147,137	108,276	92,853	127,200	129,485	140,176
Value (1,000 dollars)							
Japan-----	74,669	76,942	35,815	32,595	70,286	91,810	87,265
Spain-----	626	551	1,435	3,281	4,786	6,119	6,525
Brazil-----	251	102	152	1,568	3,041	1,619	1,465
Sweden-----	9,146	12,206	19,088	16,630	17,997	14,061	17,501
United Kingdom---	2,484	2,845	3,213	4,156	8,231	6,944	5,204
Canada-----	6,896	5,909	5,198	6,422	10,733	8,279	5,843
France-----	9,579	14,415	16,099	12,704	18,011	13,726	25,004
Austria-----	69	346	558	930	1,151	780	1,235
West Germany----	666	3,037	2,415	1,916	5,137	5,757	8,707
Belgium-----	1,923	2,288	2,453	2,670	3,023	6,337	5,286
Republic of Korea--	18	-	1,125	1,102	1,843	2,372	4,371
All other-----	482	916	2,831	2,507	3,452	2,273	4,526
Total-----	106,809	119,557	90,382	86,481	147,691	160,077	172,932
Percent of total quantity							
Japan-----	68.4	62.5	38.9	36.6	46.5	57.0	52.4
France-----	10.7	12.7	19.2	15.1	13.3	8.6	14.8
Canada-----	8.6	7.4	7.6	9.9	8.9	6.9	4.5
Sweden-----	6.7	8.6	19.7	17.8	11.8	9.2	7.8
West Germany----	.9	3.7	2.7	2.0	3.3	3.4	4.3
Republic of Korea--	1/	-	1.4	1.5	1.3	1.6	3.2
United Kingdom---	1.5	1.9	3.1	4.2	4.6	3.4	2.6
Austria-----	.1	.3	.5	.7	.6	.3	.5
Spain-----	.7	.4	1.5	3.8	3.7	4.0	3.8
Belgium-----	1.4	1.5	2.4	2.8	1.4	2.9	2.3
Brazil-----	.2	.1	.2	1.6	1.9	.9	.8
All other-----	.8	.9	2.8	4.0	2.7	1.8	2.6
Total-----	100.0	100.0	100.0	100.0	100.0	100.0	100.0

1/ Less than .05 percent.

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

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

Table 3 --Stainless steel sheet and strip: U.S. imports for consumption, by principal sources, 1970-76

Source	1970	1971	1972	1973	1974	1975	1976
Quantity (tons)							
Japan-----	64,868	71,344	28,694	18,038	33,294	36,973	43,984
France-----	7,790	13,150	13,007	8,630	9,967	7,902	14,736
Canada-----	10,318	10,216	7,603	8,184	9,200	6,252	5,367
Sweden-----	4,215	5,828	6,976	5,630	6,681	6,855	5,081
West Germany-----	940	5,067	2,654	1,263	3,085	1,754	2,277
Republic of Korea-----			1,550	1,400	1,641	2,127	4,191
United Kingdom-----	637	674	1,016	1,022	860	1,507	1,109
Austria-----	19	126	88	81	56	11	109
Spain-----	-	-	3	38	28	348	632
Belgium-----	40	381	135	58	17	2,177	741
Brazil-----	-	-	-	-	-	-	-
All other-----	5	422	919	357	59	57	75
Total-----	88,832	107,188	59,645	44,701	64,888	65,963	78,299
Value (1,000 dollars)							
Japan-----	57,465	59,416	21,386	16,979	39,201	43,162	59,438
France-----	5,466	10,244	9,515	6,854	9,784	8,848	16,428
Canada-----	6,446	5,376	4,656	5,527	7,987	5,255	4,585
Sweden-----	5,424	6,370	7,133	6,597	9,812	10,970	8,796
West Germany-----	605	2,993	2,184	1,336	4,093	2,269	3,196
Republic of Korea-----	-	-	1,125	1,102	1,843	2,367	4,169
United Kingdom-----	1,064	1,052	1,192	1,407	1,552	2,481	1,612
Austria-----	32	54	90	151	80	26	209
Spain-----	-	-	3	38	31	382	672
Belgium-----	25	301	73	41	22	2,951	956
Brazil-----	-	-	-	-	-	-	-
All other-----	5	334	1,419	347	60	80	93
Total-----	76,552	86,125	45,776	40,379	74,465	78,791	91,158
Percent of total quantity							
Japan-----	73.0	66.6	43.1	40.4	51.3	56.0	56.2
France-----	8.8	12.3	21.8	19.3	15.4	12.0	18.8
Canada-----	11.6	9.5	12.7	18.3	14.2	9.5	6.9
Sweden-----	4.7	5.4	11.7	12.6	10.3	10.4	6.5
West Germany-----	1.1	4.7	4.4	2.8	4.8	2.7	2.9
Republic of Korea-----			2.6	3.1	2.5	3.2	5.4
United Kingdom-----	.7	.6	1.7	2.3	1.3	2.2	1.4
Austria-----	1/	.1	.1	.2	.1	1/	.1
Spain-----			1/	.1	1/	.5	.8
Belgium-----	1/	.4	.2	.1	1/	3.3	.9
Brazil-----							
All other-----	1/	.4	1.6	.8	.1	.1	.1
Total-----	100.0	100.0	100.0	100.0	100.0	100.0	100.0

1/ Less than 0.05 percent.

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

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

Table 4--Stainless steel bars: U.S. imports for consumption, by principal sources, 1970-76

Source	1970	1971	1972	1973	1974	1975	1976
Quantity (tons)							
JAPAN	12,566	12,862	11,274	8,889	12,403	16,157	11,651
SPAIN	837	661	1,658	3,519	4,651	4,785	4,635
BRAZIL	251	106	192	1,491	2,154	1,221	1,132
SWEDEN	250	624	1,517	1,510	2,137	1,342	2,059
United Kingdom	84	151	163	1,556	1,603	986	98
Canada	559	531	302	700	1,510	1,592	806
France	450	642	1,819	1,313	882	456	315
Austria	105	331	469	570	758	416	563
West Germany	2	27	69	44	275	1,783	344
Belgium	37	34	354	10	1/	-	43
Republic of Korea	34	-	-	-	-	6	220
All other	230	160	382	445	1,259	439	1,230
Total	15,195	16,229	18,509	20,137	27,892	29,183	23,146
Value (1,000 dollars)							
Japan	10,077	11,528	10,606	9,161	15,018	21,741	14,801
Spain	621	551	1,432	3,243	4,755	5,737	5,853
Brazil	250	102	152	1,568	3,041	1,619	1,465
Sweden	214	646	1,313	1,671	2,550	1,891	3,154
United Kingdom	78	184	466	1,551	1,990	1,363	168
Canada	446	511	474	707	1,875	2,222	1,104
France	334	427	1,508	1,315	943	673	469
Austria	64	292	468	775	1,061	754	1,026
West Germany	4	21	82	54	365	2,232	555
Belgium	44	31	321	9	1	-	40
Republic of Korea	18	-	-	-	-	5	190
All other	203	153	308	415	1,596	597	1,423
Total	12,403	14,446	17,130	20,469	33,195	38,834	30,248
Percent of total quantity							
Japan	81.4	79.9	60.9	44.1	44.5	55.4	50.3
Spain	5.5	4.1	8.8	17.5	16.6	16.4	20.0
Brazil	1.7	.7	1.0	7.4	8.7	4.2	5.1
Sweden	1.5	3.8	7.3	7.6	7.7	4.6	8.9
United Kingdom	.6	.9	2.5	7.7	5.7	3.4	.4
Canada	3.9	3.3	2.7	3.8	5.4	5.4	3.5
France	2.8	4.0	10.0	6.5	3.2	1.6	1.4
Austria	.7	2.0	2.5	2.8	2.7	1.4	2.4
West Germany	2/	.2	.4	.2	1.0	6.1	1.5
Belgium	.2	.2	1.9	2/	2/	-	.2
Republic of Korea	.2	-	-	-	-	2/	1.0
All other	1.5	1.0	2.0	2.4	4.5	1.5	5.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

1/ Less than 0.5 ton.

2/ Less than 0.05 percent.

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

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

Table 5.--Stainless steel wire rods: U.S. imports for consumption, by principal sources, 1970-76

Source	1970	1971	1972	1973	1974	1975	1976
Quantity (tons)							
Japan-----	3,602	4,019	2,831	3,837	7,398	9,325	6,881
France-----	5,236	4,624	4,517	3,843	6,004	2,481	5,215
Sweden-----	2,448	2,271	2,982	4,772	4,972	2,498	2,573
Belgium-----	1,687	1,822	1,884	2,482	1,747	1,552	2,342
West Germany-----	182	22	61	59	570	139	586
Canada-----	-	22	-	5	20	-	44
Austria-----	10	-	-	4	6	-	-
Brazil-----	-	-	-	-	-	-	-
Republic of Korea-----	-	-	-	-	-	-	-
Spain-----	-	-	-	-	-	-	-
United Kingdom-----	-	-	-	-	-	-	73
All other-----	725	619	631	1,812	1,352	855	2,367
Total-----	13,890	13,399	13,006	16,764	22,069	16,850	20,091
Value (1,000 dollars)							
Japan-----	2,002	2,693	1,890	3,301	8,157	11,178	8,115
France-----	3,693	3,534	3,907	4,270	7,013	3,934	7,632
Sweden-----	1,884	1,755	2,214	4,103	5,773	3,633	3,663
Belgium-----	1,854	1,956	1,916	2,620	2,981	3,327	4,172
West Germany-----	57	14	49	67	301	87	766
Canada-----	-	4	-	5	25	-	62
Austria-----	5	-	-	4	9	-	-
Brazil-----	-	-	-	-	-	-	-
Republic of Korea-----	-	-	-	-	-	-	-
Spain-----	-	-	-	-	-	-	-
United Kingdom-----	-	-	-	-	-	-	102
All other-----	273	251	262	754	800	749	2,154
Total-----	9,768	10,207	10,233	15,124	25,059	22,908	26,665
Percent of total quantity							
Japan-----	25.9	30.0	21.8	22.9	33.5	55.4	34.2
France-----	37.7	34.5	34.7	22.9	27.2	14.7	26.0
Sweden-----	17.6	16.9	22.9	28.2	22.5	14.8	12.8
Belgium-----	12.1	13.6	15.3	14.8	7.9	9.2	11.6
West Germany-----	1.3	.2	.5	.4	2.6	.8	3.0
Canada-----	-	.2	-	3/	.1	-	.2
Austria-----	.1	-	-	3/	3/	-	-
Brazil-----	-	-	-	-	-	-	-
Republic of Korea-----	-	-	-	-	-	-	-
Spain-----	-	-	-	-	-	-	-
United Kingdom-----	-	-	-	-	-	-	.4
All other-----	5.3	4.6	4.9	10.8	6.2	5.1	11.8
Total-----	100.0	100.0	100.0	100.0	100.0	100.0	100.0

1/ Less than 0.5 tons.

2/ Less than \$500.

3/ Less than 0.05 percent.

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

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

Table 6.--Stainless steel plate: U.S. imports for consumption, by principal sources, 1970-76

Source	1970	1971	1972	1973	1974	1975	1976
Quantity (tons)							
Japan-----	5,483	3,834	2,341	3,212	6,096	11,364	10,911
United Kingdom-----	1,208	1,955	1,884	1,354	3,443	1,887	2,330
Sweden-----	1,580	3,922	9,990	4,605	1,256	2,008	1,271
Canada-----	2	91	95	215	548	489	64
West Germany-----		4	126	478	231	729	2,855
France-----	53	286	1,425	268	40	264	521
Belgium-----	-	-	162	-	33	46	81
Austria-----	-	-	-	-	1	-	-
Spain-----	13	-	-	-	-	-	-
Brazil-----	-	-	-	-	-	-	-
Republic of Korea-----	-	-	-	-	-	-	10
All other-----	2	229	1,093	1,119	703	702	597
Total-----	8,341	10,321	17,116	11,251	12,351	17,489	18,640
Value (1,000 dollars)							
Japan-----	5,125	3,305	1,973	3,154	7,910	15,729	13,911
United Kingdom-----	1,342	1,629	1,555	1,198	4,689	3,100	3,322
Sweden-----	1,624	3,435	8,428	4,259	1,637	2,282	1,888
Canada-----	4	18	68	183	846	802	92
West Germany-----	-	4	100	459	378	1,169	4,156
France-----	36	210	1,169	265	54	271	465
Belgium-----	-	-	143	-	19	59	118
Austria-----	-	-	-	-	1	-	-
Spain-----	5	-	-	-	-	-	-
Brazil-----	-	-	-	-	-	-	-
Republic of Korea-----	-	-	-	-	-	-	12
All other-----	1	178	842	991	755	847	853
Total-----	8,137	8,779	14,278	10,509	16,339	25,259	24,857
Percent of total quantity							
Japan-----	65.7	37.0	13.7	28.5	49.4	64.9	58.6
United Kingdom-----	14.5	18.9	11.0	12.0	27.9	10.8	12.5
Sweden-----	18.9	38.2	58.7	40.9	10.2	11.5	6.8
Canada-----	3/	.9	.6	1.9	4.4	2.8	.3
West Germany-----	-	3/	.7	4.2	1.9	4.2	15.3
France-----	.6	2.8	8.3	2.4	.3	1.5	2.8
Belgium-----	-	-	.9	-	.3	.3	.4
Austria-----	-	-	-	-	3/	-	-
Spain-----	.2	-	-	-	-	-	-
Brazil-----	-	-	-	-	-	-	-
Republic of Korea-----	-	-	-	-	-	-	.1
All other-----	.1	2.2	6.4	10.1	5.7	4.0	3.2
Total-----	100.0	100.0	100.0	100.0	100.0	100.0	100.0

1/ Less than 0.5 ton.

2/ Less than \$100.

3/ Less than 0.05 percent.

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

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

Table 7.--Alloy tool steel: U.S. imports for consumption, by principal sources, 1970-76

Source	1970	1971	1972	1973	1974	1975	1976
Quantity (tons)							
Sweden-----	6,038	3,814	6,218	9,460	9,544	10,118	10,513
West Germany-----	1,145	596	590	1,975	2,803	2,370	1,173
Austria-----	2,013	1,531	1,594	3,130	2,631	2,416	2,522
Japan-----	2,289	2,502	2,873	3,634	2,186	4,674	5,894
Canada-----	2,955	2,221	1,485	1,657	2,163	956	1,439
Spain-----	-	-	-	568	1,217	589	499
United Kingdom-----	1,018	540	700	1,106	1,092	969	2,164
Poland-----	187	394	440	390	814	1/	1/
Finland-----	315	12	6	140	412	1/	1/
All other-----	1,389	991	875	1,023	1,078	2,154	2,491
Total-----	17,349	12,601	14,811	23,083	23,940	24,244	26,700
Value (1,000 dollars)							
Sweden-----	5,800	4,166	7,154	10,703	12,969	16,225	18,693
West Germany-----	842	655	637	1,336	2,182	2,387	1,192
Austria-----	1,646	1,229	1,659	3,621	3,011	3,467	3,671
Japan-----	1,158	1,577	2,912	2,413	2,765	7,003	8,526
Canada-----	2,973	1,813	1,621	1,629	3,019	1,212	1,974
Spain-----	-	-	-	578	1,020	515	427
United Kingdom-----	989	687	1,097	1,755	1,921	2,007	3,471
Poland-----	89	204	231	251	502	1/	1/
Finland-----	48	2	4	37	122	1/	1/
All other-----	647	531	691	677	827	1,769	2,386
Total-----	14,192	10,864	16,006	23,000	28,338	34,585	40,740
Percent of total quantity							
Sweden-----	34.8	30.3	42.2	41.0	39.9	41.7	39.4
West Germany-----	6.6	4.7	4.0	8.6	11.7	9.8	4.4
Austria-----	11.2	12.2	10.8	13.3	11.0	10.0	9.4
Japan-----	13.2	19.9	19.4	15.7	9.1	19.3	22.1
Canada-----	17.1	17.6	10.0	7.2	9.0	3.9	5.4
Spain-----	-	-	-	2.5	5.1	2.4	1.9
United Kingdom-----	5.9	4.3	4.7	4.8	4.6	4.0	8.1
Poland-----	1.1	3.1	3.0	1.7	3.4	1/	1/
Finland-----	1.8	2/	2/	.6	1.7	1/	2/
All other-----	8.0	7.8	5.9	4.4	4.5	8.9	9.3
Total-----	100.0	100.0	100.0	100.0	100.0	100.0	100.0

1/ Included in all other.

2/ Less than 0.05 percent.

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

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

Table 8.--Stainless steel and alloy tool steel: Quota limits and U.S. imports for consumption, June 14, 1976-June 13, 1977

(Quantity in net tons)						
	Specialty steel, total (Excl. alloy tool bearing steel)	Sheet and strip TSUS 923.20	Plate TSUS 923.21	Bar TSUS 923.22	Rod TSUS 923.23	Alloy tool (Non-bearing) 2/ TSUS 923.26
Japan:						
Quota limit-----	66,400	38,600	5,600	13,000	5,700	3,500
Imports-----	61,675	35,696	4,851	11,977	5,700	3,451
Imports as percent of limit-----	92.8	92.4	86.6	92.1	100.0	98.6
European Community:						
Quota limit 3/4/5/---	34,606	17,541	4,800	1,465	7,400	3,400
Imports-----	31,768	16,467	3,109	1,392	7,400	3,400
Imports as percent of limit-----	91.7	93.8	64.7	95.0	100.0	100.0
Canada:						
Quota limit 3/4/-----	10,385	7,300	200	985	0	1,900
Imports-----	10,073	7,087	102	985	0	1,899
Imports as percent of limit-----	96.9	97.0	51.0	100.0	-	99.9
Sweden:						
Quota limit 3/4/5/---	22,345	6,400	1,600	1,845	4,000	8,500
Imports-----	22,160	6,298	1,600	1,762	4,000	8,500
Imports as percent of limit-----	99.1	98.4	100.0	95.4	100.0	100.0
Other--"Column 1": 6/7/						
Quota limit 3/4/5/---	13,275	2,662	700	6,307	0	3,606
Imports-----	12,599	2,180	506	6,307	0	3,606
Imports as percent of limit-----	94.9	81.9	72.2	100.0	-	100.0
All countries:						
Quota limit-----	147,011	72,503	12,900	23,602	17,100	20,906
Imports-----	138,275	67,728	10,168	22,423	17,100	20,856
Imports as percent of limit-----	94.0	93.4	78.8	95.0	100.0	99.7

1/ Proclamation 4445 of June 11, 1976, as amended.

2/ Superseded earlier designation, TSUS 923.24, effective November 21, 1976; Proclamation 4477.

3/ Quota limits changed by first reallocation (FR March 18, 1977, p. 15157).

4/ Quota limits changed by second reallocation (FR June 3, 1977, p. 28635).

5/ Quota limits changed by third reallocation (FR June 10, 1977, p. 29976).

6/ Other MFN countries.

7/ Under the first reallocation, Austria received a separate country quota of 6 tons for alloy tool steel.

Source: U.S. Department of Commerce, Bureau of Resources and Trade Assistance.

