THE EFFECTS OF SEMIFINISHED STEEL IMPORTS ON THE U.S. IRON AND STEEL SCRAP INDUSTRY

Report to the Subcommittee on Trade, Committee on Ways and Means, on Investigation No. 332-195 Under Section 332 of the Tariff Act of 1930

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PREFACE

On October 2, 1984, at the request of the Subcommittee on Trade, House Ways and Means Committee (see app. A), and in accordance with section 332(b) of the Tariff Act of 1930 (19 U.S.C. 1332(b)), the United States International Trade Commission instituted investigation No. 332-195. This study describes the markets for iron and steel scrap. It also assesses recent trends in imports of semifinished steel and their impact on the U.S. scrap market and the U.S. iron and steel scrap industry. Notice of the investigation was given by posting copies of the notice of investigation at the Office of the Secretary, U.S. International Trade Commission, and by publication of the notice in the Federal Register on October 11, 1984 (49 F.R. 39926) (app. B).

A public hearing in connection with the present investigation was held in the Commission's hearing room on March 12, 1985, and testimony was presented to the Commission by representatives of U.S. scrap producers, steel producers, and a major importer of semifinished steel. The calendar of witnesses who appeared at the hearing appears in appendix C.

In the course of this investigation, the Commission obtained information through questionnaires and field interviews from selected producers and purchasers of semifinished steel and processors of iron and steel scrap. Every effort was made to ensure that the data received from questionnaires were representative of the industry. For those questions that did not receive a high response rate, the data may be less representative of the industry, and the results must be judged accordingly. In addition, information was gathered from various public and private sources, as well as from public data gathered in other Commission studies.

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EXECUTIVE SUMMARY

The U.S. iron and steel scrap industry consists of establishments engaged in the collection, breaking up, sorting, and wholesale distribution of iron and steel scrap. It also includes consumers of scrap, such as steel mills, that generate scrap as a by-product of their manufacturing operations. For the purposes of this report, the scrap industry is limited to scrap processors that are producers of prepared grades of scrap for the commercial market.

In the past several years, imports of semifinished steel have increased significantly. Such imports may pose potential problems to the U.S. iron and steel scrap industry, especially the commercial segment of the industry, through their effects on the largest scrap market, the steel industry. The steel industry, which uses scrap as a raw material in the production of semifinished steel, represents about 80 percent of U.S. scrap consumption. Imported semifinished steel that replaces domestic capacity may reduce the amount of scrap required to produce steel, and may generate additional scrap during finishing.

The findings of the study are summarized below:

1. Developments in the U.S. iron and steel scrap industry, 1979-83

   - Establishments that produce iron and steel scrap are relatively small concerns largely centralized in the North Central and New England/Middle Atlantic regions of the United States. Employment and wage trends in the U.S. iron and steel scrap industry declined during 1979-83.

The U.S. industry consists of approximately 2,029 firms, which employed 27,211 workers in 1982, compared with 2,148 firms and 33,296 workers in 1977. Establishments are located throughout the United States, although the North Central and New England/Middle Atlantic regions account for an estimated 36 and 25 percent of establishments, respectively. Establishments tend to be small, with average annual sales of only $1.8 million. The industry is not concentrated: the 166 establishments with annual sales of at least $5 million represent only about 53 percent of total industry sales.

Respondents to the Commission's questionnaire, who accounted for more than 25 percent of commercial scrap shipments, experienced a decline in total employment of 16 percent (1,359 workers) during 1979-83, or from 8,338 workers in 1979 to 6,979 workers in 1983. The number of production and related workers declined at a greater rate (18 percent or 962 workers) than total employment, from 5,266 in 1979 to 4,304 in 1983. Total wages paid to production and related workers declined by 4 percent ($3 million), from $77.1 million in 1979 to $74.1 million in 1983, while the hourly wage rate in the industry increased.

- U.S. iron and steel scrap producers showed decreases in net sales and profitability during 1979-83.

Net sales reported by respondents decreased by 32 percent ($714 million), from $2.2 billion in 1979 to $1.5 billion in 1983. Net operating profits declined by 77 percent ($73 million), from $95 million in 1979 to $22 million in 1983, with a loss of $29 million during 1982, the year of lowest sales. Return on sales declined from 4.3 percent in 1979 to 1.5 percent in 1983.

- Capital expenditures by U.S. iron and steel scrap producers declined to period lows in 1983.

Total capital expenditures reported by respondents for land and land improvements, building and leasehold improvements, and machinery, equipment, and fixtures decreased by 54 percent ($16.5 million), from $30.5 million in 1979 to $14 million in 1983. Expenditures were concentrated on machinery, equipment, and fixtures during this period and accounted for between 2 and 5 percent of the total value of U.S. producers' shipments during 1979-83.

- U.S. producers' capacity utilization rates declined during 1979-83.

Capacity utilization, as reported by respondents, declined from 84 percent in 1979 to 62 percent in 1983.

2. Markets for U.S. iron and steel scrap

- U.S. consumption of scrap declined during 1979-83; consumption was concentrated in the North Central and New England/ Middle Atlantic regions. Consumption improved in 1984, but represented only 70 percent of the total in 1979.

U.S. consumption of scrap declined 38 percent (37.1 million short tons) during 1979-83, from 98.9 million short tons in 1979 to 61.8 million short tons in 1983. Consumption followed the trend of U.S. raw steel production, the principal market for scrap, which also decreased by 38 percent during this period. World raw steel production declined by 11 percent during 1979-83, and the relatively sharper decline in U.S. raw steel production made the United States an especially weak market for scrap during this period. Scrap consumption, like steel production, was centered in the North Central and New England/Middle Atlantic regions, which represented 51 and 20 percent of scrap consumption during 1979-83, respectively.

Consumption increased by 11 percent (7.0 million short tons) in 1984 to 68.8 million short tons, continuing an upward trend begun in 1983, but remained below the level of consumption in 1979 by 30.1 million short tons.

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- U.S. producers' shipments of iron and steel scrap generally decreased during 1979-83. Exports of scrap declined during 1979-83 and accounted for a 10 percent share of total shipments during the period. Producers' shipments and exports improved in 1984, but remained below totals of 1979.

Total apparent U.S. producers' shipments declined by 37 percent (40.7 million short tons), from 109.4 million short tons in 1979 to 68.7 million short tons in 1983. Domestic shipments accounted for 89 percent of the total in 1983 and declined from 98.1 million short tons in 1979 to 61.1 million short tons in 1983. U.S. exports decreased 33 percent during 1979-83 to 7.6 million short tons ($640.9 million) in 1983, compared with 11.2 million short tons ($1.2 billion) in 1979. Both lower foreign steel production and a stronger U.S. dollar contributed to the decline of U.S. exports during this period.

Total shipments, domestic shipments, and exports increased during 1983-84 but remained below 1979 levels. Total shipments increased by 13 percent (9.1 million short tons) during 1983-84 to 77.8 million short tons in 1984, but accounted for only 71 percent of the total in 1979. Domestic shipments accounted for 78 percent of the increase and accounted for 68.2 million short tons in 1984. Exports increased by 26 percent (2.0 million short tons) during 1983-84 to 9.6 million short tons in 1984 (12 percent of shipments), but represented only 85 percent of the total in 1979. Increased steel production in the United States and other countries is believed largely responsible for the growth in U.S. scrap shipments and exports during 1983-84.

- World consumption of iron and steel scrap fell during 1979-82.

World scrap consumption declined 17 percent (63.0 million short tons) during 1979-82, from 376.1 million short tons in 1979 to 313.1 million short tons in 1982. The lowered level of scrap consumption is primarily attributed to the decline in world raw steel production during the period.

- The U.S. industry's position in the world scrap market declined during 1979-82.

The United States remained the world's largest exporter of iron and steel scrap during 1979-82, but the decline in the volume of U.S. exports during this period eroded the U.S. industry's position relative to total world exports. The U.S. share of world exports amounted to about 42 percent in 1979. By 1982, the U.S. share had fallen to 28 percent because U.S. exports had declined significantly more than the 7 percent decline in total world exports. This trend is likely to have been aided by an increase in domestic scrap production in major U.S. export markets.

- Transportation costs restrict domestic shipments of semifinished steel and scrap.

Both semifinished steel and scrap are expensive to ship overland because they have a low value per unit of weight compared with other products. A

major importer of semifinished steel located in California indicated that overland transportation costs eliminated U.S. steel producers as a competitive source of supply for slabs in California. The majority of scrap producers indicated that transportation costs represented a minimum of 10 percent of the delivered value of their domestic scrap shipments and 20 percent of their export shipments during 1979-83. The majority also indicated that they bought scrap within 100 miles of their facilities and sold it within 250 miles.

- o The appreciating U.S. dollar made imports of semifinished steel more attractive in the U.S. market during 1979-84 and U.S. scrap exports less competitive in foreign markets.

In real terms, the dollar appreciated by an average of 28 percent against the currencies of five major sources of imported semifinished steel during 1979-84, and 15 percent against the currencies of five primary U.S. export markets for scrap. The strength of the dollar apparently has not posed an insurmountable problem for scrap exports, since U.S. exports of scrap increased by 26 percent during 1983-84. While the increase was largely because of increased foreign steel production, the high quality and consistent nature of the U.S. product also are believed to have partially offset the exchange rate disadvantage in 1984. In addition, the growth in U.S. exports during 1981-84, despite the persistently strong dollar, indicates that any weakening of the dollar against foreign currencies would likely stimulate U.S. exports of scrap.

3. Recent trends in U.S. imports of semifinished steel

- o U.S. imports of semifinished steel more than doubled in quantity during 1979-83 and then nearly redoubled in 1984.

U.S. imports of semifinished steel more than doubled during 1979-83, totaling 822,483 short tons ($176.6 million) in 1983, compared with 344,690 short tons ($91.9 million) in 1979. Imports nearly doubled again in 1984 totaling 1,515,734 short tons ($332.7 million). Canada was the primary source of imports during 1979-83, accounting for 48 percent of the quantity of imports during this period. West Germany was the principal supplier in 1984. Sweden and Brazil remained major suppliers throughout the entire period, while Belgium and Luxembourg were large suppliers in 1984.

- o Steel producers purchased semifinished steel to supplement, temporarily relieve, or retire, their steelmaking capacity.

Respondents to the Commission's questionnaire indicated that they purchased semifinished products to meet demand which exceeded the capacity of their own facilities, to obtain material (for finishing) at lower cost than they could produce, or to obtain material that they did not produce internally. The greater availability of foreign-supplied semifinished steel was the principal reason steelmakers purchased imported rather than U.S.-produced products. The prominence of availability as the reason for importing may reflect the inability of U.S. producers to increase production

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on short notice because of the temporary suspension of steelmaking operations during the general downturn in demand. In addition, geographic considerations may have prohibited prompt delivery of U.S.-produced steel at competitive prices. Integrated steel producers accounted for the bulk of imports of semifinished steel (67.2 percent) during 1979-83. The imported products were used to replace items formerly produced in the firms' facilities and to diversify the firms' product lines. These imports were primarily spot and short-term purchases. Respondents indicate that long-term purchase agreements are expected to become more important during 1984-88.

- o U.S. imports of semifinished steel are expected to rise by 1988.

Based on questionnaire responses, total U.S. imports in 1988 are projected at 1.7-3.1 million short tons, compared with 1.5 million short tons in 1984. There is no indication from responses to the Commission questionnaire that imports of semifinished steel are likely to have a significant effect on raw steel capacity or production in 1988. Although they accounted for the bulk of imports during 1979-83, no integrated producers have indicated that they intend to purchase imported semifinished steel in 1988. Respondents indicated that the bulk of imports will not replace U.S.-produced steel.

4. The impact of semifinished steel imports on the U.S. scrap market and the U.S. scrap industry

- o The increased volume of semifinished steel imports is estimated to have reduced the volume of net scrap receipts and lowered prices during 1982-84, but not in 1979 or 1981.

The expanded volume of U.S. imports of semifinished steel over the 1980 base level reduced U.S. scrap consumers' net scrap receipts and scrap prices during the period 1982-84. Assuming all imports of semifinished steel above the base level have permanently replaced U.S.-produced semifinished steel, net scrap receipts (net purchases by consumers in short tons) were estimated to have decreased by 1 percent in each year during 1982-84, or by 250,000; 274,000; and 546,000 short tons, respectively. Semifinished steel imports were estimated to have caused price decreases of 1 percent in both 1982 and 1983 and 2 percent in 1984, or by $0.90, $0.82, and $1.74 per short ton, respectively. No effect was calculated for 1979, because the steel industry was operating at relatively high levels, and imports of semifinished steel most likely complemented rather than replaced U.S. production. The import growth in semifinished steel imports in 1981 largely reflected shipments from Canada that, according to industry sources, were sent to the United States for rolling and reexport (to Canada) because of a strike at Canada's largest steel producer. The continued high level of semifinished steel imports during 1982-84 is believed to reflect increased purchases to replace or supplement domestic production during a period of relatively low capacity utilization in the steel industry.

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- Imports of semifinished steel do not appear to have had a significant effect on regional markets for scrap, but may have had a significant effect on a more localized level.

Even in the region with the largest import volume, the North Central region, imports of semifinished steel have had relatively little effect on scrap demand and supply. At most, such imports reduced scrap demand and increased scrap supply by estimated amounts equal to less than 1 percent of reported consumption in this region during 1981-83. On a more localized level, imports of semifinished steel may have affected scrap sales in the Detroit area. According to questionnaire responses, scrap producers in that area had below average production and shipment levels during 1979-83.

- The level of steel production had a greater impact on the scrap industry and market during 1982-84 than semifinished steel imports.

The raw steel output of the U.S. steel industry, the primary scrap market, declined by 38 percent (51.7 million short tons) during 1979-83, from 136.3 million short tons in 1979 to 84.6 million short tons in 1983. This decrease, rather than the 139 percent increase (477,793 short tons) in semifinished steel imports during this period, is primarily responsible for the decline in the scrap industry's performance during 1979-83. The effects of imports of semifinished steel on the scrap market are believed to be minor compared with those caused by changes in steel production. Changes in net steel production caused an estimated net decline in net scrap receipts of 5.6 million short tons and an estimated net decline in scrap prices of $17.17 per short ton during 1981-84. This compares with estimated net declines in net scrap receipts of 1.1 million short tons and in scrap prices of $3.46 per short ton during 1982-84 attributed to semifinished steel imports. During 1982-84, when semifinished steel imports had a negative effect on scrap receipts and prices, the changes in net steel production resulted in a significant increase in net scrap receipts and scrap prices.

- Scrap producers' typical response to lost sales because of semifinished steel imports is to reduce employment. However, producers' perceptions of lost sales appear to exceed those actually experienced.

Scrap producers indicated that they typically responded to scrap sales lost because of semifinished steel imports during 1979-83 by reducing employment, scrap purchases, and prices paid for scrap. Respondents indicated that they would typically react by reducing employment during 1984-88. In responding to the Commission's questionnaire, 62 percent of the respondents reported that they did not lose scrap sales because of semifinished imports in 1979-83, and 61 percent of respondents anticipated no loss in scrap sales during 1984-88. In addition, a comparison of respondents' claims of specific lost sales with the corresponding consumers' purchase responses indicated that only about one-half of such lost sale claims appeared to be corroborated for 1979-83. The remaining alleged lost sales either were attributed to firms that did not purchase imported semifinished steel or were in excess of the amounts of scrap likely to be affected by the volume of imports reported.

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- Imports of semifinished steel are expected to remain of peripheral significance in 1988; permanent closing of steel facilities, however, could have an impact.

Imports of 1.7-3.1 million short tons in 1988 should have only a slightly greater negative effect on the U.S. scrap industry than did imports during 1979-83. The effects of such imports on the U.S. scrap industry may not be neutralized by increased exports, since the strength of the U.S. dollar would likely moderate improvement in the export potential of U.S.-produced scrap. A weaker U.S. dollar would stimulate greater scrap exports while reducing the effect of imports. The scrap industry's future in 1988, as during 1979-83, largely depends on the U.S. steel industry's ability to compete in the U.S. market. Should steelmaking facilities close as a result of industry restructuring, semifinished steel imports could play an increased role in the U.S. market. Closure of an average size 3-million-short-ton integrated steel plant resulting in imports of semifinished steel, would likely reduce scrap industry sales volume and prices by an estimated 3 percent and 4 to 5 percent from their respective base levels. On a regional basis, the effect would be more pronounced, as scrap prices would likely decline by an estimated 7 to 8 percent.

THE PRODUCTS

Semifinished Steel

Description and uses

Semifinished steel, defined as ingots, blooms, billets, slabs, and sheet bars for the purposes of this report, is the rough stock from which finished steel mill products are formed. Ingots are castings resulting from the solidification of molten metal and have a columnar form suitable for further working. Most ingots are rolled into blooms, billets, slabs, and sheet bars, but some are forged directly into shafts for power plants, nuclear plant components, and other products. Distinctions among blooms, billets, slabs, and sheet bars (which can be continuously cast directly from molten steel as well as rolled from ingots) are made according to cross-sectional dimensions and size. Blooms and billets are generally of rectangular or circular cross section, having a length several times greater than the maximum cross-sectional dimension, and, if rectangular, a width less than four times the thickness. A bloom is at least 36 square inches in cross-sectional area; a billet is less than 36 square inches but not less than 3 square inches in cross-sectional area. Blooms are used largely in the production of heavy structural shapes and rails; billets are used in the production of bars, wire rods, light structural shapes, and seamless pipe. Slabs and sheet bars are of rectangular cross section, having a width of at least four times the thickness. A slab is not less than 2 inches and not over 6 inches in thickness; 1/ a sheet bar is less than 2 inches thick. Slabs are used in the production of such products as sheet and strip, plates, and welded pipe. Sheet bars, which are much less common than other semifinished forms, are used in the production of sheet.

Production process

The production of semifinished steel begins with the production of molten steel. The principal raw materials used to produce such steel are iron and steel scrap (scrap) and pig iron (produced in a blast furnace), which are converted into steel in steelmaking furnaces.

1/ Whereas the Tariff Schedules of the United States limits slabs to products not over 6 inches in thickness, certain slab-like products over 6 inches are considered slabs for the purposes of this report (see section entitled Classification).

The three major types of steelmaking furnaces are the open-hearth furnace, 1/ the basic-oxygen furnace (BOF), 2/ and the electric furnace. 3/ Each of these types of furnaces uses scrap and pig iron in different proportions, as shown in the following tabulation (in percent): 4/

	Proportion of scrap consumed by U.S. steel industry in 1983	Proportion of pig iron consumed by U.S. steel industry in 1983
Open-hearth furnace	45.5	54.5
BOF	26.8	73.2
Electric furnace	99.8	.2

During 1979-84, the share of U.S. production of raw steel 5/ produced by electric furnace expanded. 6/ The following tabulation shows the shares of total U.S. raw steel production accounted for by each of the three types of furnaces during 1979-84 (in percent). 7/

1/ Use of the open-hearth furnace, so named because scrap and/or pig iron are charged into a shallow steelmaking area (the hearth), has declined in steelmaking because of its slow production cycle. Although capable of producing large heats (up to 600 short tons), a typical heat in an open-hearth furnace requires 5 to 8 hours, whereas a typical heat in a BOF (up to 300 short tons) requires only 45 minutes and a typical heat in an electric furnace (up to 350 short tons) 2 to 3 hours. However, the open-hearth furnace is the most versatile of the furnaces with regard to raw material input and can be charged with a wide range of mixes of scrap and pig iron. Scrap can constitute up to 100 percent of the charge to an open-hearth furnace. Moreover, an open-hearth can melt larger pieces of scrap that would require more preparation--e.g., cutting into pieces--before being used in either a BOF or electric furnace.

2/ In the BOF steelmaking process, the cup-like furnace is charged with scrap and pig iron through large opening in the top. Although there exist technologies that allow charges of 30 to 40 percent scrap to the BOF, most operations are limited to a maximum of about 28 percent scrap.

3/ Unlike the other steelmaking furnaces, the electric furnace is usually charged solely with scrap.

4/ Compiled from official statistics of the U.S. Department of the Interior, Bureau of Mines.

5/ Raw steel, as defined by the American Iron and Steel Institute, is steel in the first solid state after melting suitable for further processing or sale, including ingots, steel castings, and strand or pressure-cast (i.e., continuously cast) blooms, billets, slabs, or other product forms.

6/ The increase in production in electric furnaces is largely the result of the rapid growth in the number of nonintegrated steel mills (minimills) that do not have blast furnaces to produce iron.

7/ Compiled from data of the American Iron and Steel Institute.

	Open-hearth	Basic-oxygen	Electric
1979----------	14.0	61.1	24.9
1980----------	11.7	60.4	27.9
1981----------	11.1	60.6	28.3
1982----------	8.2	60.8	31.0
1983----------	7.0	61.5	31.5
1984 1/-------	9.1	57.7	33.2

1/ Preliminary data.

Since electric furnaces use the highest proportion of scrap, the growth of steel production by electric furnace during this period increased the significance of scrap as a raw material relative to pig iron for the U.S. steel industry, as shown by the following tabulation (in percent): 1/

	Proportion of scrap consumed by U.S. steel industry	Proportion of pig iron consumed by U.S. steel industry
1979----------	47.7	52.3
1980----------	49.8	50.2
1981----------	48.3	51.7
1982----------	50.2	49.8
1983----------	50.0	50.0

After the molten material has been refined into steel, it is tapped from the steelmaking furnaces into ladles and conveyed to other parts of the steel mill for further processing. At this point, it is usually solidified into a manageable shape by one of two methods: (1) individual casting in contained molds (e.g., ingot molding) 2/ or (2) continuous casting of blooms, billets, or slabs through open-ended molds. In ingot casting, molten steel is poured into ingot molds and allowed to cool. When the steel has solidified, the mold is removed, or stripped, from the ingot. Stripped ingots are then generally reheated (in soaking pits) and rolled into semifinished blooms, billets, slabs, or sheet bars.

Continuous (or strand) casting is a method that bypasses the making and reheating of ingots in the production of blooms, billets, and slabs. In this process, molten steel flows from the ladle into a reservoir called a tundish. The tundish allows the molten steel to flow evenly and continuously through a water-cooled, copper-lined mold where it begins solidifying before passing

1/ Compiled from official statistics of the U.S. Department of the Interior, Bureau of Mines.

2/ Although ingots make up the bulk of contained-mold-cast steel, a small quantity of molten steel is cast into other products, such as cast railroad car wheels. Also, at least one U.S. producer, under license from a foreign firm, uses a process of noncontinuous slab casting whereby the molten steel is pressure cast directly from the ladle into slab molds.

through a series of water sprays that complete the solidification process. The strand of steel is moved from the mold through a series of pinch rollers, which serve to guide rather than shape the steel, to torch or blade cutters that cut the blooms, billets, or slabs to length. Continuous-cast semifinished products are generally regarded as higher quality products than ingot-cast semifinished products because they have undergone less chemical segregation during solidification. Continuous casting is also more energy efficient per ton of steel produced and has less waste material per heat than does ingot casting. The semifinished products are inspected for defects that may have arisen from the heating, rolling, and casting of the steel, and then sent to finishing mills for conversion into finished steel products.

Iron and Steel Scrap

Description and uses

Iron or steel waste and scrap (scrap) are defined in the TSUS as materials and articles of metal that are secondhand or waste or refuse, or are obsolete, defective or damaged, and that are fit only for the recovery of the metal content or for use in the manufacture of chemicals. Scrap is used primarily as a source of iron in the production of steel. The steel industry accounts for about 80 percent of domestic scrap consumption. The remainder is used primarily by the foundry industry in the production of cast iron products, though there are other miscellaneous uses for scrap, such as the production of ferroalloys.

Scrap is generally categorized by its origin as either home or purchased scrap. It is typically both a raw material and a byproduct for scrap consumers, especially the steel industry. Scrap generated as a byproduct by consumers is known as home (or revert) scrap. Home scrap includes products rejected during processing because of damage or variation from specifications (chemical or physical) and scrap generated as shapes are worked into finished products. It also includes discarded steel production equipment, such as ingot molds and stools. Home scrap is generally used in the plants where it is generated and accounts for approximately half of the total scrap used annually in the United States. 1/

The remainder of the scrap consumed domestically is generally referred to as purchased scrap, since it is purchased by consumers from scrap processors, brokers, and metal working firms. Purchased scrap consists of prompt industrial scrap and obsolete scrap. Prompt industrial scrap is generated by metal working industries that consume iron and steel products in the manufacture of items such as automobiles, buildings, and storage tanks. This type of scrap results from stamping operations, machine turnings, borings, and products rejected during manufacturing operations. The largest source of prompt industrial scrap is the automotive industry. Obsolete scrap consists of wornout or discarded articles containing iron or steel such as home appliances, railroad scrap, beams and girders from demolished structures, and automobiles.

1/ "Metallic Scrap the Manufactured Resource," Phoenix Quarterly, Winter 1984, p. 9.

There are approximately 75 different grades of iron and steel scrap for which standard specifications have been adopted. These standards include dimensional, chemical composition, and density criteria and are frequently revised as consumers' manufacturing requirements change. Scrap meeting any of these 75 standards is considered "prepared scrap" in the industry; all other scrap is considered "unprepared scrap." 1/

Production process

Scrap production involves three basic steps: collection, classification, and processing. Collection is an important step, because scrap generation can be geographically dispersed, especially in the case of obsolete scrap. Classification involves identifying the various iron and steel materials, separating them from the nonferrous materials in the scrap, and segregating the iron and steel materials by type. The processing of scrap is considered a capital intensive operation by the industry 2/ and requires equipment to cut, shred, pulverize, bundle, and/or compress the iron or steel scrap into forms of suitable dimensions and density for consumers.

Home scrap is generated primarily at steel mills (i.e., dispersion is low), and therefore requires relatively little collection effort. Classification of this type of scrap poses little difficulty, because steel companies maintain continuous records of the composition and origin of "in-process" steel. Some steel mills process their own home scrap into prepared grades, while others have scrap yards do it for them.

Prompt industrial scrap is processed either by the firms that generate it, or by scrap yards. Metal working firms may have special arrangements to return their scrap to the steel producers that supplied the steel. Such arrangements guarantee the steelmakers a supply of scrap of known metallurgical composition. When scrap yards prepare the scrap, the collection step not only provides them with raw material, but also performs the service of waste removal from the manufacturing site. Classification and processing of prompt industrial scrap can be accomplished with relative ease, since such scrap is generally clean and uncontaminated, and its origin and identity are generally known.

The collection, classification, and processing steps require more effort for obsolete scrap than for the other types of scrap and involve many different types of establishments, including scrap collectors, auto wreckers, and scrap processors. Scrap collectors assemble and sort all types of waste materials (such as paper, textiles, plastic, nonferrous metals, iron and steel, and glass), which are subsequently sold to scrap processors. Auto wreckers collect old, wrecked, or abandoned motor vehicles, remove serviceable components for resale, and generally sell what remains of the vehicles to

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1/ Prepared scrap is typically produced from unprepared scrap by passing it through processing equipment, e.g., alligator shears, baling presses, guillotine shears, shredders, turnings crushers, briquetters, and motor block crushers.

2/ The Processing Capacity of the Ferrous Scrap Industry, Battelle Columbus Laboratories, 1976, p. 3.

scrap collectors or processors. Since scrap collectors and auto wreckers have little, if any, equipment specially designed for classifying or processing scrap into prepared grades acceptable to consumers, they sell their crude scrap to scrap processors, which manufacture one or more of the numerous grades for sale to consumers. With obsolete scrap, the iron and steel content must be identified and then separated from materials such as paper, solder, paint, rubber, plastics, or nonferrous materials. Once classified, the scrap is cut, shred, pulverized, bundled, and compressed into forms that facilitate handling and are tailored to consumers' size requirements. The continuous demands of consumers for cleaner and better prepared scrap have resulted in significant technological developments in scrap processing, requiring increased use of automated machinery capable of handling large daily tonnages.

U.S. TARIFF TREATMENT

Rates of Duty

Imports of semifinished steel included in this report primarily are classified under items 606.67 and 606.69 of the Tariff Schedules of the United States (TSUS), but they include items considered to be semifinished steel in the industry but classified as "plates" under TSUS items 607.66, 607.72, 607.76, and 607.78. Imports of iron and steel scrap are classified under TSUS items 606.08, 606.09, and 606.11. Table 1 provides the staged rates of duty granted under the Tokyo round of the Multilateral Trade Negotiations (MTN). The current rates of duty (1985), and detailed tariff descriptions are shown in appendix D. The rates of duty in column 1 are most-favored-nation (MFN) rates and are applicable to imported products from all countries except those Communist countries and areas enumerated in general headnote 3(f) of the TSUS, for which rates of duty in column 2 apply. 1/ However, such rates do not apply to products of developing countries that are granted preferential tariff treatment under the Generalized System of Preferences (GSP), the Caribbean Basin Economic Recovery Act (CBERA), or under the least-developed developing countries (LDDC) rate of duty column.

The GSP is a program of nonreciprocal tariff preferences granted by the United States to developing countries to aid their economic development by encouraging greater diversification and expansion of their production and exports. The GSP applies to merchandise imported on or after January 1, 1976, and will remain in effect until July 4, 1993 under the Trade and Tariff Act of 1984, which was signed into law by the President on October 30, 1984. It provides duty-free treatment to eligible articles imported directly from designated beneficiary developing countries. None of the articles subject to this investigation are currently eligible for such duty-free entry.

Another program of nonreciprocal tariff preferences is granted by the United States under CBERA to developing countries in the Caribbean Basin area to aid their economic development by encouraging greater diversification and expansion of their production and exports. The CBERA, implemented by Presidential Proclamation No. 5133 of November 30, 1983, applies to

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1/ The only Communist countries currently eligible for MFN treatment are the People's Republic of China, Hungary, Romania, and Yugoslavia.

Table 1.--Semifinished steel 1/ and iron or steel waste and scrap: U.S. rates of duty, by TSUS items

(Cents per ton; percent ad valorem)

TSUS item No.	Description	Pre-MTN col. 1 rate of duty 2/	Staged col. 1 rate of duty effective with respect to articles entered on or after Jan. 1--								Col. 2 rate of duty
			1980	1981	1982	1983	1984	1985	1986	1987	
	Iron or steel waste and scrap:										
606.08	Tin plate waste or scrap-----	Free	3/	3/	3/	3/	3/	3/	3/	3/	Free.
	Other:										
606.09	Containing by weight not over 0.2 percent of chromium, 0.1 percent of either molybdenum or vanadium, or 0.3 percent of tungsten.	Free	3/	3/	3/	3/	3/	3/	3/	3/	75¢. 4/
606.11	Containing by weight over 0.2 percent of chromium, 0.1 percent of either molybdenum or vanadium, or 0.3 percent of tungsten.	18¢ 5/ 6/	18¢ 5/6/	18¢ 5/6/	Free	Free	Free	Free	Free	Free	0.5%. 4/ 5/
	Semifinished steel:										
	Ingots, blooms, billets, slabs, 7/ and sheet bars:										
606.67	Other than alloy iron or steel.	6% 8/	6% 8/	6% 8/	5.7%	5.4% 9/	5.1% 9/	4.8% 9/	4.5%	4.2%	20%. 9/
606.69	Alloy iron or steel--------	8% 5/ 8/	8% 5/ 8/	8% 5/ 8/	7.5% 5/	7% 5/ 9/	6.6% 5/ 9/	6.1% 5/ 9/	5.6% 5/	5.1% 5/	28%. 5/ 9/
	Plates and sheets:										
607.66	Other than alloy iron or steel.	7.5%	7.5%	7.5%	7.3%	7%	6.8%	6.5%	6.3%	6%	20%.
	Alloy iron or steel:										
607.72	Tool steel----------	9.5% 5/	10/	10/	10/	10/	10/	10/	10/	10/	28%. 5/
607.76	Stainless steel----------	9.5% 5/	10/	10/	10/	10/	10/	10/	10/	10/	28%. 5/
607.78	Other----------	9.5% 5/	9.5% 8/	9.5% 8/	8.6% 8/	7.6% 8/	6.7% 8/	5.7% 8/	4.8% 8/	3.8% 8/	28%. 5/

1/ For the purpose of this report, semifinished steel includes ingots, blooms, billets, slabs, and sheet bars.
2/ Rate effective prior to Jan. 1, 1980.
3/ Rate not negotiated in the Tokyo round of the Multilateral Trade Negotiations.
4/ Rate is free for imports classified under TSUS item 870.60.
5/ Plus additional duties (see subpt. B, headnote 4, in app. D).
6/ Rate is free for imports classified under TSUS item 911.12.
7/ For the purposes of this report, slab includes those products classified as "plates" under TSUS items 607.66, 607.72, 607.76, and 607.78 exceeding 6 inches in thickness, but otherwise meeting the TSUS definition for slab, produced by rolling on a primary (slabbing) mill.
8/ Rate is free for defective or damaged ingots or billets which cannot be commercially used without remanufacture classified under TSUS item 911.12.
9/ Rate is free for defective or damaged ingots or billets which cannot be commercially used without remanufacture classified under TSUS item 870.60.
10/ Rate not modified in the Tokyo round of the Multilateral Trade Negotiations.

merchandise entered or withdrawn from warehouse for consumption on or after January 1, 1984, and is scheduled to remain in effect until September 30, 1995. It provides duty-free entry to eligible articles imported directly from designated developing countries in the Caribbean Basin area. All of the articles subject to this investigation could be eligible for such duty-free entry.

Classification

Slab is defined in the TSUS as a semifinished product of rectangular cross section, having a width of at least 4 times the thickness, not less than 2 inches and not over 6 inches in thickness, and is classified under items 606.6725, 606.6915, and 606.6957 of the Tariff Schedules of the United States, Annotated (1985) (TSUSA). Products exceeding 6 inches in thickness, but otherwise meeting the TSUS definition of slab, are classified as "plates" under TSUSA items 607.6620, 607.7210, 607.7603, and 607.7803 if they have been rolled from ingots, or as "ingots" under TSUSA items 606.6735, 606.6921, and 606.6961 if they have been continuously cast. Of these slab-like products classified as "plates", products produced by rolling ingots on a primary (slabbing) mill are considered slabs in the industry 1/ and are therefore considered slabs for the purposes of this report.

