

Steel Semiannual Monitoring Report

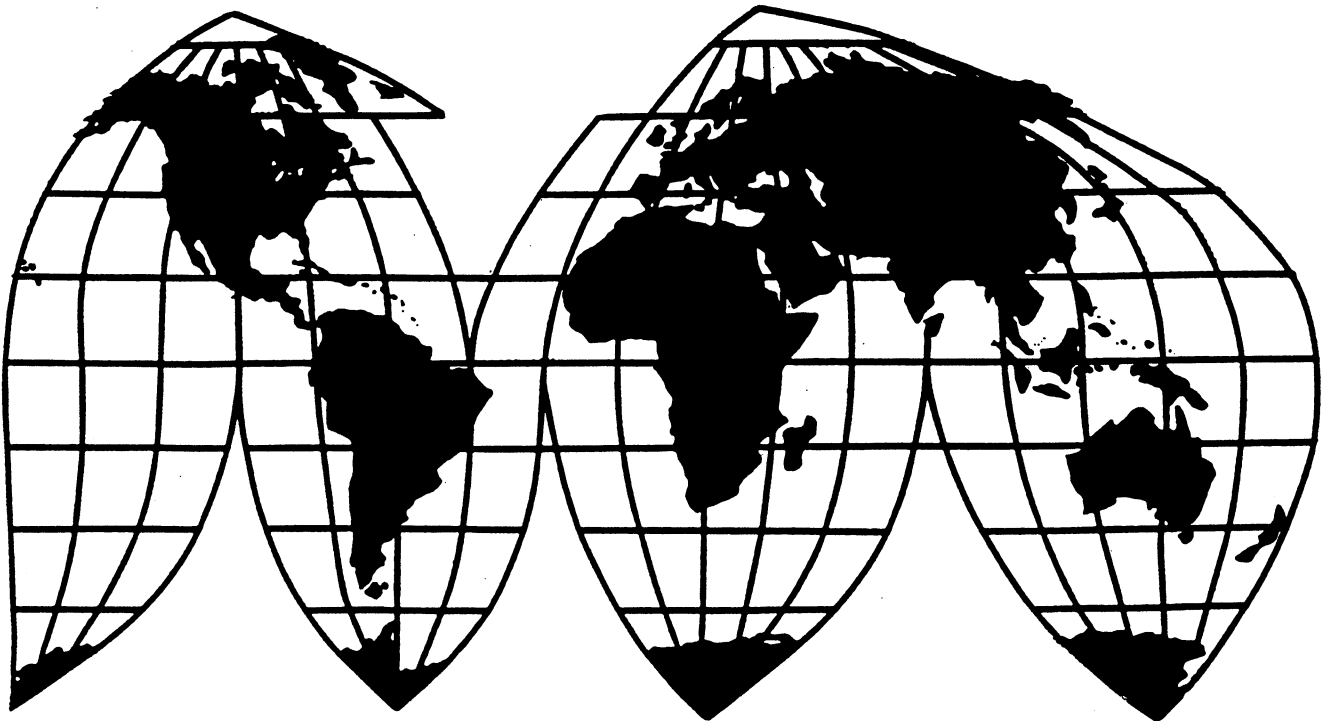
Special Focus: U.S. Industry Conditions

Investigation No. 332-327

Publication 2878

April 1995

U.S. International Trade Commission



Washington, DC 20436

U.S. International Trade Commission

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The information and analysis in this report are for the purpose of this report only. Nothing in this report should be construed to indicate how the Commission would find in an investigation conducted under other statutory authority covering the same or similar matter.

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Purpose and Scope of Report

On July 9, 1992, at the request of the U.S. House of Representatives Committee on Ways and Means, the United States International Trade Commission (USITC) instituted investigation No. 332-327, *Steel Semiannual Monitoring Report*, under section 332(g) of the Tariff Act of 1930 (19 U.S.C. 1332 (g)). The purpose of this investigation is to provide semiannual monitoring reports to the House Committee on Ways and Means concerning the status of, and prospects for, the U.S. steel industry in the post-voluntary-restraint-agreement (VRA) competitive environment, from January 1991 through December 1994.