Table 9.--Stainless steel and alloy tool steel: U.S. producers' shipments, exports of domestic merchandise, imports for consumption, and apparent consumption, by product groups, 1970-76 and, by quarters, January 1974-June 1977

Period	U.S. producers' shipments	Exports	Imports	Apparent consumption	Ratio of imports to consumption
	1,000 tons	1,000 tons	1,000 tons	1,000 tons	Percent
1970-----	651.5	73.5	143.6	721.6	19.9
1971-----	680.5	46.8	159.7	793.4	20.1
1972-----	821.5	47.1	123.1	897.5	13.7
1973-----	1,091.6	75.6	115.9	1,132.9	10.2
1974-----	1,264.3	90.5	151.1	1,324.9	11.4
1975-----	743.9	47.4	153.7	850.3	18.1
1976-----	993.5	59.5	166.9	1,100.9	15.2
1974:					
January-March----	307.5	22.2	26.5	311.7	8.5
April-June-----	345.4	24.5	30.4	351.4	8.7
July-September----	319.7	21.4	38.2	336.5	11.3
October-December--	293.0	22.4	56.1	336.7	17.2
1975:					
January-March----	202.8	12.4	50.3	240.7	20.9
April-June-----	147.1	11.3	36.9	172.7	21.4
July-September----	168.8	10.8	32.9	190.9	17.2
October-December--	185.2	12.9	33.1	205.9	16.3
1976:					
January-March----	238.0	15.9	41.7	263.8	15.8
April-June-----	254.3	14.3	50.8	290.8	17.5
July-September----	248.1	15.7	42.4	274.8	15.4
October-December--	255.5	13.5	32.0	274.0	11.6
1977:					
January-March----	270.2	13.7	23.8	280.2	8.5
April-June-----	296.0	13.1	45.4	328.4	13.8

Source: U.S. producers' shipments, compiled from responses to questionnaires of the U.S. International Trade Commission; exports and imports compiled from official statistics of the U.S. Department of Commerce.

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

Table 10.—Stainless steel: U.S. producers' shipments, exports of domestic merchandise, imports for consumption, and apparent consumption, 1970-76 and, by quarters, January 1974-June 1977

Period	U.S. producers' shipments	Exports	Imports	Apparent consumption	Ratio of imports to consumption
	1,000 tons	1,000 tons	1,000 tons	1,000 tons	Percent
1970-----	570.2	71.8	126.3	624.8	20.2
1971-----	612.3	44.7	147.1	714.8	20.6
1972-----	742.0	45.2	108.3	805.2	13.5
1973-----	993.6	71.8	92.9	1,014.9	9.2
1974 1/-----	1,159.7	85.8	127.2	1,201.1	10.6
1975 1/-----	672.6	41.7	129.5	760.3	17.0
1976 1/-----	924.4	55.5	140.2	1,009.1	13.9
1974:					
January-March-----	278.9	21.2	20.4	278.1	7.3
April-June-----	316.1	23.2	24.8	317.8	7.8
July-September-----	295.0	20.4	32.7	307.3	10.6
October-December-----	269.6	21.0	49.3	297.9	16.6
1975:					
January-March-----	183.3	11.3	42.9	214.9	20.0
April-June-----	130.4	9.7	30.3	151.0	20.1
July-September-----	149.3	9.4	27.6	167.5	16.5
October-December-----	169.6	11.4	28.6	186.9	15.3
1976:					
January-March-----	221.0	14.7	35.9	242.1	14.8
April-June-----	236.6	13.3	44.0	267.3	16.5
July-September-----	231.9	14.6	35.2	252.5	13.9
October-December-----	237.9	12.8	25.1	250.1	10.0
1977:					
January-March-----	253.5	12.8	19.1	259.8	7.4
April-June-----	277.6	12.4	39.2	304.4	12.9

1/ Quarterly data may not conform to total for year; corrections and adjustments for the year were not distributed to individual quarters.

Source: U.S. producers' shipments, compiled from responses to questionnaires of the U.S. International Trade Commission; exports and imports, compiled from official statistics of the U.S. Department of Commerce.

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

Table 11.--Stainless steel and alloy tool steel: U.S. producers' shipments, by types, 1970-76 and, by quarters, January 1974-June 1977.

Period	Stainless steel					Alloy tool steel,	
	Sheets and strip	Plates	Bars	Rods	Total	all forms	
	Quantity (1,000 tons)						
1970-----	393.9	59.3	105.9	11.1	570.2	81.2	
1971-----	444.2	50.5	107.3	10.3	612.3	68.1	
1972-----	552.0	56.7	120.5	12.8	742.0	79.4	
1973-----	734.9	82.0	155.8	21.0	993.7	97.8	
1974-1/-----	825.3	140.2	168.5	25.8	1,159.7	104.6	
1975-1/-----	440.7	109.7	111.8	10.5	672.6	71.3	
1976-1/-----	692.4	93.7	120.9	17.4	924.4	69.1	
1974:							
Jan.-Mar-----	201.6	27.7	43.7	5.9	278.8	28.6	
Apr.-June-----	225.7	38.7	44.5	7.2	316.2	29.3	
July-Sept-----	211.8	36.9	40.3	6.0	295.0	24.7	
Oct.-Dec-----	186.2	36.8	40.0	6.7	269.7	23.4	
1975:							
Jan.-Mar-----	107.6	39.2	32.8	3.8	183.3	19.5	
Apr.-June-----	70.9	28.6	29.3	1.6	130.4	16.7	
July-Sept-----	105.1	21.6	21.1	1.4	149.3	19.5	
Oct.-Dec-----	125.8	21.2	20.0	2.6	169.6	15.6	
1976:							
Jan.-Mar-----	163.3	24.4	30.3	3.0	221.0	17.1	
Apr.-June-----	175.4	25.4	32.0	3.9	236.7	17.7	
July-Sept-----	174.5	23.4	29.3	4.6	231.9	16.3	
Oct.-Dec-----	179.5	22.9	29.5	5.9	237.9	17.6	
1977:							
Jan.-Mar-----	188.4	22.3	36.7	6.1	253.5	16.7	
Apr.-June-----	205.9	26.8	38.1	6.7	277.6	18.4	

See footnote at end of table.

Table 11.--Stainless steel and alloy tool steel: U.S. producers shipments, by types, 1970-76 and, by quarters, January 1974-June 1977--
Continued

Period	Stainless steel					Alloy tool steel, all forms
	Sheets and strip	Plates	Bars	Rods	Total	
	Value (1,000 dollars)					
1970-----	435.9	119.8	151.8	13.1	720.6	133.4
1971-----	502.7	70.2	149.0	12.9	734.8	121.4
1972-----	579.5	76.1	172.1	16.2	843.9	143.4
1973-----	776.7	142.8	234.8	29.0	1,183.3	185.1
1974 1/-----	1,142.0	246.8	328.6	45.0	1,762.4	234.4
1975 1/-----	655.0	237.1	241.8	20.7	1,154.6	202.5
1976 1/-----	1,012.6	190.2	276.4	32.6	1,511.8	232.5
1974:						
Jan.-Mar-----	246.2	41.4	72.6	8.2	368.4	55.7
Apr.-June-----	300.7	64.6	83.6	12.3	461.2	61.2
July-Sept-----	314.0	68.0	84.6	11.4	478.0	58.5
Oct.-Dec-----	281.1	72.8	87.7	13.1	454.7	61.0
1975:						
Jan.-Mar-----	170.7	73.5	79.2	7.5	330.9	53.3
Apr.-June-----	127.3	56.4	66.1	4.2	254.0	44.8
July-Sept-----	153.3	42.6	47.9	3.4	247.2	44.2
Oct.-Dec-----	186.9	50.1	46.6	5.4	289.0	47.2
1976:						
Jan.-Mar-----	229.3	50.5	66.8	6.1	352.7	55.6
Apr.-June-----	246.5	51.0	70.7	7.3	375.6	58.4
July-Sept-----	262.8	43.7	67.5	8.7	382.7	54.7
Oct.-Dec-----	267.9	45.1	71.4	10.5	394.8	63.8
1977:						
Jan.-Mar-----	281.5	45.3	87.1	11.2	425.0	62.7
Apr.-June-----	307.5	55.2	92.0	13.2	467.8	71.0

1/ Quarterly data may not conform to total for year; corrections and adjustments for the year were not distributed to individual quarters.

Source: Compiled from responses to questionnaires of the U.S. International Trade Commission.

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

Table 12.--Stainless steel sheets and strip: U.S. producers' shipments, exports of domestic merchandise, imports for consumption, and apparent consumption, 1970-76 and, by quarters, January 1974-June 1977

Period	U.S. producers' shipments	Exports	Imports	Apparent consumption	Ratio of imports to consumption
	<u>1,000 tons</u>	<u>1,000 tons</u>	<u>1,000 tons</u>	<u>1,000 tons</u>	<u>Percent</u>
1970-----	393.9	62.7	88.8	420.0	21.1
1971-----	444.2	38.0	107.2	513.4	20.9
1972-----	552.0	39.0	59.6	572.8	10.4
1973-----	734.9	60.8	44.7	718.8	6.2
1974 1/-----	825.3	67.1	64.9	823.1	7.9
1975 1/-----	440.7	28.1	66.0	478.5	13.8
1966 1/------	692.4	46.9	78.3	723.8	10.8
1974:					
January-March----	201.6	16.1	8.7	194.2	4.5
April-June-----	225.7	18.0	12.1	219.7	5.5
July-September----	211.8	15.6	17.1	213.4	8.0
October-December--	186.2	17.3	26.9	195.8	13.8
1975:					
January-March----	107.6	8.0	19.0	118.6	16.0
April-June-----	70.9	7.0	14.9	78.7	18.9
July-September----	105.1	6.3	14.6	113.5	12.9
October-December--	125.8	6.8	17.5	136.5	12.8
1976:					
January-March----	163.3	12.1	21.2	172.4	12.3
April-June-----	175.4	11.1	24.1	188.4	12.8
July-September----	174.5	12.4	20.5	182.6	11.2
October-December--	179.5	11.2	12.5	180.9	6.9
1977:					
January-March----	188.4	11.0	10.9	188.3	5.8
April-June-----	205.9	10.8	22.6	217.7	10.4

1/ Quarterly data may not conform to total for year; corrections and adjustments for the year were not distributed to individual quarters.

Source: U.S. producers' shipments, compiled from responses to questionnaires of the U.S. International Trade Commission; exports and imports, compiled from official statistics of the U.S. Department of Commerce.

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

Table 13.--Stainless steel plate: U.S. producers' shipments, exports of domestic merchandise, imports for consumption, and apparent consumption, 1970-76 and, by quarters, January 1974-June

Period	U.S. producers' shipments	Exports	Imports	Apparent consumption	Ratio of imports to consumption
	<u>1,000 tons</u>	<u>1,000 tons</u>	<u>1,000 tons</u>	<u>1,000 tons</u>	<u>Percent</u>
1970-----	59.3	3.1	8.3	64.5	12.9
1971-----	50.5	3.0	10.3	57.8	17.8
1972-----	56.7	2.1	17.1	71.7	23.9
1973-----	82.0	4.1	11.3	89.2	12.6
1974 1/-----	140.2	6.9	12.4	145.6	8.9
1975 1/-----	109.7	4.4	17.5	122.7	14.2
1976 1/-----	93.7	3.2	18.6	109.1	17.1
1974:					
January-March-----	27.7	1.5	1.6	27.8	5.6
April-June-----	38.7	2.1	1.8	38.5	4.7
July-September-----	36.9	2.2	3.3	38.0	8.8
October-December-----	36.8	1.1	5.7	41.3	13.7
1975:					
January-March-----	39.2	1.3	7.4	45.3	16.4
April-June-----	28.6	1.1	2.9	30.5	9.7
July-September-----	21.6	.7	3.7	24.5	15.1
October-December-----	21.2	1.3	3.4	23.3	14.7
1976:					
January-March-----	24.4	.9	4.4	27.8	15.8
April-June-----	25.4	.8	7.7	32.3	24.0
July-September-----	23.4	.7	4.7	27.5	17.1
October-December-----	22.9	.8	1.8	23.9	7.6
1977:					
January-March-----	22.3	.7	.9	22.4	3.9
April-June-----	26.8	.6	2.2	28.4	7.7

1/ Quarterly data may not conform to total for year; corrections and adjustments for the year were not distributed to individual quarters.

Source: U.S. producers' shipments, compiled from responses to questionnaires of the U.S. International Trade Commission; exports and imports, compiled from official statistics of the U.S. Department of Commerce.

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

Table 14.--Stainless steel bar: U.S. producers' shipments, exports of domestic merchandise, imports for consumption, and apparent consumption, 1970-76 and, by quarters, January 1974-June 1977

Period	U.S. producers' shipments	Exports	Imports	Apparent consumption	Ratio of imports to consumption
	<u>1,000 tons</u>	<u>1,000 tons</u>	<u>1,000 tons</u>	<u>1,000 tons</u>	<u>Percent</u>
1970-----	105.9	5.4	15.2	115.7	13.1
1971-----	107.3	3.5	16.2	120.1	13.5
1972-----	120.5	3.6	18.5	135.5	13.7
1973-----	155.8	6.4	20.1	169.5	11.9
1974 1/-----	168.5	9.9	27.9	186.4	15.0
1975 1/-----	111.8	7.0	29.2	133.9	21.8
1976 1/-----	120.9	5.0	23.1	139.1	16.6
1974:					
January-March-----	43.7	3.1	5.5	46.0	11.9
April-June-----	44.5	2.6	5.9	47.9	12.4
July-September-----	40.3	2.3	7.2	45.2	16.0
October-December-----	40.0	2.0	9.3	47.3	19.6
1975:					
January-March-----	32.8	1.9	8.7	39.6	22.0
April-June-----	29.3	1.5	8.5	36.3	23.5
July-September-----	21.1	2.3	6.0	24.8	24.2
October-December-----	20.0	1.3	5.9	24.6	24.0
1976:					
January-March-----	30.3	1.6	5.8	34.5	16.7
April-June-----	32.0	1.2	6.7	37.5	17.8
July-September-----	29.3	1.4	4.7	32.6	14.3
October-December-----	29.5	.8	6.0	34.8	17.3
1977:					
January-March-----	36.7	.9	4.9	40.8	12.1
April-June-----	38.1	.8	8.5	45.8	18.6

1/ Quarterly data may not conform to total for year; corrections and adjustments for the year were not distributed to individual quarters.

Source: U.S. producers' shipments, compiled from responses to questionnaires of the U.S. International Trade Commission; exports and imports, compiled from official statistics of the U.S. Department of Commerce.

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

Table 15.--Stainless steel rod: U.S. producers' shipments, exports of domestic merchandise, imports for consumption, and apparent consumption, 1970-76 and, in quarters, January 1974-June 1977

Period	U.S. producers' shipments	Exports	Imports	Apparent consumption	Ratio of imports to consumption
	<u>1,000</u> <u>tons</u>	<u>1,000</u> <u>tons</u>	<u>1,000</u> <u>tons</u>	<u>1,000</u> <u>tons</u>	<u>Percent</u>
1970-----	11.1	.7	13.9	24.4	57.0
1971-----	10.3	.3	13.4	23.4	57.2
1972-----	12.8	.6	13.0	25.3	51.0
1973-----	21.0	.5	16.8	37.3	45.0
1974 1/-----	25.8	1.8	22.1	46.1	42.9
1975 1/-----	10.5	2.2	16.9	25.1	67.0
1976 1/-----	17.4	0.4	20.1	37.1	54.2
1974:					
January-March-----	5.9	.4	4.6	10.2	45.6
April-June-----	7.2	.5	5.0	11.7	42.8
July-September-----	6.0	.3	5.0	10.7	46.5
October-December-----	6.7	.6	7.5	13.5	55.1
1975:					
January-March-----	3.8	.2	7.8	11.4	68.5
April-June-----	1.6	.1	3.9	5.5	71.5
July-September-----	1.4	.1	3.4	4.7	71.1
October-December-----	2.6	1.9	1.8	2.4	72.9
1976:					
January-March-----	3.0	.1	4.5	7.5	60.7
April-June-----	3.9	.2	5.5	9.2	60.1
July-September-----	4.6	.1	5.3	9.8	53.9
October-December-----	5.9	.1	4.7	10.6	44.7
1977:					
January-March-----	6.1	.3	2.4	8.3	29.1
April-June-----	6.7	.2	5.9	12.5	47.6

1/ Quarterly data may not conform to total for year; corrections and adjustments for the year were not distributed to individual quarters.

Source: U.S. producers' shipments, compiled from responses to questionnaires of the U.S. International Trade Commission; exports and imports, compiled from official statistics of the U.S. Department of Commerce

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

Table 16.--Alloy tool steel: U.S. producers' shipments, exports of domestic merchandise, imports for consumption, and apparent consumption, 1970-76 and, by quarters, January 1974-June 1977

Period	U.S. producers' shipments	Exports	Imports	Apparent consumption	Ratio of imports to consumption
	<u>1,000</u> <u>tons</u>	<u>1,000</u> <u>tons</u>	<u>1,000</u> <u>tons</u>	<u>1,000</u> <u>tons</u>	<u>Percent</u>
1970-----	81.2	1.7	17.3	96.8	17.9
1971-----	68.1	2.1	12.6	78.6	16.0
1972-----	79.4	1.9	14.8	92.3	16.0
1973-----	97.8	3.8	23.1	117.1	19.7
1974 1/-----	104.6	4.7	23.9	123.8	19.3
1975 1/-----	71.3	5.6	24.2	89.9	26.9
1976 1/-----	69.1	4.0	26.7	91.8	29.1
1974:					
January-March-----	28.6	1.1	6.1	33.6	18.1
April-June-----	29.3	1.3	5.6	33.6	16.6
July-September-----	24.7	1.0	5.5	29.2	18.9
October-December---	23.4	1.4	6.8	28.8	23.5
1975:					
January-March-----	19.5	1.1	7.4	25.8	28.6
April-June-----	16.7	1.6	6.6	21.7	30.5
July-September-----	19.5	1.4	5.3	23.4	22.6
October-December---	15.6	1.5	5.0	19.1	26.1
1976:					
January-March-----	17.1	1.2	5.8	21.6	26.7
April-June-----	17.7	1.0	6.8	23.5	29.0
July-September-----	16.3	1.1	7.2	22.8	32.1
October-December---	17.6	0.7	6.9	23.9	28.8
1977:					
January-March-----	16.7	0.9	4.7	20.5	22.9
April-June-----	18.4	0.6	6.2	24.0	25.8

1/ Quarterly data may not conform to total for year; corrections and adjustments for the year were not distributed to individual quarters.

Source: U.S. producers' shipments, compiled from responses to questionnaires of the U.S. International Trade Commission; exports and imports, compiled from official statistics of the U.S. Department of Commerce.