Review of Statutory Investigations 2/

On January 24, 1984, following receipt of a petition filed on behalf of the United Steelworkers of America, AFL-CIO/CLC, and Bethlehem Steel Corp., the Commission instituted investigation No. TA-201-51, under section 201(b)(1) of the Trade Act of 1974, to determine whether carbon and certain alloy steel products 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 articles like or directly competitive with the imported articles. On July 24, 1984, the Commission determined that carbon and alloy steel ingots, blooms, billets, slabs, and sheet bars were being imported into the United States in such increased quantities as to be a substantial cause of injury, or threat thereof, to the domestic industry. 3/ The Commission recommended import relief be granted in the form of a tariff-rate quota on semifinished products imported under TSUS items 606.67 and 606.69. On September 18, 1984, the President rejected the Commission's recommendation on the grounds that it was not in the national economic

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1/ Trade data for these products are not available, but imports of all products over 6 inches in thickness and classified as "plates" under the TSUS totaled 117,027 short tons during 1984, compared with imports of 1,515,734 short tons for items classified as ingots, blooms, billets, slabs, and sheet bars under the TSUS.

2/ Excluding investigations on steel plate that may have included slab-like products.

3/ Of the three Commissioners voting in the affirmative, two found threat of injury rather than present injury, and all three recommended a tariff-rate quota, whereby additional duties would be imposed on semifinished steel imports exceeding 1.5 million tons per year.

interest; however, he proposed a new national policy for the domestic steel industry in recognition of the effects of unfair trade in steel on the domestic steel industry. Under this program, the total import share of the U.S. steel market is expected to return to a more normal level of steel imports, or approximately 18.5 percent of apparent domestic consumption, excluding semifinished steel. 1/ Imports of semifinished steel are expected to total approximately 1.7 million short tons annually under this program. 2/ A copy of the President's memorandum of September 18, 1984 can be found in appendix E.

The United States Trade Representative (USTR) has initiated efforts to implement the President's program and is currently negotiating a series of voluntary restraint arrangements (VRA's) with U.S. trading partners covering steel mill products, including semifinished steel. 3/ USTR has reached agreements on overall import limits with nine countries, 4/ but USTR has not released any public documents concerning specific limits for semifinished steel covered by any arrangements. An article appearing in a trade publication and attributed to USTR indicated the allotments of semifinished steel imports for seven countries in 1985. 5/ These allotments and the level of semifinished steel imports from these countries in 1984 are shown in the following tabulation (in short tons):

	1985 agreement levels	1984 imports
Brazil	700,000	105,209
Japan	100,000	3,393
Mexico	100,000	12,187
South Africa	100,000	2
Korea	50,000	19,765
Spain	50,000	23,575
Australia	40,000	1
Total	1,140,000	164,132

It appears that about 600,000 short tons of imports remain to be divided among countries from whom some 1.4 million short tons of semifinished steel were imported in 1984 (see table 13). One of the largest sources in 1984 was the European Community, which supplied 816,914 short tons.

With respect to the EC, on October 21, 1982, the President announced the negotiation of the U.S.-EC Steel Arrangement (Arrangement) under which EC exports of certain carbon and alloy steel products to the United States were placed under export restraints through December 1985. Although the

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1/ Carbon and Certain Alloy Steel Products: Report to the President on Investigation No. TA-201-51..., USITC Publication 1553, July 1984, pp. 2-3.

2/ Statement of Robert E. Lighthizer, Deputy U.S. Trade Representative, before the Subcommittee on Oversight and Investigations, Committee on Energy and Commerce, U.S. House of Representatives, Mar. 19, 1985.

3/ Prehearing brief of California Steel Industries, Inc., p. 4.

4/ Statement of Robert E. Lighthizer, Deputy U.S. Trade Representative, before the Subcommittee on Oversight and Investigations, Committee on Energy and Commerce, U.S. House of Representatives, Mar. 19, 1985.

5/ American Metal Market, Dec. 27, 1984.

Arrangement did not establish quotas and require exports licenses for semifinished steel, these products may be the subject of special consultations whenever a trend appears in their trade which impairs or threatens to impair the objectives of the Arrangement. In February 1985, the United States requested such consultations with the EC on semifinished steel, in light of the 608,561 ton (or 292 percent) increase in imports that had occurred from 1983 to 1984.

PROFILE OF THE U.S. IRON AND STEEL SCRAP INDUSTRY

The U.S. scrap industry is composed of establishments engaged in assembling, breaking up, sorting, and wholesale distribution of iron and steel scrap. It also includes consumers of scrap that generate scrap as a by-product of their manufacturing operations. Scrap generated by consumers represents a substantial portion of annual scrap production (production of such scrap equaled 44 percent of consumption in 1984), but most such scrap is captively consumed by its producer and never enters commerce. 1/ For this reason, the profile of the industry is focused on the scrap-revenue-dependent commercial section of the industry. Collectors, dealers, brokers, and processors all play a role in the commercial market. Of this group, only the processors actually produce scrap. Therefore, for the purposes of this report, the scrap industry is limited to scrap processors, 2/ producers of prepared grades of scrap for the commercial market.

The U.S. industry consists of approximately 2,029 firms, which employed 27,211 workers in 1982, compared with 2,148 firms and 33,296 workers in 1977. Firms are geographically dispersed throughout the United States, but establishments are somewhat concentrated in the North Central and New England/Middle Atlantic regions, which account for an estimated 36 and 25 percent of total establishments, respectively. According to data of the U.S. Department of Commerce (Commerce), establishments tend to be small, with average annual sales of $1.8 million. Commerce data indicate that the industry is not highly concentrated. The 166 establishments with annual sales of at least $5 million represent about 53 percent of industry sales.

U.S. Production, Capacity, and Capacity Utilization

U.S. production of prepared scrap, 3/ as reported by respondents to the Commission's questionnaire, declined by 11.7 percent (975,000 short tons) during 1979-83 from 8.3 million short tons in 1979 to 7.3 million short tons in 1983 (table 2).

1/ Prehearing brief of California Steel Industries, Inc., p. 10.

2/ A processor is defined as one who, from a fixed location, utilizes machinery and equipment for processing and manufacturing iron and steel scrap into prepared grades.

3/ For the purposes of this report, only prepared scrap is considered to be "produced."

Table 2.--Prepared iron and steel scrap: U.S. production, capacity, and capacity utilization, 1979-83 1/

Item	1979	1980	1981	1982	1983
Production					
1,000 short tons	8,314	8,177	7,840	6,492	7,339
Capacity 2/--------do----	9,909	10,196	10,640	11,039	11,880
Capacity utilization					
percent	83.9	80.2	73.7	58.8	61.8

1/ Data include responses of 70 firms, whose production represented 18 percent of the quantity of estimated commercial shipments of iron and steel scrap in 1983.

2/ Based on 1 shift per day, 5 days per week.

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

Capacity data are based on one shift per day, since the industry operates only one shift under normal conditions. 1/ Respondents increased their capacity to produce prepared scrap by 19.9 percent (2 million short tons) during 1979-83 to 11.9 million short tons in 1983. Virtually none of this increase was attributable to acquisitions of other firms.

With scrap production declining and capacity expanding during 1979-83, the utilization of U.S. producers' capacity to produce prepared scrap declined by 22.1 percentage points during the period under consideration. The capacity utilization rate decreased from 83.9 percent in 1979 to 61.8 percent in 1983. Respondents' resales of purchased prepared scrap may have contributed to this downward trend, to the extent that such transactions were made in lieu of their own production of prepared scrap. U.S. producers' purchases of prepared scrap (believed largely for resale) increased during 1979-83, while purchases of unprepared scrap (largely processed into prepared grades) increased.

U.S. Producers' Purchases, Shipments, and Inventories

U.S. producers reported that they purchased only domestic scrap (no imported scrap) during 1979-83. Their purchases of scrap declined by 6.6 percent (770,000 short tons) during 1979-83 to 10.8 million short tons ($578.4 million) in 1983 (table 3). The volume of U.S. producers' annual purchases of unprepared scrap exceeded that of prepared scrap during 1979-83. The bulk of purchases of unprepared scrap were captively consumed in the production of prepared scrap (table 4). Purchases of unprepared scrap declined by 9.9 percent during this period, compared with a 1-percent increase for purchases of prepared scrap.

1/ The Processing Capacity of the Ferrous Scrap Industry, Battelle Columbus Laboratories, 1976, p. 2.

Table 3.--Iron and steel scrap: U.S. producers' purchases, by types, 1979-83 1/

Type	1979	1980	1981	1982	1983
	Quantity (1,000 short tons)				
Unprepared scrap	8,162	8,044	7,707	6,430	7,358
Prepared scrap	3,454	3,351	2,608	2,736	3,488
Total	11,616	11,395	10,315	9,166	10,846
	Value (1,000 dollars)				
Unprepared scrap 2/	464,488	460,110	449,982	292,065	344,946
Prepared scrap 3/	234,006	274,530	192,867	163,681	233,432
Total	698,494	734,640	642,849	455,746	578,378

1/ Data include responses of 69 firms.
2/ Value data for 1 firm estimated by the staff of the U.S. International Trade Commission.
3/ Value data for 2 firms estimated by the staff of the U.S. International Trade Commission.

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

Table 4.--Iron and steel scrap: U.S. producers' purchases and captive consumption of unprepared scrap, 1/ 1979-83

Year	Purchases	Captive consumption 2/	Ratio of captive consumption to purchases
	1,000 short tons		Percent
1979	8,162	7,849	96.2
1980	8,044	7,532	93.6
1981	7,077	3/ 7,164	3/ 101.2
1982	6,430	5,982	93.0
1983	7,358	6,886	93.6

1/ Data include responses of 69 firms.
2/ Data are understated to the extent that 3 firms did not report their captive consumption of unprepared scrap.
3/ High level is believed due to consumption from inventory.

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

Resales of purchased prepared scrap are a significant source of revenue for producers within this industry. In addition to selling directly to consumers, producers of prepared scrap can and do sell to middlemen (e.g., brokers or other processors), who sell the product to consumers. Questionnaire responses indicate that 55 percent of processors purchase both unprepared and prepared scrap.

Reported U.S. producers' shipments declined by 9.8 percent (1.1 million short tons) during 1979-83 to 10.6 million short tons ($761.4 million) in 1983 (table 5). Export shipments decreased overall by 10.6 percent during 1979-83, compared with a decline of 9.4 percent for domestic shipments. Prepared scrap represented 97.7 percent of the quantity of scrap shipped during this period, with only small quantities of unprepared scrap shipped to either domestic or foreign markets. The bulk of respondents (55 firms, or 75 percent of all respondents) shipped only prepared scrap. The remaining firms (18 firms, or 25 percent) shipped both prepared and unprepared material.

Table 5.--Iron and steel scrap: U.S. producers' shipments, 1/ by types, 1979-83

Type	1979	1980	1981	1982	1983
	Quantity (1,000 short tons)				
Domestic	7,614	6,903	7,361	5,530	6,898
Export	4,098	4,430	2,607	3,125	3,665
Total:					
Unprepared	259	241	243	193	244
Prepared	11,453	11,092	9,724	8,463	10,319
Total	11,712	11,333	9,967	8,656	10,563
	Value (1,000 dollars)				
Domestic 2/	630,985	572,796	642,461	386,945	474,883
Export 2/	387,792	432,101	231,598	227,872	286,492
Total:					
Unprepared	18,033	18,569	18,077	12,265	14,311
Prepared 2/	1,000,744	986,328	855,982	602,552	747,064
Total	1,018,777	1,004,897	874,059	614,817	761,375

1/ Data include responses of 73 firms, whose shipments represented 25 percent of the quantity of estimated commercial shipments of iron and steel scrap in 1983.

2/ Value data for 2 firms estimated by the staff of the U.S. International Trade Commission.

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

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

U.S. producers primarily sell both unprepared and prepared scrap to scrap consumers (table 6). Shipments to scrap consumers represented 74.6 percent of shipments in 1983, with the balance going primarily to brokers and other processors.

Table 6.--Iron and steel scrap: U.S. producers' domestic shipments, by markets, 1979-83 1/

(In thousands of short tons)

Market	1979	1980	1981	1982	1983
Scrap processors	265	315	299	277	288
Scrap consumers:					
Unprepared	129	117	116	84	93
Prepared	4,397	3,789	4,222	3,181	4,262
Total	4,526	3,905	4,338	3,264	4,355
Brokers	1,036	1,058	1,123	841	1,111
Other	159	138	94	90	87
Total:					
Unprepared	207	171	174	140	174
Prepared	5,780	5,245	5,680	4,332	5,667
Total	5,987	5,416	5,854	4,472	5,841

1/ Data include responses of 62 firms, whose shipments represented 17 percent of the quantity of estimated commercial shipments of iron and steel scrap in 1983.

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

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

U.S. producers' yearend inventories increased by 58.7 percent (1.2 million short tons) during 1979-83 to 3.3 million short tons in 1983 (table 7). Inventories of prepared scrap expanded at a greater rate than inventories of unprepared scrap during this period, 69.9 and 40.2 percent, respectively. The greater growth of prepared-scrap inventories may reflect efforts by firms to keep their facilities operating in spite of weak demand, since productivity within this industry declined during 1979-82. Data from the Bureau of Mines indicate that consumers maintain proportionally lower inventory levels than producers (table 8).

Table 7.--Iron and steel scrap: U.S. producers' end-of-period inventories, 1/ by types, 1979-83

Period	Inventories			Ratio of inventories to shipments 2/
	Unprepared scrap	Prepared scrap	Total	
	1,000 short tons			Percent
As of Dec. 31--				
1978	797	1,312	2,109	3/
1979	778	1,386	2,164	19.5
1980	867	1,416	2,283	21.1
1981	922	1,739	2,661	28.1
1982	1,065	2,182	3,247	39.6
1983	1,117	2,229	3,346	32.4

1/ Data include responses of 70 firms.

2/ Data include responses of 64 firms that provided both inventory and shipment data.

3/ Not available.

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

Table 8.--Iron and steel scrap: U.S. consumers' end-of-period inventories and consumption, 1979-83

Period	Inventories	Consumption	Ratio of inventories to consumption
	1,000 short tons		Percent
As of Dec. 31--			
1979	8,724	98,901	8.8
1980	8,018	83,710	9.6
1981	8,118	85,097	9.5
1982	6,418	56,386	11.4
1983	5,807	61,782	9.4

Source: Compiled from official statistics of the U.S. Department of the Interior, Bureau of Mines.

U.S. Employment, Hours Worked, Productivity, and Wages

The average number of employees in U.S. establishments, as reported by respondents to the Commission's questionnaires, decreased during 1979-83, with an overall decline of 16.3 percent (1,359 workers) for the period (table 9). The average employment decreased from 8,338 in 1979 to to 6,854 in 1982, and increased to 6,979 in 1983.

The number of production and related workers engaged in the production of iron and steel scrap followed a similar trend, with an overall decline of 18.3 percent (962 workers) during 1979-83. The number of hours worked by such workers declined by 19.8 percent (2.2 million hours) during 1979-83.

Productivity within the iron and steel scrap industry increased by 4.8 percent (.048 short ton per hour) during 1979-83, as the result of a productivity increase in 1983. Productivity declined annually from .996 short ton per hour in 1979 to .953 short ton per hour in 1982.

Wages, excluding fringe benefits, decreased by 3.9 percent ($3 million) during 1979-83 to $74.1 million in 1983. Wages increased annually from $77.1 million in 1979 to $83.6 million in 1981, or by 8.4 percent, and then decreased to $74.1 million in 1983, a decrease of 1.4 percent.

The average hourly wage based on wages paid, excluding fringe benefits, increased from $6.89 an hour in 1979 to $8.26 an hour in 1983, an increase of 19.9 percent ($1.37 an hour).

Table 9.--Average number of employees and total production and related workers in U.S. establishments producing iron and steel scrap, hours worked by, productivity of, wages paid to, and the average hourly wages of such production and related workers, 1979-83

Item	1979	1980	1981	1982	1983
Average employment: 1/					
All persons:					
Number	8,338	8,547	8,187	6,854	6,979
Percentage change	2/	2.5	-4.2	-16.3	1.8
Production and related workers producing iron and steel scrap:					
Number	5,266	5,375	5,117	4,190	4,304
Percentage change	2/	2.1	-4.8	-18.1	2.7
Hours worked by production and related workers producing iron and steel scrap: 1/					
Number----------thousands--	11,191	11,133	10,636	8,669	8,976
Percentage change	2/	-.5	-4.5	-18.5	3.5
Productivity of production and related workers producing iron and steel scrap: 3/					
Quantity short tons per hour	.996	.965	.956	.953	1.044
Percentage change	2/	-3.1	-.9	-.3	9.5
Total wages paid 4/ to production and related workers producing iron and steel scrap: 1/					
Value--------1,000 dollars--	77,148	80,874	83,640	71,270	74,113
Percentage change	2/	4.8	3.4	-14.8	4.0
Hourly wage rate 4/ for production and related workers producing iron and steel scrap: 1/					
Average	6.89	7.26	7.86	8.22	8.26
Percentage change	2/	5.4	8.3	4.6	.5

1/ Data include responses of 91 firms.
2/ Not available.
3/ Data include responses of 66 firms that provided both production data and hours worked by production and related workers.
4/ Based on wages paid excluding fringe benefits.

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

Financial Experience of U.S. Producers

Profit-and-loss experience for iron and steel scrap and overall operations

Establishments in which iron and steel scrap were produced reported a 30.2 percent decline in total establishment net sales during 1979-83 to $1.7 billion in 1983 (table 10). Profits declined from $111 million in 1979 (4.5 percent of net sales) to $32 million in 1981. In 1982, the industry showed a loss of $31 million (2.3 percent of net sales). Operations returned to a profitable position in 1983, with profits of $26 million (1.5 percent of net sales).

Profit-and-loss data on iron and steel scrap operations indicated a 32.2 percent decline in net sales during 1979-83 to $1.5 billion in 1983. Profits declined from $95 million in 1979 (4.3 percent of net sales) to $25 million in 1981. In 1982, the industry showed a loss of $29 million (2.5 percent of net sales). The firms posted profits of $22 million in 1983 (1.5 percent of net sales).

Table 10.--Profit-and-loss experience of U.S. producers of iron and steel scrap on the overall operations in establishments producing iron and steel scrap and on their iron and steel scrap operations, 1/ 1979-83

Item	1979	1980	1981	1982	1983
Overall operations:					
Net sales-----million dollars--	2,494	2,289	2,196	1,346	1,742
Net profit or (loss) before income taxes million dollars--	111	78	32	(31)	26
Return on sales-------percent--	4.5	3.4	1.5	(2.3)	1.5
Iron and steel scrap operations:					
Net sales-----million dollars--	2,216	1,983	1,915	1,145	1,502
Net profit or (loss) before income taxes million dollars--	95	65	25	(29)	22
Return on sales-------percent--	4.3	3.3	1.3	(2.5)	1.5

1/ Data include responses of 71 firms, which accounted for an estimated 37 percent of total U.S. producers' sales in 1983.

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

Investment in production facilities

To provide an additional measure of profitability, the ratios of operating profit or loss to original cost and book value of fixed assets employed in overall establishment operations and iron and steel scrap

operations are presented in table 11. These ratios show a similar downward trend during 1979-82 and an upward trend during 1982-83 as did the ratios of operating profit or loss to net sales for both establishment and iron and steel scrap operations.

Table 11.--Iron and steel scrap: Investment in production facilities by U.S. producers producing iron and steel scrap, as of the end of calendar years 1979-83

Item	1979	1980	1981	1982	1983
Overall establishment operations:					
Original cost 1/					
1,000 dollars	340,921	380,685	431,097	456,536	483,082
Book value 1/ ---do---	153,439	166,731	195,086	195,089	192,648
Ratio of operating income or (loss) to-- 2/					
Original cost ---percent--	34.1	21.7	7.8	(6.6)	5.5
Book value ---do---	76.1	50.3	17.3	(15.8)	14.1
Iron and steel scrap operations:					
Original cost 1/					
1,000 dollars	294,914	321,340	358,349	384,514	407,976
Book value 1/ ---do---	144,795	149,140	171,025	171,088	173,051
Ratio of operating income or (loss) to-- 2/					
Original cost ---percent--	34.1	21.3	7.5	(7.2)	5.6
Book value ---do---	70.1	46.3	15.7	(16.4)	13.2

1/ Data include responses of 74 firms.

2/ Data include responses of 63 firms that provided both profit-and-loss and investment data.

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

Capital expenditures

Overall establishment capital expenditures decreased by 54.3 percent ($19.5 million) during 1979-83, from $35.9 million in 1979 to $16.4 million in 1983 (table 12). Capital expenditures relative to iron and steel scrap followed a similar pattern. They decreased by 54.2 percent, from $30.5 million in 1979 to $14 million in 1983. The concentration of the iron and steel scrap industry's capital expenditures in machinery, equipment, and fixtures (which represented 88.1 percent of total capital expenditures during this period) tends to support claims that the already capital intensive U.S. scrap industry is becoming more so, as usage of labor-saving equipment increases. 1/ The U.S. industry is considered by some to be the most developed scrap processing industry in the world, with U.S. processing equipment the world standard. 2/

1/ The Processing Capacity of the Ferrous Scrap Industry, Battelle Columbus Laboratories, 1976, p. 3.

2/ Transcript of the hearing, p. 34.

Table 12.--Iron and steel scrap: U.S. producers' capital expenditures for land and land improvements, building and leasehold improvements, and machinery, equipment, and fixtures, 1/ 1979-83

(In thousands of dollars)

Capital expenditures	1979	1980	1981	1982	1983
All products of establishments:					
Land and land improvements	821	1,750	3,624	4,391	891
Building and leasehold improvements	2,159	4,786	4,255	2,727	856
Machinery, equipment, and fixtures	32,876	33,613	42,634	29,563	14,656
Total	35,856	40,149	50,513	36,681	16,403
Iron and steel scrap:					
Land and land improvements	635	1,396	3,285	4,231	874
Building and leasehold improvements	828	1,974	2,531	2,392	387
Machinery, equipment, and fixtures	29,062	29,677	38,519	26,869	12,724
Total	30,525	33,047	44,335	33,492	13,985

1/ Data include responses of 69 firms.

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

Research and development expenditures

Research and development expenditures in connection with iron and steel scrap operations were insignificant during this period and were reported by only 10 firms. The actual data are confidential but an index of such expenditures shows that they declined during 1979-83, as shown in the following tabulation (1979=100):

	Expenditure index (Percent)
1979	100
1980	95
1981	54
1982	66
1983	48

Brokerage Transactions

While most firms indicated to the Commission that they generated scrap revenues producing prepared scrap for sale and/or reselling purchased scrap (i.e., functioning as dealers), some firms indicated that they also generated

scrap revenues by functioning as scrap brokers. 1/ The volume of such transactions decreased by 18.8 percent (2.1 million short tons) during 1979-83 to 9.1 million short tons in 1983, and the value of such transactions decreased by 20.5 percent ($6.8 million) to $26.4 million in the same period, as shown in the following tabulation: 2/

	Quantity (1,000 short tons) 1/	Value (1,000 dollars) 1/
1979	11,183	33,182
1980	9,511	28,050
1981	10,579	32,812
1982	6,780	21,319
1983	9,083	26,371

1/ Data include responses of 33 firms.

TRANSPORTATION COSTS

Transportation costs are an important factor in the marketing of semifinished steel and iron and steel scrap, in part because steel generally has a low value per unit of weight in comparison with other products. 3/ The cost of shipping steel from the "steel belt" (in 1983, 60 percent of all U.S. steel production was accounted for by producers located in Illinois, Indiana, Ohio, and Pennsylvania) to other parts of the country can put domestic producers at a disadvantage vis-a-vis steel imported into coastal ports at relatively low ocean freight rates. 4/ A major importer of semifinished steel located in California indicated that the cost of transporting slabs overland eliminated U.S. steel producers as a competitive source of supply. 5/

Domestically, semifinished steel and iron and steel scrap are transported primarily by truck or rail, with rail being used for long hauls because of its relative cost advantage. In 1981, increased freight rates and a shortage of general-purpose gondola railcars prompted an increase in the use of trucks and barges. 6/ Shipments to Canada and Mexico are generally transported by truck or rail, while other foreign shipments are transported by ocean freight.

1/ A broker is defined as one who, for a Commission or fee, brings parties together for iron and steel scrap transactions.

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

3/ Iron and Steel Summary of Trade and Tariff Information, U.S. International Trade Commission, January 1985, p. 6.

4/ Report to the President on Inv. No. TA-201-51, Carbon and Certain Alloy Steel Products, U.S. International Trade Commission, p. a-183.

5/ Prehearing brief of California Steel Industries, Inc., p. 2.

6/ Minerals Yearbook 1981, Iron and Steel Scrap, U.S. Bureau of Mines.

Transporting foreign-made semifinished steel and scrap to the United States can be costly. Excluding the shipments from Canada and Mexico, 1/ which accounted for 46 percent of the customs value of all semifinished steel imports and 91.8 percent of the customs value of all scrap imports, transportation costs amounted to $10.5 million, or 12.6 percent of the customs value, for semifinished steel imports in 1983 and $512,000, or 13.0 percent of the customs value, for scrap imports in 1983. 2/

Transportation costs represent a significant portion of the delivered price of scrap in the U.S. market. Processors were asked to estimate transportation costs as a percent of the delivered value of their domestic scrap sales during 1979-83. A majority of the respondents (74 percent) indicated that transportation costs represented a minimum of 10 percent of the delivered value of their domestic sales, as shown in the following tabulation (percent):

Transportation cost as a percent of delivered value of domestic sales, 1979-83	Responses 1/
Less than 3	9
5	17
10	28
15	21
20	16
25 or more	9
Total	100

1/ Data include responses from 96 firms.

A further indication of the significance of transportation costs is provided by the buying and selling ranges for scrap in the U.S. market reported by processors. The majority of respondents indicated that in the U.S. market they bought scrap within 100 miles of their facilities and sold it within 250 miles of their facilities, as shown in the following tabulation (percent):

1/ Comparable transportation-cost data for imports of semifinished steel and scrap from neighboring Canada and Mexico are unavaible. The "Guide to Foreign Trade Statistics," prepared by the U.S. Department of Commerce, Bureau of the Census, indicates on p. 9 that Mexico and Canada are not required to report insurance and freight charges.

2/ Based on data compiled by the U.S. Department of Commerce.

	Buying range 1/	Selling range 2/
Within 50 miles	42	23
Within 100 miles	34	16
Within 250 miles	12	37
Within 500 miles	10	13
Over 500 miles	2	12
Total	100	100

1/ Data include responses from 105 firms.
2/ Data include responses from 101 firms.

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

These ranges appear to support claims that scrap is traded in a number of distinct submarkets, rather than in a national market. 1/

Transportation costs represent an even greater portion of the delivered value of export sales. Exactly half of the respondents indicated that transportation costs represented a minimum of 20 percent of the delivered value of foreign scrap sales during 1979-83, as shown in the following tabulation (percent):

Transportation cost as a percent of delivered value of foreign sales, 1979-83	Responses 1/
Less than 3	14
5	14
10	14
15	7
20	29
25 or more	21
Total	100

1/ Data include responses from 28 firms.

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

EXCHANGE RATES

Exchange rate changes can affect the competitive position of industries in different countries by altering their relative cost structures, and consequently, their price competitiveness vis-a-vis that of foreign competitors. The appreciation of the dollar against foreign currencies during 1979-84 had the effect of lowering prices for imported semifinished steel.

1/ Prehearing brief of California Steel Industries, Inc., p. 10.

These lower prices in turn made foreign semifinished steel more attractive to domestic buyers and contributed to higher levels of semifinished steel imports.

Canada, West Germany, Sweden, Brazil, the Netherlands, and the United Kingdom are six of the seven leading sources of U.S. imports of semifinished steel. 1/ The dollar appreciated against the currencies of all of these countries during the 1979-1984 period, although the timing and magnitude of the appreciation differed among countries. 2/ In nominal terms, the dollar appreciated by an average of 35 percent from January-March 1979 to October-December 1984 against the currencies of five of these countries (table F-1, app. F). 3/ In real terms, the dollar appreciated by an average of 28 percent against these currencies over the same period (table F-2, app. F). 4/ The real appreciation was strongest against currencies of Sweden and the Netherlands, at 40 percent for both countries.

In export markets, the appreciating dollar had the effect of raising the price of U.S. scrap exports. Therefore, the appreciating dollar made U.S. scrap less competitive in world markets during 1979-84, resulting in lower export levels than otherwise would be expected. However, it is claimed that the high quality and consistent nature of the U.S. product offset the effects of the appreciating dollar to some extent during 1979-84. 5/ The growth in U.S. exports during 1981-84 despite the persistently strong dollar indicates that any weakening of the dollar against foreign currencies would likely stimulate U.S. exports of scrap.

Six of the primary scrap export markets are Japan, Spain, Canada, Korea, Taiwan, and Mexico. 6/ In nominal terms, the dollar appreciated against these currencies by an average of 37 percent from January-March 1979 to October-December 1984 (table F-1, app. F). In real terms, the dollar appreciated against five of these currencies by an average of 15 percent over the same period, with the appreciation greatest against the Spanish peseta (38 percent) and the Japanese yen (25 percent) (table F-2, app. F). 7/

1/ These six countries accounted for 80 percent of semifinished steel imports in 1984.

2/ Although the U.S. dollar appreciated against the Canadian dollar in nominal terms, in real terms the exchange rate was relatively stable.

3/ This average does not include the appreciation of the Brazilian cruzeiro, which must be adjusted for inflation to be meaningful.

4/ The real exchange rate adjusts the nominal rate by changes in relative inflation rates.

5/ Transcript of the hearing, p. 33.

6/ Scrap exports to these six countries accounted for 72 percent of total scrap exports in 1984.

7/ The average real appreciation does not include the Taiwanese currency, for which real exchange rates through April-June 1984 are not available.

IMPORTS OF SEMIFINISHED STEEL

The recent trend in increased importation of semifinished steel by the steel industry is a source of concern to the scrap industry; imports of semifinished steel could reduce the amount of scrap required for domestic steelmaking and could increase the supply of scrap available (finishing the imported steel generates scrap).

Semifinished steel represents the bottom of the value-added-by-manufacture scale for steel mill products and historically has not been a significant item of commerce. Domestically, it is primarily produced by steel mills for captive consumption in the production of more advanced steel mill products. A comparison of raw steel production in 1984 (91.3 million short tons), which is comprised chiefly of semifinished steel in its least advanced form (as first cast), and U.S. producers' commercial shipments of semifinished steel (1.6 million short tons) indicates that up to 98.3 percent of U.S. production of semifinished steel was captively consumed in that year.

Import Trends, 1979-83 and 1984

U.S. imports of semifinished steel more than doubled during 1979-83, totaling 822,483 short tons ($176.6 million) in 1983, compared with 344,690 short tons ($91.9 million) in 1979 (table 13). In 1984, imports nearly doubled again reaching 1,515,734 short tons ($332.7 million). The increase in 1981 imports largely reflects shipments from Canada which, according to industry sources, were sent to the United States for rolling and reexport (to Canada) in light of a strike at Canada's largest producer. Imports maintained a relatively high level in 1982, reflecting increased shipments into the Western United States, where a major steel producer elected to import (rather than produce) semifinished steel for rolling. In 1983, certain domestic steelmakers reportedly imported semifinished steel, largely from Canada, in lieu of domestic production. Canada was the primary source of imports during 1979-83, accounting for 48.0 percent of import tonnage during this period. West Germany, which has been a prominent source since 1981, was the leading supplier in 1984, providing about a third of U.S. imports in that year. Of the other major suppliers, Sweden and Brazil remained major sources throughout the entire period, and Belgium and Luxembourg were large suppliers in 1984.

The United States typically maintained a positive trade balance for semifinished steel prior to 1981, but a combination of declining exports and increasing imports resulted in 4 consecutive years of trade deficits for these products during 1981-84 (table F-3, app. F). Imports, whose pre-1981 peak was 413,898 short tons in 1978, annually surpassed 700,000 short tons during this period.

Carbon steel constituted the bulk of semifinished imports during 1979-84, accounting for 88 percent of imports during 1979-83 and about 93 percent in 1984 (table F-4, app. F). Most of the remaining imports during this period were alloy steel. The stainless grades typically accounted for less than 1 percent of the total semifinished imports.

Table 13.--Semifinished steel: U.S. imports for consumption, by principal sources, 1979-84

Source	1979	1980	1981	1982	1983	1984
	Quantity (short tons)					
West Germany	3,085	2,869	34,511	98,729	131,502	491,337
Canada	52,053	102,639	579,266	185,921	438,330	265,798
Sweden	72,300	11,615	25,761	112,350	58,334	257,841
Belgium and Luxembourg	848	335	2,745	2,272	674	173,670
Brazil	59,315	12,730	14,161	44,864	41,340	105,209
United Kingdom	74,329	19,197	55,423	61,221	10,484	41,487
Netherlands	0	0	58	21,026	41,061	49,143
France	1,526	278	409	4,742	24,020	55,939
Mexico	41	0	0	121	1,170	12,187
Italy	6,053	672	19,094	402	611	5,336
All other	75,140	5,010	58,634	184,940	74,957	57,787
Total	344,690	155,345	790,062	716,588	822,483	1,515,734
	Value (1,000 dollars)					
West Germany	3,227	2,302	9,565	26,419	27,587	101,920
Canada	16,414	28,921	146,984	47,159	93,447	63,843
Sweden	17,479	3,425	6,238	24,463	11,591	47,248
Belgium and Luxembourg	1,209	124	568	622	160	28,565
Brazil	10,460	3,642	4,028	13,453	10,362	24,959
United Kingdom	26,208	8,861	27,254	22,906	3,830	15,306
Netherlands	-	-	77	4,483	9,147	11,744
France	548	213	257	1,290	4,507	11,193
Mexico	37	-	-	40	313	9,618
Italy	1,228	413	3,608	443	755	5,942
All other	15,053	3,902	13,869	39,334	14,923	12,326
Total	91,863	51,802	212,449	180,612	176,622	332,664

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

Data on the types of semifinished steel imported into the United States were first compiled in 1984. Imports of slabs not exceeding 6 inches in thickness, the most significant item imported in 1984, totaled 658,871 short tons and represented 43 percent of total imports (table 14). These different types of semifinished steel may have different effects on scrap demand and supply, e.g., more scrap would probably be generated by processing an ingot into a sheet rather than by processing a slab into a sheet. There has been some discussion of differences related to slabs in particular, 1/ but insufficient data exist to analyze this area of discussion.

1/ Prehearing brief of California Steel Industries, Inc., p. 6 and Post-hearing brief of the Institute of Scrap Iron and Steel, Inc., p. 13.