The series of reports, to be submitted over a 3-year period beginning in September 1992, consists each year of two semiannual reports (to be submitted in April 1993, 1994, and 1995 and September 1992, 1993, and 1994) that analyze global industry trends and competitiveness issues, and provide key product trade information. Each of the six reports contains detailed U.S. trade information (for instance, data by product and key country suppliers and/or markets), a summary of changes in U.S. trade flows, highlights of recent major developments in the U.S. steel industry, and selected international steel industry comparisons.

Each of the April issues focuses primarily on developments and conditions in the U.S. industry and highlights significant developments in industry competitiveness during the post-VRA period. The calendar year data that form the basis for this analysis are gathered by questionnaires requesting information on industry operating performance and competitive factors (e.g., capacity, production, shipments, financial operations, capital expenditures and R&D, technology, and environmental expenditures) sent to all raw steel producers¹ as well as selected steel processors.² Each of the September issues of these reports also contains a short analysis of country/regional industry developments and/or competitiveness issues, such as environmental regulations, technological developments, and globalization.

¹ Raw steel (or crude steel) is produced through the "integrated process" by refining iron (that has been produced in a blast furnace) together with coke (that has been produced in a coke oven) into steel; through the scrap-based process (melting steel scrap in an electric arc furnace); or through a hybrid of these processes. The April series of reports is based on data collected from *all* producers of raw steel, irrespective of process.

² Processors typically do not possess steel melting capacity, but may perform other functions such as heat-treating, rolling, or cutting to size.

Five reports have been transmitted to the Committee to date—in September 1992, June 1993,³ September 1993, April 1994, and September 1994. This report, the sixth and last in the series, focuses on current conditions in the U.S. industry, including information on recent developments in steel capacity, production, capital expenditures, environmental expenditures, spending on research and development, employment, and financial performance. In addition, the report provides detailed breakouts on U.S. shipments and U.S. trade for 20 major groups of steel mill products and certain fabricated steel products, and information on other recent developments in the U.S. industry.

The analysis is based on data developed from questionnaires sent to 220 producers and converters (i.e., companies that purchase certain steel mill products for conversion into other steel mill products—also known as steel processors) of steel mill products and from secondary sources. Responses were received from 165 producers, which account for virtually all raw steel production (more than 95 percent) and include about 70 percent of steel converters surveyed. The report also highlights changes in the overall structure of world raw steel production, trade, and consumption; the Uruguay Round Agreements and U.S. unfair trade laws; increasing use of steel in residential construction; and increasing imports of stainless steel as the industry globalizes. Finally, the report provides detailed breakouts on U.S. shipments and U.S. trade for 20 major groups of steel mill and certain fabricated steel products, and information on other recent developments in the U.S. industry.

Product Coverage and Trade Policy Perspective

The products covered in the Commission's semiannual reports were subject to import quotas under VRAs in effect from late 1984 through March 31, 1992.⁴ The President undertook the VRA program after the USITC made an affirmative determination in an investigation under section 201 of the Trade Act of

³ The report transmitted in June 1993 was originally scheduled to be transmitted in April 1993, but was postponed to ensure that the study contained complete survey results.

⁴ Products include carbon and certain alloy (other than stainless or tool) steel and specialty steel (stainless and alloy tool steel) semifinished, plate, sheet and strip, bars and light shapes, wire rod, wire, wire products, structural shapes and units, rails and related products, and pipe and tube product categories covered in appendix F, tables F-1 through F-37.