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

Table 17.--Stainless steel and alloy tool steel: U.S. capacity, by types, 1970-76,
January-June 1976, and January-June 1977

(In thousands of tons)								
Period	Capacity to melt--			Capacity to roll : : stainless steel--		Capacity to manufacture--		
	: Stainless : : steel	: Alloy : : tool : : steel	: Stainless : : and alloy : : tool steel, : : total	: Plate 1/ :	: Sheets : : and : : strip 1/	: Stainless : : steel : : rod	: Stainless : : steel : : bar	: Alloy : : tool : : steel, : : all forms
1970-----	2,168.2	293.0	2,461.2	162.0	969.0	69.2	175.7	143.8
1971-----	2,179.5	284.3	2,463.8	166.0	986.0	67.9	175.7	139.8
1972-----	2,250.0	285.2	2,535.2	191.0	1,030.0	71.4	176.7	139.8
1973-----	2,279.5	285.2	2,564.7	198.0	1,074.0	73.3	201.9	139.8
1974-----	2,295.7	286.3	2,582.0	208.0	1,066.0	74.3	202.9	139.7
1975-----	2,121.5	255.5	2,377.0	216.0	1,098.0	67.4	188.0	136.3
1976-----	2,345.5	256.5	2,602.0	223.0	1,163.0	69.6	191.0	136.3
January-June--	:	:	:	:	:	:	:	:
1976-----	1,172.8	128.2	1,301.0	111.5	581.5	34.8	95.0	68.2
1977-----	1,164.3	127.0	1,291.3	123.0	568.5	27.2	92.0	65.6
	:	:	:	:	:	:	:	:

1/ Partly estimated by staff of the U.S. International Trade Commission.

Source: Compiled from responses to questionnaires of the U.S. International Trade Commission, except as noted.

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

Table 18.--Stainless steel and alloy tool steel: U.S. capacity utilization, by types,
1970-76 and, by quarters, January 1974-June 1977

(In percent)								
Period	Capacity to melt--			Capacity to roll : stainless steel--		Capacity to manufacture--		
	Stainless steel	Alloy tool steel	Stainless and alloy tool steel total	Plate	Sheet and strip	Stainless steel rod	Stainless steel bar	Alloy tool steel, all forms
1970-----	54	39	52	37	43	54	62	55
1971-----	54	40	53	30	49	52	61	54
1972-----	64	51	63	32	59	65	70	65
1973-----	76	60	74	42	71	80	75	82
1974-----	89	62	86	69	77	85	87	89
1975-----	49	34	48	52	38	42	53	48
1976-----	70	41	67	43	64	52	63	50
1974:								
Jan.-Mar-----	87	66	85	62	74	88	87	83
Apr.-June-----	106	68	102	99	101	89	96	97
July-Sept-----	90	53	86	73	82	87	82	80
Oct.-Dec-----	89	62	86	71	72	94	86	90
1975:								
Jan.-Mar-----	53	47	53	74	35	49	74	66
Apr.-June-----	39	36	39	51	28	31	54	51
July-Sept-----	49	29	47	37	40	39	40	40
Oct.-Dec-----	56	24	53	39	49	47	44	38
1976:								
Jan.-Mar-----	71	36	67	41	63	45	57	43
Apr.-June-----	76	39	73	49	68	61	66	46
July-Sept-----	68	38	65	44	62	53	61	50
Oct.-Dec-----	64	47	62	38	63	47	67	59
1977:								
Jan.-Mar-----	78	50	75	40	69	56	76	52
Apr.-June-----	88	71	86	48	79	66	88	62

Source: Compiled from responses to questionnaires of the U.S. International Trade Commission

Table 19.--Stainless steel and alloy tool steel: U.S. production, by types, 1970-76 and, by quarters, January 1974-June 1977

(In thousands of tons)							
Period	Stainless steel					Alloy tool steel, all forms	
	Sheets and strip	Plate	Bar	Rod	Total		
1970-----	415.0	60.6	108.6	37.6	621.9	78.4	
1971-----	480.0	49.9	107.8	35.0	672.8	75.1	
1972-----	609.4	60.5	123.9	46.3	840.0	90.9	
1973-----	763.8	83.2	150.7	58.4	1,056.1	114.1	
1974 1/-----	820.0	144.3	176.2	63.3	1,203.9	124.5	
1975 1/-----	417.3	111.8	100.1	28.3	657.4	65.5	
1976 1/-----	743.0	95.9	119.5	36.2	994.6	68.7	
1974:							
Jan.-Mar-----	196.8	32.0	44.2	16.3	289.3	28.9	
Apr.-June-----	268.6	51.7	48.6	16.6	385.5	33.7	
July-Sept-----	219.6	37.8	41.6	16.2	315.2	28.0	
Oct.-Dec-----	192.3	36.9	43.9	17.5	290.6	31.3	
1975:							
Jan.-Mar-----	95.0	40.1	34.7	2/ 8.3	178.1	22.5	
Apr.-June-----	77.0	27.4	25.3	2/ 5.3	134.9	17.4	
July-Sept-----	109.8	20.1	18.8	2/ 6.5	155.2	13.7	
Oct.-Dec-----	135.8	21.3	20.7	8.0	185.8	12.9	
1976:							
Jan.-Mar-----	182.1	23.0	27.1	7.8	240.1	14.8	
Apr.-June-----	196.7	27.1	31.3	10.7	265.8	15.8	
July-Sept-----	180.6	24.6	29.2	9.3	243.6	17.1	
Oct.-Dec-----	183.0	21.3	31.9	8.2	244.4	20.1	
1977:							
Jan.-Mar-----	196.3	24.7	34.8	7.6	263.3	17.0	
Apr.-June-----	225.5	29.8	40.5	9.0	304.8	20.2	

1/ Quarterly may not conform to total for year; corrections and adjustments for the year were not distributed to individual quarters.

2/ Estimated by the staff of the U.S. International Trade Commission.

Source: Compiled from responses to questionnaires of the U.S. International Trade Commission, except as noted.

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

Table 20.--Stainless steel and alloy tool steel: U.S. producers' exports, 1970-76, January-June 1976, and January-June 1977

Period	Sheets and strip	Plate	Bar	Rod	Total	Alloy tool steel, all forms
Quantity (1,000 tons)						
1970-----	38.2	1.3	1.7	0.1	41.2	1.7
1971-----	21.8	1.7	1.3	.1	24.9	2.1
1972-----	22.9	1.3	0.9	.1	25.3	1.7
1973-----	29.3	2.3	2.1	.2	34.0	2.2
1974-----	33.5	2.8	2.9	.2	39.4	2.3
1975-----	21.0	0.6	.8	.1	22.5	1.8
1976-----	27.9	0.8	.8	<u>1/</u>	29.5	1.2
January-June--						
1976-----	13.5	.1	.5	<u>1/</u>	14.1	0.8
1977-----	20.3	1.1	.6	.1	22.1	7.1
Value (1,000 dollars)						
1970-----	26,225	1,656	2,116	126	30,123	3,078
1971-----	17,371	2,382	1,583	104	21,440	3,525
1972-----	18,660	1,673	1,305	144	21,782	3,116
1973-----	31,089	3,141	2,863	273	37,366	3,853
1974-----	35,000	3,391	3,966	192	42,549	5,029
1975-----	27,778	1,255	3,930	60	33,023	5,735
1976-----	39,745	1,662	3,155	65	44,627	4,353
January-June--						
1976-----	19,507	267	1,716	18	21,508	2,563
1977-----	26,410	2,329	1,626	199	30,564	8,578

1/ Less than 50 tons.

Source: Compiled from responses to questionnaires of the U.S. International Trade Commission.

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

Table 21.--Stainless steel and alloy tool steel: U.S. producers' inventories,
by quarters, Jan. 1, 1974-July 1, 1977

(In thousands of tons)							
Date	Stainless steel					Alloy tool steel, all forms	
	Sheets and strip	Plate	Bar	Rod	Total		
Jan. 1, 1974-----	188.3	28.7	49.4	5.9	272.3	70.9	
Apr. 1, 1974-----	167.4	33.4	48.8	6.6	256.3	72.6	
July 1, 1974-----	158.6	31.1	52.3	6.9	248.8	75.9	
Oct. 1, 1974-----	160.3	35.6	52.2	6.9	255.0	73.3	
Jan. 1, 1975-----	165.7	39.7	56.8	6.7	268.9	76.8	
Apr. 1, 1975-----	153.9	38.6	53.9	5.6	251.9	75.8	
July 1, 1975-----	147.4	38.4	49.4	5.7	240.9	69.6	
Oct. 1, 1975-----	149.0	31.9	45.9	4.7	231.5	63.1	
Jan. 1, 1976-----	178.1	35.8	30.0	5.3	249.3	58.4	
Apr. 1, 1976-----	197.7	35.4	31.6	4.9	269.6	55.7	
July 1, 1976-----	225.3	39.5	30.9	4.3	300.0	56.7	
Oct. 1, 1976-----	222.2	35.8	30.7	4.6	293.2	56.0	
Jan. 1, 1977-----	213.2	39.8	31.4	4.8	289.2	55.6	
Apr. 1, 1977-----	220.8	34.3	46.3	6.0	307.4	61.3	
July 1, 1977-----	230.6	35.3	46.7	7.9	320.5	63.4	

Source: Compiled from responses to questionnaires of the U.S. International Trade Commission.

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

Table 22.--Stainless steel and alloy tool steel: U.S. importers' inventories, by quarters, Jan. 1, 1974-July 1, 1977

(In thousands of tons)							
Date	Stainless steel					Alloy tool steel, all forms	
	Sheets and strip	Plate	Bar	Rod	Total		
Jan. 1, 1974-----	1.9	0.4	7.6	0.2	10.1	8.6	
Apr. 1, 1974-----	1.3	0.4	7.3	0.3	9.2	6.9	
July 1, 1974-----	1.7	0.3	6.5	0.2	8.7	9.1	
Oct. 1, 1974-----	1.8	0.4	7.4	0.2	9.8	9.4	
Jan. 1, 1975-----	4.9	1.0	11.0	0.6	17.5	10.6	
Apr. 1, 1975-----	6.5	1.2	14.8	2.2	24.7	11.5	
July 1, 1975-----	6.9	1.8	11.5	3.1	23.4	12.6	
Oct. 1, 1975-----	7.1	2.1	16.9	3.4	29.6	12.7	
Jan. 1, 1976-----	6.1	1.9	21.5	2.3	31.9	13.1	
Apr. 1, 1976-----	5.3	1.7	20.4	1.7	29.2	13.4	
July 1, 1976-----	5.2	1.4	18.9	1.3	26.7	13.7	
Oct. 1, 1976-----	4.0	2.2	16.6	1.1	23.9	12.8	
Jan. 1, 1977-----	5.1	2.3	16.4	1.1	24.9	12.6	
Apr. 1, 1977-----	6.3	0.3	10.8	3.5	20.9	8.5	
July 1, 1977-----	6.9	0.2	11.1	5.8	24.0	8.7	

Source: Compiled from responses to questionnaires of the U.S. International Trade Commission.

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

Table 23.--Stainless steel and alloy tool steel: U.S. producers' unshipped orders, by quarters, Jan. 1, 1974-July 1977

(In thousands of tons)							
Date	Stainless steel					Alloy tool steel, all forms	
	Sheets and strip	Plate	Bar	Rod	Total		
Jan. 1, 1974-----	270.5	55.1	40.6	10.4	376.7	25.0	
Apr. 1, 1974-----	266.0	60.0	44.9	13.7	384.5	25.7	
July 1, 1974-----	255.3	58.0	57.2	14.6	385.1	28.6	
Oct. 1, 1974-----	235.3	67.4	57.5	14.4	374.6	32.5	
Jan. 1, 1975-----	143.4	58.3	43.0	8.6	253.4	27.1	
Apr. 1, 1975-----	76.4	41.5	28.1	4.0	150.1	20.9	
July 1, 1975-----	66.8	28.5	16.5	2.7	114.6	15.0	
Oct. 1, 1975-----	72.2	22.4	12.5	2.6	109.7	14.1	
Jan. 1, 1976-----	73.5	15.4	11.9	2.5	103.2	9.8	
Apr. 1, 1976-----	82.4	13.6	11.9	2.2	110.0	6.8	
July 1, 1976-----	100.1	15.0	11.8	3.4	130.3	6.6	
Oct. 1, 1976-----	110.7	14.9	14.2	4.2	144.0	6.3	
Jan. 1, 1977-----	114.8	14.0	14.3	4.0	147.1	6.6	
Apr. 1, 1977-----	113.6	15.7	18.1	4.6	152.0	8.1	
July 1, 1977-----	117.7	16.2	17.0	4.8	155.7	8.9	

Source: Compiled from responses to questionnaires of the U.S. International Trade Commission.

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

Table 24.--Stainless steel and alloy tool steel: U.S. importers' unshipped orders, by quarters, Jan. 1, 1974-July 1, 1977

(In thousands of tons)							
Date	Stainless steel						Alloy tool steel, all forms
	Sheets and strip	Plate	Bar	Rod	Total		
Jan. 1, 1974-----	7.8	4.1	6.9	6.7	25.5		5.9
Apr. 1, 1974-----	6.6	2.1	7.1	7.5	23.2		6.1
July 1, 1974-----	11.9	3.1	8.1	5.5	28.7		7.8
Oct. 1, 1974-----	11.5	3.7	13.8	6.1	35.2		7.9
Jan. 1, 1975-----	9.3	3.5	10.4	5.6	28.9		9.0
Apr. 1, 1975-----	6.4	.9	6.8	3.1	17.2		8.0
July 1, 1975-----	8.4	1.0	6.1	2.3	17.8		7.2
Oct. 1, 1975-----	11.1	2.3	7.5	2.2	23.1		5.6
Jan. 1, 1976-----	8.5	3.6	1.8	4.3	18.2		3.3
Apr. 1, 1976-----	13.3	2.9	1.3	4.2	21.7		4.6
July 1, 1976-----	11.3	2.0	1.4	5.1	19.8		5.0
Oct. 1, 1976-----	6.7	1.2	1.8	3.9	13.6		4.4
Jan. 1, 1977-----	7.0	.6	2.6	4.0	14.1		4.8
Apr. 1, 1977-----	13.4	1.0	2.3	5.6	22.3		2.2
July 1, 1977-----	13.1	1.8	3.6	3.6	22.1		2.6

Source: Compiled from responses to questionnaires of the U.S. International Trade Commission.

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

Table 2.--Stainless steel and alloy tool steel: Lead times for delivery
 (Based on first orders of U.S. producers, by quarters, Jan. 1, 1974-July 1, 1977)

Date	(In weeks)									
	Stainless steel								Alloy tool steel, all forms	
	Sheets and strip		Plate		Bar		Rod			
	Range	Average	Range	Average	Range	Average	Range	Average	Range	Average
Jan. 1, 1974-----	4-30	13	4-22	15	7-29	16	6-26	14	9-31	18
Apr. 1, 1974-----	6-34	14	6-44	16	7-39	20	6-30	16	11-33	20
July 1, 1974-----	6-32	14	6-44	17	8-39	21	6-28	15	11-34	21
Oct. 1, 1974-----	6-30	13	6-44	16	8-28	17	6-26	13	9-32	18
Jan. 1, 1975-----	4-16	9	5-12	9	7-17	12	6-12	8	9-22	15
Apr. 1, 1975-----	3-13	8	4-13	7	6-13	9	5-11	7	7-23	12
July 1, 1975-----	3-14	8	3-13	7	6-12	9	5-11	7	7-14	10
Oct. 1, 1975-----	3-14	7	3-13	6	6-12	8	5-11	7	7-14	10
Jan. 1, 1976-----	3- 9	7	3-13	6	6-12	8	5-11	7	7-13	10
Apr. 1, 1976-----	3- 9	7	3-13	7	6-12	8	3- 9	7	7-13	11
July 1, 1976-----	3- 9	7	3-13	7	6-12	8	5-11	7	7-13	10
Oct. 1, 1976-----	3- 9	7	3-13	6	6-12	8	5-11	7	7-13	10
Jan. 1, 1977-----	3- 9	7	3-13	6	6-12	8	5-11	7	7-13	9
Apr. 1, 1977-----	4- 9	7	3-13	7	6-15	9	5-13	8	8-15	11
July 1, 1977-----	4- 9	7	3-13	7	6-14	9	5-11	8	8-15	12

Source: Compiled from responses to questionnaires of the U.S. International Trade Commission.

Table 26.--Stainless steel and alloy tool steel: Lead times for delivery from melt of new orders of imports, by quarters, Jan. 1, 1974-July 1, 1977

(In weeks)											
Date	Stainless steel								Alloy tool steel, all forms		
	Sheets and strip		Plate		Bar		Rod				
	Range	Average	Range	Average	Range	Average	Range	Average	Range	Average	
Jan. 1, 1974-----	10-38	22	15-32	21	15-33	24	10-35	23	15-41	28	
Apr. 1, 1974-----	10-45	23	15-29	21	12-35	25	10-38	23	15-42	29	
July 1, 1974-----	10-39	22	14-25	21	10-42	24	10-38	23	15-48	27	
Oct. 1, 1974-----	10-34	20	15-25	21	10-36	23	10-36	23	15-45	28	
Jan. 1, 1975-----	9-37	19	15-24	19	15-35	22	10-30	20	15-44	27	
Apr. 1, 1975-----	9-28	17	12-24	17	15-35	21	10-30	18	15-38	26	
July 1, 1975-----	9-28	17	15-24	18	15-35	21	10-30	18	15-28	24	
Oct. 1, 1975-----	9-28	16	13-24	20	14-35	21	10-30	18	15-28	21	
Jan. 1, 1976-----	9-24	18	9-24	17	13-35	20	13-30	18	12-28	22	
Apr. 1, 1976-----	9-24	18	9-24	17	11-35	20	13-30	18	12-26	21	
July 1, 1976-----	9-24	18	9-24	17	11-35	20	12-30	18	12-27	21	
Oct. 1, 1976-----	12-24	18	13-24	18	11-35	20	12-30	19	10-28	21	
Jan. 1, 1977-----	12-24	18	7-28	18	11-35	20	12-30	19	10-28	21	
Apr. 1, 1977-----	12-24	17	11-24	17	12-35	20	12-30	19	11-40	21	
July 1, 1977-----	11-24	17	11-26	17	12-35	20	12-30	19	11-40	23	

Source: Compiled from responses to questionnaires of the U.S. International Trade Commission.

Table 27.--Stainless steel and alloy tool steel: Average number of all persons employed in U.S. establishments in which stainless steel and alloy tool steel were produced, 1974-76 and, by quarters, January 1975-June 1977

Period	Stainless steel					Alloy tool steel, all forms
	Sheet and strip	Plate	Bar	Rod	Total	
1974-----	15,271	3,130	6,666	734	25,801	6,210
1975-1/-----	9,288	2,236	5,050	386	16,960	4,741
1976-1/-----	11,903	2,307	5,249	618	20,077	4,690
1975:						
January-March-----	10,318	3,396	6,434	477	20,625	5,853
April-June-----	8,719	2,732	5,321	324	17,096	4,755
July-September-----	9,585	2,383	4,350	271	16,589	4,632
October-December-----	9,604	1,725	4,078	435	15,842	4,114
1976:						
January-March-----	10,636	1,708	5,128	416	17,888	4,394
April-June-----	10,747	1,838	5,252	516	18,353	4,584
July-September-----	11,999	2,371	5,339	703	20,412	4,716
October-December-----	12,973	2,367	5,281	760	21,381	4,878
1977:						
January-March-----	12,592	2,117	5,936	656	21,301	4,528
April-June-----	12,350	2,368	6,129	773	21,620	4,654

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1/ Quarterly data may not conform to total for year; corrections and adjustments for the year were not distributed to individual quarters.

Source: Compiled from responses to questionnaires of the U.S. International Trade Commission.