Table 14.--Semifinished steel: U.S. imports for consumption, by types, 1984

Item	Quantity	Percent of total
	Short tons	
Blooms	128,618	8.5
Billets	320,413	21.1
Slabs	658,871	43.5
Sheet bars	2,813	.2
Other 1/	405,019	26.7
Total	1,515,734	100.0

1/ Including slab-like products exceeding 6 inches in thickness produced by the continuous-casting method.

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

The majority of imports, 54 percent during 1979-83 and 59 percent in 1984, were in areas of concentrated U.S. consumption 1/ and entered the United States in the North Central region (table 15). 2/ The New England/Middle Atlantic region and to a lesser extent the South Central region have consistently received large quantities of imported semifinished steel since 1979. The Mountain/Pacific region received large quantities during 1982-84 but relatively little in the other years.

Purchase information

Most semifinished steel purchasers are producers of both raw steel and finished steel products. Respondents indicated that half (35 firms) of U.S. steel producers purchased semifinished steel during 1979-83. The bulk of the respondents that purchased semifinished steel (21 firms) purchased only U.S.-produced products. The remaining firms either purchased only imported semifinished steel (6 firms) or purchased both U.S.-produced and imported products (8 firms). Firms used the purchased material to supplement,

1/ U.S. imports by port region and principal sources appear in table F-5, app. F.

2/ Geographic regions are defined as follows:

Mountain/Pacific: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

New England/Middle Atlantic: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, and Rhode Island.

North Central: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.

South Atlantic: Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, and West Virginia.

South Central: Alabama, Arkansas, Kentucky, Louisiana, Mississippi, Oklahoma, Tennessee, and Texas.

Table 15.-Semifinished steel: U.S. imports for consumption, by regions, 1979-84

Region 1/	1979	1980	1981	1982	1983	1984
	Quantity (short tons)					
North Central	212,477	116,532	469,931	210,523	511,225	897,682
New England/Middle Atlantic	53,307	13,845	259,155	96,525	140,002	379,291
South Central	69,848	11,774	46,394	57,136	43,484	22,967
Mountain/Pacific	4,507	4,433	11,710	334,559	124,681	201,825
South Atlantic	4,551	8,761	2,872	17,846	3,091	13,968
Total	344,690	155,345	790,062	716,588	822,483	1,515,734
	Percent of total					
North Central	61.6	75.0	59.5	29.4	62.2	59.2
New England/Middle Atlantic	15.5	8.9	32.8	13.5	17.0	25.0
South Central	20.3	7.6	5.9	8.0	5.3	1.5
Mountain/Pacific	1.3	2.9	1.5	46.7	15.2	13.3
South Atlantic	1.3	5.6	0.4	2.5	0.4	0.9
Total	100.0	100.0	100.0	100.0	100.0	100.0

1/ Geographic regions are defined as follows:

North Central: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.

New England/Middle Atlantic: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.

South Central: Alabama, Arkansas, Kentucky, Louisiana, Mississippi, Oklahoma, Tennessee, and Texas.

Mountain/Pacific: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

South Atlantic: Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, and West Virginia.

Source: Compiled from official statistics of the U.S. Department of the Interior, Bureau of Mines.

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

temporarily relieve (e.g., for maintenance), or in some cases retire, their steelmaking capacity. In 1983, respondents purchased 1.1 million short tons ($218.5 million) of semifinished steel, up 81 percent from the 600,581 short tons ($84.5 million) purchased in 1979 (table 16). The share of purchases represented by imports increased from 20.5 percent in 1979 to 73.1 percent in 1983, as imported purchases increased and U.S.-produced purchases decreased during this period. Import purchases increased more than six-fold during 1979-83, from 123,366 short tons ($30.8 million) in 1979 to 795,388 short tons ($171 million) in 1983, accounting for 62.4 percent of total U.S. semifinished

Table 16.--Semifinished steel: Purchases by U.S. companies, 1/ 1979-83

Origin	1979	1980	1981	1982	1983
	Quantity (short tons)				
Imported 2/	123,366	167,256	533,231	644,585	795,388
U.S.-produced	477,215	234,099	302,945	54,842	292,260
Total	600,581	401,355	836,176	699,427	1,087,648
	Percent of total quantity				
Imported 2/	20.5	41.7	63.8	92.2	73.1
U.S.-produced	79.5	58.3	36.2	7.8	26.9
Total	100.0	100.0	100.0	100.0	100.0
	Value (1,000 dollars) 3/				
Imported 2/ 4/	30,820	37,814	156,640	162,581	170,961
U.S.-produced	53,631	66,840	84,828	19,533	47,511
Total 4/	84,451	104,654	241,468	182,114	218,472

1/ Data include responses of 70 firms, accounting for over 67.5 percent of raw steel production in 1983.

2/ Includes purchases of slabs over 6 inches in thickness, which represented 12.3 percent (279,573 short tons) of total imported purchases during 1979-83.

3/ Net delivered cost (i.e., gross cost less all discounts and allowances) to domestic locations.

4/ Value data for 1 firm estimated by the staff of the U.S. International Trade Commission.

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

imports during the period. 1/ Purchases of domestically produced semifinished steel declined 38.8 percent from 477,215 short tons ($53.6 million) in 1979 to 292,260 short tons ($47.5 million) in 1983.

Integrated and nonintegrated steel producers 2/ each accounted for about one-half of the total purchases during 1979-83. Integrated firms purchased the bulk of the imports and nonintegrated firms the bulk of the U.S.-produced products, as shown in the following tabulation:

1/ Respondents' figures include imports of slabs over 6 inches thick which are not classified as semifinished steel in the TSUS but are considered as such for the purposes of this investigation. These large slabs accounted for 12.3 percent of respondents' imports during 1979-83.

2/ Integrated steel companies are defined as those companies that produce pig iron (in blast furnaces), as well as steel, in some or all of their plants. These firms generally produce steel in basic-oxygen or open-hearth furnaces, but may also use electric furnaces at some locations. Nonintegrated steel producers are defined as those companies that typically produce raw steel from ferrous scrap in electric furnaces.

	Integrated producers (percent)	Nonintegrated producers (percent)
Share of:		
Import purchases	67.2	32.8
U.S.-produced purchases	18.1	81.9
Total purchases	48.8	51.2

Steel producers identified inadequate steelmaking capacity to meet demand, inability to produce various products, and lower costs as their primary reasons for purchasing rather than producing semifinished steel during 1979-83 (table 17). Greater availability of foreign supplied semifinished steel (getting the product you want, where you want it) is noted by purchasers as the principal advantage for purchasing imported rather than U.S.-produced

Table 17.--Semifinished steel: Reasons for purchases by U.S. companies, as given by questionnaire respondents, 1979-83

(In percent)

Item	Imported 1/	U.S.-produced 2/
Purchased product was not produced by firm	18	31
Volume of purchase too small to justify production	-	15
Purchased material less expensive than material produced by firm	27	19
Firm made purchase to test other companies' products	9	4
Firm made purchase to meet demand when its own domestic steelmaking capacity was fully utilized	45	35
Firm made purchase to meet demand which could not be met due to closed steelmaking facilities	9	19
Firm made purchase because of need for continuous-cast steel	18	4
Other	18	8

1/ Data include responses of 11 firms.
2/ Data include responses of 26 firms.

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

Note.--Respondents could indicate more than 1 item.

products (table 18). The prominence of availability as the reason for importing may reflect the inability of U.S. producers to increase production on short notice because of the temporary suspension of steelmaking operations during the general downturn in demand. In addition, certain geographic considerations may have precluded prompt delivery of domestic purchases at competitive prices.

Table 18.--Semifinished steel: Principal advantages of purchasing imported rather than U.S.-produced products, as given by questionnaire respondents, 1979-83 1/

(In percent)

Item	Response
Lower purchase price (delivered)	30
Shorter delivery time	10
Availability	50
Servicing	-
Favorable terms of sale	20
Reliability of supplier	20
Superior quality	30
Other 2/	50

1/ Data include responses of 10 firms.

2/ The character of the "other" responses, most of which were similar to the reasons for semifinished steel purchases already covered in table 17, suggested that purchases could be of a temporary nature.

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

Note.--Respondents could indicate more than 1 item.

Steelmakers buy semifinished imports under various contractual arrangements, ranging from spot purchases for immediate needs to long-term contracts for planned requirements. In terms of the number of firms purchasing imports, short duration contracts were the most popular during 1979-83 (table 19). Almost half of the respondents made at least one spot purchase, and 36 percent reported contracts lasting 1 year or less. The character of the responses in the "other" category (largely for testing purposes and meeting peak demand requirements) also suggests that purchases of semifinished steel could be of a temporary nature.

Imports fill various roles in meeting steel producers' needs for semifinished steel. During 1979-83, imports were used to replace items formerly produced in the respondents' facilities and also to diversify the firms' product lines (table 20). The "other" uses specified for imports included testing purposes, research, use in order to remain competitive with

Table 19.--Semifinished steel: Contractual time frames for purchases of imports, as given by questionnaire respondents, 1979-83 1/

(In percent)

Item	Response
Spot purchases	45
Short-term contract purchases (1 year or less)	36
Long-term contract purchases (over 1 year)	18
Other 2/	27

1/ Data include responses of 11 firms.
2/ The character of the "other" responses, most of which were similar to the reasons for semifinished steel purchases already covered in table 17, suggested that purchases could be of a temporary nature.

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

Note.--Respondents could indicate more than 1 item.

Table 20.--Semifinished steel: The role of imports in consumption patterns, as given by questionnaire respondents, 1979-83 1/

(In percent)

Item	Response
Replacements for items formerly produced in firm's facilities	36
Replacements for items formerly purchased from U.S. producers	-
Additions to firm's product line	36
Other 2/	45

1/ Data include responses of 11 firms.
2/ The character of the "other" responses, most of which were similar to the reasons for semifinished steel purchases already covered in table 17, suggested that purchases could be of a temporary nature.

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

Note.--Respondents could indicate more than 1 item.

imported finished steel, and use to meet demand when firm's capacity was fully utilized. None of the respondents indicated that they had imported semifinished steel to replace items formerly purchased from U.S. producers. This is not surprising, given the relatively small domestic commercial market for semifinished steel.

Scrap disposition

Table 21 shows how the respondents disposed of the iron and steel scrap generated by the processing of imported semifinished steel and of all other home scrap generated by their operations during 1979-83. As can be seen, most respondents indicated that home scrap was captively consumed in raw steel production, while fewer respondents sold material to scrap processors, dealers, and brokers.

Table 21.--Iron and steel scrap: Disposition of iron and steel scrap by U.S. producers and/or purchasers of semifinished steel, as given by questionnaire respondents, 1979-83

(In percent)

Item	Scrap generated by processing imported semifinished steel 1/	All other home scrap generated by your firm 2/
Captively consumed in raw steel production	90	97
Sold domestically--		
To raw steel producers	-	3
To scrap processors, dealers, and/or brokers	20	11
Other	-	-
Exported	-	-
Other	-	-

1/ Data include responses of 10 firms.
2/ Data include responses of 38 firms.

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

Note.--Respondents could indicate more than 1 item.

Anticipated Imports in 1988

Only 12 percent of respondents (8 firms) indicated that they anticipated purchasing imported semifinished steel in 1988. None of these firms are integrated steel producers. Based on their responses, the volume of total U.S. imports of semifinished steel in 1988 is projected at 1.7-3.1 million short tons. Responses indicate that the bulk of this material will not replace U.S.-produced steel.

The likely contractual profile for the purchases of imports during 1984-88 is shown in table 22. An equal number of firms indicated interest in each of the three types of contracts. These figures suggest that long term contracts may become more popular than they were during 1979-83.

Table 22.--Semifinished steel: Anticipated contractual timeframes for purchases of imports, as given by questionnaire respondents, 1984-88 1/

(In percent)

Item	Response
Spot purchases	36
Short-term contract purchases (1 year or less)	45
Long-term contract purchases (over 1 year)	36
Other	-

1/ Data include responses of 11 firms.

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

Note.--Respondents could indicate more than 1 item.

Table 23 shows the anticipated pattern of iron and steel scrap disposition during 1984-88. The pattern is basically the same as the one during 1979-83, except that some of the home scrap generated by processing imported semifinished steel may be sold to domestic raw steel producers.

Table 23.--Iron and steel scrap: Estimated disposition of iron and steel scrap by U.S. producers and/or purchasers of semifinished steel, as given by questionnaire respondents, 1984-88

(In percent)

Item	Scrap generated by processing imported semifinished steel 1/	All other home scrap generated by your firm 2/
Captively consumed in raw steel production	82	100
Sold domestically--		
To raw steel producers	9	6
To scrap processors, dealers, and/or brokers	9	6
Other	-	-
Exported	-	-
Other	-	-

1/ Data include responses of 11 firms.
2/ Data include responses of 33 firms.

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

Note.--Respondents could indicate more than 1 item.

DESCRIPTION OF THE MARKETS FOR IRON AND STEEL SCRAP

Domestic Markets

Marketing practices

The scrap market is basically a short-term market and is often subject to wide price fluctuations. Consumers typically determine their scrap needs and acquire scrap supplies on a monthly basis. They attempt to offer the lowest price that will generate the desired supply of scrap.

A scrap transaction generally begins with a scrap consumer. The consumer determines that he needs a grade and quantity of scrap and a price per ton that he is willing to pay for such material. If the consumer can locate a supplier (e.g., processor or broker) for the desired product at the desired price, a transaction is made. If the consumer cannot locate a supplier, the consumer, typically, will gradually increase the price per ton that he is willing to pay until he can locate a supplier. In this manner, consumers can obtain scrap at the lowest possible price. For their part, suppliers can refuse orders, if they consider that the price offered is too low.

Consumption

Reported consumption of scrap 1/ decreased during 1979-83 from 98.9 million short tons ($8.4 billion) in 1979 to 61.8 million short tons ($3.9 billion) in 1983, a decline of 37.5 percent (37.1 million short tons) (table 24). Consumption increased by 11.4 percent (7.0 million short tons) during 1983-84 to an estimated 68.8 million short tons ($5.2 billion) in 1984, continuing an upward trend begun in 1983, but remained 30.1 million short tons below the level of consumption in 1979. The erratic pattern of scrap consumption during 1979-84 mirrored the output trend for the principal scrap-consuming industry, the steel industry, as shown in the following tabulation of raw steel production (in thousands of short tons):

	U.S. raw steel production 1/
1979	136,341
1980	111,835
1981	120,828
1982	74,577
1983	84,615
1984	91,532

1/ Compiled from data of the American Iron and Steel Institute.

The indexes of reported scrap consumption and raw steel production shown in the figure best illustrate the similarities in these trends.

Output in the second leading scrap-consuming industry, the iron and steel foundry industry, also declined during 1979-84, as shown in the following tabulation (in thousands of short tons):

1/ Including home scrap.

	U.S. iron and steel foundry shipments
1979 1/	18,156
1980 1/	14,127
1981 1/	13,966
1982 1/	9,516
1983 1/	10,267
1984 2/	11,300

1/ Compiled from official statistics of the U.S. Department of Commerce.
2/ Estimated by the staff of the U.S. Department of the Interior, Bureau of Mines.

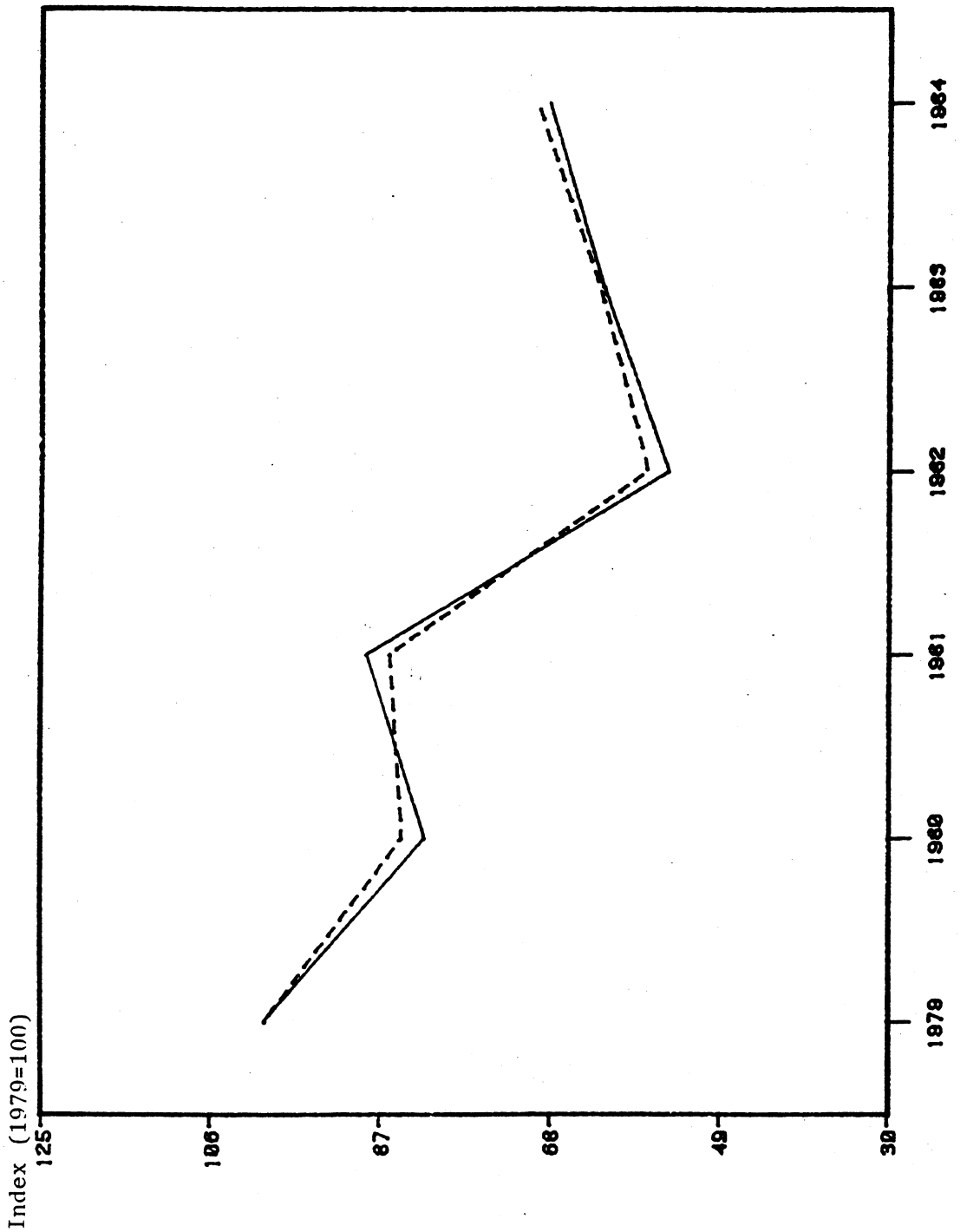
Table 24.--Iron and steel scrap: Apparent U.S. producers' shipments, exports of domestic merchandise, imports for consumption, and reported consumption, 1979-84

(Quantity in thousands of short tons; value in millions of dollars)

Year	Apparent U.S. producers' shipments 1/	Exports	Imports	Reported consumption	Ratio (percent of imports to consumption
	Quantity				
1979	109,378	11,237	760	98,901	0.8
1980	94,451	11,299	558	83,710	.7
1981	91,120	6,585	562	85,097	.7
1982	62,806	6,894	474	56,386	.8
1983	68,719	7,578	641	61,782	1.0
1984	2/ 77,779	9,556	577	3/ 68,800	2/ .8
	Value				
1979	2/ 9,571	1,153	71	2/ 8,489	2/ 0.8
1980	2/ 7,703	1,239	55	2/ 6,519	2/ .8
1981	2/ 7,430	649	63	2/ 6,844	2/ .9
1982	2/ 3,574	618	38	2/ 2,994	2/ 1.3
1983	2/ 4,474	641	48	2/ 3,881	2/ 1.2
1984	2/ 6,042	929	47	2/ 5,160	2/ .9

1/ Includes home scrap recycled by consumers (e.g., steel mills and foundries) which is not traded commercially.
2/ Estimated by the staff of the U.S. International Trade Commission.
3/ Estimated by the staff of the U.S. Department of the Interior, Bureau of Mines.

Sources: Exports and imports, compiled from official statistics of the U.S. Department of Commerce; reported consumption, compiled from official statistics of the U.S. Department of the Interior, Bureau of Mines, except as noted.


Indexes of reported U.S. scrap consumption, and U.S. raw steel production, 1979-84
Index (1979=100)
125
106
87
68
49
30
1979
1980
1981
1982
1983
1984
U.S. raw steel production
Reported U.S. scrap consumption

The steel industry accounted for almost 80 percent of scrap consumption in 1983 (table 25). Both scrap consumption reported by the steel industry and all other industries decreased during 1979-83. Consumption by the steel industry posted the smaller overall decline during this period, and the share of reported scrap consumption represented by the steel industry increased by 1.3 percentage points during 1979-83 to 79.3 percent in 1983.

Table 25.--Iron and steel scrap: Reported U.S. consumption, by types of consumers, 1979-83

Item	1979	1980	1981	1982	1983
	Quantity (1,000 short tons)				
Steel industry 1/	77,190	66,557	68,343	43,698	48,996
All other industries	21,711	17,153	16,754	12,688	12,785
Total	98,901	83,710	85,097	56,386	61,782
	Percent of total				
Steel industry 1/	78.0	79.5	80.3	77.5	79.3
All other industries	22.0	20.5	19.7	22.5	20.7
Total	100.0	100.0	100.0	100.0	100.0

1/ For the purposes of this report, the steel industry does not include firms classified as steel foundries.

Source: Compiled from official statistics of the U.S. Department of the Interior, Bureau of Mines.

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

On a regional basis, reported consumption of scrap declined overall in every region during 1979-83 (table 26), with reduced consumption reported by both the steel industry and all other industries in every region. The relative declines were mildest in the North Central, South Central, and South Atlantic regions, which increased their market shares by 3.3, .4, and .4 percentage points during 1979-83 to 55.1, 11.7, and 9.2 percent in 1983, respectively. This relative strength was primarily due to stronger demand for scrap by the steel industry within these regions (tables F-6 and F-7, app. F). The New England/Middle Atlantic and Mountain/Pacific regions experienced the greatest relative declines during 1979-83 of 3.6 and .5 percentage points, respectively, as their market shares in turn dropped to 17.9 and 6.1 percent.

Producers' shipments

Apparent U.S. producers' shipments followed the downward trend of consumption during 1978-83 and totaled 68.7 million short tons ($4.5 billion) in 1983, a decline of 37.2 percent from 109.4 million short tons ($9.5 billion) in 1979. Shipments increased by 13.2 percent (9.1 million short

Table 26.--Iron and steel scrap: Reported U.S. consumption, by regions, 1979-83

Region 1/	1979	1980	1981	1982	1983
	Quantity (1,000 short tons)				
North Central	51,270	40,738	42,079	29,387	34,045
New England/Middle Atlantic	21,261	18,078	18,161	10,010	11,084
South Central	11,213	11,195	11,101	7,730	7,206
South Atlantic	8,675	7,831	8,012	5,566	5,668
Mountain/Pacific	6,482	5,869	5,744	3,692	3,778
Total	98,901	83,710	85,097	56,386	61,782
	Percent of total				
North Central	51.8	48.7	49.4	52.1	55.1
New England/Middle Atlantic	21.5	21.6	21.3	17.8	17.9
South Central	11.3	13.4	13.0	13.7	11.7
South Atlantic	8.8	9.4	9.4	9.9	9.2
Mountain/Pacific	6.6	7.0	6.7	6.5	6.1
Total	100.0	100.0	100.0	100.0	100.0

1/ Geographic regions are defined as follows:

North Central: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.

New England/Middle Atlantic: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.

South Central: Alabama, Arkansas, Kentucky, Louisiana, Mississippi, Oklahoma, Tennessee, and Texas.

South Atlantic: Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, and West Virginia.

Mountain/Pacific: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

Source: Compiled from official statistics of the U.S. Department of the Interior, Bureau of Mines.

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

tons) during 1983-84 to 77.8 million short tons ($6.0 billion) in 1984. The respective trends for shipments and consumption diverged only during 1980-81, when shipments declined by 3.3 million short tons (3.5 percent) and consumption increased by 1.4 million short tons (1.7 percent). In that year, a 4.7-million-short-ton decrease in exports offset gains in domestic shipments.

Overall declines in apparent producers' shipments were posted in all regions during 1979-83 (table 27). The New England/Middle Atlantic region experienced the most severe decline, primarily because of a 50 percent decrease in scrap consumption by the steel industry within this region during 1979-83.

Table 27.--Iron and steel scrap: Apparent U.S. producers' shipments, by regions, 1979-83

Region 1/	1979	1980	1981	1982	1983
	Quantity (1,000 short tons)				
North Central	52,053	41,595	42,313	29,861	34,486
New England/Middle Atlantic	25,914	22,671	20,811	12,845	14,081
South Central	12,874	13,225	11,989	8,425	8,129
Mountain/Pacific	9,168	8,520	7,703	5,631	6,051
South Atlantic	9,369	8,441	8,304	6,044	5,970
Total	109,378	94,451	91,120	62,806	68,719
	Percent of total				
North Central	47.6	44.0	46.4	47.5	50.2
New England/Middle Atlantic	23.7	24.0	22.8	20.5	20.5
South Central	11.8	14.0	13.2	13.4	11.8
Mountain/Pacific	8.4	9.0	8.5	9.0	8.8
South Atlantic	8.6	8.9	9.1	9.6	8.7
Total	100.0	100.0	100.0	100.0	100.0

1/ Geographic regions are defined as follows:

North Central: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.

New England/Middle Atlantic: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.

South Central: Alabama, Arkansas, Kentucky, Louisiana, Mississippi, Oklahoma, Tennessee, and Texas.

Mountain/Pacific: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

South Atlantic: Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, and West Virginia.

Source: Compiled from official import and export statistics of the U.S. Department of Commerce and official reported consumption statistics of the U.S. Department of the Interior, Bureau of Mines.

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

Imports

Imports were not a significant factor in the U.S. market during 1979-83, when they accounted for no more than 1 percent (on the basis of quantity) of annual reported consumption of scrap. The volume of imports declined irregularly during 1979-83, from 760,284 short tons ($70.9 million) in 1979 to

640,769 short tons ($48.4 million) in 1983 (table 28). The most significant supplier of scrap to the United States during 1979-83 was Canada, which accounted for 92 percent of the total quantity imported in 1983. Mexico, the second largest supplier, accounted for 5 percent of total imports in 1983. These two countries, because of their proximity to the United States, were the major sources of supply throughout 1979-83.

Imports declined by 9.9 percent (63,519 short tons) during 1983-84 to 577,245 short tons ($47.4 million) in 1984. Canada remained the most significant supplier, accounting for 92.8 percent of the import tonnage.

Table 28.--Iron and steel scrap: U.S. imports for consumption, by principal sources, 1979-84

Source	1979	1980	1981	1982	1983	1984
	Quantity (short tons)					
Canada	661,657	475,970	513,750	389,660	589,642	535,483
Mexico	20,361	25,788	33,661	65,807	32,590	22,507
Japan	6,748	24,798	1,174	247	1,345	3,156
United Kingdom	8,231	456	2,420	3,965	2,234	2,322
Switzerland	10	0	7	16	11	37
Austria	100	18	0	25	116	55
West Germany	758	97	937	1,171	2,028	2,142
Panama	2	8,422	15	6,002	0	4,235
All other	62,412	22,597	9,796	7,295	12,798	7,308
Total	760,279	558,146	561,760	474,188	640,764	577,245
	Value (1,000 dollars)					
Canada	59,304	45,850	52,807	32,211	41,754	42,215
Mexico	1,440	2,548	2,973	3,904	2,061	2,932
Japan	4,649	902	2,630	193	2,634	419
United Kingdom	969	1,415	1,770	235	396	264
Switzerland	89	-	11	79	143	179
Austria	830	161	-	118	253	175
West Germany	572	281	140	249	94	131
Panama	1	600	6	61	-	123
All other	3,061	3,259	2,202	976	1,033	989
Total	70,915	55,016	62,539	38,026	48,368	47,427

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

On a regional basis, imports were concentrated in those regions that border Canada (table 29). Scrap is imported in the greatest volume into the North Central region, where scrap is consumed in the largest quantities.

Table 29.--Iron and steel scrap: U.S. imports for consumption, by regions, 1979-84

Region 1/	1979	1980	1981	1982	1983	1984
	Quantity (1,000 short tons)					
North Central	439	280	335	207	381	290
Mountain/Pacific	155	179	120	154	158	203
New England/Middle Atlantic	84	64	83	63	65	60
South Central	33	33	21	48	34	21
South Atlantic	49	2	3	1	3	5
Total	760	558	562	474	641	577
	Percent of total					
North Central	57.8	50.2	59.6	43.7	59.4	50.3
Mountain/Pacific	20.4	32.1	21.4	32.5	24.6	35.2
New England/Middle Atlantic	11.1	11.5	14.8	13.3	10.1	10.4
South Central	4.3	5.9	3.7	10.1	5.3	3.6
South Atlantic	6.4	.4	.5	.2	.5	.9
Total	100.0	100.0	100.0	100.0	100.0	100.0

1/ Geographic regions are defined as follows:
North Central: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.
Mountain/Pacific: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.
New England/Middle Atlantic: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, and Rhode Island.
South Central: Alabama, Arkansas, Kentucky, Louisiana, Mississippi, Oklahoma, Tennessee, and Texas.
South Atlantic: Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, and West Virginia.

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

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

Export Markets

World markets

The major industrialized countries and steel producing nations are the major consumers of iron and steel scrap. The U.S.S.R., the United States, Japan, West Germany, and Italy accounted for over 60 percent of world scrap consumption in 1982 (table 30). World scrap consumption has followed a downward trend, falling from 376.1 million short tons in 1979 to 313.1 short tons

Table 30.--Iron and steel scrap: World consumption, by selected countries, 1979-82

(In thousands of short tons)

Country	1979	1980	1981	1982
U.S.S.R	53,020	56,690	56,900	56,500
United States	98,901	83,710	85,097	56,386
Japan	50,292	48,291	44,616	42,832
West Germany	23,993	22,401	21,632	19,342
Italy	17,928	19,825	17,799	16,944
United Kingdom	16,761	10,248	11,424	11,409
Spain	7,961	9,195	9,933	10,150
China	8,700	9,400	9,000	9,400
Poland	11,597	11,817	9,598	9,093
Czechoslovakia	8,438	8,884	8,244	8,186
France	8,941	8,748	8,040	7,076
Canada	9,145	9,395	8,233	6,261
Brazil	6,497	7,170	6,190	6,080
Korea	1,800	2,200	2,700	3,300
India	4,400	4,080	4,100	4,200
Mexico	2,705	2,345	2,490	2,310
Turkey	1,500	1,900	1,764	1,900
Taiwan	800	1,200	1,100	1,400
All other	42,715	42,098	40,799	40,303
Total	376,094	359,597	349,659	313,072

Source: U.S. Bureau of Mines Minerals Yearbook; United Nations Economic Commission for Europe, Annual Bulletin of Steel Statistics for Europe; Instituto Latino Americano del Fierro y el Acero, Statistical Yearbook of Steelmaking and Iron Ore Mining in Latin America; Iron and Steel Statistics Bureau (United Kingdom); International Steel Statistics, Selected Central and South American countries and Republic of South Africa; OECD, The Iron and Steel Industry.

in 1982. The decline in world scrap consumption is primarily attributed to the decline in world raw steel production during 1979-82. Other factors, such as increased use of direct-reduced iron, decreased open hearth steel production, and the growth in continuous casting within the steel industry probably also contributed to the decline, as did a decrease in world production during this period by the iron and steel foundry industries. Foundry production declined by 27 percent (17.2 million short tons) during 1979-82 to 47.3 million short tons in 1982 (table F-8, app. F). 1/ Further discussion of export markets will focus on the principal scrap consuming industry, the steel industry.

While some of the major consuming countries experienced declines, several countries increased their consumption of ferrous scrap, including Spain, the

1/ Competitive Assessment of the U.S. Foundry Industry: Report to the President on Investigation No. TA-332-176 . . ., USITC Publication 1582, September 1984, p. 5.

U.S.S.R., China, The Republic of Korea (Korea), Turkey, and Taiwan. Each of these countries has experienced increases in raw steel production, while world raw steel production declined. Spain's steelmaking capacity increased by 9 percent 1/ during 1979-83, while raw steel production increased by 4 percent (800,000 short tons) to 14.3 million short tons (table F-9, app. F). More than half of Spain's raw steel production was from electric furnaces. The U.S.S.R., the largest consumer of ferrous scrap and the largest raw steel producer, increased its raw steel production 4 percent (6.6 million short tons) to 170.9 million short tons in 1984. China, the fourth largest steel producer, increased raw steel production 26 percent (9.8 million short tons) to 47.8 million short tons in 1984. Turkey, which is in the midst of industrializing, increased raw steel production by 81 percent (2.1 million short tons) to 4.7 million short tons during 1979-84. In the Asian developing countries of Korea and Taiwan there was an increase in total steel output during 1979-84. Output of raw steel in Korea rose 70 percent (5.9 million short tons) to 14.3 million short tons, and raw steel production in Taiwan increased 17 percent (800,000 short tons) to 5.5 million short tons. 2/

In analyzing the world markets for iron and steel scrap, the steel production process pattern must be considered. In the period 1979-81, the oxygen steel proportion of world output appeared to have stabilized at around 56 percent; open hearth steel output continued to decline, but at a slower pace than in the past; and electric arc furnace steel continued its steady increase. 3/ A review of steel production capacity in the Western world indicates that open hearth steel will be less important and steelmaking will be increasingly shared between oxygen and electric arc furnaces. 4/ Steel production capacity is expanding in the developing countries of the Western World; for example, Taiwan, Korea, India, Pakistan, and Brazil are increasing their capacity through the integrated oxygen route; whereas, Mexico, Venezuela, Saudi Arabia, Qatar, and Indonesia are expanding their capacity through the integrated direct reduction/electric arc furnace mode. 5/

World scrap consumption 6/ relative to raw steel production declined steadily from 45.6 percent in 1979 to 44.0 percent in 1982; however, this ratio increased in several countries (table F-10, app. F). The United States, the United Kingdom, Spain, Turkey, West Germany, the U.S.S.R., and Taiwan are among those countries. The United States and the United Kingdom had the largest ratio in 1982 amounting to 75.6 percent. Spain and Taiwan experienced the greatest changes in ratios during 1979-82, amounting to 11.0 and 13.5 percentage point increases, respectively.