1974 (19 U.S.C. 2251) with respect to imports of certain carbon steel products.⁵ After receiving the Commission's report on that investigation, the President announced that he was not taking action under section 203 of the Trade Act but instead would negotiate bilateral restraints with steel-exporting countries to limit U.S. imports of steel and would enforce more vigorously the laws against unfair trade practices.⁶ Congress later passed the Steel Stabilization Act (title VII of the Trade and Tariff Act of 1984), which granted the President authority, for the 5-year period ending September 30, 1989, to enforce the terms of the bilateral steel arrangements. However, this legislation made continuation of such authority subject to the condition that the steel industry continue to modernize its plant and equipment and provide for appropriate worker retraining. Specifically, the President was required to make an annual affirmative determination that major steel companies were committing substantially all of their net cash flow from steel operations to reinvestment and modernization of their steel operations and that a certain amount of funds was committed to worker retraining.⁷ In July 1989, the President proposed a 2-1/2 year extension of the program. Congress later passed the Steel Trade Liberalization Program Implementation Act, extending the President's enforcement authority through March 31, 1992.⁸

The Steel Trade Liberalization Program called upon the United States Trade Representative (USTR) to negotiate Bilateral Consensus Agreements (BCAs).⁹ Negotiations commenced during the fall of 1989, resulting in the successful conclusion of 10 BCAs that covered a majority of U.S. imports of VRA-steel products.¹⁰ As provided for in the BCAs, countries agreed to work toward a Multilateral Steel Agreement (MSA) that would address the underlying

causes of unfair trade in steel by eliminating tariffs, such nontariff measures as quotas, and most subsidies in the steel sector. The United States and 34 other countries took part in negotiations for an MSA as part of the Uruguay Round negotiations under the auspices of the General Agreement on Tariffs and Trade (GATT). The MSA negotiations were suspended on March 31, 1992, the same day that the VRA program expired. Negotiations resumed in December 1992 but an agreement was not reached in time to become part of the Uruguay Round package.¹¹ Since the end of the VRAs, the U.S. industry has filed petitions under the U.S. antidumping and countervailing duty law with respect to many imported steel products once covered by the VRAs, including wire rope, bar, steel rail, pipe and tube, flat-rolled products, and other steel products.

With respect to steel trade, questionnaire responses and anecdotal information suggest that U.S. steel producers have made a strong effort to develop new export markets, efforts that have been enhanced by producers' improved competitiveness, a weaker dollar, and better access to foreign markets since the mid-1980s. Steel firms' views on the relative importance of nontariff barriers and government policy factors that may affect their ability to expand exports were collected for presentation in this report.¹² U.S. producers and converters also expanded their imports of steel in 1994 in response to increasing domestic demand, rising prices, and constraints on capacity, according to questionnaires received in response to the Commission survey.

Organization of Report

This introduction is followed by a series of figures and tables that provide highlights of U.S. and international steel industry consumption and trade. Within *U.S. Steel Industry Highlights*, figures 1 to 4 present monthly trends in U.S. steel shipments, imports, exports, and import penetration. Within *International Production, Consumption, and Trade*, figures 5 and 6, and tables 1 through 5 highlight the geographic distribution of world steel production, exports, imports, and apparent consumption; these tables are also provided to show annual import and export data for various countries and country groups in

⁵ USITC, *Carbon and Certain Alloy Steel Products*, USITC Publication 1553, investigation No. TA-201-51, July 1984.

⁶ Executive Communication 4046, Sept. 18, 1984 (H. Doc. 98-263).

⁷ Public Law 98-573, Oct. 30, 1984, (98 Stat. 3043).

⁸ Public Law 101-221, Dec. 12, 1989, (103 Stat. 1886) (19 U.S.C. 2253 note).

⁹ Such agreements were authorized consistent with section 803 of the Steel Import Stabilization Act, 19 U.S.C. sec. 2253 note, as amended by section 2(b) of the Steel Trade Liberalization Program Implementation Act, Pub. L. 101-221, 103 Stat. 1887.

¹⁰ BCAs were concluded with Australia, Austria, Brazil, European Union (formerly known as the European Community), Finland, Japan, Korea, Mexico, Trinidad and Tobago, and Yugoslavia.