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

Table 28.--Stainless steel and alloy tool steel: Average number of production and related workers employed in U.S. establishments in which stainless steel and alloy tool steel were produced, 1970-76 and, by quarters, January 1975-June 1977

Period	Stainless steel						Alloy tool steel, all forms
	Sheet and strip	Plate	Bar	Rod	Total		
1970-----	7,762	1,555	3,155	242	12,714	4,718	
1971-----	8,231	1,297	2,838	250	12,616	3,758	
1972-----	8,641	1,272	2,749	267	12,929	3,969	
1973-----	10,853	1,662	3,355	378	16,248	4,611	
1974-----	12,439	2,397	4,136	501	19,473	4,351	
1975-1/-----	7,331	1,807	3,255	288	12,681	3,421	
1976-1/-----	9,360	1,715	3,613	439	15,127	3,497	
1975:							
January-March-----	7,992	2,565	4,190	312	15,059	4,439	
April-June-----	6,586	2,002	3,293	193	12,074	3,441	
July-September-----	7,231	1,730	3,072	162	12,195	3,320	
October-December-----	7,464	1,517	2,588	269	11,838	2,932	
1976:							
January-March-----	8,608	1,568	3,404	265	13,845	3,232	
April-June-----	9,023	1,674	3,566	356	14,619	3,491	
July-September-----	9,406	1,861	3,731	495	15,493	3,567	
October-December-----	10,377	1,747	3,682	540	16,346	3,688	
1977:							
January-March-----	9,960	1,561	4,169	481	16,171	3,414	
April-June-----	9,938	1,760	4,404	544	16,646	3,503	

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1/ Quarterly data may not conform to total for year; corrections and adjustments for the year were not distributed to individual quarters.

Source: Compiled from responses to questionnaires of the U.S. International Trade Commission.

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

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Table 29.--Stainless steel and alloy tool steel: Man-hours worked by production and related workers in U.S. establishments in which stainless steel and alloy tool steel were produced, 1970-76 and, by quarters, January 1975-June 1977

(In thousands)							
Period	Stainless steel					Alloy tool steel, all forms	
	Sheet and strip	Plate	Bar	Rod	Total		
1970-----	15,160	2,911	7,345	596	26,012	8,251	
1971-----	16,293	2,450	6,727	578	26,048	6,788	
1972-----	17,587	2,413	7,213	645	27,858	7,750	
1973-----	21,379	3,247	8,751	895	34,272	9,322	
1974-----	21,858	4,977	9,748	1,068	37,651	9,942	
1975-1/-----	12,974	3,266	6,604	428	23,272	5,624	
1976-1/-----	16,767	3,033	7,014	682	27,496	6,025	
1975:							
January-March-----	3,395	1,328	2,049	140	6,912	1,876	
April-June-----	2,741	981	1,806	91	5,619	1,453	
July-September-----	3,167	781	1,191	75	5,214	1,160	
October-December-----	3,371	679	1,251	122	5,423	1,146	
1976:							
January-March-----	4,067	725	1,686	117	6,595	1,417	
April-June-----	4,299	759	1,865	166	7,089	1,497	
July-September-----	4,362	797	1,838	200	7,197	1,525	
October-December-----	4,702	753	1,900	242	7,597	1,634	
1977:							
January-March-----	4,769	732	1,987	229	7,717	1,417	
April-June-----	4,828	801	2,245	277	8,151	1,664	

1/ Quarterly data may not conform to total for year; corrections and adjustments for the year were not distributed to individual quarters.

Source: Compiled from responses to questionnaires of the U.S. International Trade Commission.

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

Table 30.--Stainless steel and alloy tool steel: Average unit values of U.S. producers' shipments, by types, 1970-76 and, by quarters, January 1974-June 1977

(Per pound)						
Period	Stainless steel					Alloy tool steel, all forms
	Sheets and strip	Plate	Bar	Rod	Total	
1970-----	\$0.63	\$1.01	\$0.72	\$0.59	\$0.62	\$0.82
1971-----	.57	.69	.69	.62	.59	.89
1972-----	.52	.67	.71	.63	.56	.90
1973-----	.53	.87	.75	.69	.59	.95
1974-1/4-----	.69	.88	.98	.87	.74	1.12
1975-1/4-----	.75	1.08	1.08	.99	.86	1.42
1976-1/4-----	.73	1.02	1.15	.94	.82	1.68
1974:						
January-March-----	.61	.75	.85	.70	.63	.98
April-June-----	.67	.83	.94	.85	.71	1.05
July-September-----	.74	.92	1.05	.94	.80	1.18
October-December--	.76	.99	1.10	.98	.83	1.31
1975:						
January-March-----	.79	.94	1.21	1.00	.91	1.37
April-June-----	.90	.99	1.13	1.30	.95	1.34
July-September-----	.73	.99	1.13	1.22	.82	1.13
October-December--	.75	1.18	1.17	1.04	.85	1.52
1976:						
January-March-----	.70	1.04	1.10	1.02	.80	1.63
April-June-----	.71	1.01	1.11	.94	.80	1.75
July-September-----	.76	.94	1.15	.95	.83	1.68
October-December--	.75	.99	1.21	.89	.83	1.82
1977:						
January-March-----	.76	1.02	1.19	.92	.84	1.80
April-June-----	.77	1.03	1.21	.99	.85	1.93

1/ Quarterly data may not conform to total for year; corrections and adjustments for the year were not distributed to individual quarters.

Source: Compiled from responses to questionnaires of the U.S. International Trade Commission.

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

Table 31.--Stainless steel and alloy tool steel: Average unit values of U.S. producers' cost of goods sold, by types, 1970-76 and, by quarters, January 1974-June 1977

(Per pound)							Alloy tool steel, all forms
Period	Stainless steel						
	Sheets and strip	Plate	Bar	Rod	Total		
1970-----	\$0.65	\$0.59	\$0.64	\$0.52	\$0.64	\$0.77	
1971-----	.56	.87	.62	.71	.58	.85	
1972-----	.50	.88	.64	.65	.54	.85	
1973-----	.50	.81	.74	.68	.54	1.00	
1974 <u>1/</u> -----	.59	.86	.84	.67	.65	1.02	
1975 <u>1/</u> -----	.75	.75	.98	.93	.78	1.24	
1976 <u>1/</u> -----	.69	.80	.93	.92	.74	1.40	
1974:							
January-March----	.52	.82	.76	.60	.60	1.04	
April-June-----	.54	.83	.79	.62	.62	.99	
July-September----	.57	.84	.80	.65	.62	.98	
October-December--	.65	.86	.90	.73	.70	1.03	
1975:							
January-March----	.75	.83	.95	.83	.78	1.05	
April-June-----	.80	.81	1.04	.93	.83	1.07	
July-September----	.82	.80	1.08	1.03	.85	1.09	
October-December--	.74	.80	1.00	.99	.80	1.35	
1976 <u>2/</u> :							
January-March----	.70	.80	.92	.96	.75	1.40	
April-June-----	.69	.80	.93	.94	.74	1.40	
July-September----	.69	.80	.92	.92	.74	1.40	
October-December--	.69	.80	.92	.92	.74	1.41	
1977:							
January-March----	.70	.90	.96	.84	.76	1.65	
April-June-----	.69	.88	.96	.84	.75	1.59	

1/ Quarterly data may not conform to total for year; corrections and adjustments for the year were not distributed to individual quarters.

2/ Estimated.

Source: Compiled from responses to questionnaires of the U.S. International Trade Commission.

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

Table 32.--Stainless steel and alloy tool steel: Average profit-and-loss margins ^{1/} for U.S. producers, by types, 1970-76 and, by quarters, January 1974-June 1977

(Per pound)						
Period	Stainless steel					Alloy tool steel, all forms
	Sheets and strip	Plate	Bar	Rod	Total	
1970-----	(\$0.02)	\$0.42	\$0.08	\$0.07	(\$0.02)	\$0.05
1971-----	.01	(.18)	.07	(.09)	.01	.04
1972-----	.02	(.21)	.07	(.02)	.02	.05
1973-----	.03	.06	<u>3/</u> .01	.01	.05	(.05)
1974- <u>2/</u> -----	.10	.02	.14	.20	.09	.10
1975- <u>2/</u> -----	.00	.33	.20	.06	.08	.18
1976- <u>2/</u> -----	.04	.22	.22	.02	.08	.28
1974:						
January-March-----	.09	(.07)	.09	.10	.03	(.06)
April-June-----	.13	.00	.15	.23	.09	.06
July-September-----	.17	.08	.25	.29	.18	.20
October-December--	.11	.13	.30	.35	.13	.28
1975:						
January-March-----	.04	.11	.26	.17	.13	.32
April-June-----	.10	.18	.09	.37	.12	.27
July-September-----	(.09)	.19	.05	.19	(.03)	.04
October-December--	.01	.38	.17	.05	.05	.17
1976:						
January-March-----	.00	.24	.18	.06	.05	.23
April-June-----	.02	.21	.18	.00	.06	.35
July-September-----	.07	.14	.23	.03	.09	.28
October-December--	.06	.19	.29	(.03)	.09	.41
1977:						
January-March-----	.06	.12	.23	.08	.08	.23
April-June-----	.08	.15	.25	.15	.10	.34

^{1/} Loss margins are shown in parentheses.

^{2/} Quarterly data may not conform to total for year; corrections and adjustments for the year were not distributed to individual quarters.

^{3/} This figure is not representative because of very high costs reported by 1 U.S. producer.

Source: Compiled from responses to questionnaires of the U.S. International Trade Commission.

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

Table 33.--Stainless steel and alloy tool steel: Average unit values of U.S. importers' sales prices to U.S. consumers, by types, 1970-76 and, by quarters, January 1974-June 1977

(Per pound)						
Period	Stainless steel					Alloy tool steel, all forms
	Sheets and strip	Plate	Bar	Rod	Total	
1970-----	\$0.62	\$0.46	\$0.57	\$0.66	\$0.60	\$1.01
1971-----	.48	.42	.59	.42	.49	1.16
1972-----	.54	.46	.61	.40	.52	1.05
1973-----	.59	.61	.67	.51	.60	.91
1974-1/-----	.74	.77	.75	.67	.73	1.09
1975-1/-----	.80	.80	.90	.77	.83	1.24
1976-1/-----	.80	.73	.90	.76	.79	1.51
1974:						
January-March-----	.35	.71	.78	.40	.49	1.08
April-June-----	.61	.62	.87	.63	.69	1.08
July-September-----	.74	.76	.67	.65	.71	1.04
October-December--	.81	.81	.79	.75	.80	1.14
1975:						
January-March-----	.88	.75	.83	.78	.82	1.08
April-June-----	.95	.92	.79	.70	.85	1.19
July-September-----	.75	.88	.84	.77	.80	1.22
October-December--	.79	.78	.96	.87	.88	1.39
1976:						
January-March-----	.70	.75	.87	.74	.76	1.50
April-June-----	.75	.80	.91	.76	.80	1.57
July-September-----	.72	.80	.92	.73	.79	1.41
October-December--	.77	.96	.90	.80	.84	1.56
1977:						
January-March-----	.82	.84	.95	.82	.87	1.63
April-June-----	.71	.76	.96	.82	.79	1.55

1/ Quarterly data may not conform to total for year; corrections and adjustments for the year were not distributed to individual quarters.

Source: Compiled from responses to questionnaires of the U.S. International Trade Commission.

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

Table 24.--Stainless steel and alloy tool steel: Average unit values paid by importers to foreign producers, by types, 1970-76 and, by quarters, January 1977-June 1977

(Per pound)

Period	Stainless steel					Alloy tool steel, all forms
	Sheets and strip	Plate	Bar	Rod	Total	
1970-----	\$0.43	\$0.49	\$0.41	\$0.35	\$0.39	\$0.41
1971-----	.40	.43	.45	.38	.39	.43
1972-----	.41	.42	.46	.39	.40	.54
1973-----	.50	.47	.51	.45	.45	.50
1974 1/-----	.57	.66	.60	.57	.56	.59
1975 1/-----	.73	.80	.79	.75	.76	.94
1976 1/-----	.70	.79	.84	.72	.75	1.14
1974:						
January-March----	.50	.54	.53	.47	.54	.47
April-June-----	.53	.58	.53	.53	.52	.57
July-September----	.57	.67	.59	.59	.57	.60
October-December--	.62	.72	.66	.64	.62	.74
1975:						
January-March----	.79	.74	1.04	.74	.78	.91
April-June-----	.85	.87	.50	.75	.68	.91
July-September----	.75	.83	.80	.76	.77	1.12
October-December--	.82	.72	.84	.87	.79	.86
1976:						
January-March----	.68	.74	.86	.71	.73	1.07
April-June-----	.69	.78	.77	.71	.73	1.16
July-September----	.70	.80	.88	.71	.75	1.18
October-December--	.75	.90	.86	.75	.79	1.14
1977:						
January-March----	.76	.88	.80	.81	.78	1.33
April-June-----	.69	.88	.82	.83	.76	1.36

1/ Quarterly data may not conform to total for year; corrections and adjustments for the year were not distributed to individual quarters.

Source: Compiled from responses to questionnaires of the U.S. International Trade Commission.

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

Table 35.--Stainless steel and alloy tool steel: Average profit-and-loss margins
1/ for U.S. importers, by types, 1970-76 and, by quarters, January 1974-June 1977

(Per pound)

Period	Stainless steel						Alloy tool steel, all forms
	Sheets and strip	Plate	Bar	Rod	Total		
1970-----	\$.19	(\$.03)	\$.16	\$.31	\$.21		\$0.60
1971-----	.08	(.01)	.14	.04	.10		.73
1972-----	.13	.04	.15	.01	.12		.51
1973-----	.09	.14	.16	.06	.15		.41
1974-2/-----	.17	.11	.15	.10	.17		.50
1975-2/-----	.07	.00	.11	.02	.07		.30
1976-2/-----	.10	(.06)	.06	.04	.04		.37
1974:							
January-March----	(.15)	.17	.25	(.07)	(.05)		.61
April-June-----	.08	.04	.35	.10	.17		.51
July-September----	.17	.09	.08	.06	.14		.44
October-December--	.19	.09	.13	.11	.18		.40
1975:							
January-March----	.09	.01	(.21)	.04	.04		.19
April-June-----	.10	.05	3/.29	(.05)	.17		.28
July-September----	.00	.05	.04	.01	.03		.10
October-December--	(.03)	.06	.12	.00	.11		.53
1976:							
January-March----	.02	.01	.01	.03	.03		.43
April-June-----	.06	.02	.14	.05	.07		.41
July-September----	.02	.00	.04	.02	.04		.23
October-December--	.02	.06	.04	.05	.05		.42
1977:							
January-March----	.06	(.04)	.15	.01	.09		.30
April-June-----	.02	(.12)	.14	(.01)	.03		.19

1/ Loss margins are shown in parentheses.

2/ Quarterly data may not conform to total for year; corrections and adjustments for the year were not distributed to individual quarters.

3/ This figure is not representative because of very low purchase prices paid to a foreign firm by 1 U.S. importer.

Source: Compiled from responses to questionnaires of the U.S. International Trade Commission.

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

Table 36.--Stainless steel sheet (cold-rolled): Lowest net selling prices received by U.S. producers and importers from sales of selected types of sheet to steel service centers or distributors, 1970-73 and, by quarters, January 1974-June 1977

(Prices in cents per pound)						
Period	Domestic		Imported		Ratio (percent) of average import price to aver- age domestic price	
	Range	Weighted average <u>1</u> / ₂	Range	Weighted average <u>1</u> / ₂		
Grade 304, 2B finish, 8-14 gauge x 36" x coil						
1970-----	52-64	59	43-58	50	85	
1971-----	48-58	52	42-53	46	89	
1972-----	44-61	51	42-50	47	92	
1973-----	47-54	49	55-56	56	113	
1974:						
January-March-----	47-63	55	61-78	72	132	
April-June-----	50-72	60	65-68	66	109	
July-September-----	47-78	67	66-86	73	110	
October-December----	47-81	71	70-81	77	108	
1975:						
January-March-----	53-81	73	67-74	70	96	
April-June-----	51-81	68	68-69	68	100	
July-September-----	54-78	70	62-71	67	96	
October-December----	61-73	73	57-65	61	84	
1976:						
January-March-----	61-78	72	58-70	63	88	
April-June-----	60-86	82	58-70	66	80	
July-September-----	63-69	65	56-75	66	102	
October-December----	65-69	68	65-72	68	100	
1977:						
January-March-----	69-74	72	66-74	70	97	
April-June-----	67-72	72	70-78	72	100	
Grade 430, 2B finish, 20 gauge x coil						
1970-----	43-49	46	36-39	38	83	
1971-----	41-53	47	35-38	37	79	
1972-----	44-51	47	36-40	38	81	
1973-----	48-50	49	44-50	48	90	
1974:						
January-March-----	51-58	54	49-62	55	102	
April-June-----	55-63	59	53-62	57	97	
July-September-----	66-76	71	52-62	57	80	
October-December----	68-76	72	55-75	65	90	

See footnote on following page.

Table 36.--Stainless steel sheet (cold-rolled): Lowest net selling prices received by U.S. producers and importers from sales of selected types of sheet to steel service centers or distributors, 1970-73 and, by quarters, January 1974-June 1977--Continued

(Prices in cents per pound)						
Period	Domestic		Imported		Ratio	
					(percent) of	
	Range	Weighted average ^{1/}	Range	Weighted average ^{1/}	average import price to average domestic price	
Grade 430, 2B finish, 20 gauge x coil--Continued						
1975:						
January-March-----	72-79	76	55-68	59		78
April-June-----	69-79	74	54-58	55		74
July-September----	69-79	74	55-58	56		76
October-December---	65-78	67	51-58	54		81
1976:						
January-March-----	80	80	53	53		66
April-June-----	67-80	74	52-55	54		73
July-September----	--	--	54	54		--
October-December---	--	--	54-63	60		--
1977:						
January-March-----	63-73	72	65-66	66		92
April-June-----	79-84	81	65-66	66		81

^{1/} Arithmetic average price for period 1970 through September 1975.

Source: Compiled from responses to questionnaires of the U.S. International Trade Commission.

Table 37.--Stainless steel strip: Lowest net selling prices received by U.S. producers and importers from sales of a selected type of strip to end-use customers, 1970-73 and, by quarters, January 1974-June 1977

(Prices in cents per pound)						
Period	Domestic		Imported		Ratio (percent) of average import price to aver- age domestic price	
	Range	Weighted average <u>1</u> /:	Range	Weighted average <u>1</u> /:		
Grade 430, 2 finish, .060" x 3" to 12" x coil						
1970-----	43-46	45	31	31	69	
1971-----	42-49	45	-	-	-	
1972-----	40-46	44	35	35	80	
1973-----	42-47	43	36	36	84	
1974:						
January-March-----	45-51	47	47	47	101	
April-June-----	40-58	50	47	47	94	
July-September-----	58-65	61	-	-	-	
October-December---	64-72	67	-	-	-	
1975:						
January-March-----	68-72	70	-	-	-	
April-June-----	68-72	70	-	-	-	
July-September-----	68-72	69	-	-	-	
October-December---	51-64	64	-	-	-	
1976:						
January-March-----	65-77	65	-	-	-	
April-June-----	68-75	69	-	-	-	
July-September-----	65-75	68	-	-	-	
October-December---	71-74	73	-	-	-	
1977:						
January-March-----	73-78	75	-	-	-	
April-June-----	75-81	78	-	-	-	

¹/ Arithmetic average price for period 1970 through September 1975.

Source: Compiled from responses to questionnaires of the U.S. International Trade Commission.