1/ Report to the President on Inv. No. TA-201-51, Carbon and Certain Alloy Steel Products, U.S. International Trade Commission, p. A-130.

2/ Ibid pp. A-136-137.

3/ International Iron and Steel Institute, Scrap and the Steel Industry, Committee on Raw Materials, Brussels 1983, p. 5.1.

4/ Ibid p. 5.2.

5/ International Iron and Steel Institute, Scrap and the Steel Industry, Committee on Raw Materials, Brussels 1983.

6/ Includes consumption by steel mills, foundries, and other consumers.

Unlike the United States, many of the steel producing nations have limited domestic supplies of scrap. 1/ The steel production process pattern, the stage of the country's industrial development, the historical levels of steel consumption, and whether the country is a net importer or exporter of steel products determines whether a country has a scrap deficit or surplus. Some countries are considered scrap deficient, or "scrap sinks," and run a chronic deficit in scrap. 2/ Italy, Spain, Korea, Turkey, and Taiwan are among the countries which rely on imports to satisfy domestic scrap demand. These countries import between 35 to 100 percent of their scrap needs. Other major scrap consumers such as the U.S.S.R., the United States, the United Kingdom, China, and Poland run a scrap surplus.

Of the countries that rely on imports, all have registered declines in their ratios of imports to consumption during 1979-82 (table F-11, app. F) except Spain, which showed an increase of almost 2 percentage points in 1982 compared with 1979. Japan, which was the third largest importer of scrap in 1982, relied less on imports for its needs. In 1979, Japan's ratio of imports to consumption was over 7 percent, whereas in 1982 it was down to 5 percent. Similarly, Canada and Mexico relied less on imports. Canada's ratio of imports to consumption declined from 13 percent in 1979 to 8 percent in 1982, while Mexico's ratio of imports to consumption declined from 15 percent in 1979 to 4 percent in 1982. West Germany, the fifth largest scrap importer in 1982, has not experienced a change in its reliance on imports for consumption, which remained at 7 percent during 1979-82.

Of the major scrap consuming countries, only Japan relies on the United States for significant portions of its imports. The leading scrap consumer, the U.S.S.R., imported about 1 percent of its imports from the United States in 1981 and 1982. West Germany, Italy, the United Kingdom, and Spain together imported 21 percent of their scrap from the United States in 1979 and 7 percent in 1982. This downward trend is also reflected in some of the countries that rely on U.S. imports for a significant portion of their scrap trade. The United States is the largest source of scrap for Korea, Canada, Mexico, and Taiwan. These countries imported 95 percent of their scrap from the United States in 1979, and 80 percent in 1982.

Of the major consuming countries and/or the major markets for U.S. scrap, only Turkey and China experienced an increase in the share of U.S. imports to total imports. The United States' share of imports to Turkey increased from 61 percent in 1979 to almost 100 percent in 1982. China imported less than 1 percent of its imports from the United States in 1979, 9 percent in 1981, and 35 percent in 1982.

U.S. exports

Marketing practices.--There are between 25 and 35 processors, brokers, and metal traders involved in exporting iron and steel scrap. Exporters are

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1/ Technology and Steel Industry Competitiveness, Office of Technology Assessment, June 1980, p. 235.

2/ International Iron and Steel Institute, Scrap and the Steel Industry, Committee on Raw Materials, Brussels 1983, p. 7.1.

represented in foreign countries through agents, affiliates, and sales offices. In terms of marketing, the U.S. export market acts similarly to the domestic market. On a periodic basis, foreign steel mills and foundries contact the agents, affiliates or sales offices in the foreign country to request price quotes on a certain tonnage of scrap to be delivered at a set date. A consumer will request quotes from several suppliers and will usually accept the lowest price. One difference between the domestic and export markets is the longer lead time used by foreign buyers. While domestic consumers buy scrap in 30 day cycles, foreign consumers typically place orders from 60 to 120 days in advance. Generally, the quantities involved are much greater for foreign shipments because of the mode of transportation used. Most exports are transported by ship (exports to Canada and Mexico are transported by rail) which carry 25,000 tons of material compared with railroad gondolas which hold 50 to 60 tons of material. Exporters make substantial investments in accumulating scrap for overseas shipment. At $100 per ton, a gondola car of scrap represents an investment of $5,000, and a 25,000 ton export cargo represents $2.5 million. In addition, exporters must have the resources required to charter and load vessels.

U.S. and foreign government policies affecting exports.--The U.S. and foreign scrap industries are basically domestically oriented and are geared toward supplying the needs of the domestic consumer. 1/ Policies exist which ensure sufficient supplies of scrap to the domestic consumer by limiting exports to various degrees. The impact of these policies is difficult to evaluate, however, the overall volume of scrap trade by the particular country(ies) implementing such policies, and the supplying and consuming countries involved, would be affected to some degree.

Under the Export Administration Act of 1979 (EAA), the U.S. Government is empowered to impose export controls on commodities "to protect the domestic economy from the excessive drain of scarce materials and to reduce the serious inflationary impact of foreign demand." 2/ The U.S. Department of Commerce (Commerce) has the responsibility for monitoring and controlling exports when the volume of exports contributes to inflationary prices or a short supply of material which may have an adverse impact on the economy. In 1973, monitoring and controls on exports of ferrous scrap were established and maintained until the beginning of 1975. 3/ The restrictions were imposed during a period of high steel demand and relatively high prices for scrap.

In 1980, the Ferrous Scrap Consumers Coalition (FSCC), which is comprised of certain steel mills and foundries, petitioned Commerce to monitor exports of iron and steel scrap under the EAA. The Institute of Scrap Iron and Steel (ISIS), National Association of Recycling Industries (NARI), and the Automotive Dismantlers and Recyclers of America were opposed to the petition. In July 1980, Commerce decided not to monitor exports of scrap.

Spain, Sweden, Finland, and South Africa are among the countries that impose outright bans on ferrous scrap exports. Other countries, like Japan,

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1/ International Iron and Steel Institute, Scrap and the Steel Industry, Committee on Raw Materials, Brussels 1983, p. 7.6.

2/ Public Law 69-72, Sept. 29, 1979, 93 Stat. 503.

3/ Under the provisions of the Export Administration Act of 1969.

have bans on exports of certain types of scrap that contain certain alloying raw materials. Austria and Brazil are among the countries that apply partial embargoes on exports of ferrous scrap. Export licenses must be applied for and will only be granted if the needs of the domestic consumers have been satisfied.

Ferrous scrap trade between European Community member countries is free from restrictions, but legislation exists to limit exports to non-member countries if required. 1/ Certain member countries (Italy, Denmark, and Ireland) are currently seeking such restrictions to non-member countries. 2/

Export trends.--The United States was the world's largest exporter of iron and steel scrap during 1979-83, supplying between 53 and 64 countries each year. U.S. exports of ferrous scrap decreased from 11.2 million short tons ($1.2 billion) in 1979 to 7.6 million short tons ($641 million) in 1983 (table 31). In 1984, exports increased to 9.6 million short tons ($929 million).

The U.S. position as the leading exporter eroded during 1979-82. U.S. exports suffered a 39-percent decline (4.3 million short tons) while total world exports fell only 7 percent (1.8 million short tons). The share of U.S. exports to world exports amounted to about 42 percent in 1979. By 1982, the U.S. share had fallen to 28 percent. The decline in market share is attributed to a number of factors, including an increase in scrap surpluses in certain countries and the effects of the strong dollar on scrap trade.

In general, exports are playing a larger role in the domestic scrap industry than in the past. According to industry sources, 15 years ago there were only 10 to 15 processors involved in exporting. In 1983, there were 25 to 35 firms that exported significant portions of their scrap and many more processors who sold to brokers, who in turn exported scrap. During that same period, there were only five or six major foreign markets for scrap. The strength of the U.S. industry in international markets relates to its ability to provide a high quality product in significant volumes. 3/

Exports increased in 1980 because of the expansion of steelmaking in Korea and increased electric furnace production in Spain and Taiwan. 4/ Exports fell in 1981 as world raw steel production declined, the cost of U.S. scrap increased because of the strength of the dollar, and the availability of scrap increased in certain Far East markets. Aided by a reduction in ocean freight rates and low scrap prices, exports recovered somewhat in 1982, despite the continued decline in world raw steel production; however, scrap trading remained difficult because of the strength of the dollar. Reductions in raw steel output in the United Kingdom and Northern Europe resulted in a scrap surplus closer to traditional U.S. markets in the Mediterranean area. Centrally planned economies, such as the U.S.S.R. and Hungary, also increased exports to former U.S. markets such as Italy, Spain, and Turkey and the Far East. Improvements in world steel production in 1983 and 1984 are believed to be largely responsible for the increases in exports in those years.

1/ International Iron and Steel Institute, Scrap and the Steel Industry, Committee on Raw Materials, Brussels 1983, p. 7.5.

2/ European Report, Feb. 22, 1985.

3/ Transcript of the hearing, p. 33.

4/ Minerals Yearbook, U.S. Department of the Interior, Bureau of Mines, p. 4.

Table 31.--Iron and steel scrap: U.S. exports of domestic merchandise, by markets, 1979-84

Market	1979	1980	1981	1982	1983	1984
	Quantity (1,000 short tons)					
Japan	2,929	2,840	1,191	1,530	2,600	2,680
Korea	1,420	1,741	1,241	1,522	1,481	1,833
Turkey	242	318	364	639	700	807
Canada	976	791	842	343	563	779
Mexico	872	1,225	959	412	447	541
Spain	1,400	1,163	434	868	356	608
Taiwan	636	990	374	352	500	405
Venezuela	46	23	55	45	20	392
All other	2,717	2,209	1,125	1,184	911	1,510
Total	11,237	11,299	6,585	6,894	7,577	9,556
	Value (million dollars)					
Japan	306	309	118	145	218	265
Korea	153	193	115	116	112	161
Turkey	23	31	32	48	51	70
Canada	61	58	53	22	40	62
Mexico	94	148	113	39	40	56
Spain	128	115	35	62	23	55
Taiwan	70	126	60	57	76	55
Venezuela	5	2	5	3	1	33
All other	313	257	121	126	81	172
Total	1,153	1,239	650	618	641	929

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

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

While exports experienced a downward trend, similar to apparent U.S. producers' shipments, exports gained a slightly larger share of apparent U.S. producers' shipments, as shown in the following tabulation:

Year	Apparent U.S. producers' shipments (1,000 short tons)	Exports (1,000 short tons)	Ratio of exports to apparent U.S. producers' shipments (Percent)
1979	109,378	11,237	10.3
1980	94,451	11,299	12.0
1981	91,120	6,585	7.2
1982	62,806	6,893	11.0
1983	68,719	7,577	11.0
1984	77,779	9,556	12.3

Regional data.--The east, west, and gulf coasts are the main centers of export trade and the areas where scrap has traditionally been a surplus commodity given the costs involved in transporting scrap from the coasts to inland locations. 1/ The east coast is the principal export area in terms of tonnage, while the west coast is second. The gulf coast is a much smaller export area, but is significant because of the Mississippi River, which is a major transportation link to the Midwest. 2/ Competition for inland scrap can exist between exporters and domestic consumers.

The west coast is a source of scrap for the Far East, while the east coast supplies Europe, South America, and Asia, including the Far East. Depending on freight rates, the Far East countries can obtain scrap from the east coast as economically as the west coast.

U.S. exports of iron and steel scrap from the New England/Middle Atlantic region decreased 35 percent (1.7 million short tons) during the period, from 4.7 million short tons ($454 million) in 1979 to 3.1 million short tons ($235 million) in 1983 (table 32). Exports from the Mountain/Pacific region suffered the smallest overall decline, 14 percent (410,000 short tons), with exports amounting to 2.4 million short tons ($235 million) in 1983, down from 2.8 million short tons ($319 million) in 1979. Exports from the North Central region decreased 33 percent (400,000 short tons) from 1.2 million short tons ($108 million) in 1979 to 822,000 short tons ($55 million) in 1983. A 44 percent decrease (737,000 short tons) was experienced in the South Central region, where exports fell from 1.7 million short tons ($191 million) in 1979 to 957,000 short tons ($79 million) in 1983. The South Atlantic region's exports decreased by the greatest percentage during the period, amounting to a 59 percent drop (438,000 short tons). Exports totaled 305,000 short tons ($36 million) in 1983, compared with 743,000 short tons ($80 million) in 1979. During 1984, exports from all regions increased, yet no region's exports recovered to the 1979 levels.

1/ International Trade and Export Policies in the Ferrous Scrap Market, General Accounting Office, May 1980, p. 13.

2/ Ibid.

Table 32.--Iron and steel scrap: U.S. exports of domestic merchandise, by regions, 1979-84

Region 1/	1979	1980	1981	1982	1983	1984
	Quantity (1,000 short tons)					
New England/Middle Atlantic	4,737	4,657	2,733	2,898	3,062	3,861
Mountain/Pacific	2,841	2,830	2,079	2,093	2,431	2,762
South Central	1,694	2,063	909	743	957	1,137
North Central	1,222	1,137	569	681	822	1,203
South Atlantic	743	612	295	479	305	593
Total	11,237	11,299	6,585	6,894	7,577	9,556
	Value (million dollars)					
New England/Middle Atlantic	454	477	233	236	235	355
Mountain/Pacific	319	349	224	206	235	289
South Central	191	253	111	80	79	133
North Central	108	93	43	43	55	94
South Atlantic	80	68	38	54	36	58
Total	1,153	1,239	649	618	641	929

1/ Geographic divisions are defined as follows:

New England/Middle Atlantic: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.

Mountain/Pacific: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

North Central: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.

South Central: Alabama, Arkansas, Kentucky, Louisiana, Mississippi, Oklahoma, Tennessee, and Texas.

South Atlantic: Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, and West Virginia.

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

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

While exports decreased in absolute terms in all regions during 1979-83, exports from the Mountain/Pacific region increased in terms of percentage of total exports (table 33). In 1984, the Mountain/Pacific region decreased in terms of share of exports while the North Central and South Atlantic gained in share of exports.

Table 33.--Iron and steel scrap: Share of total U.S. exports, in terms of quantity, by region, 1979-84

Region	1979	1980	1981	1982	1983	1984
New England/Middle Atlantic	42.2	41.2	41.5	42.0	40.4	40.4
Mountain/Pacific	25.3	25.0	31.6	30.4	32.1	28.9
South Central	15.1	18.3	13.8	10.8	12.6	12.6
North Central	10.9	10.1	8.6	9.9	10.9	11.9
South Atlantic	6.6	5.4	4.5	7.0	4.0	6.2
Total	100.0	100.0	100.0	100.0	100.0	100.0

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

While the Mountain/Pacific region did not export the largest tonnages of scrap during the period, exports represented the largest share of apparent U.S. producers' shipments in this region. Exports are becoming more important to the scrap industry in that area, with the percentage increasing from 31.0 percent in 1979 to 40.2 percent in 1983 (table 34). The increase is a result of declining raw steel production in that region. California experienced a 69 percent decline (2.5 million short tons), while Arizona, Colorado, Utah, Washington, Oregon, and Hawaii, together, experienced a 39 percent decline (2.0 million short tons) in production (table F-12, app. F).

Most exports from the Mountain/Pacific region supply Far East and Pacific Basin markets. One percent of exports were shipped to Canada and Mexico in 1983, compared with over 5 percent in 1979.

The New England/Middle Atlantic region exported the largest tonnages of scrap each year throughout 1979-83; however, it's share of total exports decreased. The ratio of exports to total apparent U.S. producers' shipments in the region increased from 18.3 percent in 1979, to 21.7 percent in 1983.

Certain states within the New England/Middle Atlantic region experienced significant declines in raw steel production. Pennsylvania, the third largest raw-steel-producing State in 1983, experienced a 54-percent decline in production (15.2 million short tons) in 1983, compared with that of 1979, while raw steel production in New York declined 68 percent (2.7 million short tons) during the period. Japan, Turkey, Canada, India, and Italy were among the countries supplied by the New England/Middle Atlantic region in 1983.

The South Central region exported from 7.6 percent to 15.6 percent of total apparent U.S. producers' shipments during 1979-83. The ratio of exports to total apparent producers' shipments increased from 13.2 percent in 1979 to 15.6 percent in 1980 as the volume of exports increased and raw steel production in Alabama, Tennessee, Mississippi, Arkansas, and Kentucky decreased. In 1981, raw steel production in these states rebounded somewhat, and exports declined. Almost half of the exports in 1983 from the South Central region were sent to Mexico, and 41 percent went to the Far East.

Table 34.--Iron and steel scrap: Total apparent U.S. producers' shipments and exports, by regions, 1979-83

(In thousands of short tons)

Region 1/	Total apparent U.S. producers' shipments	Exports	Ratio of exports to total apparent U.S. producers' shipments
Mountain/Pacific:			
1979	9,168	2,841	31.0
1980	8,520	2,830	33.2
1981	7,703	2,079	27.0
1982	5,631	2,093	37.2
1983	6,051	2,431	40.2
New England/Middle Atlantic:			
1979	25,914	4,737	18.3
1980	22,671	4,657	20.5
1981	20,811	2,733	13.1
1982	12,845	2,898	22.6
1983	14,081	3,062	21.7
South Central:			
1979	12,874	1,694	13.2
1980	13,225	2,063	15.6
1981	11,989	909	7.6
1982	8,425	743	8.8
1983	8,129	957	11.8
South Atlantic:			
1979	9,369	743	7.9
1980	8,441	612	7.3
1981	8,304	295	3.6
1982	6,044	479	7.9
1983	5,970	305	5.1
North Central:			
1979	52,053	1,222	2.3
1980	41,595	1,137	2.7
1981	42,313	569	1.3
1982	29,861	681	2.3
1983	34,488	822	2.4

1/ Geographic regions are defined as follows:

North Central: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.

New England/Middle Atlantic: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, and Rhode Island.

South Central: Alabama, Arkansas, Kentucky, Louisiana, Mississippi, Oklahoma, Tennessee, and Texas.

South Atlantic: Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, and West Virginia.

Mountain/Pacific: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

Source: Producers' shipments, compiled from official statistics of the U.S. Department of the Interior, Bureau of Mines, and U.S. Department of Commerce; exports, compiled from official statistics of the U.S. Department of Commerce.

The South Atlantic region's exports accounted for a decreasing percentage of total apparent U.S. producers' shipments during the period, because exports declined at a greater rate than total producers' shipments. Over 67 percent of the exports from the South Atlantic region in 1983 were shipped to the Far East, with the balance going to India, Greece, and Columbia.

The North Central region, with the largest share of raw steel production, exported slightly over 2 percent of their total apparent U.S. producers' shipments of scrap during 1979-83. The North Central region is the largest raw steel producing region, which accounts for the relatively small ratio of exports to total apparent U.S. producers' shipments. While raw steel production in Ohio, Indiana, Illinois, and Michigan declined about 29 percent between 1979 and 1983, the relative importance of exports remained the same. Exporters in the North Central region are involved in a seasonal business. Shipments through the Great Lakes and the St. Lawrence Seaway are contingent upon favorable weather, with the waterway usually open from the second week in April until the second week in December. Only smaller ships are available in this region. One third of the exports from the North Central region were shipped to Canada. The balance was shipped to the Far East, Spain, Turkey, India, and Italy.

Major U.S. markets.--The Southeast Asian countries of Japan, Korea, and Taiwan were the largest markets for U.S. scrap, accounting for 51 percent of exports during 1984, up from 44 percent in 1979. Turkey was the third largest market in 1984, accounting for 8 percent of exports. Exports to Turkey more than tripled compared with the 1979 level, when the country accounted for 2 percent of U.S. exports. While exports to Canada declined 20 percent (196,547 short tons) during 1979-84, the country continued to be a major market for U.S. scrap.

The most dramatic decline occurred in exports to Spain. In 1979, Spain was the third largest market for U.S. scrap and accounted for 13 percent of exports. By 1983, Spain was the seventh largest market and accounted for 5 percent of U.S. scrap exports. During the period 1979-83, U.S. exports to Spain decreased 75 percent (1.0 million short tons). Spain continued to be a scrap deficit country because imports rose during the period. However, a larger portion of Spain's imports were from the United Kingdom. The restructuring of the British steel industry resulted in increased scrap availability and therefore increased scrap exports from the United Kingdom. 1/

U.S. exports of scrap to Japan decreased from 2.9 million short tons ($306 million) in 1979 to 2.6 million short tons ($218 million) in 1983. U.S. exports of scrap recovered to 2.7 million short tons ($265 million) in 1984. Japanese firms purchase U.S. scrap on the basis of import price, the competing domestic price, and the yen-to-dollar exchange rate. According to the U.S. Bureau of Mines, exports to Japan were at reduced levels during 1979-81 because of a cutback in 1979 in steel production (especially by electric furnace operators) and the availability of Chinese scrap. During the period, Japanese scrap importers turned to the U.S. east coast because of large contracts placed on the U.S. west coast by the South Koreans.

1/ Transcript of the hearing, pp. 31-32.

In 1982, approximately 27 percent of Japan's steel was produced by the electric furnace process, part of which consisted of higher quality steels that are generally produced to strict specifications in relatively small amounts. 1/ Some Japanese steelmakers increasingly depended on imports of certain specific grades of scrap because of the demand for these high quality steels. In 1983, about 86 percent of Japan's steel production was continuously cast, making it a world leader in the share of raw steel produced by this method. 2/

The United States is the largest source of scrap for Japanese consumers. However, the share of total Japanese imports of scrap supplied by the United States declined from 79.4 percent in 1979 to 68.5 percent in 1982. 3/ Japan has one of the largest trade deficits in ferrous scrap (table 35).

U.S. exports of iron and steel scrap to Korea increased from 1.4 million short tons ($153 million) in 1979, to 1.5 million short tons ($112 million) in 1983. In 1984, exports increased to 1.8 million short tons ($161 million). The United States supplied Korea with 76.3 percent of their imports of scrap in 1982, compared with 81.5 percent in 1979. About 25 percent of Korea's raw steel output in 1982 was from electric furnaces; the remainder was from basic-oxygen furnaces. 4/ Korea had a trade deficit in scrap that amounted to 1.8 million short tons in 1982.

U.S. exports of iron and steel scrap to Canada decreased from 976,000 short tons ($61 million) in 1979 to 563,000 short tons ($40 million) in 1983. Exports recovered to 779,000 short tons ($62 million) in 1984. Total Canadian imports followed a similar trend during the period, with U.S. scrap accounting for 84 percent of Canadian imports in 1979 and 69 percent in 1982.

Canada became a net exporter of scrap in 1982, with a trade surplus of 189,000 short tons. Canada registered a trade deficit the previous 3 years, with the largest deficit occurring during 1982. Production of raw steel in Canada declined during 1979-83, falling 20 percent (3.6 million short tons) to 14.1 million in 1983. Approximately 62 percent of Canada's steel production in 1982 was by basic-oxygen furnaces, 24 percent in electric furnaces, and 14 percent in open-hearth furnaces. About one-third of the raw steel made in Canada is continuously cast. 5/ Canada's ratio of scrap consumption to raw steel production fell from 52 percent in 1979 to 48 percent in 1982.

U.S. exports of scrap to Taiwan decreased from 636,000 short tons ($70 million) in 1979, to 405,000 short tons ($55 million) in 1984. Total Taiwanese imports of ferrous scrap followed a similar trend, with U.S. scrap accounting for 76 percent of Taiwan's imports in 1979 and 49 percent in 1982. Taiwan was a net importer of scrap throughout the period.

1/ Report to the President on Inv. No. 201-TA-51, Carbon and Certain Alloy Steel Products, U.S. International Trade Commission, p. a-127.

2/ Ibid.

3/ Compiled from statistics of the U.S. Department of Interior, U.S. Bureau of Mines.

4/ Report to the President on Inv. No. 201-TA-51, Carbon and Certain Alloy Steel Products, U.S. International Trade Commission, p. a-136.

5/ Ibid, p. a-118.

Table 35.--Iron and steel scrap: Exports, imports, and trade balance, by selected countries, 1979-82

(In thousands of short tons)

Item	1979	1980	1981	1982
Japan:				
Exports	166	175	206	193
Imports	3,688	3,291	1,974	2,232
Trade balance	-3,522	-3,116	-1,768	-2,039
Korea:				
Exports	14	10	28	155
Imports	1,742	2,130	2,546	1,994
Trade balance	-1,728	-2,120	-2,518	-1,839
Canada:				
Exports	1,139	865	632	689
Imports	1,156	1,119	924	500
Trade balance	-17	-254	-292	189
Taiwan:				
Exports	79	14	141	443
Imports	839	1,358	971	718
Trade balance	-760	-1,344	-830	-275
Spain:				
Exports	1/	1	1	1
Imports	3,805	4,835	4,479	5,000
Trade balance	-3,805	-4,834	-4,478	-4,999

1/ Less than 500 short tons.

Source: Compiled from official statistics of the U.S. Department of the Interior, Bureau of Mines.

Production of raw steel in Taiwan increased from 4.7 million tons in 1979 to 5.5 million tons in 1983. In 1982, almost two-thirds of Taiwan's raw steel output originated in basic-oxygen furnaces; the remaining one-third was from electric furnaces. 1/ Taiwan has increased its consumption of scrap relative to raw steel production from 17.1 percent in 1979 to 30.6 percent in 1982.

U.S. exports of ferrous scrap to Mexico decreased from 872,000 short tons ($94 million) in 1979 to 447,000 short tons ($40 million) in 1983. Exports recovered to 541,000 short tons ($56 million) in 1984. Several devaluations of the Mexican peso in May 1982 hindered imports of ferrous scrap to Mexico although steel plants and foundries continued to require scrap. In August 1982, shipments from the United States to Mexico were delayed because of the additional devaluation of the peso and the cancellation of insurance covering shipments. In November 1982, some Texas scrap brokers resorted to barter trading with Mexico because of the uncertain financial situation in Mexico and

1/ Report to the President on Inv. No. TA-201-51, Carbon and Certain Alloy Steel Products, U.S. International Trade Commission, p. a-137.

the relatively high freight rates for the Texas brokers to ship scrap to markets in the United States. 1/

Mexico's raw steel production rose from 7.7 million short tons in 1979 to 8.4 million tons in 1981 and then fell to 7.6 million tons in 1983. Mexico's steel industry has the capacity to produce 9 million tons of steel, but plant expansions scheduled for the next 2 years are expected to raise that limit to 10 million tons. 2/ Electric furnaces accounted for 44 percent of raw steel output in 1982, basic-oxygen furnaces, 41 percent; and open-hearth furnaces, 15 percent. 3/ During 1979-82, Mexico's scrap consumption relative to raw steel production declined from 35 percent to 30 percent.

U.S. exports of ferrous scrap to Spain decreased from 1.4 million short tons ($128 million) in 1979, to 356,000 short tons ($23 million) in 1983, then increased to 608,000 short tons ($55 million) in 1984. Spain is the second largest importer of scrap, having imported 5 million short tons in 1982.

Imports from the United States accounted for 38 percent of Spain's imports in 1979, but the U.S. share declined to 17 percent by 1982. About 70 percent of Spain's imports in 1983, were from the United Kingdom, whose Government insured exporters against risky payments for cargoes to 30 privately owned Spanish minimills. 4/

Production of raw steel in Spain increased by 6 percent (800,000 short tons) from 13.5 million tons in 1979 to 14.3 million tons in 1983. More than half of Spain's raw steel production was from electric furnaces in 1982. Basic-oxygen furnaces accounted for 45 percent of production and open-hearth furnaces for 3 percent. 5/ Spain had the third highest ratio of scrap consumption to raw steel production in 1982, amounting to 70 percent. Spain has encountered an increase from the 59-percent level in 1979.

1/ Bureau of Mines Minerals Yearbook 1982, Iron and Steel Scrap, U.S. Department of the Interior.

2/ Journal of Commerce, Apr. 20, 1984.

3/ Report to the President on Inv. No. TA-201-51, Carbon and Certain Alloy Steel Products, U.S. International Trade Commission, p. a-136.

4/ Minerals Yearbook 1983, Iron and Steel Scrap, U.S. Bureau of Mines.

5/ Report to the President on Inv. No. TA-201-51, Carbon and Certain Alloy Steel Products, U.S. International Trade Commission, p. a-130.

LOST SALES AND INDUSTRY RESPONSES

1979-83

Lost sales

The majority of the iron and steel scrap producers responding to the Commission's questionnaires indicated that they did not lose sales of ferrous scrap during 1979-83 because of imports of semifinished steel by firms that historically purchased ferrous scrap from their firms. Their responses are shown in the following tabulation (in percent): 1/

Firm lost sales	38
Firm did not lose sales	62
Total	100

Of the firms that did indicate that they had lost scrap sales during 1979-83 because of imported semifinished steel, about 26 percent were able to cite lost sales to specific firms. The lost sales data for these firms are shown in the following tabulation (in short tons): 2/

Scrap sales lost to specified firms	386,400
Scrap sales lost to nonspecified firms	400,400
Total	786,800

Of the scrap sales allegedly lost to specific firms, 198,240 short tons (51.3 percent) could be checked against the questionnaire responses of the cited consumers. About 103,389 short tons (52.2 percent) of such alleged lost sales appear to be corroborated by the volume of imported semifinished steel purchased by such consumers. The remaining alleged lost sales either were attributed to firms that did not purchase imported semifinished steel or were in excess of the amounts of scrap likely to be affected by the volume of imports reported. Together, these factors suggest that scrap producers perceived scrap sales lost to imported semifinished steel imports during 1979-83 to be a more serious problem than was actually the case.

Industry responses

Those firms indicating that they lost scrap sales during 1979-83 because of semifinished steel imports reported that their firm's principal reactions to this loss of business were to reduce employment, reduce the volume of scrap purchases, and reduce the prices paid for scrap (table 36).

1/ Data include responses of 91 firms.
2/ Data include responses of 9 firms.

Table 36.--Iron and steel scrap: U.S. producers' principal reactions to lost sales of ferrous scrap due to imports of semifinished steel by consumers which historically have purchased ferrous scrap from their firms, 1/ as given by questionnaire respondents, 1979-83

(In percent)

Item	Response
Closed facilities	3
Relocated facilities	-
Reduced number of--	
Persons employed at facilities	77
Shifts per day at facilities	55
Days per week that facilities were operated	39
Hours per day that facilities were operated	58
Reduced volume of scrap purchases	77
Reduced prices paid for scrap	77
Reduced size of scrap inventories	39
Began exporting scrap	13
Increased volume of scrap exports	16
Expanded marketing range in the United States	32
Other (specify)	3

1/ Data include responses of 31 firms.

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

1984-88

Anticipated lost sales

The majority of the iron and steel scrap producers responding to the Commission's questionnaires indicated that they did not anticipate the loss of ferrous scrap sales during 1984-88 because of the importation of semifinished steel by firms that historically had purchased ferrous scrap from their firms. Their responses are shown in the following tabulation (in percent): 1/

	Share of firms
Firm anticipates lost sales	39
Firm does not anticipate lost sales	61
Total	100

Scrap producers apparently do not anticipate a significant increase in the loss of sales because of imports of semifinished steel, since their responses were almost identical to those for 1979-83.

1/ Data include responses of 85 firms.

Of the firms that indicated that they did anticipate lost scrap sales during 1984-88 because of imported semifinished steel, about 9 percent were able to estimate the anticipated volume of lost sales to specific customers. The anticipated lost sales data for these firms are shown in the following tabulation (in short tons): 1/

	Lost sales
Anticipated scrap sales lost to specified firms	488,320
Anticipated scrap sales lost to nonspecified firms	274,400
Total	762,720

Of the anticipated lost sales to specific firms, 232,960 short tons (47.7 percent) could be checked against the questionnaire responses of the cited consumers. About 72,440 short tons (31.1 percent) of anticipated lost sales appeared plausible, given the quantities of imported semifinished steel purchased by such consumers during 1979-83 and of their anticipated purchases in 1988.

Anticipated industry responses

U.S. iron and steel scrap producers indicated that should they lose ferrous scrap sales during 1984-88 because of imports of semifinished steel (regardless of whether they actually anticipated such losses or not) their firm's principal responses would be to reduce employment and the price paid for scrap, followed by reducing the volume of scrap purchases and the daily operating levels at facilities (table 37).

1/ Data include responses of 7 firms.

Table 37.--Iron and steel scrap: U.S. producers' likely principal reactions to lost sales of ferrous scrap due to imports of semifinished steel by consumers which historically have purchased ferrous scrap from their firms, 1/ as given by questionnaire respondents, 1984-88

(In percent)

Item	Response
Close facilities	26
Relocate facilities	4
Reduce number of--	
Persons employed at facilities	77
Shifts per day at facilities	32
Days per week that facilities were operated	51
Hours per day that facilities were operated	58
Reduce volume of scrap purchases	61
Reduce prices paid for scrap	67
Reduce size of scrap inventories	47
Begin exporting scrap	19
Increase volume of scrap exports	11
Expand marketing range in the United States	26
Other (specify)	9

1/ Data include responses of 57 firms.

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

ASSESSMENT OF THE IMPACT OF SEMIFINISHED STEEL IMPORTS ON THE U.S. IRON AND STEEL SCRAP MARKET

Demand, Supply, and Price

Demand

Demand for domestic iron and steel scrap is primarily affected by U.S. production of steel mill and foundry products. U.S. production of these ferrous products is in turn dependent on final consumer demand for fabricated steel products and on competition from materials that compete with U.S.-produced steel, including substitute materials and imported steel. 1/

Demand factors differ for each of the scrap-market segments--home scrap, prompt industrial scrap, and obsolete scrap. In a sense, these three different types of scrap are substitute products and compete with each other. The commercial scrap industry is essentially composed of the processors of obsolete scrap and prompt industrial scrap. 2/

1/ See earlier section of this report for a fuller discussion of the relationship between steel production and scrap consumption.

2/ Only independent scrap processors will be considered part of the scrap industry. A steel consumer, such as an automobile manufacturer, may also process scrap for direct sale to the scrap consumer, but will not be considered part of the scrap industry.

A scrap consumer may use all three types of scrap. Based on Commission questionnaire data, home scrap accounted for 46 percent of total scrap usage in 1983. Purchased scrap, composed largely of prompt industrial and obsolete scrap, accounted for the remaining 54 percent. 1/ Scrap consumers generally prefer home and prompt industrial scrap over obsolete scrap, and when the availability of these types of scrap increases, the proportion of obsolete scrap used will likely decline. 2/ The demand for obsolete scrap is, in a sense, a residual demand after available home and prompt industrial scrap have been consumed. Thus, in a weak steel market the demand for obsolete scrap will likely decline proportionately more than the demand for steel, and just the opposite will occur in a strong steel market.