¹¹ The effect of the Uruguay Round on steel trade is addressed in USITC, *Steel Semiannual Monitoring Report*, investigation No. 332-327, USITC Publication 2759, Apr. 1994, pp. 16-19.

¹² For a discussion of steel trade rules under the Uruguay Round, and for further explanation of barriers to expanding U.S. steel exports, see USITC, *Steel Semiannual Monitoring Report*, investigation 332-327, USITC Publication 2759, Apr. 1994, pp. 16-19.

1983 and 1990-93. The section on *Recent Steel Industry Developments* highlights major events affecting both the U.S. and foreign steel industries.

The *Special Focus* section examines current U.S. industry conditions; this information is based primarily on data submitted by producers and converters in response to questionnaires of the USITC, and comparisons are provided with 1993 data. Wherever possible, separate data are presented for carbon and certain alloy steel and for stainless and alloy tool steel.¹³

¹³ In general, stainless and alloy tool steels are higher valued products manufactured by firms that are small in comparison with the major carbon steel producers. These higher values are a function of higher raw material costs and additional processing. In the past, producers of carbon steel typically have petitioned separately from producers of stainless steel for import relief under U.S. antidumping and countervailing duty laws.

Appendix A contains a more detailed overview of the structure of this report and notes on its product coverage and methodology. Appendixes B and C, respectively, contain the study request letter from the Chairman of the House Committee on Ways and Means and the notice of the Commission investigation. Appendix D contains a description of the products subject to this investigation and definitions of certain terms. Appendix E provides the status of antidumping (AD) and countervailing duty (CVD) cases filed on imports of steel products and ferroalloys since late 1991. Appendix F provides detailed statistical tables on U.S. shipments and steel trade. Appendix G provides data on U.S. producers' and converters' capital expenditures and the reasons for such expenditures. Appendix H provides data on U.S. producers' and converters' research and development expenditures and the reasons for such expenditures. ■

Figure 1
U.S. average monthly open market steel shipments, 1990-94, and monthly open market steel shipments, 1994

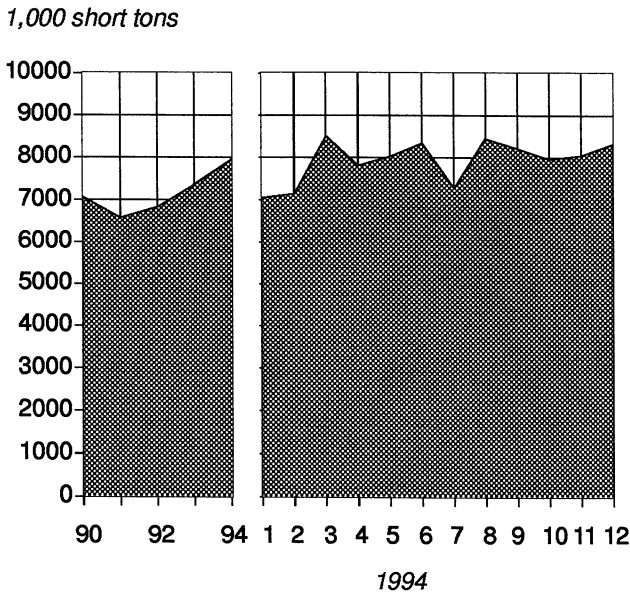


Figure 2
U.S. average monthly steel imports, 1990-94, and monthly steel imports, 1994