Table 38.--Stainless steel plate (hot-rolled): Lowest net selling prices received by U.S. producers and importers from sales of selected type of plate to steel service centers or distributors, 1970-73 and, by quarters, January 1974-June 1977

(Prices in cents per pound)						
Period	Domestic		Imported		Ratio	
					(percent) of	
	Range	Weighted average ^{1/}	Range	Weighted average ^{1/}	average import price to average domestic price	
Grade 304, HRAP, 1/4" x 72" x 240"						
1970-----	63-68	66	35-50	45		68
1971-----	55-63	59	39-53	45		76
1972-----	56-62	59	43-50	47		80
1973-----	65-67	66	45-63	50		76
1974:						
January-March-----	67-71	69	56-63	61		88
April-June-----	71-79	75	60-74	67		89
July-September-----	82-88	84	73-92	84		100
October-December----	88-98	93	72-92	83		89
1975:						
January-March-----	93-98	95	71-89	78		82
April-June-----	93-96	94	75-86	79		84
July-September-----	93-96	95	75-81	77		81
October-December----	93-98	95	67-81	69		73
1976:						
January-March-----	87-98	98	62-84	67		68
April-June-----	93-98	97	65-85	72		74
July-September-----	84-87	84	69-84	72		86
October-December----	82-92	84	71-76	74		88
1977:						
January-March-----	84-98	86	76-83	78		91
April-June-----	84-86	85	74-84	77		91

^{1/} Arithmetic average price for period 1970 through September 1975.

Source: Compiled from responses to questionnaires of the U.S. International Trade Commission.

Table 23--Stainless steel bar, grades 303 and 304: Lowest net selling prices received by U.S. producers and importers from sales to steel service centers or distributors, 1970-73 and, by quarters, January 1974-June 1977

(Prices in cents per pound)						
Period	Domestic		Imported		Ratio (percent) of average import price to aver- age domestic price	
	Range	Weighted average $\frac{1}{2}$	Range	Weighted average $\frac{1}{2}$		
Grade 303, cold finished, 1/2" round						
1970-----	66-83	75	48-68	55	73	
1971-----	70-83	73	47-67	60	82	
1972-----	52-73	65	49-69	59	91	
1973-----	65-90	80	52-80	65	81	
1974:						
January-March-----	81-96	91	57-91	79	87	
April-June-----	87-111	97	61-105	83	86	
July-September-----	92-106	97	60-96	83	86	
October-December----	94-113	105	64-102	85	81	
1975:						
January-March-----	104-141	117	64-98	86	74	
April-June-----	102-141	115	63-91	80	70	
July-September-----	102-129	112	64-102	82	73	
October-December----	106-145	113	80-99	84	74	
1976:						
January-March-----	88-142	103	66-101	89	86	
April-June-----	80-101	90	66-110	87	97	
July-September-----	82-159	98	66-108	91	93	
October-December----	100-119	113	65-115	91	81	
1977:						
January-March-----	94-119	107	84-108	102	95	
April-June-----	94-119	110	100-113	107	97	
Grade 304, cold finished, 1-1/2" round						
1970-----	64-77	71	33-60	47	66	
1971-----	61-79	68	44-68	54	79	
1972-----	48-79	61	38-63	53	87	
1973-----	52-70	63	49-68	59	94	
1974:						
January-March-----	55-75	58	52-74	66	114	
April-June-----	67-91	75	56-84	73	97	
July-September-----	75-196	102	58-88	75	74	
October-December----	87-196	108	58-89	78	72	

See footnote at end of table.

Table 39.--Stainless steel bar, grades 303-304: Lowest net selling prices received by U.S. producers and importers from sales to steel service centers or distributors, 1970-73 and, by quarters, January 1974-June 1977--Continued

(Prices in cents per pound)						
Period	Domestic		Imported		Ratio	
					(percent) of	
	Range	Weighted	Range	Weighted	average import	
		average <u>1/</u>		average <u>1/</u>	price to aver-	age domestic
					price	
Grade 304, cold finished, 1-1/2" round--Continued						
1975:						
January-March-----	92-195	116	70-82	77		66
April-June-----	94-206	118	69-82	76		64
July-September-----	89-206	114	70-85	76		67
October-December---	94-101	99	62-88	78		79
1976:						
January-March-----	79-132	81	66-86	81		100
April-June-----	79-90	85	58-86	76		89
July-September-----	80-98	89	55-92	79		89
October-December---	82-98	91	59-93	84		88
1977:						
January-March-----	92-98	95	75-100	88		93
April-June-----	90-101	95	75-100	91		96

1/ Arithmetic average price for period 1970 through September 1975.

Source: Compiled from responses to questionnaires of the U.S. International Trade Commission.

Table 40.--Stainless steel bar, grade 416: Lowest net selling prices received by U.S. producers and importers from sales to steel service centers or distributors, 1970-73 and, by quarters, January 1974-June 1977

(Prices in cents per pound)						
Period	Domestic		Imported		Ratio (percent) of average import price to aver- age domestic price	
	Range	Weighted average <u>1/</u>	Range	Weighted average <u>1/</u>		
Grade 416, cold finished, 2" round						
1970-----	47-52	48	30-51	37	77	
1971-----	43-52	46	33-52	41	89	
1972-----	36-46	43	30-54	39	91	
1973-----	39-53	47	33-57	45	96	
1974:						
January-March-----	46-58	52	33-59	49	94	
April-June-----	58-75	64	33-66	54	84	
July-September-----	69-86	75	35-79	64	85	
October-December---	72-87	77	39-79	60	78	
1975:						
January-March-----	77-101	85	41-74	60	71	
April-June-----	77-101	85	56-73	65	76	
July-September-----		81	50-72	62	77	
October-December---	81-101	86	56-84	66	77	
1976:						
January-March-----	66-73	70	63-92	69	99	
April-June-----	66-79	74	71-82	73	99	
July-September-----	72-103	85	55-97	72	85	
October-December---	69-85	82	50-90	78	95	
1977:						
January-March-----	81-118	88	75-85	82	93	
April-June-----	80-122	86	65-86	76	88	

1/ Arithmetic average price for period 1970 through September 1975.

Source: Compiled from responses to questionnaires of the U.S. International Trade Commission.

Table 41.--Alloy tool steel, high-speed rod: Lowest net selling prices received by U.S. producers and importers from sales of a selected type of rod to end-use customers, 1970-73 and, by quarters, January 1974-June 1977

(Prices in cents per pound)						
Period	Domestic		Imported		Ratio (percent) of average import price to aver- age domestic price	
	Range	Weighted average <u>1/</u> :	Range	Weighted average <u>1/</u> :		
Grade M-7, .250", round x hot rolled annealed (HRA) coils						
1970-----	116-144	127	91	91	72	
1971-----	118-150	130	93-110	93-110	78	
1972-----	118-162	137	98	98	72	
1973-----	133-168	144	-	-	-	
1974:						
January-March-----	138-176	154	-	-	-	
April-June-----	138-191	167	89	89	53	
July-September-----	148-210	183	89-114	102	56	
October-December---	163-230	195	-	-	-	
1975:						
January-March-----	202-250	226	103	103	46	
April-June-----	183-250	217	114	114	53	
July-September-----	250	250	114-126	120	48	
October-December---	154-216	191	-	-	-	
1976:						
January-March-----	179-184	181	-	-	-	
April-June-----	171-179	173	140-145	145	84	
July-September-----	197	197	-	-	-	
October-December---	189-201	194	152	152	78	
1977:						
January-March-----	190-292	245	163	163	67	
April-June-----	193-213	200	-	-	-	

^{1/} Arithmetic average price for period 1970 through September 1975.

Source: Compiled from responses to questionnaires of the U.S. International Trade Commission.

Table 42.--Alloy tool steel, bar: Lowest net selling prices received by U.S. producers and importers from sales of a selected type of bar to steel service centers or distributors, 1970-73 and, by quarters, January 1974-June 1977

(Prices in cents per pound)						
Period	Domestic		Imported		Ratio (percent) of average import price to aver- age domestic price	
	Range	Weighted average <u>1/</u>	Range	Weighted average <u>1/</u>		
	Grade 0-1, 1" x 4" cold finished flat, decarb free					
1970-----	75-79	77	-	-	-	
1971-----	75-85	81	58	58	72	
1972-----	83-85	84	65	65	77	
1973-----	75-92	85	68-70	69	81	
1974:						
January-March-----	80-100	90	71-83	77	86	
April-June-----	87-110	99	73	73	74	
July-September-----	101-116	109	93-139	116	106	
October-December---	101-116	111	87	87	78	
1975:						
January-March-----	111-127	121	105-114	109	90	
April-June-----	111-127	121	105-115	110	91	
July-September-----	111-127	120	105-108	106	88	
October-December---	111-130	123	108-150	116	93	
1976:						
January-March-----	117-150	125	114-150	118	101	
April-June-----	117	117	114-137	117	93	
July-September-----	117-133	126	117-152	129	95	
October-December---	127-144	136	126-151	130	98	
1977:						
January-March-----	130-145	132	92-127	115	87	
April-June-----	135-153	139	136-156	149	107	

1/ Arithmetic average price for period 1970 through September 1975

Source: Compiled from responses to questionnaires of the
U.S. International Trade Commission.

Table 43.--Alloy tool steel, high-speed bar: Lowest net selling prices received by U.S. producers and importers from sales of selected types of bars to end-use customers, 1970-73 and, by quarters, January 1974-June 1977--Continued

(Prices in cents per pound)						
Period	Domestic		Imported		Ratio	
					(percent) of	
	Range	Weighted	Range	Weighted	average import	
		average <u>1</u> /		average <u>1</u> /	price to aver-	age domestic
					price	
Grade M-2, 1" round x random lengths, cold finished						
1970-----	127-165	143	-	-	-	-
1971-----	130-160	142	114-129	121	85	
1972-----	129-188	150	122-133	128	85	
1973-----	131-180	149	125-141	133	89	
1974:						
January-March-----	134-177	154	130-158	144	94	
April-June-----	138-214	173	130-151	141	82	
July-September-----	146-233	193	130-179	155	80	
October-December---	145-269	212	132-158	145	68	
1975:						
January-March-----	170-284	220	133-212	172	78	
April-June-----	170-287	231	133-191	162	70	
July-September-----	195-294	237	212	-	-	
October-December---	200-255	209	201-222	206	99	
1976:						
January-March-----	200-286	220	205-225	217	99	
April-June-----	219-286	230	206-238	222	97	
July-September-----	195-269	231	211-227	222	96	
October-December---	219-417	239	220-236	227	95	
1977:						
January-March-----	241-293	266	226-275	250	94	
April-June-----	240-263	252	226-265	259	103	
Grade M-7, 1" round x cold finished						
1970-----	121-147	136	-	-	-	-
1971-----	123-134	129	-	-	-	-
1972-----	129-145	137	125	125	91	
1973-----	128-151	139	-	-	-	-
1974:						
January-March-----	129-160	147	-	-	-	-
April-June-----	131-171	150	-	-	-	-
July-September-----	134-205	170	-	-	-	-
October-December---	146-209	181	200	200	111	

See footnote at end of table.

Table 43.--Alloy tool steel, high-speed bar: Lowest net selling prices received by U.S. producers and importers from sales of selected types of bars to end-use customers, 1970-73 and, by quarters, January 1974-June 1977-Continued

(Prices in cents per pound)						
Period	Domestic		Imported		Ratio (percent) of	
	Range	Weighted average <u>1/</u>	Range	Weighted average <u>1/</u>	average import	
					price to aver-	
					age domestic price	
Grade M-7, 1" round x cold finished						
1975:						
January-March-----	162-209	184	200	200		109
April-June-----	162-303	208	-	-		-
July-September-----	162-209	186	179	179		96
October-December---	154-199	181				
1976:						
January-March-----	176-199	181	197	197		
April-June-----	177-233	200	-	-		-
July-September-----	191-228	207	-	-		-
October-December---	180-248	212	-	-		-
1977:						
January-March-----	194-246	220	-	-		-
April-June-----	182-237	211	-	-		-

1/ Arithmetic average price for period 1970 through September 1975.

Source: Compiled from responses to questionnaires of the U.S. International Trade Commission.

Table 44.--Stainless steel and alloy tool steel: Profit-and-loss experience of U.S. producers 1/ on their overall establishment operations, 1970-76

Item	1970	1971	1972	1973	1974	1975 <u>1/</u>	1976 <u>1/</u>
Net sales---1,000 dollars--	1,069,537	1,088,582	1,323,724	1,812,915	2,453,983	2,019,792	2,277,318
Cost of goods sold---do----	928,678	966,920	1,139,707	1,535,100	2,032,893	1,752,792	2,010,635
Gross profit-----do----	140,859	121,662	184,017	277,815	421,090	267,000	266,683
General, selling, and administrative expense-----do----	103,843	103,250	105,102	122,061	147,676	169,275	168,082
Net operating profit-----do----	37,016	18,412	78,915	155,754	273,414	97,725	98,601
Other expense net----do----	7,654	5,849	10,163	12,443	13,990	17,193	11,956
Net profit before taxes-----do----	29,362	12,563	68,752	143,311	259,424	80,532	86,645
Ratio of net operating profit to net sales-----percent--	2.8	1.2	5.2	7.9	10.6	4.0	3.8

1/ 17 producers reported in 1970-74 and 19 producers reported in 1975 and 1976.

Source: Compiled from responses to questionnaires of the U.S. International Trade Commission.

Table 45.--Stainless steel and alloy tool steel: Profit-and-loss experience of U.S. producers on their overall establishment operations, by quarters, October 1975-June 1977

Item	: Oct.-Dec. : : 1975 :	1976				: Oct.-Dec. :	1977	
		Jan.-March	Apr.-June	July-Sept.	Oct.-Dec.		Jan.-March	Apr.-June
Net sales-----1,000 dollars--	480,442	559,464	603,317	549,447	602,265	653,486	723,477	
Cost of goods sold-----do----	427,001	499,873	529,389	484,585	524,236	579,236	614,379	
Gross profit-----do----	53,441	59,591	73,928	64,862	78,029	74,250	109,098	
General, selling, and administrative expenses-----do----	42,373	41,991	43,706	41,136	44,189	42,818	45,547	
Net operating profit-----do----	11,068	17,600	30,222	23,726	33,840	31,432	63,551	
Other expense, net-----do----	2,131	4,289	3,340	1,791	2,407	2,615	765	
Net profit before taxes-----do----	8,937	13,311	26,882	21,935	31,433	28,817	62,786	
Ratio of net profit before taxes to net sales-----percent--	1.9	2.4	4.5	4.0	5.2	4.4	8.7	

1/ 19 producers reported during the subject period.

Source: Compiled from responses to questionnaires of the U.S. International Trade Commission.

Table 46.--Stainless steel and alloy tool steel: Profit-and-loss experience of U.S. producers 1/on their production of stainless steel plate, sheets and strip, rod, and bar and alloy tool steel, 1970-76, January-June 1976, and January-June 1977

Year and item	Net sales	Cost of goods sold	Gross profit or (loss)	General, selling, and administrative expenses	Net operating profit or (loss)	Ratio of net operating profit or (loss) to net sales
	<u>1,000 dollars</u>	<u>1,000 dollars</u>	<u>1,000 dollars</u>	<u>1,000 dollars</u>	<u>1,000 dollars</u>	<u>Percent</u>
<u>1970</u>						
Stainless steel and alloy tool steel, total-----	760,204	563,557	96,647	80,801	15,846	2.1
Stainless steel, total-----	624,260	545,160	79,100	61,887	17,213	2.8
Plate-----	34,541	29,110	5,431	2,278	3,153	9.1
Sheets and strip-----	423,930	371,668	52,262	33,101	19,161	4.5
Rod -----	12,375	11,359	1,016	3,005	(1,989)	(16.1)
Bar -----	153,414	133,023	20,391	23,503	(3,112)	(2.0)
Alloy tool steel-----	135,944	118,397	17,547	18,914	(1,367)	(1.0)
<u>1971</u>						
Stainless steel and alloy tool steel, total-----	809,669	726,869	82,800	78,209	4,591	0.6
Stainless steel, total-----	682,238	614,521	67,717	60,627	7,090	1.0
Plate-----	39,526	35,805	3,721	1,996	1,725	4.4
Sheets and strip-----	476,100	429,538	46,562	33,918	12,644	2.7
Rod -----	13,445	13,946	(501)	2,292	(2,793)	(20.9)
Bar -----	153,167	135,232	17,935	22,421	(4,486)	(2.9)
Alloy tool steel-----	127,431	112,348	15,083	17,582	(2,499)	(2.0)
<u>1972</u>						
Stainless steel and alloy tool steel, total-----	954,531	837,176	117,355	78,484	38,871	4.1
Stainless steel, total-----	799,565	707,315	92,250	60,186	32,064	4.0
Plate-----	45,418	42,198	3,220	2,059	1,161	2.6
Sheets and strip-----	550,150	491,029	59,121	32,184	26,937	4.9
Rod -----	18,012	16,652	1,360	2,941	(1,581)	(8.8)
Bar -----	185,985	157,436	28,549	23,002	5,547	3.0
Alloy tool steel-----	154,966	129,861	25,105	18,298	6,807	4.4
<u>1973</u>						
Stainless steel and alloy tool steel, total-----	1,335,296	1,116,083	219,213	91,849	127,364	9.5
Stainless steel, total-----	1,135,085	955,419	179,666	71,079	108,587	9.6
Plate-----	71,747	60,344	11,403	2,801	8,602	12.0
Sheets and strip-----	779,775	657,316	122,459	36,961	85,498	11.0
Rod -----	29,118	26,693	2,425	3,831	(1,406)	(4.8)
Bar -----	254,445	211,066	43,379	27,486	15,893	6.2
Alloy tool steel-----	200,211	160,664	39,547	20,770	18,777	9.4

See footnote at end of table.

Table 46.--Stainless steel and alloy tool steel: Profit-and-loss experience of U.S. producers on their production of stainless steel plate, sheets and strip, rod, and bar and alloy tool steel, 1970-76, January-June 1976, and January-June 1977--Continued

Year and item	Net sales	Cost of goods sold	Gross profit or (loss)	General, selling, and administrative expenses	Net operating profit or (loss)	Ratio of net operating profit or (loss) to net sales
	<u>1,000</u> <u>dollars</u>	<u>1,000</u> <u>dollars</u>	<u>1,000</u> <u>dollars</u>	<u>1,000</u> <u>dollars</u>	<u>1,000</u> <u>dollars</u>	<u>Percent</u>
<u>1974</u>						
Stainless steel and alloy tool steel, total-----	1,876,009	1,516,785	359,224	114,960	244,264	13.0
Stainless steel, total-----	1,632,873	1,322,394	309,979	91,777	218,202	13.4
Plate-----	150,803	119,429	31,374	4,474	26,900	17.8
Sheets and strip-----	1,094,063	893,413	200,650	50,158	150,492	13.8
Rod-----	43,994	34,292	9,702	4,733	4,969	11.3
Bar-----	344,013	275,760	68,253	32,412	35,841	10.4
Alloy tool steel-----	243,136	193,891	49,245	23,183	26,062	10.7
<u>1975</u>						
Stainless steel and alloy tool steel, total-----	1,337,621	1,175,166	162,455	109,068	53,387	4.0
Stainless steel, total-----	1,118,756	998,673	120,083	84,412	35,671	3.2
Plate-----	209,081	163,548	45,533	12,977	32,556	15.6
Sheets and strip-----	635,113	599,911	35,202	40,070	(4,868)	(.8)
Rod-----	34,032	27,570	6,462	5,482	980	2.9
Bar-----	240,530	207,644	32,886	25,883	7,003	2.9
Alloy tool steel-----	218,865	176,493	42,372	24,656	17,716	8.1
<u>1976</u>						
Stainless steel and alloy tool steel, total-----	1,679,395	1,489,047	190,348	116,930	73,418	4.4
Stainless steel, total-----	1,439,202	1,296,462	142,740	88,960	53,780	3.7
Plate-----	173,282	148,559	24,723	12,633	12,090	7.0
Sheets and strip-----	967,597	883,354	84,243	45,149	39,094	4.0
Rod-----	48,298	42,378	5,920	5,743	177	.4
Bar-----	250,025	222,171	27,854	25,435	2,419	1.0
Alloy tool steel-----	240,193	192,585	47,608	27,970	19,638	8.2

See footnote at end of table.