The United States is one of the largest scrap generators in the world and has traditionnally been a major scrap exporter to foreign steel producers. Export demand has, therefore, constituted a significant portion of total demand for purchased U.S. scrap, accounting for an average of 10 percent of net scrap receipts from 1979 to 1983. Export demand is positively affected by higher foreign steel production and negatively affected by greater foreign scrap supply and increases in domestic scrap price relative to export price. 3/

Supply

Determinants of scrap supply in the home scrap and prompt industrial scrap segments of the industry are relatively straightforward. Home scrap and prompt industrial scrap are essentially residual products of steel and iron production and consumer and capital goods production, respectively. Supplies of these two types of scrap are, therefore, determined outside the scrap

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1/ There are no data collected separately for prompt industrial and obsolete scrap quantities, although various sources have estimated the proportion of purchased scrap accounted for by these two components. The Institute of Scrap Iron and Steel, Inc., estimates that obsolete scrap accounts for about 63 percent of total purchased scrap (The Phoenix Quarterly, Winter 1984), while Robert R. Nathan Associates, Inc. estimates that obsolete scrap accounted for about 65 percent of total purchased scrap in 1983 (Iron and Steel Scrap, August 1984).

2/ This preference is based on the concept that home and prompt industrial scrap are generally cleaner and of known quality (grade) relative to obsolete scrap (see Scrap and the Steel Industry, International Iron and Steel Institute, 1983, pp. 3.1 and 3.3, and Price Volume Relationships for the Supply of Scrap Iron and Steel: A Study of the Price Elasticity of Demand, Robert R. Nathan Associates, Inc., p. 5). If the price of obsolete scrap falls sufficiently below the price of prompt industrial scrap, however, obsolete scrap may then be "preferred," notwithstanding the qualitative difference. A scrap consumer must consider both of these purchasing factors (relative quality and relative prices) when deciding on its mix of prompt industrial and obsolete scrap.

3/ See "Description of the markets for iron and steel scrap: Export markets" for a fuller discussion.

market and independent of scrap prices. 1/ However, changes in the supply of home scrap or prompt industrial scrap can affect the scrap market price.

Obsolete scrap supply is that portion of the U.S. scrap stock that is recovered, processed, and made available for use to scrap consumers by scrap processors. The scrap stock is the reservoir of obsolete scrap that has been discarded and can be considered a potential supply. Scrap processors or collectors have some discretion within the scrap market as to how much of the scrap stock is to be processed into actual scrap supply, and this decision is affected by such factors as scrap prices and scrap processing costs. 2/ At lower scrap prices or higher scrap processing costs, there is less incentive to collect and process scrap. As the demand for scrap increases, the supply of scrap may become relatively price inelastic as scrap processors reach their capacity contraints or scrap becomes progressively more costly to recover. 3/ The scrap processor will expand capacity only if the higher demand level is considered to be relatively long-term.

Price

Price levels for purchased scrap are determined through the interaction of supply and demand forces which were discussed previously. There exists no market price for home scrap because this scrap does not generally enter the marketplace. However, steel producers or foundries incur a cost (above the cost involved to simply dispose of the scrap) to collect and process home scrap into a usable form. Although the number of scrap consumers may be small relative to that of scrap processors, their number is still large enough to insure a competitive market for available scrap supplies. In a strong steel market, scrap consumers are willing to pay higher prices to obtain the needed scrap requirements, and scrap processors also are willing to supply greater quantities of obsolete scrap at higher prices.

1/ Robert R. Nathan Associates, Inc. estimated that the supply elasticities for home and prompt industrial scrap were close to zero--i.e. changes in scrap price elicited little change in the quantity of scrap supplied to consumers. Price-Volume Relationships for the Supply of Scrap Iron and Steel: A Study of the Price Elasicity of Supply, January 1979.

2/ Robert R. Nathan Associates, Inc. estimated that the U.S. supply elasticity for obsolete scrap was an average of .83. This means that for every 1 percent increase (decrease) in scrap price, the quantity of scrap supplied to the domestic market increased (decreased) by .83 percent.

3/ According to a study published by the Industrial Economic Research Institute of Fordham University, during the strong scrap market of 1973-74 obsolete scrap supply increased by an average of 7 percent for every 100 percent increase in price. Purchased Ferrous Scrap: United States Demand and Supply Outlook, 1977. With respect to capacity constraints, the scrap industry has indicated that capacity utilization has never exceeded 50 percent (transcript of the hearing, p. 48); given current demand forecasts for steel production, capacity would therefore not appear to be a factor which would affect supply elasticity in the forseeable future.

Scrap markets and prices are differentiated by scrap grade, with No. 1 heavy melting steel and electric furnace bundles accounting for about 39 percent of U.S. scrap receipts in 1983. 1/ Other scrap grades include No. 2 heavy melting steel, shredded or fragmented carbon steel, cut structural and plate carbon steel, and No. 2 bushelings. In 1983, the average price differential between No. 1 and No. 2 heavy melting steel in Pittsburgh was $8.46 per ton or 11 percent. 2/ Because of high transport costs for scrap relative to its total price, scrap markets also tend to be somewhat localized, and significant price differences can exist among regions in the United States. 3/

As shown in table 38, prices for all the shown scrap grades fluctuate with changes in demand for scrap, represented by changes in raw steel production levels. Over the period January 1979-December 1984, scrap prices reached their lowest point in October-December 1982, also the quarter of lowest raw steel production. Prices rebounded with the general economic recovery in 1983 and early 1984 but softened somewhat in the most recent two quarters as the demand for steel weakened.

From the supply side, prompt industrial scrap is a residual product generated in the production of consumer or industrial durable goods containing steel and must be continually removed from the plant for efficient production. 4/ Producers of these durable goods are also aware that because the scrap they generate has value as a raw material input to foundries and steel mills, they can command a price for it. During strong market conditions, prompt industrial scrap generally commands a higher price than does obsolete scrap; during weak market conditions, however, the price of prompt industrial scrap approaches the price of obsolete scrap. This is consistent with the notion that the supply of prompt industrial scrap is more price inelastic than that of obsolete scrap, suggesting that the price of prompt industrial scrap would vary considerably more than that of obsolete scrap with changes in demand.

1/ Bureau of Mines, Iron and Steel Scrap, 1983, p. 19.

2/ American Metal Market, Metal Statistics 1984, p. 183.

3/ For example, in the week ending Nov. 28, 1983, the No. 1 heavy melting scrap price in Pittsburgh was $89.00 per short ton compared with $42.00 per short ton in Los Angeles, as reported in the Iron Age magazine of Dec. 5, 1983. This differential is primarily explained by the fact that California has a large scrap stock and few scrap consumers.

4/ For example, a trade publication of the scrap industry reported that if prompt industrial scrap hauling from one automobile plant stopped for more than 20 minutes, stamping machines at the plant must be closed down. Phoenix Quarterly, spring 1980.

Table 38.--Iron and steel scrap: No. 1 and No. 2 heavy melting steel scrap prices in specified cities and the composite prices and winning bid prices for auto bundles, by quarters, January-March 1979 to October-December 1984

(Dollars per gross ton)

Period	No. 1 heavy melting steel scrap 1/		No. 2 heavy melting steel scrap 1/ in Pittsburgh	Auto bundles 3/	Raw steel production
	Composite 2/	Pittsburgh			
	Per gross ton				1,000 short tons
1979:					
Jan.-Mar-----	$109.88	$110.71	$101.87	$123.18	34,243
Apr.-June----	102.23	105.19	94.83	111.47	37,215
July-Sept----	92.54	94.12	83.48	98.98	33,671
Oct.-Dec-----	91.24	93.05	83.11	95.65	30,803
1980:					
Jan.-Mar-----	103.31	105.78	93.61	105.39	32,472
Apr.-June----	81.65	83.60	73.16	69.02	27,384
July-Sept----	85.69	88.87	77.71	96.02	21,582
Oct.-Dec-----	100.89	104.64	94.96	106.87	29,679
1981:					
Jan.-Mar-----	101.12	106.49	95.20	112.37	32,362
Apr.-June----	98.02	103.82	91.11	105.11	33,117
July-Sept----	93.56	103.08	90.43	105.68	29,898
Oct.-Dec-----	80.64	88.89	79.50	84.97	24,637
1982:					
Jan.-Mar-----	85.58	89.60	81.44	77.70	22,965
Apr.-June----	64.20	65.62	57.56	52.56	19,734
July-Sept----	55.54	57.78	49.06	49.98	16,557
Oct.-Dec-----	51.60	52.88	44.63	43.90	14,265
1983:					
Jan.-Mar-----	66.72	69.98	63.49	76.47	18,372
Apr.-June----	69.07	71.87	64.17	71.53	21,696
July-Sept----	64.28	79.36	71.27	84.45	21,075
Oct.-Dec-----	81.55	86.73	75.20	99.03	21,945
1984:					
Jan.-Mar-----	94.28	101.26	87.69	103.86	25,168
Apr.-June----	91.97	98.95	83.16	90.55	26,116
July-Sept----	83.37	86.68	74.81	79.04	20,753
Oct-Dec------	81.96	83.89	72.12	69.67	19,138

1/ This category generally represents prices for obsolete scrap.
2/ Composite average prices at Pittsburgh, Chicago, and Philadelphia.
3/ This category represents a prompt industrial scrap price.

Source: American Metal Market, Metal Statistics 1984, and Bureau of Mines.

Effect on the U.S. Iron and Steel Scrap Market

The impact of semifinished steel imports on the scrap market will differ significantly depending on which segment of the U.S. steel industry is importing the product. For example, a portion of semifinished steel imports has traditionally served as feedstock for steel rolling and finishing mills when furnaces have been temporarily shut down for repairs. 1/ This is a necessary, short-term interruption in U.S. semifinished steel production, and semifinished steel imports for this purpose are likely to have a temporary effect on the U.S. scrap market.

The importation of semifinished steel by a U.S. steel producer to replace its own production capacity has the greatest potential to affect processors of obsolete and certain prompt industrial scrap through a decrease in the demand for processed scrap. This decline in demand would reduce the quantity of processed scrap purchased and, in turn, would contribute to a decline in scrap prices. The magnitude of the decline in demand will depend on the quantity of semifinished steel being imported and on the proportion of scrap that the U.S. steel producer had formerly used in its semifinished steel production. For example, production using the open hearth furnace uses about 45 to 50 percent scrap, production using the BOF uses about 27 percent scrap, and production using the electric furnace uses about 98 or 99 percent scrap. Therefore, the decline in scrap demand for every ton of imported semifinished steel will be greater if imported semifinished steel replaces open hearth or electric furnace capacity rather than BOF capacity.

The steel producer purchasing the semifinished steel will continue to generate scrap in the rolling and finishing of steel products but will no longer consume this scrap internally if all melt operations have been closed. To the extent that sales of this home scrap further displace sales of processed obsolete and prompt industrial scrap, a secondary decline in demand for processed scrap will occur. 2/ The magnitude of this secondary effect will depend on the amount of home scrap generated from the imported semifinished steel. 3/

1/ Questionnaire responses to date show that 9 percent of respondents purchased semifinished steel for this reason during 1979-83 (see table 17).

2/ The same quantity of home scrap is generated by a steel mill in the rolling and finishing operations whether it imports or produces a given tonnage of semifinished steel. However, the impact of this home scrap on the scrap market differs between the two sourcing alternatives. If imported, the internal demand for the generated home scrap no longer exists, leading to additional supplies of home scrap on the open market which may result in a decline in demand for obsolete scrap.

3/ Commission questionnaire data indicate that the yield for transforming semifinished steel into finished steel products was 70 percent in 1982 and 72 percent in 1983, meaning that about 30 percent of semifinished steel tonnage in 1983 became home scrap. The yield is expected to rise significantly as U.S. producers increase their use of continuous casting. The International Iron and Steel Institute estimated that the continuous casting production method generates 50 percent less home scrap than the ingot casting method.

These demand declines at the initial price will be offset to some degree to the extent that the producer exporting semifinished steel to the United States also uses scrap imported from the United States. Demand for U.S. scrap exports will increase as foreign semifinished steel production for export to the United States increases. Associated with the decline in scrap demand is a decline in scrap price (see figure in Appendix G), which results in more scrap purchased in both home and export markets than would have been the case at the higher initial price. However, the relative magnitude of these offsetting factors is likely to be less than the decline in scrap demand caused by semifinished steel imports.

The reasons why U.S. steel producers may choose to import rather than produce their own semifinished steel are discussed elsewhere in this report. The remainder of this section will discuss the effect on the scrap market of semifinished steel imports during 1979-84, and of projected 1988 imports. 1/

1979-84

In 1979, the steel industry was operating at relatively high capacity utilization rates, so it is reasonable to assume that most semifinished steel imports in 1979 complemented rather than displaced U.S. semifinished steel capacity. 2/ Therefore, it is unlikely that semifinished steel imports in 1979 had a significant adverse impact on the U.S. scrap industry.

The semifinished steel import level in 1980 was the lowest over the 12 year period 1973-84 and partially reflects the weakness of the dollar relative to other currencies, making semifinished steel imports more costly. Accordingly, the 1980 import level is used here as an estimate of the base level of semifinished steel imports. This base level of imports could represent semifinished steel used by the steel industry for temporary feedstock during refurbishing of their own melting operations, or types of semifinished steel not produced in the United States. 3/

As discussed in the section, "Imports of semifinished steel," the increase in semifinished steel imports from 155,345 short tons in 1980 to 790,062 short tons in 1981 was largely the result of a short term increase in imports from Canada. Although semifinished steel imports from Canada decreased significantly in 1982, the total volume of imports remained at relatively high levels in 1982, 1983, and 1984. A portion of semifinished steel imports in these years likely replaced U.S. semifinished steel production, as imported semifinished steel became a relatively cheaper

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1/ Projections based on questionnaire responses from U.S. steel producers.

2/ Over the period 1975 to 1983, capacity utilization was at its highest level in 1979, at 87.8 percent, according to AISI data.

3/ See table 18 for a more complete analysis of reasons why steel producers import semifinished steel, which includes reasons other than replacing their own steel capacity.

input. 1/ Imported semifinished steel, rather than their own in-house production, could have been used by integrated steel producers and by non-steel producers that invested in rolling operations but not melting operations.

A simple estimate of the level of semifinished steel imports in 1982, 1983, and 1984 that may have adversely affected the U.S. scrap industry is made by subtracting the 1980 base semifinished steel import level of 155,345 short tons from semifinished steel import levels in the three years. This method, however, overstates any adverse effect, because it assumes that if semifinished steel had not been imported in 1982-84, it would have been produced domestically. Another possibility is that if semifinished steel had not been imported, some finished steel products would have been imported instead, and steel producers using more costly in-house semifinished steel would have lost some market share. 2/ The "worst case" estimates 3/ of the effect of semifinished steel imports on scrap prices and scrap sales in 1982, 1983, and 1984 are shown in Table 39. Also shown in this table are the effects on scrap consumption and prices of changes in steel production caused by factors other than semifinished steel imports. 4/

The estimates show that semifinished steel imports had an adverse effect on net scrap receipts and scrap prices in 1982, 1983 and 1984, but that changes in steel production had a greater impact on the scrap market. Based on the estimates, semifinished steel imports caused a 250,000 short ton decrease in net scrap receipts and a $0.90 per short ton decrease in scrap price in 1982, a 274,000 short ton and $0.82 per short ton decrease in 1983, and a 546,000 short ton and $1.74 per short ton decrease in 1984. Changes in net steel production caused a decrease in net scrap receipts of 9.2 million short tons and a decrease in the price of scrap of $28.59 per short ton in 1982, increases of 1.7 million short tons and $5.13 per short ton in 1983, and increases of 1.9 million short tons and $6.29 per short ton in 1984.

1/ Based on questionnaire responses, 27 percent of U.S. producers' imported semifinished steel because it was less expensive than semifinished steel produced in-house. This indicates that some semifinished steel imports displaced in-house production, although not necessarily permanently. Another 9 percent of producers returning questionnaires imported semifinished steel due to closed steelmaking facilities, indicating a more permanent replacement (see table 17).

2/ For example, one major producer argued that if it did not import slabs from the United Kingdom, it would have to close both its melting and rolling operations because it would not be competitive (see Business Week, June 6, 1983). If this had occurred, the lost market share likely would have been captured by other U.S. steel producers and by foreign steel.

3/ "Worst case" estimates assume that all imports of semifinished steel above the base level have permanently replaced U.S.-produced semifinished steel.

4/ See Appendix G for the methodology used to arrive at these estimates.

Table 39.--Iron and steel scrap: Estimated impact on net scrap receipts and on scrap prices of semifinished steel imports, 1/ and of changes in net steel production, 1982-1984

Year and item	Quantity 2/	Price 3/
	1,000 short tons	Per short ton
1981 actual	41,981	$83.33
1982:		
Estimated changes caused by:		
Semifinished steel imports	-250	-0.90
Net steel production changes	-9,217	-28.59
Estimated	32,514	53.84
Actual	27,520	54.42
1983:		
Estimated changes caused by:		
Semifinished steel imports	-274	-0.82
Net steel production changes	1,661	5.13
Estimated	28,907	58.73
Actual	32,557	68.30
1984:		
Estimated changes caused by:		
Semifinished steel imports	-546	-1.74
Net steel production changes	1,919	6.29
Estimated	33,930	72.85
Actual 4/	33,918	77.65

1/ These are "worst case" estimates. "Worst case" estimates assume that all imports of semifinished steel above the base level have permanently replaced U.S.-produced semifinished steel. Both actual and estimated quantities and prices are presented for comparison purposes. Differences between the actual and estimated values may be partially accounted for by market factors not taken into account in these estimates (e.g., inventory changes). The most significant difference appears to be in the actual and estimated price for 1983, which was almost $10.00 per short ton.

2/ Net receipts of purchased scrap.

3/ The actual scrap price for each year is a weighted average of (1) the composite price for No. 1 heavy melting scrap, and (2) auto bundles price, which represent obsolete scrap prices and prompt industrial scrap prices, respectively.

4/ Net scrap receipts for 1984 are not yet available from Bureau of Mines. However, 1984 scrap consumption data are available, and because there has been a relatively constant relationship between net scrap receipts and scrap consumption, staff estimated 1984 net scrap receipts based on this relationship.

Source: Net receipts of purchased scrap from Survey of Current Business. Prices from American Metal Market.

Note.--See appendix G for the methodology used to arrive at these estimates.

1988

The Commission requested that steel producers report their anticipated purchases of imported semifinished steel in 1988. Based on their responses, the volume of total U.S. imports of semifinished steel is projected at 1.7 to 3.1 million short tons in 1988. Assuming that the yield to transform semifinished steel to final steel products remains at 72 percent in 1988, 1/ imports are forecast to affect net scrap receipts and prices as follows:

	Quantity (1,000 short tons)	Price (per short ton)
1984 actual----------	33,918	$77.65
1988 estimated changes caused by semifinished steel imports of:		
1.7 million tons----------	-45	-0.16
3.1 million tons----------	-363	-1.30

The estimates show that an increase in imports from 1.5 million short tons in 1984 to 1.7 to 3.1 million short tons in 1988 would result in relatively small changes in net scrap and prices from their respective 1984 levels. 2/ Using 1980 as the base year, the effect is calculated as resulting in a decline in net scrap receipts of 350,000 to 668,000 short tons, and a decline in scrap prices of $1.25 to $2.39 per short ton.

While responses to the Commission did not suggest that steel producers would be closing steelmaking facilities and replacing production with semifinished steel imports by 1988, such actions cannot be ruled out under certain economic conditions. The effect of such actions on the scrap industry would depend on the size of the facility that would be closed and the type of steelmaking furnace affected. 3/ Using 1983 net scrap receipts and scrap prices as the base levels, estimates of the effects on net receipts and prices of replacing steel capacity in the Pennsylvania/North Central State region (the most steel intensive region) with semifinished steel imports are made for facilities with identical annual steel capacities of 3 million short tons 4/ using: (1) open-hearth furnaces, (2) BOF's, and (3) electric furnaces (table 40). 5/

1/ Yield based on data collected from Commission questionnaires.

2/ Actual imports in 1988 may be affected by the President's steel program. See "Review of Statutory Investigations" section for a discussion of the program.

3/ Each steelmaking process requires different proportions of scrap in the furnace charge.

4/ Three million short tons represents the capacity of an average size integrated steelmaking facility in the United States (see IISS Commentary: Techno-Economic Report, Institute for Iron and Steel Studies, January 1983).

5/ Capacity figure of 3 million short tons for electric furnace facilities is used for comparison purposes only. Such facilities typically have smaller capacities.

Table 40.--Iron and steel scrap: Estimated impact on net scrap receipts and scrap prices of a hypothetical replacement of steel capacity by semifinished steel imports, by types of production method, 1983

Item	Quantity	Aggregate market price	Regional market price 1/
	1,000 short tons	Per short ton	
Base quantity and price	32,557	$68.30	$68.30
Change in quantity and price caused by semifinished steel imports replacing:			
3 million short ton BOF capacity	-856	-$2.84	-$4.54
3 million short ton open hearth capacity	-982	-$3.25	-$5.18
3 million short ton electric furnace capacity	-2,311	-$7.55	-$11.91

1/ Represents changes in the scrap price, if the effect of semifinished steel imports replacing capacity of an east coast steel mill were restricted to the Pennsylvania and North Central States scrap markets.

Source: Net receipts of purchased scrap from Survey of Current Business. Prices from American Metal Market.

Note.--See app. G for the methodology used to arrive at these estimated.

Table 40 shows that closure of a 3 million short ton integrated steel plant (i.e., BOF or open hearth facility) would likely reduce scrap industry sales volume (i.e., net scrap receipts) and prices by an estimated 3 percent and 4 to 5 percent, respectively. On a regional basis, the effect would be more pronounced, as scrap prices would likely decline by an estimated 7 to 8 percent. The effect on scrap price of replacement of domestic capacity with imported semifinished steel will be more pronounced in the regional scrap market than in the overall U.S. market, because high transportation costs for scrap preclude the price effects from spreading to all regional markets. Estimates assume that most of the price effect of semifinished steel imports into the Pennsylvania/North Central state region to replace capacity will be in the scrap markets of that region.

Effects on Regional U.S. Markets

Imports of semifinished steel do not appear to have a significant effect on regional U.S. markets as a whole, but data indicate that such imports may have a noticeable effect on a more localized basis. 1/ Even in the region

1/ According to International Trade and Export Policies in the Ferrous Scrap Market, General Accounting Office, 1980, p. 11, "Scrap is traded in a number of distinct submarkets, chiefly the Pittsburgh, Chicago, and Philadelphia areas."

with the largest import volume, the North Central region, 1/ imports have had relatively little effect on scrap demand and supply. Imports into this region totaled 1.2 million short tons during 1981-83 (51.2 percent of the U.S. total). Assuming that all of these imports replaced U.S.-produced steel (questionnaire responses indicate that this is not the case), such imports would have reduced scrap demand in this region by an estimated 800,500 short tons, an amount equal to .8 percent of the 105.5 million short tons of reported scrap consumption in this region during this period. 2/ Such imports would have reduced demand for purchased scrap by an estimated 397,000 short tons, an amount equal to .8 percent of estimated purchased-scrap consumption (reported consumption minus home scrap production) of 50.5 million short tons in this region during this period. At the same time, the processing of such imports into finished mill products would have added an estimated 397,000 short tons of scrap to the region's scrap supply, an amount equal to .4 percent of reported consumption and .8 percent of estimated purchased-scrap consumption. 3/

Respondents' data tend to support concerns about the effects on scrap demand and supply distribution patterns on a more localized level. In the Detroit area, for example, U.S. producers reportedly have difficulty selling scrap during a month in which imports of semifinished steel arrive, but their ability to sell scrap recovers when imports stop. 4/ Questionnaire data for U.S. producers in the Detroit area give this statement some measure of support, since their declines in production and domestic shipments during 1979-83 clearly exceeded the industry averages for this period, as shown by the following tabulation: 5/

1/ The North Central region is the major steelmaking region in the United States (representing over 56 percent of total U.S. raw steel production in 1983) and has ample finishing mills to process imported semifinished steel.

2/ Demand calculations were based on import data for each year during 1981-83 in combination with raw steel production/semifinished steel production, total scrap consumption/raw steel production, and purchased scrap consumption/raw steel production ratios derived from questionnaires responses of U.S. steel producers. U.S. steel producers (34 firms) indicated that it required an average of 1.138, 1.137, and 1.125 short tons of raw steel to produce 1 short ton of semifinished steel during 1981, 1982, and 1983, respectively. Respondents (61 firms) also indicated that they consumed an average of .586, .596, and .599 short ton of scrap to produce 1 short ton of raw steel during 1981, 1982, and 1983, respectively, with purchased scrap representing .260, .299, and .324 short ton of these totals.

3/ Supply calculations were based on import data for each year during 1981-83 in combination with a scrap production by processing semifinished steel/semifinished steel production ratio derived from questionnaire responses of U.S. steel producers. Respondents (11 firms) indicated that they generated an average of .260, .299, and .324 short ton of scrap processing semifinished steel during 1981, 1982, and 1983, respectively.

4/ Transcript of the hearing, pp. 21-23. Scrap processors in the Detroit area confirmed this statement with Commission staff conducting fieldwork in that area.

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

	Detroit area scrap producers (Percentage change 1979 from 1983)	U.S. scrap producers (Percentage change 1979 from 1983)
Production	-21.0	-11.7
Quantity of domestic shipments	-19.4	-9.4
Quantity of inventories	6.7	58.7
Total number of persons employed	-9.1	-16.3
Number of production workers	-11.9	-18.3
Hours worked by production workers	-9.5	-19.8
Profits on iron and steel scrap operations	-41.7	-76.8

However, other key data for Detroit area producers, such as inventories and profits, were more favorable than industry averages.

Concern has also been expressed that the introduction of a large volume of scrap (generated by processing imported semifinished steel) into a specific area would have a "rippling effect" on scrap markets, forcing scrap supplies into a succession of adjoining submarkets. 1/ It is claimed that such supplies in the Philadelphia area would ultimately affect scrap supplies in the Midwest. 2/ This scenario is not accepted by all parties, 3/ but questionnaire responses indicate that scrap producers have responded to imports of semifinished steel by expanding their marketing ranges in the past (32 percent of respondents) and intend to do so in the future (26 percent of respondents).

In particular, localized effects of semifinished steel are expected to become more pronounced in the Los Angeles area in the future, if projected import levels of semifinished steel in that area materialize. Imports in that area are expected to total 850,000 short tons. 4/ These imports will not affect scrap demand in that area, since they will not replace U.S.-produced steel. They will add a significant amount of scrap, 42,500 to 68,000 short tons, 5/ to the area's scrap supply, an amount equal to up to 1.8 percent of reported scrap consumption in the entire Mountain/Pacific region in 1983 and up to 2.6 percent of estimated purchased scrap consumption (reported consumption minus home scrap).

1/ Transcript of the hearing, p. 39.

2/ It is claimed that the introduction of such extra scrap supplies into the Philadelphia market would cause scrap that was generally sold in the Philadelphia market to move to the Pittsburgh area. This in turn would cause scrap that was generally sold in the Pittsburgh market to move to the Chicago area. Ultimately scrap processors in North Dakota, South Dakota, Minnesota, Montana, and Wisconsin would be affected. Transcript of the hearing, p. 39.

3/ Transcript of the hearing, p. 96.

4/ Ibid, p. 109.

5/ Scrap generation rate assumed to be 5 to 8 percent, based on letter from Mr. Howard L. Wilkinson, Director of Corporate Affairs for California Steel Industries, Inc.

ASSESSMENT OF THE IMPACT OF SEMIFINISHED STEEL IMPORTS ON THE U.S. IRON AND STEEL SCRAP INDUSTRY

1979-83

The performance of the iron and steel scrap industry unquestionably declined during 1979-83. Based on questionnaire responses, every significant index for performance showed unfavorable trends during this period, as shown by the following tabulation (in percent): 1/

Item	Index
Quantity of U.S. producers' domestic shipments	-11.7
Quantity of U.S. producers' export shipments	-10.6
Quantity of U.S. producers' inventories	58.7
Total number of persons employed	-16.3
Number of production workers employed	-18.3
Hours worked by production workers	-19.8
Profits on iron and steel scrap operations	-76.8

The principal cause of these trends was declining world raw steel production, especially in the United States. U.S. imports of semifinished steel contributed to these trends, but were of too low a volume to have a significant effect on the U.S. industry. During the years of high import levels, 1981-83, imports of semifinished steel totaled only 1.6 million short tons above the annual average posted by imports during 1964-80. Reported U.S. consumption of iron and steel scrap totaled 203.3 million short tons during the same period. In addition, the effects of the 1.6 million short tons were diminished because only 36 percent of respondents indicated that the imported items replaced products formerly produced by their firms that would have, in turn, reduced their raw steel production (and scrap consumption) rates. Respondents did not report either widespread or significant reductions in raw steel production or capacity as a result of their purchases of imported semifinished steel during this period.

U.S. purchasers of imported semifinished steel indicated that they tended to captively consume the scrap generated by processing imported semifinished steel. Only 20 percent of such firms indicated that they sold any of this material, and sales were only to domestic scrap processors, dealers, and/or brokers. The scrap that was sold during 1979-83 probably remained in the U.S. market, since it apparently became more difficult to export scrap from the United States during this period, as indicated by the 32.6 percent decline in U.S. exports during 1979-83 and the 13-percentage-point decline in the share of world scrap imports represented by U.S. exports during 1979-82.

The U.S. steel industry's restructuring efforts to become more competitive with foreign-produced finished steel products had a significant impact on the iron and steel scrap industry during this period. Some of these efforts had beneficial effects on the scrap industry and some did not. The

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

growth in steel produced with electric furnaces, production of continuously cast steel, and imports of semifinished steel that replaced U.S.-produced steel all represent part of these restructuring efforts.

Compared with integrated facilities, steelmaking with electric furnaces requires less than half of the capital investment, 1/ has lower environmental costs, and yields a 74 percent energy savings. 2/ At the same time, the growth in steel production by virtually scrap dependent electric furnaces increases demand for scrap. The increasing share of raw steel produced by electric furnaces during 1979-83, from 24.9 percent in 1979 to 31.5 percent in 1983, added an estimated 15.3 million short tons to scrap consumption during this period.

Efforts to improve yields and reduce waste (home scrap), primarily through continuous casting, reduced home scrap supply and increased the importance of purchased scrap during 1979-83. Annual U.S. production of continuously cast steel increased by 17.9 percent (4.1 million short tons) during 1979-83 (table F-13, app. F). 3/ Home scrap production declined by 47.8 percent during this same period and its significance relative to purchased scrap diminished, as shown by the following tabulation: 4/

1/ Inflation and Ferrous Scrap: Is Export Monitoring Necessary?, American Iron and Steel Institute, p. 2.

2/ Prehearing brief of the Institute of Scrap Iron and Steel, Inc., p. 6.

3/ Data for 1983 supplied by nonintegrated steel producers producing exclusively either continuous cast or ingot cast steel (22 firms in each case) indicate that the continuous cast method reduces overall scrap demand by 21.3 percent and increases demand for purchased scrap by 4.6 percent. Data relating to the production of a net short ton of finished steel product by each of these methods is shown in the following tabulation:

	Continuous cast (short tons)	Ingot cast (short tons)
Home scrap consumed	.122	.514
Purchased scrap consumed	1.139	1.089
Total scrap consumed	1.261	1.602
Raw steel produced	1.131	1.502
Scrap generated	.131	.502

This same trend may not be applicable to continuous casting employed by integrated steel producers, since they may choose to offset the decline in available home scrap (that continuous casting affords) with the addition of pig iron, rather than purchased scrap, to their furnace charges.

4/ Data compiled from official statistics of the U.S. Department of the Interior, Bureau of Mines.

	Home scrap production (1,000 short tons)	Estimated purchased scrap (reported scrap consumption minus home scrap production) as a share of reported U.S. scrap consumption (Percent)
1979	52,219	47.2
1980	42,207	49.6
1981	43,260	49.2
1982	27,127	51.9
1983	27,247	55.9

Imports of semifinished steel provide U.S. steel producers with a relatively quick and low-cost means to become more competitive with imported finished steel products and the products of other domestic mills. Integrated producers, whose trends in overall production levels, capacity, capacity utilization, and production of continuously cast steel were all below those of nonintegrated producers during 1979-83 (tables F-14 and F-15, app. F), purchased for the bulk of imports (67.2 percent) during 1979-83. These purchases by integrated producers appear to have been a temporary measure, since no integrated producers indicated that they intend to purchase imported semifinished steel in 1988. Unlike increased electric furnace and continuous cast production, increased semifinished steel imports are not beneficial to the scrap industry, since they reduce scrap demand and/or increase scrap supply.

1988

U.S. imports of semifinished steel are forecast to reach 1.7-3.1 million short tons in 1988, compared with actual imports of 1.5 million short tons in 1984. Questionnaire responses indicate that only eight firms anticipate such purchases in 1988. None of these firms are integrated steel producers; all are either nonintegrated steel producers or processors of purchased steel. The bulk of these imports will not replace U.S.-produced steel; they will add to U.S. scrap supply while leaving scrap demand largely unaffected. Steel producing respondents did not anticipate either widespread or significant reductions in raw steel production or capacity in connection with such purchases. The scrap generated from the processing of imported semifinished steel, will typically be captively consumed by the purchasers (cited by 80 percent of the respondents).

Import tonnages of 1.7-3.1 million short tons pose no real threat to the scrap industry on a national, or even regional level, but they could (as has been claimed) pose problems in very specific geographical areas. In that regard, respondents indicate that imports of semifinished steel into the Detroit area, which are currently of particular interest to the scrap industry, are expected to diminish both in volume and in their effect on the local scrap market by 1988. Imports in the Los Angeles area, on the other hand, are expected to increase both in volume and in their effect on that local scrap market by 1988.