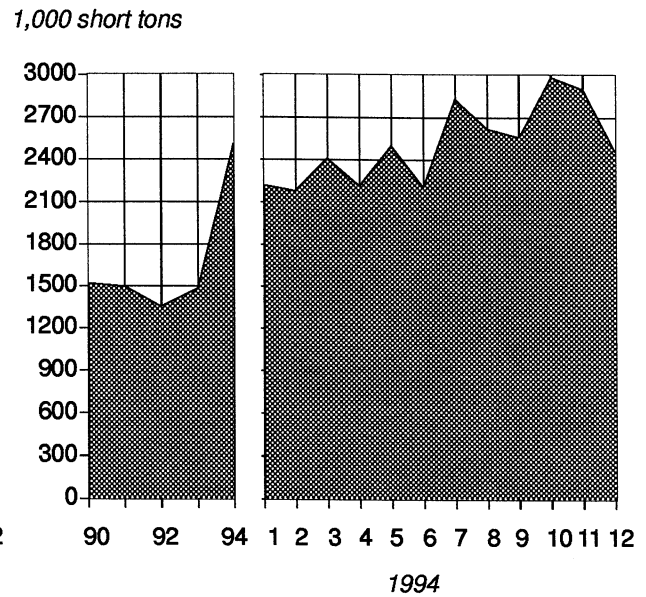


Figure 3
U.S. average monthly steel exports, 1990-94, and monthly steel exports, 1994

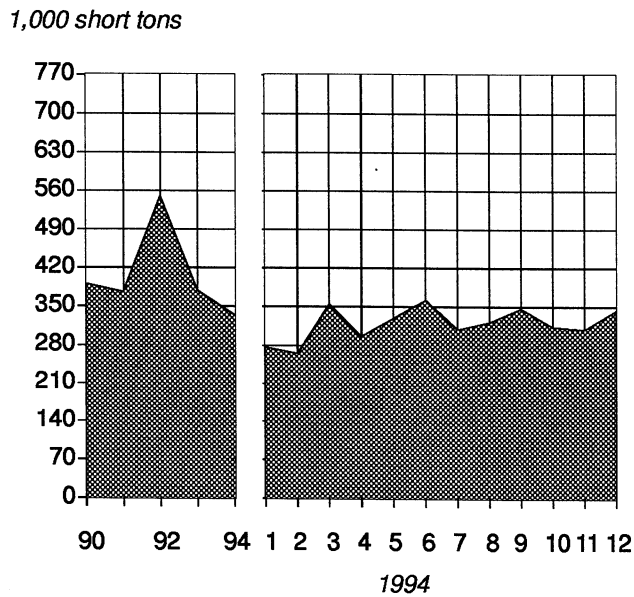
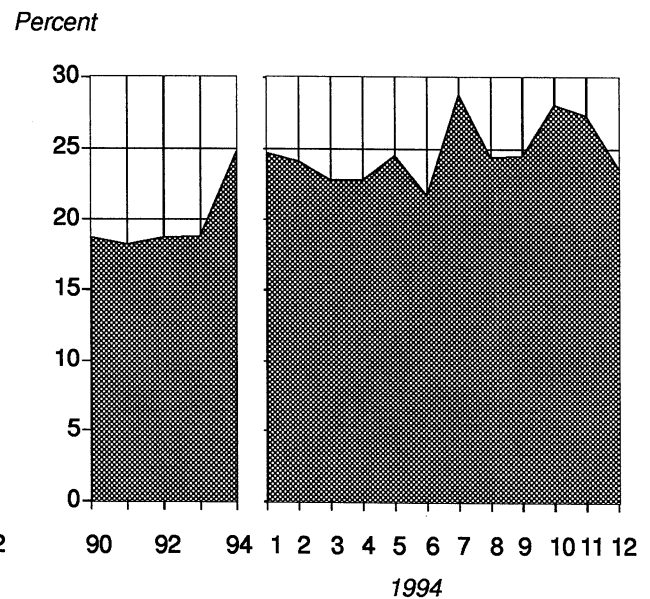


Figure 4
U.S. average monthly open market steel import penetration, 1990-94, and monthly open market steel import penetration,¹ 1994