Table 46.--Stainless steel and alloy tool steel: Profit-and-loss experience of U.S. producers 1/ on their production of stainless steel plate, sheets and strip, rod, and bar and alloy tool steel, 1970-76, January-June 1976, and January-June 1977--Continued

Year and item	Net sales	Cost of goods sold	Gross profit or (loss)	General, selling, and administrative expenses	Net operating profit or (loss)	Ratio of net operating profit or (loss) to net sales
	<u>1,000 dollars</u>	<u>1,000 dollars</u>	<u>1,000 dollars</u>	<u>1,000 dollars</u>	<u>1,000 dollars</u>	<u>Percent</u>
<u>January-June 1976</u>						
Stainless steel and alloy tool steel, total-----	802,116	715,695	86,421	53,010	33,411	4.2
Stainless steel, total-----	682,836	620,813	62,023	39,333	22,690	3.3
Plate-----	87,591	73,445	14,146	6,187	7,959	9.1
Sheets and strip-----	449,692	417,944	31,748	19,109	12,639	2.8
Rod-----	13,115	12,616	499	1,129	(630)	(4.8)
Bar-----	132,438	116,808	15,630	12,908	2,722	2.1
Alloy tool steel-----	119,280	94,882	24,398	13,677	10,721	9.0
<u>January-June 1977</u>						
Stainless steel and alloy tool steel, total-----	1,050,352	910,293	140,059	65,502	74,557	7.1
Stainless steel, total-----	910,936	797,563	114,373	50,357	64,016	7.0
Plate-----	109,094	94,677	14,417	8,197	6,220	5.7
Sheets and strip-----	602,402	536,686	65,716	25,013	40,703	6.8
Rod-----	24,401	21,437	2,964	1,826	1,138	4.7
Bar-----	175,039	143,763	31,276	15,321	15,955	9.1
Alloy tool steel-----	139,416	113,730	25,686	15,145	10,541	7.6

1/ 17 producers reported in 1970-74 and 19 producers reported in 1975-77.

Source: Compiled from responses to questionnaires of the U.S. International Trade Commission.

Table 47.--Stainless steel and alloy tool steel: U.S. producers' investment in productive facilities, by types, 1976

(In thousands of dollars)

Item	Assets as of Dec. 31, 1976 ^{1/}		
	Original cost basis	Net book value	Estimated replacement cost
Investment in productive facilities employed in the production--			
Stainless steel sheet and strip-----	602,683	256,852	1,197,534
Stainless steel plate-----	57,909	28,431	124,875
Stainless steel bar-----	161,381	70,144	432,769
Stainless steel rod-----	13,809	6,024	40,116
Alloy tool steel-----	189,167	61,384	440,888
Total-----	1,024,949	422,835	2,236,182

^{1/} Partially estimated by the staff of the U.S. International Trade Commission.

Source: Compiled from responses to questionnaires of the U.S. International Trade Commission, except as noted.

Table 48.--Stainless steel and alloy tool steel: U.S. producers' return on investment in productive facilities, by types, 1976, and January-June 1976, and January-June 1977

(In percent)

Item	Return on assets								
	Original-cost basis			Net book value			Estimated replacement cost		
	1976			1976			1976		
	Jan.-June-- 1976 : 1977			Jan.-June-- 1976 : 1977			Jan.-June-- 1976 : 1977		
Investment in productive facilities	:	:	:	:	:	:	:	:	:
employed in the production of--	:	:	:	:	:	:	:	:	:
Stainless steel sheet and strip-----	6.5	4.2	13.6	15.2	9.8	31.6	3.3	2.2	6.8
Stainless steel plate-----	20.9	27.4	21.4	42.5	56.0	43.8	9.7	12.8	10.0
Stainless steel bar-----	1.5	3.4	19.8	3.4	7.8	45.4	.6	1.2	7.4
Stainless steel rod-----	1.3	0	16.4	2.9	0	37.8	.4	0	5.6
Alloy tool steel-----	10.4	11.4	11.2	32.0	35.0	34.2	4.5	4.8	4.8
Total-----	7.2	6.6	14.6	17.4	15.8	35.2	3.3	3.0	6.6
	:	:	:	:	:	:	:	:	:

Source: Compiled from responses to questionnaires of the U.S. International Trade Commission.

Table 49.--Stainless steel and alloy tool steel: Effect of price and volume changes on gross profit,
January-June 1977 from January-June 1976

Item	Stainless steel						Alloy tool steel	Total, stainless steel and alloy tool steel
	Sheets and strip	Plate	Bar	Rod	Total			
Changes in U.S. producers' shipments:								
Quantity-----1,000 tons--	55.6	-0.7	12.5	5.9	73.3	1.3		74.6
Percent-----	16.4	-1.4	20.0	85.5	16.1	3.8		15.2
Changes in U.S. producers' prices-----percent--	8.5	-	8.6	-2.6	5.6	12.7		-
Effects on gross profit attributable to--								
Price changes-----million dollars--	28.8	0.5	12.7	0.1	42.1	2.4		44.5
Increased volume-----do-----	12.1	-	7.6	.9	20.6	1.0		21.6
Volume-related cost reduction-----do-----	23.7	-0.3	5.0	2.0	30.4	.6		31.0
Residual-----do-----	1.1	14.2	6.0	-	21.3	21.7		43.0
Total gross profit, January-June 1977-----do-----	65.7	14.4	31.3	3.0	114.4	25.7		140.1

Source: Compiled from responses to questionnaires of the U.S. International Trade Commission.

Appendix B

**DATA RELATING TO CONSIDERATIONS LISTED IN SECTION 202(c)
OF THE TRADE ACT OF 1974**

Section 203(i)(4) of the Trade Act of 1974 directs that the Commission take into account the considerations set forth in section 202(c) when advising the President as to the probable economic effect on the industry concerned of the termination or modification of import relief granted under section 201(b)(1) of the Trade Act of 1974. The data compiled by the Commission in reference to those considerations are included in this appendix in the order listed in the Trade Act.

Section 202(c)(1)

Section 202(c)(1) directs that consideration be given to "information and advice from the Secretary of Labor on the extent to which workers in the industry have applied for, are receiving, or are likely to receive adjustment assistance under chapter 2 or benefits from other manpower programs."

The letter on the following page, dated August 12, 1977, from the U.S. Department of Labor, Bureau of International Labor Affairs, responded to the request by the Commission for such information and advice. Subsequent letters, dated August 31, 1977 and September 28, 1977, indicated that the information provided was based upon petitioning workers producing articles falling under SIC 3312 which includes articles other than stainless and alloy tool steels and that more definitive information is not available.

U.S. DEPARTMENT OF LABOR

BUREAU OF INTERNATIONAL LABOR AFFAIRS
WASHINGTON, D.C. 20210

August 12, 1977

 RECEIVED
 AUG 17 AM 10:14
 1977

 Mr. Daniel Minchew
 Chairman, United States International
 Trade Commission
 Washington, D.C. 20436

 OFFICE OF THE SECRETARY
 U.S. INTL. TRADE COMMISSION

Dear Mr. Minchew:

This is in response to your request for trade adjustment assistance data pertaining to workers in the stainless and alloy tool steel industry as defined in Investigation No. TA-203-3. The trade adjustment activity data are cumulative from April 3, 1975, the effective date of the program, to June 30, 1977, while the benefits data are cumulative from April 3, 1975 to April 30, 1977.

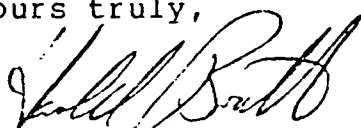
Trade Adjustment Activity

	No. of Cases	No. of Workers
Certified	64	37,350
Denied	104	24,014
In Process	47	6,180

Benefits Activity

First Payments	Amount Paid
23,681	\$32,816,624

Yours truly,


 HAROLD BRATT,
 Acting Director,
 Office of Trade Adjustment
 Assistance

 RECEIVED
 CHAIRMAN'S OFFICE
 AUG 17 1977

U.S. DEPARTMENT OF LABOR
BUREAU OF INTERNATIONAL LABOR AFFAIRS
WASHINGTON, D.C. 20210

RECEIVED



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OFFICE OF THE SECRETARY
U.S. INTL. TRADE COMMISSION

August 31, 1977

Mr. Daniel Minchew
Chairman, United States International
Trade Commission
Washington, DC 20436

Dear Mr. Minchew:

It has just come to my attention that the data contained in my letter to you of August 12 concerning adjustment assistance for workers in the stainless steel and alloy tool steel industry as defined in the International Trade Commission's Investigation No. TA-203-3 may be misleading.

The data we provided covered all those cases where we identified the steel products produced by petitioning workers as falling within SIC 3312, which includes stainless steel. Consequently, the data should be interpreted as covering a significantly broader universe of petitioners than workers in the industry under review.

Unfortunately, information in our case files, and in our benefits delivery files, does not always allow a precise classification. We are reviewing our files again to see if we can provide the Commission with data more closely associated with the specific industry under review and will advise you further.

I hope this clarification will be helpful in your review of developments in the stainless steel and alloy tool steel industry pursuant to Section 203 of the Trade Act of 1974.

Yours truly,

HAROLD BRATT

Acting Director, Office of
Trade Adjustment Assistance

U.S. DEPARTMENT OF LABOR
BUREAU OF INTERNATIONAL LABOR AFFAIRS
WASHINGTON, D.C. 20210



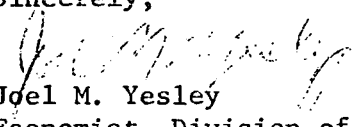
September 28, 1977

Mr. James Kennedy
Room 143
International Trade Commission
Washington, D.C. 20436

Dear Mr. Kennedy:

This is to assure you that the Office of Trade Adjustment Assistance has provided the Commission with all available data regarding trade adjustment activity in the stainless steel and tool steel industry (as defined by Investigation TA-203-3) and program benefits received by the affected workers in a letter dated August 31, 1977 and signed by the Deputy Director of the office.

Sincerely,


Joel M. Yesley
Economist, Division of
Trade and Industry Analysis

Section 202(c)(2)

Section 202(c)(2) directs that consideration be given to "information and advice from the Secretary of Commerce on the extent to which firms in the industry have applied for, are receiving, or are likely to receive adjustment assistance under chapters 3 and 4."

The following letter and U.S. Department of Commerce Report to the President, titled "Prospects for Trade Adjustment Assistance for Firms in the Stainless Steel and Alloy Tool Steel Industry," dated February 2, 1976, from the Secretary of Commerce responds to the request by the Commission for such information and advice.



UNITED STATES DEPARTMENT OF COMMERCE
The Assistant Secretary for Economic Development
Washington, D.C. 20230

JUL 21 1977

'77 JUL 26 PM 3 50

Honorable Daniel Minchew
Chairman
U. S. International Trade Commission
Washington, D. C. 20436

Dear Mr. Chairman:

This is in reply to your letter of July 1, 1977, requesting information about the extent to which firms and communities in the stainless and alloy tool steel industry are involved with adjustment assistance under the Trade Act of 1974.

As of this date, no firms in the industry producing stainless and alloy tool steel and no related communities have petitioned for certification of eligibility to apply for adjustment assistance.

At the time of the Commission's original Section 201 investigation of this industry, the Department of Commerce conducted a study of firms in the industry as required by Section 264 of the Trade Act. A report of that study was sent to the President on February 2, 1976. We think the conclusions reached in that report remain valid and a copy is enclosed.

In regard to the number of firms from the stainless and alloy tool steel industry that might qualify for adjustment assistance, the study concluded that--

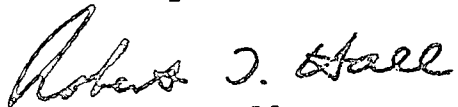
"...the Department has no means of accurately estimating the number of producers which are likely to meet the basic criteria essential for a determination regarding their eligibility to apply for trade adjustment assistance. A determination on the petition of any firm depends on the circumstances in each particular case, especially with regard to the firm's position in the market and the effects of any increased imports on the firm's operations. In any event, the number of qualifying firms is unlikely to exceed the four or five independent firms in the specialty steel industry."

30 JUL 20 1977
U.S. DEPARTMENT OF COMMERCE

A comparable study of communities was not made. In any case, we do not expect communities to apply for certification under the Trade Act of 1974 because it is the policy of EDA to encourage each community with import-related problems to utilize the EDA-administered program which can respond most fully to its adjustment needs in the most timely fashion. Communities in areas already designated by EDA may be eligible for assistance under EDA's programs authorized by the Public Works and Economic Development Act of 1965, as amended. Moreover, communities either in or outside designated areas may be eligible for assistance under EDA's flexible Title IX program. Grants under Title IX may be for the purpose of developing economic adjustment strategies or implementing programs.

If additional information is needed, Mr. Tolerico or Mr. Kennedy may wish to discuss it directly with Mr. Jack W. Osburn, Jr. (202/377-5005), Chief of our Trade Act Certification Division.

Sincerely,

A handwritten signature in cursive script that reads "Robert T. Hall".

Robert T. Hall
Assistant Secretary
for Economic Development

Enclosure



February 2, 1976

U.S. DEPARTMENT OF COMMERCE REPORT TO THE PRESIDENT

PROSPECTS FOR TRADE ADJUSTMENT ASSISTANCE FOR FIRMS IN THE
STAINLESS STEEL AND ALLOY TOOL STEEL INDUSTRY

S U M M A R Y

The U.S. Department of Commerce has conducted a study of the firms producing stainless steel and alloy tool steel as required by Section 264 of the Trade Act of 1974. It has analyzed the number of firms in the industry which have been or are likely to be certified as eligible to apply for trade adjustment assistance and the extent to which the orderly adjustment of the firms may be facilitated through the use of existing programs. Such a study by the Department is required whenever the U.S. International Trade Commission (USITC) makes an import relief investigation under Section 201 of the Trade Act.

In its report to the President on January 16, 1976, the USITC determined that increased imports of stainless steel and alloy tool steel are a substantial cause of serious injury to the domestic industry producing articles like or directly competitive with the imported items. The USITC found that quotas on imports based on individual products and countries and geared to U.S. consumption are necessary to remedy the injury to the domestic industry.

In 1974, the specialty steel industry produced about 1.2 million tons of stainless steel products and 104,555 tons of tool steel with a total value of approximately

\$2 billion. Strong cyclical fluctuations in shipments are characteristic of the industry. Stainless and alloy steels are relatively expensive to produce. The rare metals such as chromium, nickel and tungsten used in alloys are costly and so are the production processes. Principal shapes of stainless steel produced are plate, sheet, strip, bar, and rod; tool steel may be in the form of rod, plate, sheet or bar.

According to the USITC, specialty steel industry employment averaged 29,468 in 1974, while 21,194 persons were employed during the period January-September 1975. Man-hours worked for the nine-month periods were 38.4 million in 1974 and 22.3 million in 1975, a decline of 35 percent. During the first nine months of 1975, domestic shipments declined to 549,161 tons, 43 percent below the comparable 1974 period. For the same periods, imports increased 23 percent to 127,123 tons. The ratio of imports to domestic shipments increased from 10 percent in January-September 1974 to 23 percent in the comparable 1975 period.

To be certified eligible to apply for trade adjustment assistance, a firm must demonstrate that increased imports of articles like or directly competitive with those produced by the firm contributed importantly to declines in sales or production, or both, and separation, or threat of separation, of the firm's workers. Following certification, a firm can apply for technical and financial assistance to develop a program of economic recovery for the firm. As of the date of this report, no firm in the stainless and alloy tool steel industry has submitted a petition to the Department of Commerce for certification of eligibility to apply for trade adjustment assistance.

Of the 20 firms in the specialty steel industry, those affiliated with the major steel companies and others which are diversified or affiliated with firms in other industries are unlikely to be able to meet the criteria for certification of eligibility, since they probably would be unable to demonstrate that increased imports of

specialty steels were an important cause of any declines experienced in total production or sales and employment by the firm. Consideration may also have to be given to the relative impact on individual firms of other factors such as the 1974-75 recession.

The likelihood of the four or five independent companies in the specialty steel industry petitioning for certification may depend on whether the President imposes the quantitative limitations on imports recommended by the USITC. With import quotas, certifiable firms may not seek trade adjustment assistance. On the other hand, if quotas are not imposed or other import relief measures adopted, trade adjustment assistance may be a viable alternative for the smaller independent specialty steel firms. In any event, the number of qualifying firms is unlikely to exceed the four or five independent producers.

Under the program of trade adjustment assistance for firms authorized by the Trade Act, financial assistance to certified firms may take the form of direct loans and loan guarantees, and technical assistance, to enable a firm to establish a competitive position in the same or a different industry. Financial assistance may be used for the acquisition, construction, installation, modernization, expansion or conversion of fixed assets, or for working capital necessary for a firm to implement its adjustment plan. Technical assistance may be used for management and operational assistance, feasibility studies and related research to aid in developing and implementing a firm's recovery plan.

Firms may also benefit indirectly from financial assistance available to trade-impacted communities under provisions of the Trade Act in a manner similar to the public works, business development and Title IX programs administered by the Department's Economic Development Administration ("EDA") pursuant to the Public Works and Economic Development Act of 1965. These other programs

of EDA provide business development loans to assist firms in certain designated places identified on the basis of economic distress such as unemployment; loans and grants to states, redevelopment areas and other nonprofit local entities for public works projects and development facilities and for a comprehensive program of adjustment to an actual or threatened economic dislocation or adjustment problem.

Another Federal program which might be of some interest to firms in the specialty steel industry is the program administered by the Farmers Home Administration, Department of Agriculture, of direct and guaranteed loans to firms which may be located in areas other than cities having a population of more than 50,000 persons.

PROSPECTS FOR TRADE ADJUSTMENT ASSISTANCE

Petition for Import Relief

Upon receipt of a petition by the Tool and Stainless Steel Committee, et al., under Section 201 of the Trade Act of 1974, the U.S. International Trade Commission ("USITC") instituted an investigation on August 5, 1975, to determine whether certain stainless steel and alloy tool steel products are being imported into the U. S. in such increased quantities as to be a substantial cause of serious injury, or threat thereof, to the domestic industry producing goods like, or directly competitive with, the imported articles.

In its report to the President of January 16, 1976, the USITC determined that increased imports of stainless steel and alloy tool steel are a substantial cause of serious injury to the domestic industry producing articles like or directly competitive with the imported items. The USITC found that quotas on imports based on individual products and countries and geared to U.S. consumption are necessary to remedy the injury to the domestic industry.