A continuation in the U.S. steel industry's restructuring efforts is expected to increase U.S. demand for purchased scrap and minimize the effects of semifinished steel imports by 1988. Electric-furnace steel production, which is virtually scrap dependent, is expected to continue to grow in the United States. 1/ Continued U.S. growth in continuous casting is also expected. Further, integrated steel producers are developing new technology to add more scrap to their furnaces. 2/

Voluntary restraint arrangements (VRA's) on both finished steel mill products and on semifinished steel are expected to improve U.S. demand for steelmaking materials, such as scrap, and limit further import growth of semifinished steel, respectively. A VRA of 1.7 million short tons on semifinished steel would limit imports to about 200,000 short tons above the import total of 1.5 million short tons in 1985, short of the expected maximum import volume of 3.1 million short tons in 1988. However, the Institute of Scrap Iron and Steel, Inc., has indicated its concern that it is too early to make any assessment of VRA's and has stated, "at this early stage, it is by no means certain that the agreements will restrict imports to the desired levels, or that the quantitative limits are fixed." 3/

Since the level of semifinished imports is expected to be somewhat higher during 1988 than during 1979-83, such imports are likely to have a slightly greater negative effect on the U.S. iron and steel scrap industry than did imports during 1979-83. Like that period, the effects of such imports on the U.S. scrap industry may not be neutralized by increased exports, since the strength of the U.S. dollar would seem to moderate, but not prohibit, improvement in the export potential of U.S.-produced scrap. A weaker dollar would enhance this export potential. However, imports of semifinished steel in the 1.7-3.1 million short ton range are likely to remain of peripheral significance to the economic health of the iron and steel scrap industry. The scrap industry's future in 1988, as during 1979-83, will depend on the U.S. steel industry's ability to compete (and melt steel) in the U.S. market.

1/ Prehearing briefs of the National Association of Recycling Industries, Inc., p. 5 and of the Ferrous Scrap Consumers Coalition, pp. 7-8.

2/ Transcript of hearing, p. 34.

3/ Post-hearing brief of the Institute of Scrap Iron and Steel, Inc., pp. 5-6.

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APPENDIX A

COPY OF LETTER TO CHAIRWOMAN PAULA STERN FROM CHAIRMAN SAM GIBBONS, SUBCOMMITTEE ON TRADE, HOUSE WAYS AND MEANS COMMITTEE, REQUESTING AN INVESTIGATION

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September 4, 1984

The Honorable Paula Stern
Chairwoman, United State International
Trade Commission
701 E Street, N.W.
Washington, D.C. 20436

Dear Madam Chairwoman:

On behalf of the Subcommittee on Trade, I would like to request an investigation pursuant to section 332 of the Tariff Act of 1930, on the effects of semifinished steel imports on the domestic iron and steel scrap industry.

The U.S. iron and steel scrap industry consists of approximately 2,900 establishments employing 24,000 employees throughout the United States. The industry performs a vital function in the processing of recyclable metallics for use in ironmaking and steelmaking. The increased importation of semifinished steel in recent years by the steel industry, and expectations that these imports may increase, are of concern since these imports could have a significant effect on the domestic scrap industry by lowering scrap consumption. At the same time, domestic processing of the imported semifinished steel will continue to generate supplies of scrap which may have additional implications on the scrap market.

A healthy, viable scrap industry is critical to the iron and steel industry. As you know, electric furnaces, which are virtually 100 percent scrap-reliant, now account for over 30 percent of domestic raw steel production. The long term implications of semifinished steel imports on the scrap industry are therefore of interest.

In conducting its examination, the Commission should: (1) describe the markets for U.S. iron and steel scrap; (2) analyze recent trends in imports of semifinished steel imports; and (3) assess the impact of semifinished steel imports on the U.S. scrap market and the U.S. scrap industry. To the extent possible, the study should also address any regional issues which might be pertinent.

The investigation should begin as soon as possible, with the final report to be submitted to the Subcommittee within eight months of this request.

Sincerely,

Sam M. Gibbons
Chairman

SMG/JNl

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APPENDIX B

NOTICE OF THE COMMISSION'S INVESTIGATION

agencies may file written submissions addressing the issues of remedy, the public interest, and bonding. Written submissions on the issue under review and on remedy, the public interest, and bonding must be filed not later than the close of business on the day which is fourteen (14) days from the date this notice appears in the Federal Register.

Additional Information

Persons submitting written submissions must file the original document and 14 true copies thereof with the Office of the Secretary on or before the deadline stated above. Any person desiring to submit a document (or a portion thereof) to the Commission in confidence must request confidential treatment unless the information has already been granted such treatment by the presiding officer. All such requests should be directed to the Secretary of the Commission and must include a full statement of the reasons why the Commission should grant such treatment. Documents containing confidential information approved by the Commission for confidential treatment will be treated accordingly. All nonconfidential written submissions will be available for public inspection at the Secretary's Office.

Notice of this investigation was published in the Federal Register of May 25, 1983 (48 FR 23491) (Investigation No. 337-TA-148) and October 28, 1983 (48 FR 49557-49558) (Investigation No. 337-TA-169).

Copies of the nonconfidential version of the presiding officer's initial determination and all other nonconfidential documents filed in connection with this investigation are available for inspection during official business hours (8:45 a.m. to 5:15 p.m.) in the Office of the Secretary, U.S. International Trade Commission, 701 E Street NW., Washington, D.C. 20436, telephone 202-523-0161.

FOR FURTHER INFORMATION CONTACT: Judith M. Czako, Esq., Office of the General Counsel, U.S. International Trade Commission, telephone 202-523-3395.

Issued: October 2, 1984.

By order of the Commission.

Kenneth R. Mason,

Secretary.

[FR Doc. 84-26874 Filed 10-10-84; 8:45 am]

BILLING CODE 7020-02-M

[332-195]

Effects of Semifinished Steel Imports on the U.S. Iron and Steel Scrap Industry

AGENCY: United States International Trade Commission.

ACTION: Institution of an investigation under section 332(b) of the Tariff Act of 1930 (19 U.S.C. 1332(b)) concerning the effects of semifinished steel imports on the U.S. iron and steel scrap industry, and the scheduling of a hearing in connection therewith.

EFFECTIVE DATE: October 2, 1984.

FOR FURTHER INFORMATION CONTACT: James Lukes (202-523-0279), Minerals and Metals Division, U.S. International Trade Commission, Washington, D.C. 20436 (telephone 202-523-0275).

Background and Scope of Investigation

The Commission instituted the investigation, No. 332-195, on its own motion, following receipt on September 12, 1984 of a request therefor from the Chairman of the Subcommittee on Trade, Committee on Ways and Means, U.S. House of Representatives. In accordance with the Subcommittee's request, the study will include: (1) A description of the markets for U.S. iron and steel scrap; (2) an analysis of recent trends in imports of semifinished steel, and (3) an assessment of the impact of semifinished steel imports on the U.S. scrap market and the U.S. scrap industry. The Commission will address any regional issues which it finds pertinent. The Commission expects to complete its study by May 10, 1985.

Public Hearing

A public hearing in connection with this investigation will be held at the International Trade Commission in Washington, D.C., on March 12, 1985, at 10 a.m. All persons shall have the right to appear by counsel or in person, to present information, and to be heard. Requests to appear at the public hearing should be filed with the Secretary, U.S. International Trade Commission, 701 E Street, NW., Washington, D.C. 20436, not later than noon, March 5, 1985.

Written Submissions

In lieu of or in addition to appearance at the public hearing, interested persons are invited to submit written statements concerning the investigation. Commercial or financial information which a submitting party desires the Commission to treat as confidential must be submitted on separate sheets of paper, each clearly marked "Confidential Business Information" at the top. All submissions requesting confidential treatment must conform with the requirements of § 201.6 of the Commission's *Rules of Practice and Procedure* (19 CFR 201.6). All written submissions, except for confidential business information, will be made available for inspection by interested persons. To be assured of consideration by the Commission, written statements should be received at the earliest possible date, but no later than March 5, 1985. All submissions should be addressed to the Secretary at the Commission's Office in Washington, D.C.

Issued: October 4, 1984.

By order of the Commission.

Kenneth R. Mason,

Secretary.

[FR Doc. 84-26882 Filed 10-10-84; 8:45 am]

BILLING CODE 7020-02-M

[Investigation No. 22-47]

Certain Tobacco

AGENCY: United States International Trade Commission.

ACTION: Institution of an investigation under section 22(a) of the Agricultural Adjustment Act (7 U.S.C. 624(a)) and scheduling of a public hearing in connection therewith.

SUMMARY: Following receipt on September 10, 1984, of a request from the President for an investigation under section 22 of the Agricultural Adjustment Act, the Commission instituted investigation No. 22-47 for the purpose of detertmining whether flue-, fire-, and dark air-cured tobacco and burley tobacco, in unmanufactured form, as provided for in items 170.20, 170.25, 170.32, 170.35, 170.40, 170.45, 170.50, 170.60, and 170.80 of the Tariff Schedules of the United States (TSUS), is being or is practically certain to be imported into the United States under such conditions and in such quantities as to render or tend to render ineffective, or materially interfere with, the price support and production adjustment programs for tobacco of the U.S. Department of Agriculture.

EFFECTIVE DATE: September 10, 1984.

FOR FURTHER INFORMATION CONTACT: William Lipovsky (202-724-0097), Agriculture Division, Office of Industries, U.S. International Trade Commission, or David Coombs (202-523-1376), Office of Investigations, U.S. International Trade Commission.

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APPENDIX C

LIST OF WITNESSES APPEARING AT THE HEARING

TENTATIVE CALENDAR OF PUBLIC HEARING

Those listed below appeared as witnesses at the United States International Trade Commission's hearing:

Subject : The Effects of Semifinished Steel Imports on the U.S. Iron and Steel Scrap Industry

Inv. No. : 332-195

Date and time: March 12, 1985 - 10:00 a.m.

Sessions were held in the Hearing Room of the United States International Trade Commission, 701 E Street, N.W., in Washington.

Domestic:

Patton, Boggs & Blow--Counsel
Washington, D.C.
on behalf of

Institute of Scrap, Iron and Steel

Dr. Hershel Cutler, Executive Director

James Fowler, Assistant Executive Director

Frank R. Samolis--OF OUNSEL

Collier, Shannon, Rill & Scott--Counsel
Washington, D.C.
on behalf of

The Ferrous Scrap Consumers Coalition

Irving Kaplan, Secretary of the Copperwel Corporation, Pittsburgh, Pennsylvania

Economic Consulting Services, Washington, D.C.

Bruce Malashevich, Vice President

Paul C. Rosenthal--OF COUNSEL

Importers:

Sharretts, Paley, Carter & Blauvelt, P.C.--Counsel
Washington, D.C.
on behalf of

California Steel Industries, Inc. (CSI)

Peter O. Suchman--OF COUNSEL

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APPENDIX D

EXPLANATION OF THE RATES OF DUTY APPLICABLE TO SEMIFINISHED STEEL AND IRON OR STEEL WASTE AND SCRAP AND SELECTED PORTIONS OF THE TARIFF SCHEDULES OF THE UNITED STATES ANNOTATED (1985)

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Explanation of the rates of duty applicable to semifinished steel 1/ and iron or steel waste and scrap

The rates of duty in column 1 are most-favored-nation (MFN) rates and are applicable to imported products from all countries except those Communist countries and areas enumerated in general headnote 3(f) of the TSUS. The People's Republic of China, Hungary, Romania, and Yugoslavia are the only Communist countries eligible for MFN treatment. However, MFN rates would not apply to products of developing countries if preferential tariff treatment is granted under the Generalized System of Preferences (GSP) or the Caribbean Basin Economic Recovery Act (CBERA) or under the "LDDC" column.

The preferential rates of duty in the "LDDC" column reflect the full U.S. MTN concession rates implemented without staging for particular items and apply to covered products of the least developed developing countries, enumerated in general headnote 3(d) of the TSUS. Where no rate of duty is provided in the "LDDC" column for a particular item, the rate of duty in column 1 applies.

The rates of duty in rate of duty column numbered 2 apply to imported products from those Communist countries and areas enumerated in general headnote 3(f) of the TSUS.

The GSP is a program of nonreciprocal tariff preferences granted by the United States to developing countries to aid their economic development by encouraging greater diversification and expansion of their production and exports. The GSP, enacted in title V of the Trade Act of 1974, implemented by Executive Order No. 11888 of November 24, 1975, and renewed in title V of the Trade and Tariff Act of 1984, applies to merchandise imported on or after January 1, 1976, and is scheduled to remain in effect through July 4, 1993. It provides duty-free entry to eligible articles imported directly from designated beneficiary developing countries. Eligible articles are identified in the column marked "GSP" with an "A" or "A*." The designation "A" means that all beneficiary developing countries are eligible for the GSP, and "A*" indicates that certain developing countries, specified in general headnote 3(c) of the TSUSA, are not eligible.

The CBERA provides nonreciprocal tariff preferences granted by the United States to developing countries in the Caribbean Basin area to aid their economic development by encouraging greater diversification and expansion of their production and exports. The CBERA, as enacted in title II of Public Law 98-67 and implemented by Presidential Proclamation 5133 of November 30, 1983, applies to merchandise entered, or withdrawn from warehouse for consumption, on or after January 1, 1984, and is scheduled to remain in effect until September 30, 1995. It provides duty-free entry to eligible articles imported directly from designated developing countries in the Caribbean Basin area.

1/ For the purposes of this report, semifinished steel includes slab-like products more than 6 inches in thickness classified as "plates" under TSUSA items 607.6620, 607.7210, 607.7603, and 607.7803.

GSP	Item	Stat. Suffix	Articles	Units of Quantity	Rates of Duty		
					1	LDDC	2
			PART 2. - METALS, THEIR ALLOYS, AND THEIR BASIC SHAPES AND FORMS Part 2 headnotes: 1. This part covers precious metals and base metals (including such metals when they are chemically pure), their alloys, and their so-called basic shapes and forms, and, in addition, covers metal waste and scrap. Unless the context requires otherwise, the provisions of this part apply to the products described by whatever process made (i.e., whether rolled, forged, drawn, extruded, cast or sintered) and whether or not such products have been subjected to treatments to improve the properties or appearance of the metals or to protect them against rusting, corrosion or other deterioration. These treatments include annealing, tempering, case-hardening and similar heat-treatments or nitriding; descaling, pickling, scraping, scalping and other processes to remove oxidation scale and crust; rough coating with oil, tar, grease, red lead, or other material to prevent rusting; polishing, burnishing, glazing, artificial oxidation, phosphatizing, and other finishing treatments; metallization by cementation, by electroplating, by immersion in a bath of molten metal, or by other means; coating with enamel, paint, lacquer, or other non-metallic substances; and cladding. This part does not include — (i) insulated electric conductors (see part 5 of this schedule); (ii) milliners' wire and other wire covered with textile or other nonmetallic material (see part 3B of this schedule); (iii) leaf and foil (see part 3C of this schedule); or (iv) other articles specially provided for elsewhere in the tariff schedules, or parts of articles. 2. Alloys. — (a) For the purposes of the tariff schedules, alloys are defined and classifiable as hereinafter set forth. Alloys are metallic substances consisting of two or more metals, or of one or more metals and one or more non-metals, intimately united, usually by having been fused together and which may or may not have been dissolved in each other when molten; they include sintered mixtures of metal powders and heterogeneous intimate mixtures obtained by fusion, but do not include substances in which the total weight of the metals does not equal or exceed the total weight of the non-metal components.				

GSP	Item	Stat. Suffix	Articles	Units of Quantity	Rates of Duty		
					1	LDDC	2
			(b) Precious-metal alloys are alloys which contain 2 percent or more by weight of one or more metals of the platinum group, of gold, or of silver. Precious-metal alloys are classifiable as — (i) alloys of platinum, if they contain 2 percent or more by weight of one or more metals of the platinum group; (ii) alloys of gold, if they contain 2 percent or more by weight of gold, but contain no metal of the platinum group or less than 2 percent by weight thereof; and (iii) alloys of silver, if they contain 2 percent or more by weight of silver, and are not alloys of platinum or alloys of gold, as defined in (b)(i) and (b)(ii), respectively, of this headnote. (c) Base-metal alloys are alloys which contain one or more base metals and are not any of the precious-metal alloys, as defined in (b) of this headnote. Base-metal alloys are classifiable as — (i) alloys of that base metal which predominates by weight over each of the other metallic elements contained therein, except as specified in (c)(ii) of this headnote; and (ii) ferroalloys (as defined in headnote 2(e) of subpart B of this part) or master alloys (as defined in headnote 2(b) of subpart C of this part) under their respective headings in subpart B or C of this part, regardless of the base metal therein which predominates by weight. (d) In the tariff schedules, unless the context requires otherwise, a provision for a specific metal includes that metal and its alloys. 3. For the purposes of this part, unless the context requires otherwise — (a) the term "unwrought" refers to metal, whether or not refined, in the form of ingots, blocks, lumps, billets, cakes, slabs, pigs, cathodes, anodes, briquettes, cubes, sticks, grains, sponge, pellets, shot, and similar primary forms, but does not cover rolled, forged, drawn, or extruded products, tubular products, or cast or sintered forms which have been machined or processed otherwise than by simple trimming, scalping, or descaling; (b) the term "waste and scrap" refers to materials and articles of metal which are second-hand or waste or refuse, or are obsolete, defective or damaged, and which are fit only for the recovery of the metal content or for use in the manufacture of chemicals, and does not include metal in unwrought form or metal-bearing materials provided for in part 1 of this schedule; (c) the term "wrought", as applied to metal products other than wrought iron, refers to products which have been rolled, forged, drawn, or extruded, and also refers to cast or sintered products which have been machined or processed otherwise than by simple trimming, scalping, or descaling;				

GSP	Item	Stat. Suffix	Articles	Units of Quantity	Rates of Duty 1	Rates of Duty LDDC	Rates of Duty 2
	605.20		Gold or silver bullion, doré, and gold or silver precipitates	.....	Free		Free
			Bullion:				
		20	Gold content	Oz.troy1/			
		40	Silver content	Oz.troy1/			
			Other:				
		60	Gold content	Oz.troy1/			
		80	Silver content	Oz.troy1/			
			Gold (including platinum- or silver-plated gold but not rolled gold), unwrought (except bullion, doré, and precipitates) or semimanufactured:				
A	605.27	00	Platinum- or silver-plated	Oz.troy.	9.6% ad val.	7.5% ad val.	65% ad val.
	605.28	00	Other	Oz.troy.	11.2% ad val.	8.2% ad val.	65% ad val.
			Silver (including platinum- or gold-plated silver but not rolled silver), unwrought (except bullion, doré, and precipitates) or semimanufactured:				
	605.46	00	Platinum-plated	Oz.troy.	9.6% ad val.	7.5% ad val.	65% ad val.
	605.47	00	Gold-plated	Oz.troy.	13.8% ad val.	10% ad val.	65% ad val.
A	605.48	00	Other	Oz.troy.	7.1% ad val.	6% ad val.	65% ad val.
			Rolled precious metals, unworked or semimanufactured:				
A	605.60	00	Plates and sheets	Oz.troy.	7.9% ad val.	6.5% ad val.	30% ad val.
			Other:				
A	605.65	00	Rolled silver	Oz.troy.	7.1% ad val.	6% ad val.	65% ad val.
A	605.66	00	Other	Oz.troy.	20% ad val.		65% ad val.
	605.70		Precious-metal sweepings and other precious-metal waste and scrap	.....	Free		Free
		20	Gold content	Oz.troy1/			
		40	Silver content	Oz.troy1/			
		60	Other precious-metal content	Oz.troy1/			

Subpart B. - Iron or Steel

Subpart B headnotes:

1. This subpart covers iron and steel, their alloys, and their so-called basic shapes and forms, and in addition covers iron or steel waste and scrap.

2. Grades of Iron, Steel, and Ferroalloys.--For the purposes of the tariff schedules, the following terms have the meanings hereby assigned to them:

1/ Report value only of stated metal content.

Note: For explanation of the symbol "A" or "A*" in the column entitled "GSP", see general headnote 3(c).

GSP	Item	Stat. Suffix	Articles	Units of Quantity	Rates of Duty 1	Rates of Duty LDDC	Rates of Duty 2
			(a) Pig iron (except vanadium or titanium pig iron) and cast iron: A ferrous product (not including steel, as defined in (g) of this headnote) containing, by weight, 1.9 percent or more of carbon, and which may contain one or more alloy elements within the respective weight limits specified below: not over 6 percent manganese, not over 15 percent phosphorus, not over 8 percent silicon, not over 30 percent chromium, not over 40 percent tungsten, not over 0.1 percent vanadium, not over 0.1 percent titanium, an aggregate of not over 10 percent of other alloy elements. (b) Vanadium or titanium pig iron: A ferrous product containing, by weight, over 0.1 percent but not over 35 percent of vanadium, or over 0.1 percent but not over 15 percent of titanium, and otherwise conforming to the specifications for pig iron in (a) of this headnote. (c) Spiegeleisen: A ferrous product or ferroalloy containing, by weight, over 6 percent but not over 30 percent of manganese and otherwise conforming to the specifications for pig iron in (a) of this headnote. (d) Ferronickel: A ferrous alloy consisting essentially of iron and nickel and containing 10 percent or more, by weight, of nickel. (e) Ferroalloys: Alloys of iron (except spiegeleisen and ferronickel, as defined in headnotes 2(c) and 2(d), supra, respectively) which are not usefully malleable and are commonly used as raw material in the manufacture of ferrous metals and which contain one or more of the following elements in the quantity, by weight, respectively indicated: over 30 percent of manganese, or over 8 percent of silicon, or over 30 percent of chromium, or over 40 percent of tungsten, or a total of over 10 percent of other alloy elements, except copper, and which, if containing silicon, do not contain over 96 percent of nonferrous alloy elements, or, if containing manganese but no silicon, do not contain over 92 percent of nonferrous alloy elements, or, if containing no manganese and no silicon, do not contain over 90 percent of nonferrous alloy elements. For the purposes of this subpart -- (i) ferrochromium is a ferroalloy which contains, by weight, over 30 percent of chromium but not over 10 percent of silicon; (ii) ferromanganese is a ferroalloy which contains, by weight, over 30 percent of manganese but not over 10 percent of silicon;				

GSP	Item	Stat. Suf-fix	Articles	Units of Quantity	Rates of Duty		
					1	LDDC	2
			(iii) ferromolybdenum is a ferroalloy which contains, by weight, over 50 percent of molybdenum; (iv) ferrophosphorus is a ferroalloy which contains, by weight, over 15 percent of phosphorus; (v) ferrosilicon is a ferroalloy which contains, by weight, not over 30 percent of manganese and over 8 percent of silicon; (vi) ferrosilicon chromium is a ferroalloy which contains, by weight, over 30 percent of chromium and over 10 percent of silicon; (vii) ferrosilicon manganese is a ferroalloy which contains, by weight, over 30 percent of manganese and over 10 percent of silicon; (viii) ferrosilicon titanium is a ferroalloy which contains, by weight, over 15 percent of titanium and over 10 percent of silicon; (ix) ferrosilicon tungsten is a ferroalloy which contains, by weight, over 40 percent of tungsten and over 10 percent of silicon; (x) ferrotitanium is a ferroalloy which contains, by weight, over 15 percent of titanium but not over 10 percent of silicon; (xi) ferrotungsten is a ferroalloy which contains, by weight, over 40 percent of tungsten but not over 10 percent of silicon; (xii) ferrovanadium is a ferroalloy which contains, by weight, over 35 percent of vanadium; and (xiii) ferrozirconium is a ferroalloy which contains, by weight, over 10 percent of zirconium. (f) Wrought iron: A ferrous material, aggregated from a solidifying mass of pasty particles of highly refined metallic iron with which a uniformly distributed quantity of slag is incorporated without subsequent fusion. A cross section 90 degrees from the rolling direction of wrought iron contains a minimum of 200,000 slag filaments per square inch of cross section. Wrought iron may contain elements other than iron but iron must predominate, by weight, over each one. (g) Steel: An alloy of iron and carbon which is malleable as first cast. Steel may contain other elements intended to enhance one or more properties and may contain elements unavoidably retained from raw materials, but iron must predominate, by weight, over each of the other elements.				

GSP	Item	Stat. Suffix	Articles	Units of Quantity	Rates of Duty 1	Rates of Duty LDDC	Rates of Duty 2
			(h) Alloy iron or steel: The term "alloy" when used as an adjective to designate a type or grade of iron or steel embraces only — (i) iron which contains one or more of the following elements in the quantity, by weight, respectively indicated: over 3.00 percent of manganese, or over 5.00 percent of phosphorus, or over 5.00 percent of sulphur, or over 3.00 percent of silicon, or over 0.20 percent of chromium, or over 0.10 percent of molybdenum, or over 0.30 percent of tungsten, or over 0.10 percent of vanadium, or over 0.60 percent of any other metallic element; and (ii) steel which contains one or more of the following elements in the quantity, by weight, respectively indicated: over 1.65 percent of manganese, or over 0.25 percent of phosphorus, or over 0.35 percent of sulphur, or over 0.60 percent of silicon, or over 0.60 percent of copper, or over 0.30 percent of aluminum, or over 0.20 percent of chromium, or over 0.30 percent of cobalt, or over 0.35 percent of lead, or over 0.50 percent of nickel, or over 0.30 percent of tungsten, or over 0.10 percent of any other metallic element. In the absence of context which requires otherwise, wherever used in the tariff schedules, the term — (iii) "iron or steel" includes alloy iron or steel; (iv) "stainless steel" refers to any alloy steel which contains by weight less than 1 percent of carbon and over 11.5 percent of chromium; (v) "tool steel" refers to alloy steel which contains the following combinations of elements in the quantity, by weight, respectively indicated: (A) not less than 1.0 percent carbon and over 11.0 percent chromium; or (B) not less than 0.3 percent carbon and 1.25 percent to 11.0 percent inclusive chromium; or (C) not less than 0.85 percent carbon and 1.0 percent to 1.8 percent inclusive manganese; or (D) 0.9 percent to 1.2 percent inclusive chromium and 0.9 percent to 1.4 percent inclusive molybdenum; or (E) not less than 0.5 percent carbon and not less than 3.5 percent molybdenum; or (F) not less than 0.5 percent carbon and not less than 5.5 percent tungsten;				

GSP	Item	Stat. Suffix	Articles	Units of Quantity	Rates of Duty 1	Rates of Duty LDDC	Rates of Duty 2
			(vi) "high speed tool steel" refers to all tool steel which contains by weight, 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; (vii) "tool steel of the type described in headnote 2(h) (vii)" refers to alloy tool steel which contains, in addition to iron, each of the following elements by weight in the amounts specified: carbon: not less than 0.95 nor more than 1.13 percent; manganese: not less than 0.22 nor more than 0.48 percent; sulfur: none, or not more than 0.03 percent; phosphorus: none, or not more than 0.03 percent; silicon: not less than 0.18 nor more than 0.37 percent; chromium: not less than 1.25 nor more than 1.65 percent; nickel: none, or not more than 0.28 percent; copper: none, or not more than 0.38 percent; molybdenum: none, or not more than 0.09 percent; (viii) "chipper knife steel" refers to alloy tool steel which contains, in addition to iron, each of the following elements by weight in the amount specified: carbon: not less than 0.48 nor more than 0.55 percent; manganese: not less than 0.20 nor more than 0.50 percent; silicon: not less than 0.75 nor more than 1.05 percent; chromium: not less than 7.25 nor more than 8.75 percent; molybdenum: not less than 1.25 nor more than 1.75 percent; tungsten: none, or not more than 1.75 percent; vanadium: not less than 0.20 nor more than 0.55 percent; (ix) "silicon electrical steel" refers to alloy steel containing, by weight, not over 6.0 percent of silicon, which may also contain aluminum not in excess of 0.5 percent by weight, but containing no other metallic elements that would render the steel an alloy steel as defined in headnote 2(h)(ii) of this subpart; and (x) "razor blade steel" refers to stainless steel strip not over 0.010 inch in thickness and not over 0.9 inch in width, containing by weight not less than 0.6 percent and not over 0.75 percent carbon, and containing by weight not less than 11.5 percent and not over 14.7 percent chromium, certified at the time of entry to be used in the manufacture of razor blades.				

GSP	Item	Stat. Suffix	Articles	Units of Quantity	Rates of Duty		
					1	LDDC	2
			3. Forms and Condition of Iron or Steel.—For the purposes of this subpart, the following terms have the meanings hereby assigned to them:				
			(a) Ingots: Castings resulting from the solidification of molten steel and having a columnar form suitable for working by rolling or forging.				
			(b) Blooms and billets: Semifinished products generally of rectangular or circular cross section, having a length several times greater than the maximum cross-sectional dimension, and, if rectangular, a width less than 4 times the thickness. A bloom is at least 36 square inches in cross-sectional area; a billet is less than 36 square inches but not less than 3 square inches in cross-sectional area.				
			(c) Slabs and sheet bars: Semifinished products of rectangular cross section, having a width of at least 4 times the thickness. A slab is not less than 2 inches and not over 6 inches in thickness; a sheet bar is less than 2 inches in thickness.				
			(d) Bars: Products of solid section not conforming completely to the respective specifications set forth herein for blooms, billets, slabs, sheet bars, wire rods, plates, sheets, strip, wire, rails, joint bars, or tie plates, and which have cross sections in the shape of circles, segments of circles, ovals, triangles, rectangles, hexagons, or octagons. Deformed concrete reinforcing bars are hot-rolled steel bars, of solid cross section, having deformations of various patterns on their surfaces.				
			(e) Hollow drill steel: A hollow steel product in any cross section suitable for use in making mining drills or mining drill rods, with the largest internal cross-sectional dimension not greater than one-third of the largest external cross-sectional dimension.				
			(f) Wire rods: A coiled, semifinished, hot-rolled product of solid cross section, approximately round in cross section, not under 0.20 inch nor over 0.74 inch in diameter.				
			(g) Plates and sheets: Plates are flat rolled products whether or not corrugated or crimped, in coils or cut to length, 0.1875 inch or more in thickness and, if not cold rolled, over 8 inches in width, or, if cold rolled, over 12 inches in width. Sheets are flat rolled products whether or not corrugated or crimped, in coils or cut to length, under 0.1875 inch in thickness and over 12 inches in width. For the purposes of this subpart — (i) the term "black plate" refers to cold-rolled steel sheets, not coated, under 0.0142 inch in thickness;				

GSP	Item	Stat. Suffix	Articles	Units of Quantity	Rates of Duty		
					1	LDDC	2
			(ii) the term "tin plate and tin coated sheets" refers to tin coated steel sheets; and (iii) the term "terne plate and terne coated sheets" refers to steel sheets coated with terne metal (a lead-tin alloy). (h) Strip: A flat rolled product whether or not corrugated or crimped, in coils or cut to length, under 0.1875 inch in thickness, and, if cold rolled, over 0.50 inch but not over 12 inches in width, or, if not cold rolled, not over 12 inches in width. (i) Wire: A finished, drawn, non-tubular product, of any cross-sectional configuration, in coils, and not over 0.703 inch in maximum cross-sectional dimension. The term also includes a product of solid rectangular cross section, in coils, with a cold-rolled finish, and not over 0.25 inch thick and not over 0.50 inch wide. (j) Angles, shapes, and sections: Products which do not conform completely to the respective specifications set forth herein for blooms, billets, slabs, sheet bars, bars, wire rods, plates, sheets, strip, wire, rails, joint bars, or tie plates, and do not include any tubular products. (k) Rails: Hot-rolled steel products, weighing not less than 8 pounds per yard, with cross-sectional shapes intended for carrying wheel loads in railroad, railway, and crane runway applications. Rails may be punched or not punched. (l) Joint bars: Hot-rolled steel products designed to connect the ends of adjacent rails in track. Joint bars are usually punched or slotted. (m) Tie plates: Hot-rolled steel products used to support rails in track, to maintain track gauge and protect the ties. Tie plates are punched to provide holes for spikes and have one or two shoulder sections as rail guides. 4. Additional duties: Iron or steel products which contain, by weight, one or more of the following elements in the quantity, by weight, respectively indicated: over 0.2 percent of chromium, or over 0.1 percent of molybdenum, or over 0.3 percent of tungsten, or over 0.1 percent of vanadium, are subject to additional cumulative duties as provided for in items 606.00, 606.02, 606.04, and 606.06, but these duties apply only with respect to products covered by provisions which make specific reference to "additional duties" in the "Rates of Duty" columns.				

GSP	Item	Stat. Suffix	Articles	Units of Quantity	Rates of Duty 1	Rates of Duty LDDC	Rates of Duty 2
			Subpart B statistical headnotes: 1. For the purpose of this subpart — (a) the term "heat-resisting steel" refers to alloy steel which contains by weight less than 0.3% carbon and 4.0% to 11.5% inclusive, chromium; (b) the term "band saw steel" refers to alloy tool steel which contains, in addition to iron, each of the following elements by weight in the amounts specified: (i) carbon: not less than 0.47 nor more than 0.53 percent; (ii) manganese: not less than 0.60 nor more than 0.90 percent; (iii) sulfur: none, or not more than 0.015 percent; (iv) phosphorus: none, or not more than 0.025 percent; (v) silicon: not less than 0.10 nor more than 0.25 percent; (vi) chromium: not less than 0.90 nor more than 1.10 percent; (vii) nickel: not less than 0.50 nor more than 0.70 percent; (viii) molybdenum: not less than 0.90 nor more than 1.10 percent; and (ix) vanadium: not less than 0.08 percent nor more than 0.15 percent. 2. For the purpose of statistical reporting of wire provided for under item 609.40, the determination of the carbon content shall be made by excluding any coating or plating which may be present. 3. For purposes of items 606.00, 606.02, 606.04, and 606.06 report quantity only. Total value should be shown opposite the appropriate reporting number for the article involved. 4. For the purpose of statistical reporting of merchandise under item 609.8005, H-piles shall be regarded only as those wide flange shapes and sections conforming to the following cross-sectional dimensions and weight per foot: 14 inches X 14-1/2 inches X 117 pounds 14 inches X 14-1/2 inches X 102 pounds 14 inches X 14-1/2 inches X 89 pounds 14 inches X 14-1/2 inches X 73 pounds 12 inches X 12 inches X 74 pounds 12 inches X 12 inches X 53 pounds 10 inches X 10 inches X 57 pounds 10 inches X 10 inches X 42 pounds 8 inches X 8 inches X 36 pounds H-piles, sometimes referred to as H-bearing piles or bearing piles, differ from other wide-flange shapes and sections (such as columns and beams) in weight per foot and by the uniform thickness of the web and flange. 5. For the purposes of this subpart, the term "ductile fittings" refers to fittings which are cast and which contain over 2.5 percent carbon and over 2 percent magnesium, by weight.				