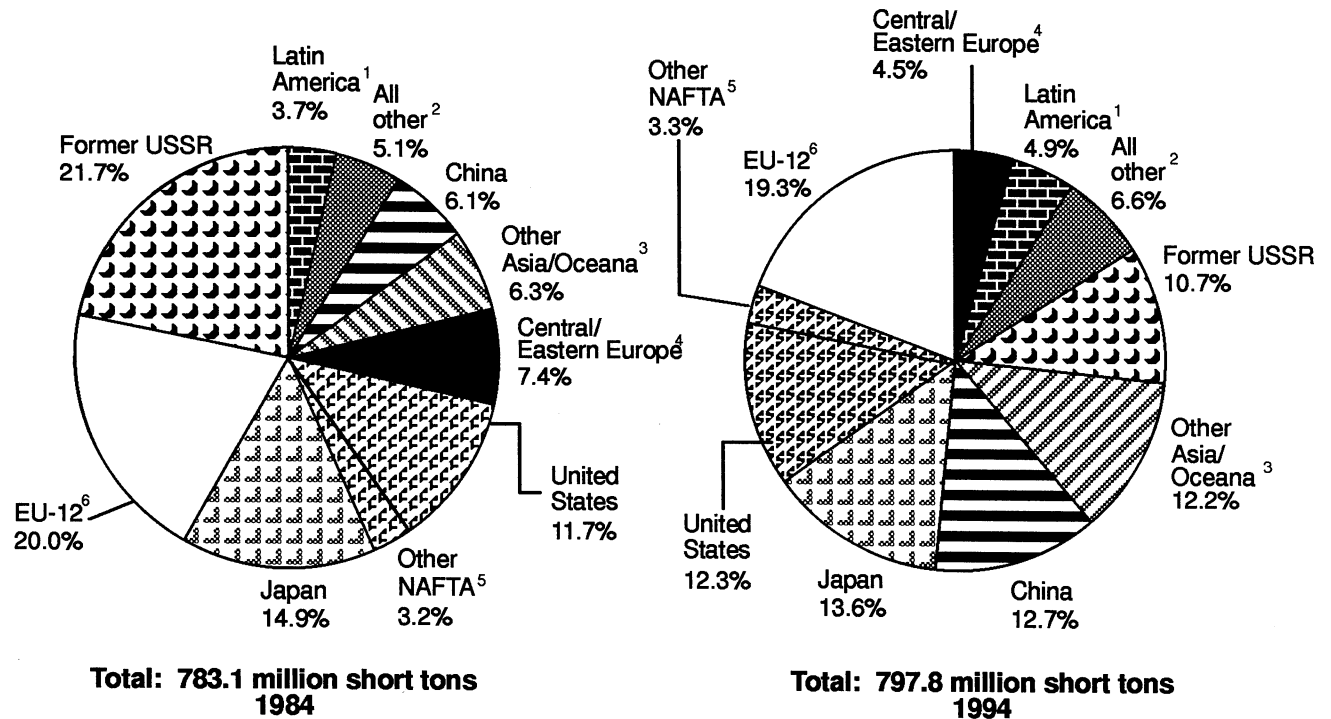


¹ Import penetration is the ratio of imports to apparent open market consumption. Apparent open market consumption is the sum of net open market shipments (data for captive consumption are unavailable) plus imports minus exports.