This report has been prepared in accordance with the provisions of Section 264 of the Trade Act of 1974 which direct the Secretary of Commerce to make a study of the number of firms in the domestic industry producing the like or directly competitive product(s) which have been or are likely to be certified eligible to apply for adjustment assistance, and the extent to which the orderly adjustment of such firms to the import competition may be facilitated through the use of existing programs. The results of this study are to be submitted to the President after the USITC submits its report, and the Department's report is to be made available to the public and summarized in the Federal Register.

Whenever the USITC makes an affirmative finding, as it did in this instance, Section 264 also requires the Secretary to make available information to the firms in the industry about programs which may facilitate the orderly adjustment of the firms to import competition, and to provide assistance in the preparation and processing of petitions and applications of such firms for program benefits.

The Industry

Stainless steel, tool steels, and other alloy steels are grouped together within the steel industry as special alloy steels, or specialty steels, as opposed to ordinary or carbon steel. Together, carbon and special steel products are classified under Standard Classification Code (SIC) No. 3312-Blast Furnaces, Steel Works, Rolling and Finishing Mills. The production of specialty steels requires very careful processing to assure the highest quality and very precise chemistry. Among the specialty steel products, two major groups are distinguished: namely, stainless steel, which accounts for approximately two-thirds of mill shipments; and tool steels, comprising a wide variety of special-purpose alloy steels. Specialty steel production ranges from one to one and a half percent of carbon steel output, or 1.9 million tons of specials, compared with 132.7 million tons of carbon steel in 1973. In terms of value, however, specialty steels represent about nine percent of total U.S. steel production.

According to the USITC, the specialty steel industry consists of 20 firms of which 5 are affiliated with the large steel companies. The remaining 15 firms include both independent firms and companies that have been acquired by conglomerates but continue to operate independently. Fifteen firms produce stainless steel (9 produce only stainless) and 11 produce alloy tool steel (5 exclusively); 6 firms produce both. The domestic producers of specialty

steels are concentrated in the northeastern region of the United States, principally in Pennsylvania.

Any steel company has to be fairly large by the usual corporate standards to be a viable operation, but most of the specialty steel producers fall at the lower end of the steel company rankings, and no one firm dominates the market. The more typical specialty steel producer may have several plants, each with separate product lines, and sales in the \$200 to \$500 million range annually. The largest domestic steel company is in the stainless business, but its share of the market is estimated at well under 10 percent, and stainless represents probably under one percent of its revenue. Another of the large steel firms is a major factor in tool steel production, but the revenues from tool steel are relatively small. Similar observations can be made about the other large steel companies. Total sales by the largest of the specialty steel producers was slightly under \$1 billion in 1974, whereas the largest domestic steel company had sales in excess of \$9 billion in the steel industry's best year so far.

The specialty steel industry is both highly capital intensive and highly labor intensive. Thus, the labor input to produce one ton of stainless is reported to be 3 to 7 times greater than that required for a ton of carbon steel, and for tool steel the labor input is up to 15 times greater. The same equipment--including electric furnaces with as small a capacity as 25 tons--can be used to produce either stainless or tool steel in small batches or "heats."

U.S. producers of specialty steels distribute their products either directly to end users or through steel service centers/distributors. The demand for specialty steels is generally price-inelastic, i.e., demand does not shift substantially with a change in prices. Industrial consumers of specialty steels are typically subject

to strong cyclical fluctuations which are transmitted to specialty steels with augmented effect. Thus, the specialty steel industry has generally experienced sharper (and longer) downswings during recessions followed by steeper upturns in periods of economic recovery than the carbon steel industry, the non-durable goods industries, or the national economic indicators.

The Product

Specialty steels are utilized in applications where exceptional strength, hardness, durability and resistance to oxidation is required. Stainless steel is used extensively in the food, chemical, textile, furniture, transportation, pollution control and electric power industries. The principal market for tool steel is the tooling industry, which includes independent producers of tools and captive units of the automotive, farm-equipment and other capital goods producers. Tool steels are used to fashion cutting tools (drills, taps and broaches), shearing tools (shears, blanking and trimming dies, and punches), forming tools (forging and casting dies), and battering tools such as chisels.

Stainless steel typically contains a minimum of 11.5 percent of chromium, and other rare metals may be added, depending on characteristics desired. Stainless steel is made in a variety of shapes, such as plate sheet, strip, bar and rod. For commercial purposes, two classes are recognized: Series 300 which is a stainless alloy containing carbon, chromium, nickel, and molybdenum; and Series 400, a stainless which contains chromium, and some molybdenum but no nickel.

Tool steels are made in a great variety of types and grades, usually to customer's specifications and with close adherence to specified tolerances which depend on the intended use or performance. Tool steel is an alloy steel containing various combinations of carbon, chromium

manganese, molybdenum and tungsten. Tool steels, produced largely in the form of rod, plate, sheet or bar, are noted for their hardness, abrasive resistance and heat resistance.

In 1974, the specialty steel industry produced about 1.2 million tons of stainless steel products and 104,155 tons of tool steel with a total value of approximately \$2.0 billion. Separate statistics on employment in the specialty steel industry are not generally available since data are usually included in the figures for the steel industry as a whole. The USITC found that the total number of employees in the specialty steel industry averaged 29,468 in 1974, and that employment during January-September 1975 averaged 21,194, a decline of 23.7 percent from the comparable 1974 period. Man-hours worked peaked in 1974 at 49.2 million. For the January-September periods of 1974 and 1975, man-hours declined from 38.4 million to 22.3 million, a decline of 35 percent.

U.S. shipments, foreign trade and apparent consumption of specialty steels from 1970 to 1975 were as follows:

	Producers Shipments	Imports (Quantity in tons)	Exports (Quantity in tons)	Apparent Consumption	Ratio of Imports to Shipments (percent)
1970	687,041	170,622	79,623	778,040	24.8
1971	704,220	175,136	50,710	828,646	24.9
1972	863,285	135,285	58,414	940,156	15.7
1973	1,159,359	124,464	90,121	1,193,702	10.7
1974	1,339,479	163,299	127,227	1,375,551	12.2
Jan.-Sept.:					
1974	1,032,136	103,596	101,985	1,033,747	10.0
1975	549,161	127,123	43,247	633,037	23.1

Source: U. S. International Trade Commission, Stainless Steel and Alloy Tool Steel, Report to the President on Investigation No. TA-201-5, January 16, 1976, Table 1.

Imports

Annual U.S. imports of stainless steel and alloy tool steel, which totaled 170,622 tons in 1970, increased in 1971, decreased during the next two years, then increased to 163,299 tons in 1974. Imports in January-September 1975 amounted to 127,123 tons, 23 percent higher than imports in the comparable period of 1974.

The principal sources of U.S. imports of stainless steel during 1974 were Japan, Canada, France and Sweden; other major sources were the United Kingdom, Spain and West Germany. The largest foreign suppliers of alloy tool steel were Sweden, West Germany, Austria, Japan and Canada.

Under a Voluntary Restraint Agreement ("VRA"), Japanese and European producers agreed at the beginning of 1969 to limit their exports of steel-mill products (including specialty steels) to the United States for the three years 1969-71. Since the VRA was based on tonnage and not value, the foreign participants found it advantageous to increase their exports of high-priced products such as stainless and other alloy steels.

Early in 1972 the VRA was extended until the end of 1974, and participants agreed to a specific limit on their exports of stainless steel and tool steel as well as all steel-mill products. Aside from whatever effect VRA had, U.S. imports of stainless steel have been influenced by the demand for stainless steel in other parts of the world. As demand for stainless steel decreases in other countries, more stainless steel is exported to the United States.

Adjustment Assistance

So far, no firm in the stainless steel and alloy tool steel industry has submitted a petition to the Department of Commerce for certification of eligibility to apply for trade adjustment assistance.

The identified programs of assistance are those administered by the Economic Development Administration (EDA) of the Department of Commerce, and the Farmers Home Administration of the Department of Agriculture.

Economic Development Administration

Under Chapter 3 of Title II of the Trade Act, after the Secretary of Commerce has certified a firm, that firm can apply for technical and financial assistance to develop and implement a program of economic recovery for the firm. To be certified eligible to apply for trade adjustment assistance, a firm must demonstrate that increased imports of articles like or directly competitive with those produced by the firm contributed importantly to declines in sales or production, or both, and separation, or threat of separation, of the firm's workers.

Financial assistance, in the form of direct loans and loan guarantees, is available to a certified firm for the acquisition, construction, installation, modernization, expansion or conversion of fixed assets, or for working capital necessary to enable the firm to implement its adjustment plan. The aggregate direct loans to any one firm under the adjustment assistance program may not exceed \$1,000,000, and the aggregate loan guarantees, for up to 90 percent of the balance of loans outstanding from private lenders, may not exceed \$3,000,000.

The Trade Act also authorizes technical assistance to certified firms to develop and implement a plan of economic adjustment through contracts with private individuals, firms, and institutions. The Federal share of the cost shall not normally exceed 75 percent of the total technical assistance required.

Financial assistance, in the form of direct loans and grants, may be obtained under Chapter 4 of Title II of the Trade Act by communities identified and certified

by the Secretary of Commerce as eligible for adjustment assistance. To be certified, a community must demonstrate that increased imports of articles like or directly competitive with those produced by firms or subdivisions of firms located in a trade-impacted area (as determined by the Secretary of Commerce), or the transfer of firms or subdivisions of firms from such area to foreign countries, have contributed importantly to the separation, or threat of separation, of a significant number or proportion of workers, and to declines in sales or production in the area.

Financial assistance to communities under provisions of the Trade Act may be provided in a manner essentially similar to the public works, business development and Title IX programs administered by EDA pursuant to the Public Works and Economic Development Act of 1965 (P. L. 89-136) ("PWEDA"), with the basic rules, regulations and policies of PWEDA applying, except that there is provision for a 100 percent loan guarantee program when risk of the guarantee is shared to the extent of 50 percent by the local community or a State agency.

Title II of the PWEDA, as amended, provides for direct and guaranteed business development loans to assist firms located in or willing to locate a new facility in EDA-designated places, including "redevelopment areas" and "economic development centers" designated under Title IV of PWEDA. Various types of economic distress, such as unemployment, qualify redevelopment areas (usually Counties) for designation. Economic development centers (usually Cities) are non-distressed places whose growth can alleviate distress in redevelopment areas.

Business development loans under Title II of the PWEDA are available in the form of direct loans for working capital (in amounts up to 85 percent of requirements), and for fixed assets in amounts up to 65 percent of their total cost. Federal guarantees are limited to 90 percent of the

unpaid balance on loans or leases. The maximum term for loans and guarantees is 25 years. Financial assistance under the PWEDA is not available to relocate facilities from one area to another, and is subject to a determination that there is not long-term over-capacity in the industry.

Titles I and II of the PWEDA authorize grants and loans to redevelopment areas, economic development centers and related entities (e.g., nonprofit local development corporations). The grants and loans can be used for public works projects and development facilities such as water and sewer facilities, industrial parks and structures, and access roads. Projects can include acquisition, construction, rehabilitation, alteration, expansion, or improvement of development facilities, including machinery and equipment. Grants range from 50 to 80 percent of project costs, depending on how distressed a place is and whether it is part of a larger "Economic Development District." Almost all loans supplement companion grants. Although the grants and loans are not available to firms, they can benefit by modernizing, converting or expanding their operations with Government support--for example, by leasing space in new industrial structures or by utilizing new municipal sewage treatment plants to process industrial wastes.

Grants are available to States and local areas under Title IX of the PWEDA to develop and/or implement a comprehensive program of adjustment to an actual or threatened economic dislocation or adjustment problem. These areas, which do not require EDA designation, may in turn provide loans to firms as part of their adjustment program.

Title III of the PWEDA authorizes technical assistance (in the form of grants-in-aid to appropriate public or private nonprofit state, area, district or local organizations) to prevent or alleviate unemployment in local areas.

Technical assistance is not limited to EDA-designated areas. Although they cannot receive technical assistance grants, firms can benefit from feasibility studies and from management or operational assistance contracts dealing with their problems.

Farmers Home Administration

The Consolidated Farm and Rural Development Act (P.L. 92-419) ("CFRDA") provides for 90 percent loan guarantees to firms which may be located in areas other than cities having a population of more than 50,000. Loan maturities may range between 7 and 30 years. The loan may be used for acquisition, construction, conversion, and modernization of facilities; for purchase and development of land, easements, machinery, equipment, supplies and materials; and for working capital. Similar to EDA's business loan program, this financial assistance is not available to relocate facilities from one area to another, or for firms in industries found to have long-term over-capacity.

Rural development grants and loans are authorized under the CFRDA to public bodies to construct, enlarge, extend, or otherwise improve community facilities in areas of open country and rural towns and villages of not more than 10,000 people. These facilities may include industrial sites, utility extensions, water supply and waste disposal facilities, access roads, and pollution control and abatement incidental to site development. Although eligibility is limited to public and quasi-public bodies, the resulting development of community facilities may directly or indirectly enhance a firm's ability to expand or convert its own facilities.

Other Assistance Programs

Another Federal program which might benefit firms producing stainless steel and alloy tool steels, depending on the location of the particular firms involved, is administered by the Department of Defense. It provides economic

adjustment assistance in the form of technical advice, grants and loans, to communities and areas adversely affected economically by Defense realignments. Although eligible applicants are limited to States and political subdivisions or other public organizations and responsible community leadership groups, a firm in such an area might obtain indirect assistance from such eligible entities under the program.

* * * *

Additional information about the adjustment assistance program and copies of this report are available from the Office of Public Affairs, Economic Development Administration, Room 7019, U.S. Department of Commerce, Washington, D.C. 20230 (telephone 202/967-5113).

Section 202(c)(3)

Section 202(c)(3) directs that consideration be given to "the probable effectiveness of import relief as a means to promote adjustment, the efforts being made or to be implemented by the industry concerned to adjust to import competition, and other considerations relative to the position of the industry in the Nation's economy."

The domestic specialty steel industry has indicated that the quotas on imported articles have been effective, primarily in the first half of 1977, in aiding the industry to adjust to strong import competition. In 1976, imports were at record high levels as a result, in part, of the imposition of quotas. The quotas were anticipated by foreign suppliers and, in the first half of 1976, unprecedented shipments were made to the U.S. in an effort to alleviate their immediate impact.

Specialty-steel imports in the first quarter of 1977 declined despite increased domestic consumption. Although imports in the second quarter of 1977 sharply increased, the bulk of these importations occurred during the last 2 weeks in June--the start of the second quota year. Thus, the quota does not appear to have had a substantial impact upon the domestic industry until the first quarter of 1977.

In recent years, the industry has endeavored to improve its competitiveness through organizational changes, technological innovations, and increased capital expenditures. One firm discontinued rod and wire production to concentrate on flat-rolled products while another sold its

Bar Products Division to a group of its employees thereby concentrating its efforts on flat rolled products while, at the same time, creating a viable new domestic producer. Other firms have consolidated their specialty steel operations to increase coordination and responsiveness to changing market conditions. New AOD vessels and continuous casting equipment have been installed. Other technological changes include introduction of new computer controls for the production processes, development of improved dolomite brick with longer refractory life, new induction heating for stainless steel slabs, and increased use of scrap, fine dust, grinding swarf, and mill scale. Concurrently, capital expenditures markedly increased--from \$81 million in 1974, to \$109 million in 1975, and to \$125 million budgeted for 1977.

The specialty steel industry, comprised of 21 firms, is concentrated in the Northeastern region of the U.S., principally in Pennsylvania. Chicago Heights, Illinois, is the farthest western location of any domestic manufacturing facility of either stainless steel or alloy tool steel. Stainless steel is a necessary component of equipment used in such vital industries as petroleum refining and food processing while alloy tool steel is used to make tools used in the manufacture of virtually all products of industry.

Section 202(c)(4)

Section 202(c)(4) directs that consideration be given to "the effect of import relief upon consumers (including the price and availability of the imported articles and the like or directly competitive articles produced in the United States) and on competition in domestic markets for such articles."

Because of the relatively short period of time in which quotas have been in effect and the record high imports which occurred in 1976, it

Difficult to access the price impact of the quotas upon consumers. It can appear, however, that such impact has been minimal. The average importers' unit selling price to consumers increased 3 percent or less during the first quota year when compared to the comparable preceding period, for all items except plates (5%) and alloy tool steel (8%).

A comparison of the same period for the average unit value of U.S. producers' shipments shows that price changes have been much more pronounced and erratic than those for importers. Sheets and strips, bars, and alloy tool steel increased 6%, 5%, and 21%, respectively, while plates and rods declined 6% and 11%, respectively. The decline in the average unit value of producers' shipments of rods corresponds to the decline in the cost of goods sold for these items, while a substantial portion of the increase for alloy tool steel is accounted for by the increase in the cost of goods sold. The price increase for sheets and strips and bars are probably accounted for, in large part, by the changes in consumption which occurred during the latter period.

In addition, there have been indications that foreign suppliers have changed their product mix in an effort to increase their shipments of high-unit-value products. Consumers who have repeatedly been most affected by these changes include U.S. knife producers who use cutter blade steel (imported as alloy tool steel) and U.S. stainless steel wire producers who use rods in the manufacture of their end product.

Sections 202(c)(5) and 202(c)(6)

Sections 202(c)(5) and 202(c)(6) direct that consideration be given to "the effect of import relief on the international economic interests of the United States;" and "the impact on U.S. industries and firms as a consequence of any possible modification of duties or other import restrictions which may result from international obligations with respect to compensation."

From June 14, 1976, the date the quotas were imposed, through mid-year 1977, there have been no instances in which U.S. trading partners have requested compensation. The time limit for requesting such compensation has been extended and, presumably, such requests could be made throughout the life of the quotas. Japan, which has supplied the largest quantities of the subject items to the U.S., has signed an orderly marketing agreement in which it indicated that compensation would not be requested. Further, the continued high level of imports indicate that compensation would be minimal for any other country making such a request.

Section 202(c)(7)

Section 202(c)(7) directs that consideration be given to "the geographic concentration of imported products marketed in the United States."

Investigation of the market for specialty steel has revealed that the bulk of all imports, as well as the domestic items, are consumed in the Northeast and upper Midwest. Thus, the impact of the quotas have been felt primarily in these areas.

Section 202(c)(8)

Section 202(c)(8) directs that consideration be given to "the extent to which the U.S. market is the focal point for exports of such article by reason of restraints on exports of such article to, or on imports of such article into, third-country markets."

Japan has been the principal supplier of imports of the articles concerned. The following table shows exports of these articles to selective markets during 1976.

Stainless Steel and Alloy Tool Steel: Exports from Japan, by Specified Markets, 1976

(Metric Tons)		
Market	Quantity	% of total exports
U.S.	60,438	13
Western Europe	107,084	23
Other	293,928	64
Total	461,450	100

Source: Japan Exports and Imports. Japan Tariff Association. December, 1976.

Although Japan shipped a substantially larger quantity of exports to the countries of Western Europe, primarily EEC countries, than to the U.S., the U.S. market was the largest single outlet for Japanese exports.

The countries of the EEC follow Japan as the largest U.S. supplier of imports of the articles concerned. The following table shows exports from the EEC of the concerned articles to selected markets in 1975. This table demonstrates that, despite differences in reporting procedures which cause imports to be understated, the U.S. market was the largest single output for EEC exports in 1975 (the last full year for which data is available.)