GSP	Item	Stat. Suffix	Articles	Units of Quantity	Rates of Duty 1	Rates of Duty LDDC	Rates of Duty 2
			5. For the purposes of this subpart, the term "baling wire" refers to round wire which is over 0.0758 inch but not over 0.0762 inch in diameter, produced, coiled and packaged in accordance with ASAE standard S229.5.				
			Iron or steel products containing any of the following metals in the quantity respectively specified (see headnote 4 of this subpart):				
	606.00	00	Containing over 0.2 percent by weight of chromium.....chromium content..	Lb.....	Additional duty of 0.1% ad val.		Additional duty of 1% ad val.
	606.02	00	Containing over 0.1 percent by weight of molybdenum.....molybdenum content..	Lb.....	Additional duty of 0.3% ad val.		Additional duty of 1% ad val.
	606.04	00	Containing over 0.3 percent by weight of tungsten.....tungsten content..	Lb.....	Additional duty of 0.4% ad val.		Additional duty of 1% ad val.
	606.06	00	Containing over 0.1 percent by weight of vanadium.....vanadium content..	Lb.....	Additional duty of 0.2% ad val.		Additional duty of 1% ad val.
			Iron or steel waste and scrap:				
	606.08	00	Tin plate waste or scrap.....	Lb.....	Free		Free
	606.09	00	Other:				
			Not containing chromium, molybdenum, tungsten, or vanadium in amounts specified in headnote 4 of this subpart.....	Ton.....	Free		75c per ton

GSP	Item	Stat. Suffix	Articles	Units of Quantity	Rates of Duty 1	Rates of Duty LDDC	Rates of Duty 2
			Iron or steel waste and scrap (con.):				
			Other (con.):				
	606.11	00	Containing chromium, molybdenum, tungsten, or vanadium in amounts specified in headnote 4 of this subpart.....	Ton.....	Free		0.5% ad val. + additional duties (see headnote 4)
			Pig iron, cast iron, and spiegeleisen, all the foregoing in pigs, blocks, lumps, and similar forms:				
			Pig iron and cast iron:				
	606.13	00	Not containing chromium, molybdenum, tungsten, or vanadium in amounts specified in headnote 4 of this subpart.....	Ton.....	Free		$1.125 per ton
A	606.15	00	Containing chromium, molybdenum, tungsten, or vanadium in amounts specified in headnote 4 of this subpart.....	Ton.....	0.2% ad val. + additional duties (see headnote 4)		0.5% ad val. + additional duties (see headnote 4)
			Spiegeleisen:				
	606.17	00	Not containing chromium, molybdenum, tungsten, or vanadium in amounts specified in headnote 4 of this subpart.....	Ton.....	0.2% ad val.		0.5% ad val.
	606.19	00	Containing chromium, molybdenum, tungsten, or vanadium in amounts specified in headnote 4 of this subpart.....	Ton.....	0.9% ad val. + additional duties (see headnote 4)		1% ad val. + additional duties (see headnote 4)
	606.20	00	Ferronickel.....	Lb.....v	Free		3c per lb.
			nickel content..	Lb.			
			Ferroalloys:				
			Ferrochromium:				
	606.22	00	Not containing over 3 percent by weight of carbon.....	Lb.....v	3.4% ad val.	3.1% ad val.	30% ad val.
			chromium content..	Lb.			
	606.24	00	Containing over 3 percent by weight of carbon.....	Lb.....v	1.9% ad val.		7.5% ad val.
			chromium content..	Lb.			
			Ferromanganese:				
A	606.26	00	Not containing over 1 percent by weight of carbon.....	Lb.....v	2.4% ad val.	2.3% ad val.	22% ad val.
			manganese content..	Lb.			

Note: For explanation of the symbol "A" or "A*" in the column entitled "GSP", see general headnote 3(c).

GSP	Item	Stat. Suffix	Articles	Units of Quantity	Rates of Duty 1	Rates of Duty LDDC	Rates of Duty 2
			Ferroalloys (con.):				
			Ferromanganese (con.):				
A	606.28	00	Containing over 1 percent but not over 4 percent by weight of carbon.....	Lb.....v	1.4% ad val.		6.5% ad val.
			manganese content..	Lb.			
	606.30	00	Containing over 4 percent by weight of carbon.....	Lb.....v	1.5% ad val.		10.5% ad val.
			manganese content..	Lb.			
	606.31	00	Ferromolybdenum.....	Lb.....v	5.2% ad val.	4.5% ad val.	31.5% ad val.
			molybdenum content..	Lb.			
A	606.33	00	Ferrophosphorus.....	Lb.....	3.3% ad val.	2.4% ad val.	25% ad val.
			Ferrosilicon:				
	606.35		Containing over 8 percent but not over 60 percent by weight of silicon.....	.....	Free		2¢ per lb. on silicon content
		20	Containing over 8 percent but not over 30 percent by weight of silicon.....	Lb. v			
			silicon content..	Lb.			
			Containing over 30 percent but not over 60 percent by weight of silicon:				
		42	Containing over 2 percent by weight of magnesium.....	Lb. v			
			silicon content..	Lb.			
		46	Other.....	Lb. v			
			silicon content..	Lb.			
			Containing over 60 percent but not over 80 percent by weight of silicon:				
A*	606.36	00	Containing over 3 percent by weight of calcium.....	Lb.....v	1.1% ad val.		11.5% ad val.
			silicon content..	Lb.			
A*	606.37	00	Other.....	Lb.....v	1.6% ad val.	1.5% ad val.	11.5% ad val.
			silicon content..	Lb.			
	606.39	00	Containing over 80 percent but not over 90 percent by weight of silicon.....	Lb.....v	1.9% ad val.		9% ad val.
			silicon content..	Lb.			
	606.40	00	Containing over 90 percent by weight of silicon.....	Lb.....v	7.2% ad val.	5.8% ad val.	40% ad val.
			silicon content..	Lb.			
	606.42	00	Ferrosilicon chromium.....	Lb.....v	10% ad val.		25% ad val.
			chromium content..	Lb.			
A*	606.44	00	Ferrosilicon manganese.....	Lb.....v	4.4% ad val.	3.9% ad val.	23% ad val.
			manganese content..	Lb.			
	606.46	00	Ferrotitanium and ferrosilicon titanium.....	Lb.....	4.1% ad val.	3.7% ad val.	25% ad val.
A	606.48	00	Ferrotungsten and ferrosilicon tungsten.....	Lb.....v	6.9% ad val.	5.6% ad val.	35% ad val.
			tungsten content..	Lb.			
	606.50	00	Ferrovanadium.....	Lb.....v	4.8% ad val.	4.2% ad val.	25% ad val.
			vanadium content..	Lb.			
	606.51	00	Ferrozirconium.....	Lb.....	4.8% ad val.	4.2% ad val.	25% ad val.
	606.53	00	Other.....	Lb.....	5% ad val.		25% ad val.
			Sponge iron; iron or steel powders:				
			Sponge iron, including powders thereof:				
	606.55		Not containing chromium, molybdenum, tungsten, or vanadium in amounts specified in headnote 4 of this subpart.....	.....	Free		$2.25 per ton
		20	Sponge iron powders.....	Ton			
		40	Other.....	Ton			
A	606.57	00	Containing chromium, molybdenum, tungsten, or vanadium in amounts specified in headnote 4 of this subpart.....	Ton.....	10¢ per ton + additional duties (see headnote 4)	Free	$2.25 per ton + additional duties (see headnote 4)
			Other powders:				
A	606.59	00	Other than alloy iron or steel.....	Lb.....	0.1¢ per lb.	Free	0.75¢ per lb.
			Alloy iron or steel:				
A	606.60	00	Stainless steel powders.....	Lb.....	0.3% ad val.		1% ad val.
A	606.62	00	Other.....	Lb.....	5.8% ad val.	4% ad val.	45% ad val.

Note: For explanation of the symbol "A" or "A*" in the column entitled "GSP", see general headnote 3(c).

(1st supp. 3/28/85)

GSP	Item	Stat. Suffix	Articles	Units of Quantity	Rates of Duty 1	Rates of Duty LDDC	Rates of Duty 2
A	606.64	00	Grit and shot, including wire pellets, of iron or steel	Lb.	1% ad val.		3% ad val.
			Ingots, blooms, billets, slabs, and sheet bars, all the foregoing of iron or steel:				
	606.67		Other than alloy iron or steel		4.8% ad val.	4.2% ad val.	20% ad val.
			Blooms:				
		05	Of circular cross section	Lb.			
		10	Other	Lb.			
			Billets:				
		15	Of circular cross section	Lb.			
		20	Other	Lb.			
		25	Slabs	Lb.			
		30	Sheet bars	Lb.			
			Other:				
		35	Of rectangular cross section and having a width at least four times the thickness, over 6 inches in thickness	Lb.			
		40	Other	Lb.			
	606.69		Alloy iron or steel		6.1% ad val. + additional duties (see headnote 4)	5.1% ad val. + additional duties (see headnote 4)	28% ad val. + additional duties (see headnote 4)
			Of tool steel:				
		01	Blooms	Lb.			
		02	Billets	Lb.			
		04	Other	Lb.			
			Of stainless steel:				
			Blooms:				
		05	Of circular cross section	Lb.			
		06	Other	Lb.			
			Billets:				
		09	Of circular cross section	Lb.			
		12	Other	Lb.			
		15	Slabs	Lb.			
		18	Sheet bars	Lb.			
			Other:				
		21	Of rectangular cross section and having a width at least four times the thickness, over 6 inches in thickness	Lb.			
		23	Other	Lb.			
			Other:				
			Blooms:				
		49	Of circular cross section	Lb.			
		51	Other	Lb.			
			Billets:				
		53	Of circular cross section	Lb.			
		55	Other	Lb.			
		57	Slabs	Lb.			
		59	Sheet bars	Lb.			
			Other:				
		61	Of rectangular cross section and having a width at least four times the thickness, over 6 inches in thickness	Lb.			
		63	Other	Lb.			
			Forgings of iron or steel, not machined, not tooled, and not otherwise processed after forging:				
A	606.71		Other than alloy iron or steel		4.8% ad val.	4.2% ad val.	25% ad val.
		10	Flanges	Lb.			
		20	Other	Lb.			
A	606.73		Alloy iron or steel		5.3% ad val. + additional duties (see headnote 4)	4% ad val. + additional duties (see headnote 4)	33% ad val. + additional duties (see headnote 4)
			Stainless steel:				
		10	Flanges	Lb.			
		20	Other	Lb.			
			Other:				
		30	Flanges	Lb.			
		40	Other	Lb.			

Note: For explanation of the symbol "A" or "A*" in the column entitled "GSP", see general headnote 3(c).

GSP	Item	Stat. Suffix	Articles	Units of Quantity	Rates of Duty 1	Rates of Duty LDDC	Rates of Duty 2
			Bars of wrought iron:				
A	606.75	00	Other than alloy wrought iron	Lb.	2.1% ad val.	2% ad val.	7% ad val.
A	606.77	00	Alloy wrought iron	Lb.	2.5% ad val. + additional duties (see headnote 4)	2.3% ad val. + additional duties (see headnote 4)	10.5% ad val. + additional duties (see headnote 4)
			Bars of steel:				
			Deformed concrete reinforcing bars:				
	606.79	00	Other than alloy steel	Lb.	5.8% ad val.	4.9% ad val.	20% ad val.
	606.81	00	Alloy steel	Lb.	7% ad val. + additional duties (see headnote 4)	5.7% ad val. + additional duties (see headnote 4)	28% ad val. + additional duties (see headnote 4)
			Other bars:				
			Other than alloy steel:				
			Not cold formed:				
	606.83		Not coated or plated with metal	.....	5.5% ad val.	4.7% ad val.	20% ad val.
		10	Flats	Lb.			
		30	Rounds	Lb.			
		50	Other	Lb.			
	606.86	00	Coated or plated with metal	Lb.	4.8% ad val.	3.2% ad val.	0.2¢ per lb. + 20% ad val.
	606.88		Cold formed	.....	7.5% ad val.		0.125¢ per lb. + 20% ad val.
		05	Containing over 0.10 percent by weight of either sulphur or lead	Lb.			
		15	Other	Lb.			
			Alloy steel:				
	606.90		Stainless steel	.....	10.5% ad val. + additional duties (see headnote 4) 1/		28% ad val. + additional duties (see headnote 4)
		05	Not cold formed	Lb.			
		15 ❶	Cold formed: Having a maximum cross-sectional dimension of less than 0.703 inch	Lb.			
		20 ❶	Having a maximum cross-sectional dimension of 0.703 inch or more	Lb.			
			Tool steel:				
	606.91		Tool steel of the type described in headnote 2(h)(vii) of this subpart	.....	7.5% ad val. + additional duties (see headnote 4)	6% ad val. + additional duties (see headnote 4)	28% ad val. + additional duties (see headnote 4)
		05	Not cold formed	Lb.			
		10	Cold formed	Lb.			

1/ Certain bars of stainless steel subject to quota. See items 926.10 through 926.13, in part 2, Appendix to the Tariff Schedules.

Note: For explanation of the symbol "A" or "A*" in the column entitled "GSP", see general headnote 3(c).

GSP	Item	Stat. Suffix	Articles	Units of Quantity	Rates of Duty 1	Rates of Duty LDDC	Rates of Duty 2
			Bars of steel (con.):				
			Other bars (con.):				
			Alloy steel (con.):				
			Tool steel (con.):				
			Chipper knife steel:				
	606.93	00	Not cold formed	Lb.	2% ad val.		28% ad val. + additional duties (see headnote 4)
	606.94	00	Cold formed	Lb.	10.5% ad val. + additional duties (see headnote 4)		28% ad val. + additional duties (see headnote 4)
	606.95		Other	.....	10.5% ad val. + additional duties (see headnote 4) 1/		28% ad val. + additional duties (see headnote 4)
			High speed tool steel:				
		05	Not cold formed	Lb.			
			Cold formed:				
		12	Having a maximum cross-sectional dimension of less than 0.703 inch	Lb.			
		14	Having a maximum cross-sectional dimension of 0.703 inch or more	Lb.			
			Band saw steel:				
		20	Not cold formed	Lb.			
		25	Cold formed	Lb.			
			Other:				
		35	Not cold formed	Lb.			
			Cold formed:				
			Having a maximum cross-sectional of less than 0.703 inch:				
		42	Of round or rectangular cross section with surfaces ground, milled, or polished	Lb.			
		44	Other	Lb.			
			Having a maximum cross-sectional dimension of 0.703 inch or more:				
		46	Of round or rectangular cross section with surfaces ground, milled, or polished	Lb.			
		48	Other	Lb.			
			Other:				
	606.97	00	Not cold formed	Lb.	7.5% ad val. + additional duties (see headnote 4)	6% ad val. + additional duties (see headnote 4)	28% ad val. + additional duties (see headnote 4)
	606.99	00	Cold formed	Lb.	8.5% ad val. + additional duties (see headnote 4)	7.5% ad val. + additional duties (see headnote 4)	28% ad val. + additional duties (see headnote 4)

1/ Certain bars, wire rods, plates, sheets, and strip are subject to quota. See items 926.20 through 926.23, in part 2, Appendix to the Tariff Schedules.

(1st supp. 3/28/85)

GSP	Item	Stat. Suffix	Articles	Units of Quantity	Rates of Duty 1	Rates of Duty LDDC	Rates of Duty 2
			Hollow drill steel:				
			Other than alloy steel:				
	607.05	00	Valued not over 8 cents per pound	Lb.	6.4% ad val.	5.3% ad val.	23% ad val.
	607.07	00	Valued over 8 cents per pound	Lb.	5.8% ad val.	4.9% ad val.	22% ad val.
	607.09	00	Alloy steel	Lb.	7% ad val. + additional duties (see headnote 4)	5.7% ad val. + additional duties (see headnote 4)	30% ad val. + additional duties (see headnote 4)
			Wire rods of iron or steel:				
			Other than alloy iron or steel:				
			Not tempered, not treated, and not partly manufactured:				
	607.14	00	Valued not over 4 cents per pound	Lb.	1.4% ad val.		4.5% ad val.
	607.17	00	Valued over 4 cents per pound	Lb.	1.9% ad val.		5.5% ad val.
			Tempered, treated, or partly manufactured:				
	607.22	00	Valued not over 4 cents per pound	Lb.	7.2% ad val.	5.8% ad val.	29.5% ad val.
	607.23	00	Valued over 4 cents per pound	Lb.	2.3% ad val.		6% ad val.
			Alloy iron or steel:				
			Not tempered, not treated, and not partly manufactured:				
	607.26	00	Stainless steel	Lb.	4.3% ad val. + additional duties (see headnote 4) 1/		11% ad val. + additional duties (see headnote 4)
			Tool steel:				
	607.28	00	High speed tool steel	Lb.	4.2% ad val. + additional duties (see headnote 4) 2/		11% ad val. + additional duties (see headnote 4)
	607.32	00	Tool steel of the type described in headnote 2(h)(vii) of this subpart	Lb.	3% ad val. + additional duties (see headnote 4)	2% ad val. + additional duties (see headnote 4)	11% ad val. + additional duties (see headnote 4)
	607.34		Other	.....	4.9% ad val. + additional duties (see headnote 4) 2/		11% ad val. + additional duties (see headnote 4)
		05	Chipper knife steel of the type described in headnote 2(h) (viii) and band saw steel of the type described in statistical headnote 1(b)	Lb.			
		20	Other	Lb.			
	607.41	00	Other	Lb.	4.8% ad val. + additional duties (see headnote 4)	4.5% ad val. + additional duties (see headnote 4)	11% ad val. + additional duties (see headnote 4)
			Tempered, treated, or partly manufactured:				
	607.43	00	Stainless steel	Lb.	4.6% ad val. + additional duties (see headnote 4) 1/		10% ad val. + additional duties (see headnote 4)
			Tool steel:				
	607.46	00	High speed tool steel	Lb.	4.3% ad val. + additional duties (see headnote 4) 2/		10% ad val. + additional duties (see headnote 4)

1/ Certain wire rods of stainless steel are subject to quota. See items 926.15 through 926.18, in part 2, Appendix to the Tariff Schedules.

2/ Certain bars, wire rods, plates, sheets and strip are subject to quota. See items 926.20 through 926.23, in part 2, Appendix to the Tariff Schedules.

GSP	Item	Stat. Suffix	Articles	Units of Quantity	Rates of Duty 1	Rates of Duty LDDC	Rates of Duty 2
			Wire rods of iron or steel (con.):				
			Alloy iron or steel (con.):				
			Tempered, treated, or partly manufactured (con.):				
			Tool steel (con.):				
	607.48	00	Tool steel of the type described in headnote 2(h)(vii) of this subpart	Lb.	4.6% ad val. + additional duties (see headnote 4)	4.1% ad val. + additional duties (see headnote 4)	10% ad val. + additional duties (see headnote 4)
	607.54		Other		5.9% ad val. + additional duties (see headnote 4) 1/		10% ad val. + additional duties (see headnote 4)
		05	Chipper knife steel of the type described in headnote 2(h)(viii) and band saw steel of the type described in statistical headnote 1(b)	Lb.			
		20	Other	Lb.			
	607.59	00	Other	Lb.	4.9% ad val. + additional duties (see headnote 4)	4.5% ad val. + additional duties (see headnote 4)	10% ad val. + additional duties (see headnote 4)
			Plates and sheets of iron or steel, not cut, not pressed, and not stamped to nonrectangular shape (except as provided in item 609.17):				
			Not coated or plated with metal and not clad:				
			Black plate:				
	607.62	00	Corrugated or crimped	Lb.	6.7% ad val.	5.5% ad val.	20% ad val.
	607.64	00	Other	Lb.	4.8% ad val.	3.2% ad val.	20% ad val.
			Other:				
			Not pickled and not cold rolled:				
			Other than alloy iron or steel:				
	607.66		Plates		6.5% ad val.	6% ad val.	20% ad val.
		10	In coils	Lb.			
			Other:				
		20	Over 6 inches in thickness	Lb.			
		25	Other	Lb.			
	607.67		Sheets		5.8% ad val.	4.9% ad val.	20% ad val.
		10	Having a minimum yield point of 40,000 P.S.I.	Lb.			
			Other, in coils:				
		20	With untrimmed edges	Lb.			
		30	Other	Lb.			
		40	Other	Lb.			

1/ Certain bars, wire rods, plates, sheets and strip are subject to quota. See items 926.20 through 926.30, in part 2, Appendix to the Tariff Schedules.

GSP	Item	Stat. Suffix	Articles	Units of Quantity	Rates of Duty 1	Rates of Duty LDDC	Rates of Duty 2
			Plates and sheets of iron or steel, not cut, etc. (con.):				
			Not coated or plated with metal and not clad (con.):				
			Other (con.):				
			Not pickled and not cold rolled (con.):				
			Alloy iron or steel:				
			Plates and sheets of tool steel:				
	607.69	00	Tool steel of the type described in headnote 2(h)(vii) of this subpart	Lb.	5.7% ad val. + additional duties (see headnote 4)	3.8% ad val. + additional duties (see headnote 4)	28% ad val. + additional duties (see headnote 4)
	607.72		Other		9.5% ad val. + additional duties (see headnote 4) 1/		28% ad val. + additional duties (see headnote 4)
		05	Chipper knife steel of the type described in headnote 2(h)(viii) and band saw steel of the type described in statistical headnote 1(b)	Lb.			
			Other:				
		10	Over 6 inches in thickness	Lb.			
			Other:				
		20	Plates	Lb.			
		25	Sheets	Lb.			
	607.76		Plates and sheets of stainless steel		9.5% ad val. + additional duties (see headnote 4) 2/		28% ad val. + additional duties (see headnote 4)
			Plates:				
		03	Over 6 inches in thickness	Lb.			
		06	Other	Lb.			
		10	Sheets	Lb.			
			Other:				
	607.78		Plates		5.7% ad val. + additional duties (see headnote 4)	3.8% ad val. + additional duties (see headnote 4)	28% ad val. + additional duties (see headnote 4)
		03	Over 6 inches in thickness	Lb.			
		06	Other	Lb.			
	607.81	00	Sheets	Lb.	9.5% ad val. + additional duties (see headnote 4)		28% ad val. + additional duties (see headnote 4)

1/ Certain bars, wire rods, plates, sheets and strip are subject to quota. See items 926.20 through 926.23, in part 2, Appendix to the Tariff Schedules.

2/ Certain sheets, strip, and plates of stainless steel are subject to additional duties. See items 926.00 and 926.05, in part 2, Appendix to the Tariff Schedules.

Item	Stat. Suf-fix	Articles	Units of Quantity	Rates of Duty		
				1	LDDC	2

PART 7. - OTHER SPECIAL CLASSIFICATION PROVISIONS

Part 7 headnotes:

1. No article shall be exempted from duty under item 870.30 unless a Federal agency or agencies designated by the President determines that such article is visual or auditory material of an educational, scientific, or cultural character within the meaning of the Agreement for Facilitating the International Circulation of Visual and Auditory Materials of an Educational, Scientific, and Cultural Character. Whenever the President determines that there is or may be profitmaking exhibition or use of articles described in item 870.30 which interferes significantly (or threatens to interfere significantly) with domestic production of similar articles, he may prescribe regulations imposing restrictions on the entry of such foreign articles to insure that they will be exhibited or used only for nonprofitmaking purposes.

2. The provisions of items 870.40 and 870.45 do not apply to —

(i) articles of textile materials; articles provided for in schedule 5; articles of leather or of fur on the skin;

(ii) articles provided for in schedule 6, part 2, part 3 (subparts A through F except items 652.13 through 652.38, inclusive, 652.84, 652.88, 653.00, and 653.01), part 5 (except item 688.43) or part 6, but interchangeable agricultural and horticultural implements are classifiable in item 870.40 even if mounted at the time of importation on a tractor provided for in part 08 of schedule 6;

(iii) ball or roller bearings, including such bearings with integral shafts, and parts thereof, provided for in items 680.33 through 680.39, inclusive; or

(iv) articles provided for in item 666.00.

3. (a) Items 870.50 and 870.55 shall not apply when the market price of copper is under 51 cents per pound.

(b) For purposes of subparagraph (a), the market price of copper has the meaning assigned to it by headnote 5(b) of the headnotes to schedule 6, part 2, subpart C.

(c) For purposes of subparagraph (a), the market price of copper shall be considered to be under 51 cents per pound only on and after the twentieth day after the date of a report by the United States International Trade Commission to the Secretary of the Treasury that it has determined that the market price has been under 51 cents per pound for one calendar month. After any such report, the market price shall be considered as not being under 51 cents per pound only on and after the twentieth day after the date of a report by the Commission to the Secretary that it has determined that the market price has been 51 cents or more per pound for one calendar month.

(d) Determinations by the Commission under this headnote shall be made in the manner prescribed by headnote 5(c) to schedule 6, part 2, subpart C.

Item	Stat. Suf-fix	Articles	Units of Quantity	Rates of Duty	
				1	2
		Part 7 Statistical headnote: 1. For statistical reporting of merchandise provided for herein -- (a) unless more specific instructions appear in this part, report the 5-digit item number (or 7-digit number, if any) found in this part in addition to the 7-digit number appearing in schedules 1-7 which would be applicable but for the provisions of this part; and (b) the quantities reported should be in the units provided in schedules 1-7.			
		Nets or sections or parts of nets:			
870.20	00	Monofilament gill nets to be used for fish sampling	X	Free	Free
870.25	00	To be used in taking wild birds under license issued by an appropriate Federal or State governmental authority	X	Free	Free
870.27	00	Specimens of archeology, mineralogy, or natural history (including specimens of botany or zoology other than live zoological specimens) imported for any public or private scientific collection for exhibition or other educational or scientific use, and not for sale or other commerical use	X	Free	Free
870.30	00	Developed photographic film, including motion-picture film on which pictures or sound and pictures have been recorded; photographic slides; transparencies; sound recordings; recorded video-tape; models; charts; maps; globes; and posters; all of the foregoing which are determined to be visual or auditory materials in accordance with headnote 1 of this part	X	Free	Free
870.40	00	Machinery, equipment, and implements to be used for agricultural or horticultural purposes	X	Free	The column 2 rate applicable in the absence of this item
870.45	00	Parts to be used in articles provided for in item 666.00, whether or not such parts are chiefly used as parts of such articles and whether or not covered by a specific provision within the meaning of general interpretative rule 10(ij)	X	Free	The column 2 rate applicable in the absence of this item

GSP	Item	Stat. Suffix	Articles	Units of Quantity	Rates of Duty 1-a	Rates of Duty 1-b	Rates of Duty 2
			Metal waste and scrap (provided for in part 2, schedule 6), except lead, zinc, and tungsten waste and scrap; unwrought metal including remelt scrap ingot (except copper, lead, zinc, and tungsten) in the form of pigs, ingots, or billets (a) which are defective or damaged, or have been produced from melted down metal waste and scrap for convenience in handling and transportation without sweetening, alloying, fluxing, or deliberate purifying, and (b) which cannot be commercially used without remanufacture; relaying or rerolling rails; and articles of metal (except articles of lead, of zinc, or of tungsten, and not including metal-bearing materials provided for in schedule 4 or in part 1 of schedule 6 and not including unwrought metal provided for in part 2 of schedule 6) to be used in remanufacture by melting or to be processed by shredding, shearing, compacting, or similar processing which renders them fit only for the recovery of the metal content:				
	870.50	1/	Copper waste and scrap.....	1/	Free	The column 1-b rate applicable in the absence of this item	The column 2 rate applicable in the absence of this item
	870.55	1/	Articles of copper.....	1/	Free	The column 1-b rate applicable in the absence of this item	The column 2 rate applicable in the absence of this item

GSP	Item	Stat. Suffix	Articles	Units of Quantity	Rates of Duty 1	Rates of Duty 2
	870.60		Other.....	.....	Free	Free
		20 1/	Metal waste and scrap (provided for in part 2, schedule 6).....	1/		
		40 1/	Pigs, ingots, or billets.....	1/		
		60 1/	Relaying or rerolling rails.....	1/		
		80 1/	Articles of metal.....	1/		

1/ See schedule 8, part 7, statistical headnote 1.

APPENDIX E

STEEL IMPORT RELIEF DETERMINATION: MEMORANDUM OF SEPTEMBER 18, 1984

Federal Register
Vol. 49, No. 184
Thursday, September 20, 1984

Presidential Documents

Title 3—

The President

Memorandum of September 18, 1984

Steel Import Relief Determination

Memorandum for the United States Trade Representative

Pursuant to Section 202(b)(1) of the Trade Act of 1974, (P.L. 93-618, 88 Stat. 1978), I have determined the actions I will take with respect to the report of the United States International Trade Commission (USITC) dated July 24, 1984 concerning carbon and alloy steel.

I have determined today under Section 203 of the Trade Act that import relief is not in the national economic interest for the following reasons:

1. In responding to this pressing import problem, we must do all we can to avoid protectionism, to keep our market open to free and fair competition, and to provide certainty of access for our trading partners. This Administration has repeatedly, and most recently at the London Economic Summit, committed itself to "resist continuing protectionist pressures, to reduce barriers to trade, and to make renewed efforts to liberalize and expand trade in manufactures, commodities and services."

2. It is not in the national economic interest to take actions which put at risk thousands of jobs in steel fabricating and other consuming industries or in the other sectors of the U.S. economy that might be affected by compensation or retaliation measures to which our trading partners would be entitled.

3. This Administration has already taken many steps to deal with the steel import problem. In 1982, a comprehensive arrangement restraining steel imports from the European Community was negotiated. This Administration has also conducted an unprecedented number of antidumping and countervailing duty investigations of steel imports, in most cases resulting in the imposition of duties or a negotiated settlement. In addition, the governments of Mexico and South Africa have unilaterally imposed voluntary restraint on exports, leading to the termination of unfair trade complaints.

However, I have decided to establish a government policy for the steel industry. I believe that this new policy is the best way to respond to the legitimate concerns of the domestic industry while maintaining access to our market for those who trade fairly.

I am directing you to coordinate and direct the implementation of this policy for the U.S. steel industry which includes the following elements:

1. The United States Trade Representative (USTR) will negotiate "surge control" arrangements or understandings and, where appropriate, suspension agreements with countries whose exports to the United States have increased significantly in recent years due to an unfair surge in imports—unfair because of dumping subsidization, or diversion from other importing countries who have restricted access to their markets. The USTR will negotiate additional such arrangements and understandings, if necessary, to control new surges of imports that result from subsidizing, dumping or other unfair or restrictive trade practices during the next five years. If agreements cannot be reached to control new surges from countries that are guilty of unfair practices, the President will use his authority under the unfair trade laws including Section 301 of the Trade Act of 1974 to assure that these countries do not maintain unrestricted access to the United States market.

2. The United States Trade Representative will reaffirm existing measures with countries that have voluntarily restrained their exports to our market, and will take necessary steps to ensure the effectiveness of these measures. Specifically the Administration will support legislation in the Congress to make enforceable at our borders all voluntary agreements and "surge control" arrangements.

3. The United States Trade Representative will consult with our trading partners to seek the elimination of trade distortive and trade restraining practices in other markets to lead to the liberalization of steel trade around the world.

4. The Department of Commerce will continue to rigorously enforce our unfair trade laws. Further, the Department of Commerce and the United States Trade Representative will self-initiate unfair trade cases including antidumping, countervailing duty and Section 301 actions when appropriate.

5. The United States International Trade Commission will be asked to monitor the efforts of the steel industry to adjust and modernize, and to prepare an annual report for the President on those efforts.

6. The Secretary of Commerce will establish an interagency group to analyze all U.S. government domestic tax, regulatory and antitrust laws and policies which could hinder the ability of the steel industry to modernize.

7. The Secretary of Defense and the Federal Emergency Management Agency will analyze domestic steel plate rolling capacity in relationship to emergency needs, and to recommend to the President appropriate actions if deficiencies are found to exist.

8. The Secretary of Labor will work with state and local governments to develop a program to assist workers in communities adversely affected by steel imports.

9. The United States Trade Representative will closely monitor the trade elements of this program and the resultant import trends and report them to the President on a quarterly basis.

The Administration's hope is that this combination of actions, taken without protectionist intention or effect would enable one of the United States' most basic and vital industries to return to a level playing field, one in which steel is traded on the basis of market forces, not government intervention, and one in which the market would seek a return to a more normal level of steel imports, or approximately 18.5 percent, excluding semi-finished steel.

This determination is to be published in the **Federal Register.**

Ronald Reagan

THE WHITE HOUSE,
Washington, September 18, 1984.

[FR Doc. 84-25181
Filed 9-18-84; 4:40 pm]
Billing code 3195-01-M

Editorial note: The text of identical letters, dated Sept. 18, 1984, to the Speaker of the House of Representatives and the President of the Senate on the import relief determination is printed in the *Weekly Compilation of Presidential Documents* (vol. 20, no. 38).

APPENDIX F

STATISTICAL TABLES

Table F-1.--Indexes of nominal exchange rates for certain foreign suppliers of semifinished steel to the United States, and certain markets for U.S. iron and steel scrap, by quarters, January 1979-December 1984

(January-March 1979=100)

Period	Japan	West Germany	Spain	United Kingdom	Canada	Brazil	Sweden	Taiwan	Netherlands	Republic of Korea	Mexico
	U.S. dollars per unit of foreign currency										
1979:											
January-March	100.0	100.0	100.0	100.0	100.0	100.0	100.0	1/	100.0	100.0	100.0
April-June	92.6	97.9	104.0	103.2	102.4	89.4	100.0	1/	97.0	100.0	99.7
July-September	92.0	102.1	105.0	110.7	101.7	80.4	103.4	1/	100.4	100.0	99.8
October-December	84.4	105.0	104.6	107.1	101.0	64.5	103.9	1/	102.2	100.0	99.7
1980:											
January-March	82.7	104.6	103.1	111.8	101.9	48.7	103.5	1/	102.6	84.8	99.7
April-June	86.6	102.4	98.0	113.4	101.4	44.0	102.6	1/	100.6	81.5	99.6
July-September	91.5	104.4	96.2	118.1	102.4	40.1	105.2	1/	103.6	78.9	99.0
October-December	95.6	97.0	90.6	118.4	100.2	35.8	101.7	1/	96.6	74.3	98.4
1981:											
January-March	98.0	88.9	82.5	114.6	99.4	31.0	76.1	100.0	87.8	72.5	96.9
April-June	91.6	81.5	76.1	103.3	99.0	26.2	89.5	100.0	79.4	71.1	94.5
July-September	86.9	76.2	70.8	91.1	97.9	22.0	82.5	100.0	74.1	70.6	91.8
October-December	89.7	82.6	72.2	93.5	99.5	18.6	79.0	101.0	81.2	70.1	88.6
1982:											
January-March	86.3	79.1	68.5	91.6	98.1	15.9	76.0	97.1	77.8	68.2	66.3
April-June	82.5	78.0	65.4	88.3	95.3	13.7	73.8	94.2	96.0	66.5	48.7
July-September	77.8	74.7	61.9	85.6	94.9	11.6	70.7	92.2	73.3	65.3	34.7
October-December	77.6	74.1	57.8	81.8	96.3	9.5	59.4	92.2	73.1	65.0	31.0
1983:											
January-March	85.5	77.0	53.4	76.0	96.7	6.7	59.0	92.2	75.4	64.2	22.3
April-June	84.8	74.6	49.9	77.2	96.4	4.6	58.1	92.2	71.7	62.9	19.9
July-September	83.1	70.2	46.2	74.9	96.2	3.4	55.9	90.3	67.7	61.6	18.0
October-December	86.0	69.3	44.9	72.9	95.8	2.5	55.0	88.3	66.7	60.9	16.5
1984:											
January-March	87.3	68.7	44.9	71.2	94.6	1.9	54.6	88.3	65.7	60.9	15.2
April-June	87.9	68.5	44.9	69.3	91.9	1.4	54.6	88.3	65.7	60.5	14.1
July-September	82.8	63.7	42.2	64.4	90.3	1.1	52.0	87.4	60.9	59.5	13.1
October-December	82.0	62.9	42.2	62.7	89.9	.8	50.2	1/	58.1	58.8	12.2

1/ Not available.

Source: Compiled from data in the International Financial Statistics of the International Monetary Fund.

Table F-2.--Indexes of real exchange rates for certain foreign suppliers of semifinished steel to the United States, and certain markets for U.S. iron and steel scrap, by quarters, January 1979-December 1984

(January-March 1979=100)

Period	Japan	West Germany	Spain	United Kingdom	Canada	Brazil	Sweden	Netherlands	Republic of Korea	Mexico
	U.S. dollars per unit of foreign currency									
1979:										
January-March	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
April-June	93.1	96.4	103.9	103.7	102.1	97.3	100.0	94.3	103.5	100.3
July-September	94.2	99.1	106.6	113.2	101.1	98.0	105.7	96.5	109.6	101.6
October-December	87.0	99.7	106.0	109.0	100.5	91.3	104.4	96.0	108.7	101.8
1980:										
January-March	86.8	97.6	106.1	114.5	101.7	78.6	104.4	96.0	101.1	105.7
April-June	92.4	95.7	101.5	118.4	100.2	83.6	103.5	93.4	105.4	108.1
July-September	95.1	95.1	100.0	121.7	100.7	91.5	105.3	94.1	102.6	111.8
October-December	96.6	87.8	94.6	121.2	99.8	98.5	101.3	86.8	99.7	112.0
1981:										
January-March	95.6	80.0	87.4	117.0	98.8	100.3	96.9	80.0	99.8	114.4
April-June	88.2	73.4	82.9	106.3	98.2	98.9	89.5	71.9	100.9	115.7
July-September	84.1	69.5	78.6	94.2	98.3	95.3	84.2	68.4	102.6	117.1
October-December	86.6	76.5	82.3	98.7	101.3	93.5	83.8	79.7	101.3	120.1
1982:										
January-March	83.0	73.9	80.4	98.5	100.5	93.2	83.3	73.9	99.1	99.5
April-June	79.4	73.5	78.6	96.2	99.3	96.7	82.0	72.4	96.8	84.3
July-September	75.2	70.7	75.1	93.7	99.1	96.1	79.4	70.6	94.9	71.3
October-December	74.9	70.3	71.7	90.6	100.9	91.4	71.1	70.4	94.8	74.8
1983:										
January-March	80.9	72.8	70.3	85.3	101.9	80.4	71.9	72.4	94.0	69.5
April-June	79.2	70.5	67.3	88.0	102.7	72.7	71.1	69.1	91.0	75.1
July-September	77.0	66.2	63.1	85.2	102.4	76.9	69.7	65.4	90.1	76.0
October-December	78.9	65.4	63.1	83.6	101.8	79.4	69.3	64.3	86.6	76.7
1984:										
January-March	79.1	64.7	65.2	82.1	101.0	78.7	70.2	64.2	86.5	83.2
April-June	79.1	64.7	66.6	81.3	98.7	78.2	70.6	64.2	85.9	88.6
July-September	75.3	60.4	62.5	76.2	97.7	79.0	68.0	59.9	85.3	89.7
October-December	75.2	60.2	1/	75.3	97.7	81.4	67.2	1/	84.6	1/

1/ Not available.

Source: Compiled from data in the International Financial Statistics of the International Monetary Fund.

Table F-3.--Semifinished steel: U.S. exports of domestic merchandise, imports for consumption, and trade balances, 1964-84

(In short tons)

Year	Exports	Imports	Trade balance
1964	886,018	344,760	541,258
1965	677,110	282,622	394,488
1966	339,524	223,852	115,672
1967	303,950	220,288	83,662
1968	553,802	298,678	255,124
1969	1,822,645	195,176	1,627,469
1970	3,180,101	170,647	3,009,454
1971	875,839	274,411	601,428
1972	418,203	261,695	156,508
1973	550,728	172,306	378,422
1974	807,418	182,859	624,559
1975	324,942	242,833	82,109
1976	261,647	240,107	21,540
1977	248,422	291,480	-43,058
1978	231,098	413,898	-182,800
1979	357,965	344,690	13,275
1980	912,309	155,345	756,964
1981	540,598	790,062	-249,464
1982	362,293	716,588	-354,295
1983	102,754	822,483	-719,729
1984	73,536	1,515,734	-1,442,198

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

Table F-4.--Semifinished steel: U.S. imports for consumption, by grades, 1964-84

Year	Carbon		Alloy		Stainless		Total
	Quantity	Percent of total	Quantity	Percent of total	Quantity	Percent of total	Quantity
	Short tons		Short tons		Short tons		Short tons
1964	291,462	84.5	24,304	7.0	28,994	8.4	344,760
1965	207,287	73.3	31,224	11.0	44,110	15.6	282,622
1966	135,673	60.6	44,091	19.7	44,088	19.7	223,852
1967	147,666	67.0	30,966	14.1	41,657	18.9	220,288
1968	205,581	68.8	53,496	17.9	39,601	13.3	298,678
1969	93,951	48.1	52,178	26.7	49,047	25.1	195,176
1970	86,285	50.6	57,347	33.6	27,015	15.8	170,647
1971	170,607	62.2	88,406	32.2	15,398	5.6	274,411
1972	161,642	61.8	87,855	33.6	12,198	4.7	261,695
1973	87,801	51.0	75,978	44.1	8,527	4.9	172,306
1974	122,943	67.2	47,757	26.1	12,159	6.6	182,859
1975	182,853	75.3	52,551	21.6	7,429	3.1	242,833
1976	192,617	80.2	44,880	18.7	2,610	1.1	240,107
1977	227,686	78.1	60,775	20.9	3,019	1.0	291,480
1978	322,945	78.0	87,510	21.1	3,443	0.8	413,898
1979	265,506	77.0	76,764	22.3	2,419	0.7	344,690
1980	119,275	76.8	32,644	21.0	3,426	2.2	155,345
1981	696,049	88.1	90,138	11.4	3,875	0.5	790,062
1982	635,546	88.7	76,910	10.7	4,132	0.6	716,588
1983	786,535	95.6	34,498	4.2	1,450	0.2	822,483
1984	1,406,706	92.8	95,394	6.3	13,634	0.9	1,515,734

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 F-5.--Semifinished steel: U.S. imports for consumption, by regions and principal sources, 1979-84

(In short tons)

Regions 1/	Belgium & Luxembourg	Brazil	Canada	France	West Germany	Italy	Mexico	Netherlands	Sweden	United Kingdom	All other	Total
North Central:												
1979	782	56,077	34,181	725	1,272	443	0	0	58,705	58,845	1,447	212,477
1980	0	1,822	90,399	0	453	485	0	0	11,383	9,111	2,879	116,532
1981	2,232	9,259	360,163	-	31,889	18,964	0	0	2,942	36,934	7,548	469,931
1982	0	16,976	160,959	1,758	6,463	0	0	0	5,434	17,407	1,526	210,523
1983	58	14,113	410,894	92	81,187	2/	0	38	0	4,826	17	511,225
1984	113,404	41,373	229,399	1,472	408,131	0	0	0	76,727	25,297	1,879	897,682
New England/Middle Atlantic:												
1979	66	0	17,872	31	675	5,509	0	0	824	2/	28,330	53,307
1980	0	661	12,241	91	362	56	0	0	221	50	163	13,845
1981	0	0	211,096	135	669	130	0	58	139	3	46,925	259,155
1982	21	966	16,119	0	5,601	272	0	19,166	130	24	54,226	96,525
1983	3	15,969	26,232	23,707	8,157	586	0	31,058	182	2	34,106	140,002
1984	54,563	42,068	34,126	54,066	57,587	4,280	0	49,143	39,546	6,000	37,912	379,291
Mountain/Pacific:												
1979	0	0	2/	2/	512	0	22	0	0	3,075	898	4,507
1980	28	2/	0	39	657	0	0	0	4	2,969	736	4,433
1981	0	0	8,006	274	407	0	0	0	0	2,913	110	11,710
1982	1,832	69	8,842	2,885	71,626	0	0	1,859	100,958	25,994	120,494	334,559
1983	0	64	1,203	2/	36,707	0	121	9,965	34,117	2,426	40,078	124,681
1984	1,987	5,770	2,272	0	133	1/	11,074	0	5	1,372	354	22,967
South Central:												
1979	0	154	0	771	259	102	19	0	12,523	12,408	43,612	69,848
1980	6	2,015	0	148	1,353	115	0	0	0	7,067	1,070	11,774
1981	513	2,787	0	0	1,027	0	0	0	22,668	15,573	3,826	46,394
1982	418	19,295	2	99	6,485	7	121	0	5,828	16,530	8,351	57,136
1983	505	10,935	2/	64	5,383	24	1,049	0	21,994	3,160	370	43,484
1984	3,705	15,870	0	147	24,047	1,027	1,113	0	141,121	8,675	6,120	201,825
South Atlantic:												
1979	0	3,085	0	0	365	0	0	0	248	0	853	4,551
1980	301	8,231	0	0	43	15	0	0	7	0	164	8,761
1981	0	2,116	2/	0	519	0	0	0	11	0	226	2,872
1982	0	7,558	0	0	8,554	122	0	0	0	1,266	346	17,846
1983	109	258	0	157	69	0	0	0	2,042	71	385	3,091
1984	11	128	0	254	1,439	30	0	0	442	144	11,520	13,968
Total:												
1979	848	59,315	52,053	1,526	3,085	6,053	41	0	72,300	74,329	75,140	344,690
1980	335	12,730	102,639	278	2,869	672	0	0	11,615	19,197	5,010	155,345
1981	2,745	14,161	579,266	409	34,511	19,094	0	58	25,761	55,423	58,634	790,062
1982	2,272	44,864	185,921	4,742	98,729	402	121	21,026	112,350	61,221	184,940	716,588
1983	674	41,340	438,330	24,020	131,502	611	1,170	41,061	58,334	10,484	74,957	822,483
1984	173,670	105,209	265,798	55,939	491,337	5,336	12,187	49,143	257,841	41,487	57,787	1,514,734

1/ Geographic regions are defined as follows:

North Central: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.

New England/Middle Atlantic: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.

Mountain/Pacific: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

South Central: Alabama, Arkansas, Kentucky, Louisiana, Mississippi, Oklahoma, Tennessee, and Texas.

South Atlantic: Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, and West Virginia.

2/ Less than 0.5 short ton.

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 F-6.--Iron and steel scrap: Reported U.S. consumption by the steel industry, 1/ by regions, 1979-83

Region 2/	1979	1980	1981	1982	1983
	Quantity (1,000 short tons)				
North Central	37,251	30,185	31,795	21,759	26,281
New England/Middle Atlantic	18,552	15,750	15,955	8,373	9,293
South Central	8,155	8,545	8,482	5,561	5,173
South Atlantic	7,771	7,085	7,253	4,954	4,998
Mountain/Pacific	5,461	4,993	4,856	3,049	3,252
Total	77,190	66,557	68,343	43,698	48,996
	Percent of total				
North Central	48.3	45.4	46.5	49.8	53.6
New England/Middle Atlantic	24.0	23.7	23.3	19.2	19.0
South Central	10.6	12.8	12.4	12.7	10.6
South Atlantic	10.1	10.6	10.6	11.3	10.2
Mountain/Pacific	7.1	7.5	7.1	7.0	6.6
Total	100.0	100.0	100.0	100.0	100.0

1/ For the purposes of this report, the steel industry does not include firms classified as steel foundries.

2/ Geographic regions are defined as follows:

North Central: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.

New England/Middle Atlantic: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.

South Central: Alabama, Arkansas, Kentucky, Louisiana, Mississippi, Oklahoma, Tennessee, and Texas.

South Atlantic: Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, and West Virginia.

Mountain/Pacific: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

Source: Compiled from official statistics of the U.S. Department of the Interior, Bureau of Mines.

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

Table F-7.--Iron and steel scrap: Reported U.S. consumption by all industries other than the steel industry, 1/ by regions, 1979-83

Region 2/	1979	1980	1981	1982	1983
	Quantity (1,000 short tons)				
North Central	14,018	10,553	10,284	7,628	7,764
South Central	3,058	2,650	2,619	2,169	2,033
New England/Middle Atlantic	2,709	2,327	2,206	1,637	1,791
South Atlantic	904	746	759	613	671
Mountain/Pacific	1,021	876	888	643	528
Total	21,711	17,153	16,754	12,688	12,785
	Percent of total				
North Central	64.6	61.5	61.4	60.1	60.7
South Central	14.1	15.4	15.6	17.1	15.9
New England/Middle Atlantic	12.5	13.6	13.2	12.9	14.0
South Atlantic	4.2	4.3	4.5	4.8	5.2
Mountain/Pacific	4.7	5.1	5.3	5.1	4.1
Total	100.0	100.0	100.0	100.0	100.0

1/ For the purposes of this report, the steel industry does not include firms classified as steel foundries.

2/ Geographic regions are defined as follows:

North Central: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.

South Central: Alabama, Arkansas, Kentucky, Louisiana, Mississippi, Oklahoma, Tennessee, and Texas.

New England/Middle Atlantic: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.

South Atlantic: Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, and West Virginia.

Mountain/Pacific: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

Source: Compiled from official statistics of the U.S. Department of the Interior, Bureau of Mines.

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

Table F-8.--Iron and steel foundries: World production, by specified countries, 1979-83

(In thousands of short tons)

Country	1979	1980	1981	1982	1983
United States	17,337.6	13,909.1	14,103.4	9,503.5	10,000.0
Japan	6,900.0	7,217.0	6,641.0	6,306.0	6,079.0
China	9,788.5	9,748.8	5,686.8	5,686.8	1/
West Germany	4,591.5	4,317.1	4,060.4	3,859.5	3,650.9
Italy	1,996.7	1,996.7	1,926.4	1,926.4	1/
United Kingdom	3,162.3	2,197.5	1,977.4	1,787.6	1/
Brazil	1,677.7	1,846.3	1,439.1	1,266.6	1,076.8
Mexico	836.2	958.2	958.2	958.2	1/
India	1/	1/	1/	948.1	1/
Canada	1,380.4	1,045.0	990.3	740.7	904.0
Korea	788.9	778.7	706.3	731.6	757.9
Australia	576.5	571.0	571.1	623.9	1/
Taiwan	552.0	519.8	490.9	438.9	542.5
All other	14,988.0	14,536.6	13,084.1	2/ 12,557.6	1/
Total 3/	64,576.3	59,641.8	52,635.4	47,335.4	1/

1/ Not available.

2/ Figure does not include Argentina, New Zealand, Luxembourg, Singapore, Spain, and Yugoslavia, which were reported in previous years.

3/ Figures exclude production in the U.S.S.R.

Source: Data, compiled from U.S. Department of Commerce, U.S. Department of State telegrams, German Industrial Statistics, and the "Census of World Casting Production," Modern Castings'.

Table F-9.--Raw steel: World production, by countries, 1979-84

(In millions of short tons)

Country	1979	1980	1981	1982	1983	1/ 1984
U.S.S.R	164.3	163.1	163.7	162.2	168.1	170.9
Japan	123.2	122.8	112.1	109.7	107.1	116.4
United States	136.3	111.8	120.8	74.6	84.7	93.1
People's Republic of China	38.0	40.9	39.2	40.9	44.1	47.8
West Germany	50.8	48.3	45.9	39.6	39.4	43.4
Italy	26.7	29.2	27.3	26.5	24.0	26.5
France	25.8	25.5	23.4	20.3	19.4	20.9
Poland	21.2	21.5	17.3	16.3	17.9	18.0
Czechoslovakia	16.3	16.5	16.8	16.6	16.5	16.8
United Kingdom	23.7	12.4	17.2	15.1	16.5	16.8
Brazil	15.3	16.9	14.5	14.3	16.2	20.3
Spain	13.5	13.9	14.2	14.5	14.3	14.9
Canada	17.7	17.5	16.1	13.0	14.1	16.2
Korea	8.4	9.4	11.9	13.0	13.1	14.3
Mexico	7.7	7.8	8.4	7.8	7.6	8.3
Taiwan	4.7	4.7	3.5	4.6	5.5	5.5
Turkey	2.6	2.8	2.7	3.1	4.2	4.7
All other	128.3	125.4	124.4	118.6	118.4	128.2
Total	824.5	790.4	779.4	710.7	731.1	783.0

1/ Data for 1984 are preliminary.

Source: American Iron & Steel Institute, 1983 Annual Statistical Report, and Metal Bulletin Monthly, April 1985.

Table F-10.--Ratio of iron and steel scrap consumption to raw steel production, by countries, 1979-82

(In percent)

Country	1979	1980	1981	1982
United States	72.6	74.9	70.4	75.6
Other:				
United Kingdom	70.7	82.6	66.4	75.6
Spain	59.0	66.2	59.1	70.0
Italy	67.1	67.9	65.2	63.9
Turkey	56.8	68.0	66.0	60.6
West Germany	47.2	46.4	47.1	48.8
Canada	51.7	53.7	51.1	48.2
Brazil	42.4	42.5	42.6	42.4
Japan	40.8	39.3	39.8	39.0
France	34.7	34.3	34.4	34.9
U.S.S.R.	32.3	34.8	34.8	34.8
India	39.4	38.9	34.6	34.6
Taiwan	17.1	25.8	31.6	30.6
Mexico	35.0	30.0	29.7	29.7
Average	40.3	40.1	40.2	40.4
Average, all countries	45.6	45.5	44.9	44.0

Source: Compiled from statistics of the U.S. Department of Interior, U.S. Bureau of Mines, and American Iron & Steel Institute.

Table F-11.--Iron and steel scrap: Imports and consumption, by selected countries, 1979-82

	Imports	Consumption	Ratio of imports to consumption
	(1,000 short tons)	(1,000 short tons)	(Percent)
U.S.S.R.:			
1979	22	53,020	1/
1980	23	56,690	1/
1981	24	56,900	1/
1982	20	56,500	1/
United States:			
1979	760	98,901	0.8
1980	558	83,710	0.7
1981	562	85,097	0.7
1982	474	56,386	0.8
Japan:			
1979	3,688	50,292	7.3
1980	3,291	48,291	6.8
1981	1,974	44,616	4.4
1982	2,232	42,832	5.2
West Germany:			
1979	1,769	23,993	7.4
1980	1,658	22,401	7.4
1981	1,473	21,632	6.8
1982	1,421	19,342	7.4
Italy:			
1979	7,596	17,928	42.4
1980	8,168	19,825	41.2
1981	6,107	17,799	34.3
1982	6,141	16,944	36.2
United Kingdom:			
1979	49	16,761	0.3
1980	28	10,248	0.3
1981	23	11,424	0.2
1982	41	11,409	0.4
Spain:			
1979	3,805	7,961	47.8
1980	4,835	9,195	52.6
1981	4,479	9,933	45.1
1982	5,000	10,150	49.3
China:			
1979	6	8,700	1/
1980	2	9,400	1/
1981	2	9,000	1/
1982	2	9,400	1/
Poland:			
1979	7	11,597	1/
1980	250	11,817	2.1
1981	58	9,598	0.6
1982	6	9,093	1/

See footnote at end of table.

Table F-11.--Iron and steel scrap: Imports and consumption, by selected countries, 1979-82--Continued

	Imports	Consumption	Ratio of imports to consumption
	(1,000 short tons)	(1,000 short tons)	(Percent)
Canada:			
1979	1,156	9,145	12.6
1980	1,119	9,395	11.9
1981	924	8,233	11.2
1982	500	6,261	8.0
Korea:			
1979	1,742	1,800	96.8
1980	2,130	2,200	96.8
1981	2,546	2,700	94.3
1982	1,994	3,300	60.4
Mexico:			
1979	393	2,705	14.5
1980	257	2,345	11.0
1981	235	2,490	9.4
1982	96	2,310	4.2
Turkey:			
1979	399	1,500	26.6
1980	381	1,900	20.1
1981	579	1,764	32.8
1982	500	1,900	26.3
Taiwan:			
1979	839	800	104.9
1980	1,358	1,200	113.2
1981	971	1,100	88.3
1982	718	1,400	51.3
Belgium-Luxembourg:			
1979	1,069	6,435	16.6
1980	947	5,803	16.3
1981	1,054	5,591	18.9
1982	978	6,061	16.1

1/ Less than 0.5 percent.

Source: Compiled from statistics of the U.S. Department of Interior, U.S. Bureau of Mines.

Table F-12.--Raw steel: U.S. production, by selected States and groups of States, 1979-83

(In thousands of net tons)

States	1979	1980	1981	1982	1983
Indiana	22,912	19,820	22,652	16,499	20,202
Ohio	21,082	16,100	18,096	12,181	14,586
Pennsylvania	28,213	23,517	24,066	10,905	13,000
Michigan	10,922	7,877	8,943	6,075	7,262
Illinois	11,729	8,961	9,105	5,091	5,410
Virginia, West Virginia, Georgia, Florida, North Carolina, South Carolina, and Louisiana	6,788	6,066	6,497	4,921	5,277
Texas	1/	1/	1/	5,277	4,696
Rhode Island, Connecticut, New Jersey, Delaware, and Maryland	6,638	5,161	5,777	4,063	3,985
Arizona, Colorado, Utah, Washington, Oregon, Hawaii	5,165	4,795	4,842	3,035	3,161
Kentucky	2,438	2,141	2,397	1,422	1,841
Alabama, Tennessee, Mississippi and Arkansas	4,487	3,452	3,585	1,506	1,470
New York	4,035	2,675	3,147	1,419	1,305
Minnesota, Missouri, Oklahoma, Nebraska, and Iowa	8,260	8,642	9,068	866	1,287
California	3,672	2,628	2,653	1,317	1,132
Total	136,341	111,835	120,828	74,577	84,615

1/ Included with Minnesota, Missouri, Oklahoma, Nebraska, and Iowa.

Source: 1983 Annual Statistical Report, American Iron and Steel Institute.

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

Table F-13.--Continuous cast steel: U.S. production, 1979-84

Year	Production	Production as a share of total steel production
	-----1,000 short tons----	----------Percent----------
1979	23,043	16.9
1980	22,720	20.3
1981	26,138	21.6
1982	21,628	29.0
1983	27,174	32.1
1984 1/	35,714	39.0

1/ Preliminary data.

Source: Compiled from data of the American Iron and Steel Institute.

Table F-14.--Raw steel: U.S. production, capacity, and capacity utilization, 1/ by types of firms, 1979-83

Item	1979	1980	1981	1982	1983
Integrated producers:					
Production					
1,000 short tons	75,752	61,463	65,812	38,585	43,381
Capacity---do---	88,537	86,720	85,359	84,954	80,102
Capacity utilization					
percent	85.6	70.9	77.1	45.4	54.2
Nonintegrated producers:					
Production					
1,000 short tons	14,825	14,270	15,850	12,763	13,718
Capacity---do---	18,270	19,182	21,289	22,326	23,538
Capacity utilization					
percent	81.1	74.4	74.5	57.2	58.3
Total:					
Production					
1,000 short tons	90,577	75,733	81,662	51,348	57,099
Capacity---do---	106,807	105,902	106,648	107,280	103,640
Capacity utilization					
percent	84.8	71.5	76.6	47.9	55.1

1/ Data include responses of 65 firms.

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

Table F-15.--Raw steel: U.S. production, by type of firm and production process, 1/ 1979-83

Item	1979	1980	1981	1982	1983
	Quantity (1,000 short tons)				
Integrated:					
Continuous cast	9,882	9,566	10,822	9,025	11,314
Ingot cast	65,870	51,897	54,990	29,560	32,067
Total	75,752	61,463	65,812	38,585	43,381
Nonintegrated:					
Continuous cast	7,186	7,906	9,120	9,408	10,518
Ingot cast	7,639	6,364	6,730	3,355	3,200
Total	14,825	14,270	15,850	12,763	13,718
	Percent of total				
Integrated:					
Continuous cast	13.0	15.6	16.4	23.4	26.1
Ingot cast	87.0	84.4	83.6	76.6	73.9
Total	100.0	100.0	100.0	100.0	100.0
Nonintegrated:					
Continuous cast	48.5	55.4	57.5	73.7	76.7
Ingot cast	51.5	44.6	42.5	26.3	23.3
Total	100.0	100.0	100.0	100.0	100.0

1/ Data include responses of 65 firms.

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

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APPENDIX G

METHODOLOGY USED TO ESTIMATE THE EFFECT ON SCRAP QUANTITY AND PRICE OF MAJOR MARKET FORCES

The estimates concerning changes in the quantity of scrap purchased and in scrap prices focuses on changes caused by semifinished steel imports and by other all other factors. Changes in the raw steel production will shift the demand for purchased scrap, changing the quantity of scrap purchased and the scrap price.

The figure below is an illustration of the supply and demand for purchased scrap. The total supply of purchased scrap (S_t) is a horizontal summation of the supply of prompt industrial scrap (S_p) and the supply of obsolete scrap (S_o). 1/ A decline in scrap demand caused by declining raw steel production will shift the demand curve from D_t to D_t', with the equilibrium quantity and price declining to Q' and P'. For a given change in the quantity demanded (denoted by ΔD^p) at the initial price, the new equilibrium values Q' and P' can be calculated from the two equations:

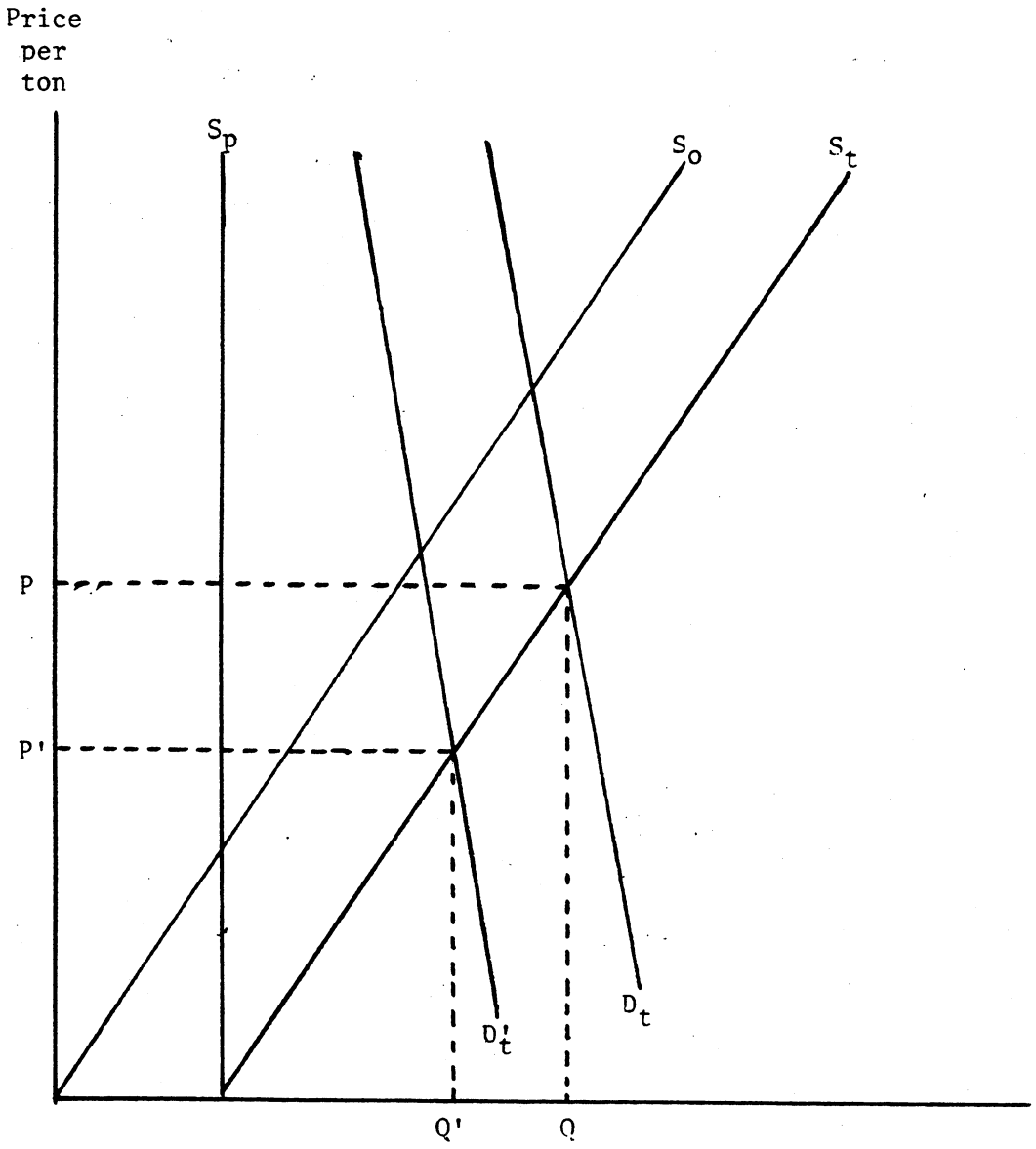
$$Q' = Q + (\Delta D^p/(n+e))e, \text{ and}$$

$$P' = P + (\Delta D^p/(n+e))(P/Q),$$

where Q and P are the quantity and price in the period preceding the change in demand, D^p is the change in the quantity demanded caused by a change in raw steel production, n is the price elasticity of supply, and e is the price elasticity of demand. The table below shows the data used in the estimates for changes in scrap demand attributed to semifinished steel imports and to other factors which affected raw steel production. The elasticities

1/ As explained earlier the supply of prompt industrial scrap is largely set outside the scrap market, which accounts for its characterization as being highly inelastic.

Supply and Demand for Purchased Scrap



S_p is the supply of prompt industrial scrap

S_o is the supply of industrial scrap

S_t is the total purchased scrap supply, the horizontal summation of S_p and S_o

D_t is total demand for purchased scrap

Changes in scrap demand used in estimating the effect of semifinished steel imports, and of raw steel production, on scrap quantity and price

(In thousands of tons)

Year	Semifinished steel imports			Raw steel		
	Import level over base	Initial decline in demand for scrap 1/	Secondary decline in demand for scrap 2/	Net production 3/	Changes in net production	Demand change for scrap 4/
1981	5/	-	-	120,828	-	-
1982	562	-140	-169	75,137	-45,691	-11,377
1983	667	-153	-185	84,048	8,911	2,050
1984	1,347	-310	-364	94,347	10,299	2,369

1/ The number is the semifinished steel import level over the base level (col. 1) multiplied by the proportion of purchased scrap that would have been used to produce the semifinished steel domestically. This proportion was .249 in 1982 and .230 in both 1983 and 1984.

2/ This number is the semifinished steel import level over the base level multiplied by the additional home scrap generated, which is assumed to displace purchased scrap. This proportion was .300 in 1982 and .277 in both 1983 and 1984.

3/ Production after accounting for the decline in production attributed to the increase in semifinished steel imports.

4/ Change in net production multiplied by the proportion of purchased scrap used to produce a given tonnage of semifinished steel. These are the same proportions as those in footnote 1.

5/ Any import levels over base levels in this year are assumed to be primarily the result of the steel strike in Canada in that year.

Note.--The values in columns 2, 3, and 6 of the above table are the values used for the DP variable in the equations for Q' and P'. For example, the partial impact of the change in net raw steel production on net scrap receipts in 1982 is calculated from the equation:

$$Q' = Q + (\Delta DP/(n+e))n,$$

where Q = 41,981 is net scrap receipts in the preceding year
DP = -11,377 is the demand change for scrap from a change in net steel production, at the initial price, and n = .644 and e = .15 are the absolute values of the supply and demand elasticities, respectively.

Substituting these values into the equation; Q' = 41,981 - 9,271 = 32,514, where 9,217 corresponds to the 1982 "Change in scrap quantity caused by net steel production changes" in table 40.

used in the estimates were derived from Robert R. Nathan Associates, Inc.'s (RRNA) scrap market model, which used quarterly data from 1961 to 1976. 1/ 2/ Point elasticities of demand and supply for purchased scrap varied widely, depending on the strength of the scrap market. For example, the supply elasticity for purchased scrap ranged from .238 to .644 during the 1968 to 1976 period, with the supply being more elastic during weaker market conditions. The supply elasticity of .644 is used in our estimates because the scrap markets in 1982 and 1983 were considered to be relatively weak. Because the demand for scrap is derived from steel production, and the proportion of scrap used in the various production processes does not appear to vary greatly from year to year, scrap demand is expected to be relatively inelastic, especially in the short run. RRNA did not calculate an average demand elasticity for purchased scrap, but a review of point elasticities indicates that -.15 may be an appropriate elasticity to use for our estimates.

The actual scrap quantity data for each year represent net scrap receipts. 3/ The actual scrap price data for each year is a weighted average of #1) the composite price for no. 1 heavy melting scrap, and #2) No. 1 auto bundles, which represent obsolete scrap prices and prompt industrial scrap prices, respectively. 4/

1/ Price-Volume Relationships for the Supply of Scrap Iron and Steel: A Study of the Price Elasticity of Supply, RRNA, 1979.

2/ Estimates based on elasticities derived from the RRNA model are preliminary. If, during the course of this investigation, other information is obtained which indicates that other elasticities may be more appropriate, our estimates will be revised.

3/ U.S. Department of Commerce, Survey of Current Business, various issues.

4/ To calculate the weighted-average scrap purchase price the composite price received a weight of .56 and the auto bundle price received a weight of .44.