Stainless steel and alloy tool steel: Exports from the EEC, by Specified markets, 1975.

(1,000 kilograms)		
Market	Quantity	% of total exports shipped outside of the EEC
United States	31,006	12.3
Eastern Europe and the U.S.S.R.	68,946	27.0
Canada	10,101	4.0
Other	142,384	56.0
Total	252,437	100.0

Source: Analytical Tables of Foreign Trade. Statistical Office of the European Communities. Volume II: Chapter 73. 1975.

According to State Department officials, trade restrictions on the articles concerned have been imposed by many Western European countries. In most cases, however, specific details regarding the restrictions are lacking. Further, the European Coal and Steel Community (ECSC) has established a monitoring and allocation program for its members.

Section 202(c)(9)

Section 202(c)(9) directs that consideration be given to "the economic and social costs which would be incurred by taxpayers, communities, and workers, if import relief were or were not provided."

The reduction or removal of the quotas would lessen protection from import competition currently enjoyed by the domestic industry. If the reduction of this protection caused a reduction of domestic sales, the industry might be forced to reduce output and lay off workers. Economic costs faced by taxpayers under these conditions would include State and Federal unemployment insurance payments, income maintenance in cases of extended need, food stamps, and reduced Federal, State, and local tax receipts. Social costs to the people and the communities would result from the added unemployment burden.

Appendix C

RESPONSES BY PRINCIPAL SUPPLYING COUNTRIES TO
COMMISSION REQUEST FOR ESTIMATES OF FUTURE
HOME MARKET PRODUCTION, CONSUMPTION, AND
EXPORTS TO THE U.S. IF QUOTAS ARE REMOVED

B-87 through B-111

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Appendix D

INTERNATIONAL TRADE COMMISSION ECONOMETRIC ANALYSIS AND
METHODOLOGY

In conjunction with an econometric analysis of U.S. demand for domestically produced sheets and strip and for foreign-produced sheets and strip, estimates were generated of what U.S. shipments and U.S. imports would have been during the first quota year if the import restraint program had not been instituted, and of what U.S. producers' shipments and U.S. imports would be during the second and third quota years in the absence of quota restraint. This appendix describes the econometric analysis of U.S. demand, as well as the methodology by which estimates of U.S. shipments and U.S. imports were generated with the aid of the estimated demand relationships.

This appendix begins with a specification of the econometric model used to represent the United States stainless-steel market (sheets and strip only). The section after that presents the estimated equations from the model. Finally, the methodology is described by which U.S. shipments and imports in the absence of quota restraint were estimated. Comments on the statistical testimonies of Professor Joel Dirlam and Mr. Stanley Nehmer are included in the final section.

Specification of the model

The point of departure for the econometric analysis was a type of market model sometimes termed a "demand-only" model. This type of model is characterized by the absence of an explicit supply function. In

effect, supply is assumed to respond passively to changes in demand, and generally with some time lag. Under this assumption, the historical relationship between shipments and the variables underlying demand traces out a demand relationship, and not a hybrid relationship that incorporates elements of both supply and demand. Thus the demand function can readily be estimated.

A demand-only model was appropriate with regard to the U.S. stainless steel market, because the demand for stainless steel is a derived demand that depends predominantly on the level of business activity in user industries, and the price elasticity of total demand tends to be relatively low. ^{1/} The model is complicated, of course, by the presence of two sources of supply-domestic producers and foreign producers-which gives rise to price-substitution effects as between domestically produced and imported sheets and strip.

The functions explicitly specified were a total U.S. demand function for sheets and strip, a U.S. demand function for domestically produced sheets and strip, and a U.S. demand function for foreign-produced sheets and strip. In the context of the model, the second and third functions translate into operational functions describing actual U.S. shipments and actual U.S. imports, and hence these functions will be denoted as simply the U.S. shipments function and the U.S. import function. Similarly, the first function translates into the shipments-plus-imports function.

^{1/} The presumably low price elasticity stems largely from the lack of close substitutes for stainless steel in many engineering uses, and from the relatively small part of total product cost which is generally accounted for by stainless steel inputs.

The operational variables used as explanatory variables for U.S. shipments and U.S. imports were the followings:

- Federal Reserve Board index of U.S. industrial production of durable manufactured goods. This index was used to represent the level of business activity of user industries and sheets and strip.
- Ratio between the unit value of sheet-and-strip imports (indexed) and the Bureau of Labor Statistics' domestic price index of representative sheet and strip items (weighted average of sheet index and strip index). This variable was used to represent the degree of cost advantage to user industries (sometimes a disadvantage) of substituting foreign-produced sheets and strip for domestically produced items.
- Separate dummy variables to represent the first voluntary-restraint agreement (VRA) on steel imports into the United States, which ran from 1969 through 1971, the second VRA, which ran from 1972 through 1974, and periods during 1974 and 1975 judged to involve unusual market behavior in terms of inventory changes and order backlogs.

Using the acronyms SHIP, IMP, USIP, and UVOP to denote U.S. production, shipments, U.S. imports, the durable manufactures index, and the ratio between unit value and domestic price, and abstracting from the special-effect dummy variable (which will be taken up more fully when

estimated equations are presented), the general functional relationships for shipments, imports, and shipments plus imports were specified as follows:

$$\text{SHIP} = f (+\text{USIP}, +\text{UVOP})$$

$$\text{IMP} = f (+\text{USIP}, -\text{UVOP})$$

$$(\text{SHIP} \ \& \ \text{IMP}) = f (+\text{USIP})$$

The algebraic signs placed before the independent variables specify the expected directions of the causal relationships running from the independent variables to the dependent variables. For example, an increase in unit value over price is expected to cause a decrease in U.S. imports (as indicated by the negative sign preceding UVOP in the import function) and a corresponding increase in U.S. shipments (as indicated by the positive sign preceding UVOP in the U.S. shipments function).

A price variable was not included in the shipments-plus-imports function, in accordance with the assumption that the price elasticity of total demand was relatively low. In turn, the ratio between unit value and domestic price was employed in the U.S. shipment and U.S. import functions, instead of using (deflated) unit value and (deflated) domestic price as separate independent variables. The model would have been far less manageable and much more difficult to estimate if a relationship between total demand and price had been incorporated. Moreover, little stood to be gained and a good deal stood to be lost by specifying the model in that way. It was felt that in the U.S.

sheet-and-strip market in recent years, substitutional changes as between U.S. shipments and U.S. imports tended to far outweigh changes in shipments or imports related to changes in sheet-and-strip prices relative to prices of substitute products such as glass, ceramics, aluminum, and plastic. In addition, the primary price-related interest in the econometric analysis was to capture the price-substitution effect as between domestic and imported sheets and strip. Given the assumed nature of the market, the model presented above was the most appropriate model for capturing that effect. 1/

On the basis of economic theory, simple correlation analysis, and trial regressions, the following lag structure for the shipment and import functions was deemed most appropriate:

$$\text{SHIP}_t = f(\text{USIP}_{t-1}, \text{UVOP}_{t-1})$$

$\text{IMP}_t = f(\text{USIP}_{t-1}, \text{UVOP}_t)$, where $(t-1)$ denotes the period (i.e., quarter year) preceding period t . According to this lag structure, U.S. shipments and U.S. imports respond with a one-quarter lag to changes in economic activity of riser industries. Imports are related to transactions prices in the preceding quarter, where the transactions prices for foreign items are revealed by the current unit value of imports, and the transactions prices for domestic items

1/ Trial regressions actually were run for shipments plus imports, with a deflated version of the domestic price index included as an independent variable. None of these regressions yielded a negative price coefficient that differed significantly from zero. Price coefficients trended to be positive, and in one regression equation (based on particular assumptions about time lags), a positive coefficient with a significant t-ratio was obtained.

apparently are captured adequately by the current BLS price index. U.S. producers' shipments are related to transactions prices from two quarters prior to the shipments, where those transactions prices are revealed by UVOP of the preceding period. This last relationship embodies the notion that price-induced imports on average trend to displace U.S. shipments in the quarter following their arrival in the United States. This is a reasonable assumption, given that the bulk of U.S. imports of sheets and strip flow through service center/distributor channels rather than being purchased directly by end users.

The time lag by which U.S. imports tend to enter the consumption stream and displace U.S. producers' shipments makes it difficult to specify the timing of a shipments-plus-imports function in relation to the business activity variable. Trial regressions for shipments-plus-imports specified in several different ways bore out this difficulty, in that R^2 at best was about 10 percent lower than was obtained in most U.S. shipments regressions; also, residual autocorrelation trended to be considerably higher than in U.S. shipments regressions. For this reason, the rest of this appendix omits further discussion of an explicit shipments-plus-imports function, and focuses only on the functions describing U.S. producers' shipments and U.S. imports.

A priori, the functional form most appropriate in the model is the multiplicative form. Under that specification the U.S. shipments and U.S. import functions are represented as:

$$\text{SHIP}_t = A_0 (\text{USIP}_{t-1})^{A1} (\text{UVOP}_{t-1})^{A2} \quad \text{and}$$

$$\text{IMP}_t = B_0 (\text{USIP}_{t-1})^{B1} (\text{UVOP}_t)^{B2}$$

The multiplicative form is appropriate for two reasons. Firstly, a multiplicative model incorporates a crude form of inventory adjustment by end users of sheets and strip. The coefficients A_1 and B_1 are demand elasticities taken with respect to production levels of end-user industries. Values of A_1 and B_1 greater than unity mean that purchases exceed actual use during periods of business expansion-i.e., inventories are built up-and purchases fall short of actual use during business contraction-i.e., inventories are drawn down. This type of behavior is commonly observed by industry analysts.

Secondly, in a multiplicative model the effect of prices is not independent of the level of economic activity (as is the case in an additive, or linear model). This is a reasonable assumption. When demand is at a high level (corresponding to high economic activity), the base figure on which a given price change impinges is much larger than when demand is at a low level (corresponding to low economic activity), and hence the effect of prices tends to be greater.

Estimation of the model

In order to encompass quarterly variation in U.S. producers' shipments and U.S. imports over two business cycles, quarterly data from 1968 up to the beginning of the import-restraint program were used. The length of this time series required the use of American Iron and Steel Institute data on stainless shipments and imports; unit values were also computed from the AISI data. Available quarterly ITC data from 1974 on corresponded closely to AISI data over the same time span.

For purposes of estimation, the multiplicative functions were converted into linear relationships by taking logarithms of both dependent and independent variables. The special-effect dummy variables were then added to these log-linear functions.

Industry analysts generally believe that the first VRA was counter-productive as regarded specialty steel imports, because the agreement was formulated in terms of the total tonnage of steel imports into the United States, regardless of type of product. This allegedly resulted in a shift in the product composition of U.S. steel imports in favor of high-value items such as specialty steels, such that imports of specialty steels were stimulated even though the total tonnage of all steel imports may have been held down. Thus the coefficient of the VRA1 dummy variable was expected to be positive in the U.S. import function and negative in the U.S. shipments function.

The second VRA was negotiated in terms of disaggregated product types so as to close the product-mix loophole of the first VRA. Thus the expected sign of the VRA2 coefficient was negative in the import function and positive in the shipments function.

In addition to the VRA dummy variables, a third dummy, labelled D75, was utilized to capture an "overhang" of deliveries filled in 1975 during a sharp U.S. business contraction, but ordered in 1974 during an unprecedented period of abnormally high demand when double ordering and even triple ordering was reported by industry analysts to have occurred. Anticipated signs for D75 were both positive. ^{1/} A related dummy variable, D74, will be discussed shortly.

^{1/} This dummy variable was inspired by the empirical demand analysis presented by Professor Dirlam in his testimony to the ITC.

The table on the following page presents the results from three alternative regression equations for U.S. shipments, and from three alternative regression equations for U.S. imports. All of the regressions incorporated the lag structure discussed in the previous section. All variables are named as in the text, except that the letter L affixed at the beginning of an acronym denotes the log of the variable in question.

The regression results were very good for U.S. shipments and moderately good for U.S. imports. Price elasticities were correctly signed and statistically significant, and VRA coefficients were correctly signed though generally not significant. The negative signs of the business-activity coefficients in the import regressions went opposite to prior expectations, as did the negative D75 coefficients in the U.S. shipments regressions, but aside from these anomalies, the results from the two sets of regressions were consistent with one another. Moreover, the negative D75 coefficients can be readily explained (see below) and actually were consistent with the positive D75 coefficients in the import regressions. The overall consistency between the two sets of regression results increase the degree of confidence which can be placed in the results above that which is indicated by formal tests of statistical significance (t-ratio tests).

In the U.S. shipments' regressions, one of the striking features was the stability of the estimated activity and price elasticities under alternative specifications regarding the dummy variables. The business-activity elasticity was roughly 2.0, and the price elasticity was

Stainless steel sheets and strip: Estimated regression coefficients from alternative regression equations for U.S. producers' shipments and U.S. imports, with related regression statistics

Independent Variables										
Dependent Variable :	LUSIP :	LUVOP :	UVOP :	VRA1 :	VRA2 :	D75 :	D74 :	Constant :	R ² :	DW :
LSHIP----- :	1.95 :	.80 :	- :	-.04 :	.05 :	-.39 :	- :	2.74 :	.83 :	1.81 :
:	(4.61) :	(1.81) :	:	(-.63) :	(.74) :	(-4.57) :	:	:	:	:
LSHIP----- :	1.91 :	.77 :	- :	-.06 :	- :	-.41 :	.10 :	2.95 :	.84 :	1.89 :
:	(4.93) :	(1.83) :	:	(-1.15) :	:	(-5.32) :	(1.27) :	:	:	:
LSHIP----- :	2.31 :	.74 :	- :	- :	- :	-.39 :	- :	1.04 :	.82 :	1.76 :
:	(7.50) :	(1.74) :	:	:	:	(-5.24) :	:	:	:	:
LIMP----- :	-.68 :	-1.94 :	- :	.14 :	-.18 :	.30 :	- :	12.89 :	.67 :	1.39 :
:	(-.95) :	(-2.61) :	:	(1.47) :	(-.59) :	(2.29) :	:	:	:	:
LIMP----- :	-1.86 :	-1.99 :	- :	- :	- :	.32 :	- :	18.43 :	.57 :	1.01 :
:	(-3.25) :	(-2.54) :	:	:	:	(2.36) :	:	:	:	:
IMP----- :	:	:	-39,590 :	3,213 :	-3,294 :	4,887 :	- :	55,930 :	.63 :	1.49 :
:	:	:	(-3.24) :	(1.91) :	(-2.07) :	(2.17) :	:	:	:	:

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- Notes:
1. See text for description of variables, and for description of lag structure.
 2. Regressions for U.S. shipments based on quarterly data from 1968 through the second quarter of 1976; regressions for U.S. imports did not include the second quarter of 1976, because of a possible quota-anticipation effect.
 3. Beneath each regression coefficient is the corresponding t-ratio; t-ratios greater than 1.5 in magnitude may be considered statistically significant at a reasonably low error level.

roughly .8, regardless of specification. The percentage of variation in U.S. shipments that was explained by these regressions (i.e., R^2) was higher than 80 percent, and the tendency for unexplained variation to exhibit a systematic pattern over time was low (i.e., the Durbin-Watson statistics were close to 2.00).

The D75 dummy variable took on negative coefficients in the U.S. shipments regressions, and the statistical significance was very high. Thus U.S. shipments during the first three quarters of 1975 (the quarters covered by D75) were lower than would be indicated by business activity and prices, instead of higher as previously hypothesized. The apparent explanation is that when a sharp and presumably unanticipated drop in U.S. business activity occurred at the end of 1974, sheet-and-strip purchasers who in retrospect had overordered in 1974 (subject to long delivery lags) were able to cancel their orders from domestic producers for more easily than their orders from offshore producers. The imports came through in 1975, as was indicated by the significantly positive D75 coefficients in the import functions 1/, and in turn the inflow of imports caused U.S. end-users (and/or service centers) to purchase even less domestic sheets and strip in 1975 than they could have in lieu of the downturn in business activity.

1/ In the import function, D75 actually was specified to cover the last quarter of 1974 and the first two quarters of 1975. This difference was incorporated in lieu of the results for U.S. shipments. The significance of the D75 coefficient was much higher in the import functions when this change was incorporated.

This interpretation is supported by ITC data on consumers' inventories gathered in the previous specialty steel investigation. 1/ As of October 1, 1974, consumers' inventories of sheets and strip were roughly double their level as of the beginning of 1973. During the last quarter of 1974 and the first quarter of 1975 they increased to triple the start-of-1973 level, and much of this increase clearly must have been unintended. The inventory hangover was so large that by the end of September, consumers' inventories were still double the start-of-1973 level.

The interpretation of D75 given above also involves the possibility that U.S. producers' shipments throughout much of 1974 were abnormally large in relation to U.S. business activity, due to an abnormally large but intended inventory buildup by purchasers. The dummy variable D74 (which covered the last three quarters of 1974) was tried in several U.S. shipments regression, and estimated coefficients were positive as expected, though not significant; see, for example, the second regression equation in the table.

The most noteworthy feature of the estimated regression equations for U.S. imports was the failure of the U.S. business activity variable to demonstrate a positive influence on U.S. imports. The following observations are in order, however.

1/ See table B-28 of United States International Trade Commission, Stainless Steel and Alloy Tool Steel, Report to the President on Investigation No. TA-201-5 Under Section 201 of the Trade Act of 1974, Washington, D.C., 1976.

When imports were regressed on business activity along (log-linear), the estimated coefficient of LVSIP was -2.79 (regression not shown). When prices and D75 were added to the regression, the negative coefficient dropped in magnitude to -1.86 (regression shown). When the VRA's were added, the negative coefficient showed a further drop to -.68, and the t-ratio was no longer significant (regression shown). At the same time, the Durbin-Watson statistic improved as these other variables were added successively.

The suggested interpretation is as follows. All of the non-activity variables were correlated with the U.S. business cycle. VRA1 coincided roughly with the 1970-71 recession, and VRA1 presumably led to increased imports. VRA2 coincided roughly with the 1972-74 recovery and expansion, and VRA2 presumably held down imports. Also, VRA2 overlapped a period of U.S. wage and price controls, which presumably held down U.S. sheet-and-strip prices and thereby discouraged imports. D75 coincided with the 1975 recession, and D75 had the effect of increasing imports. UVOP was correlated positively with USIP (.54), and increases in UVOP when USIP was rising tended to cause U.S. imports to fall.

Theoretically, the combined effect of these variables tended to make U.S. imports behave countercyclically to the U.S. business cycle over the time span covered by the data, and apparently the combined effect was sufficiently strong that U.S. imports actually did behave in this way. However, the data apparently were not rich enough

to sort out fully the true influences of all the variables (R^2 was only in the range of .65), and even when UVOP, VRA1, VRA2, and D75 were included in the regression, a positive coefficient for the U.S. durable manufactures index did not quite emerge.

All in all, the import regressions were encouraging. Imports were highly volatile over the sample period, and an R^2 in the range of .65 and a Durbin-Watson statistic in the range of 1.5 was almost more than could be expected. The import regressions are best viewed as supporting evidence for the accuracy of the U.S. shipments regressions, however, and they suggest that variable time lags by which U.S. imports enter the actual consumption stream are perhaps the critical factor which must be accounted for in order to obtain substantially improved estimates. (Either that, or better price data).

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