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

INTERNATIONAL PRODUCTION, CONSUMPTION, AND TRADE—Continued

Figure 5
Raw steel: Geographic distribution of world production, 1984 and 1994



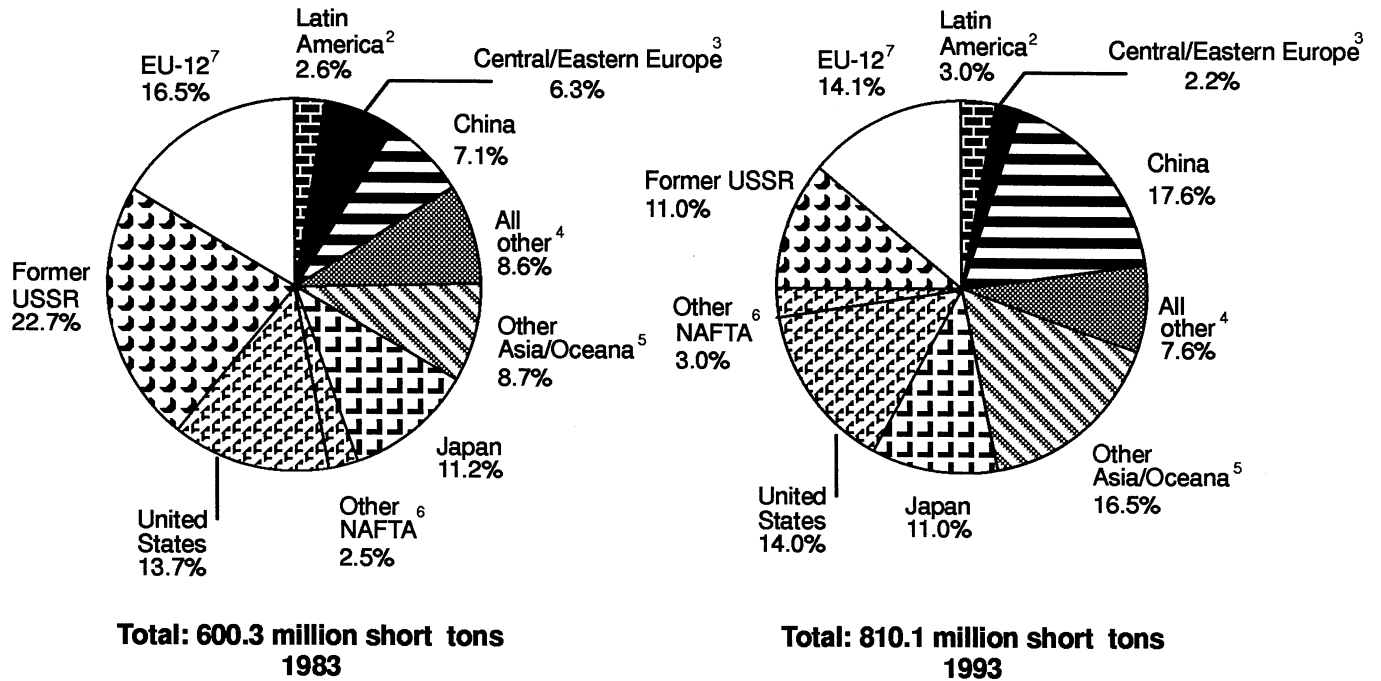
- 1 Excludes Mexico. Includes Central America, South America and the Caribbean (including Cuba).
- 2 Includes other Western Europe, Africa, and Middle East.
- 3 All Asian countries except Japan and China. Includes Australia and New Zealand.
- 4 Includes Albania, Bulgaria, Czech Republic, Slovak Republic, Hungary, Poland, and Romania.
- 5 NAFTA = North American Free Trade Agreement; members are Canada, Mexico, and the United States.
- 6 Formerly known as European Community. Includes the former German Democratic Republic.

Note.—Data do not add to the total shown because of independent rounding.

Source: Calculated from statistics of the International Iron and Steel Institute.

INTERNATIONAL PRODUCTION, CONSUMPTION, AND TRADE—Continued

Figure 6
Raw steel: Geographic distribution of world apparent open market consumption, 1983 and 1993¹



¹ Data for 1993 are the most recent data available.

² Excludes Mexico. Includes Central America, South America and the Caribbean (including Cuba).

³ Includes Albania, Bulgaria, Czech Republic, Slovak Republic, Hungary, Poland, and Romania.

⁴ Includes other Western Europe, Africa, and Middle East.

⁵ All Asian countries except Japan and China. Includes Australia and New Zealand.

⁶ NAFTA = North American Free Trade Agreement; members are Canada, Mexico, and the United States.

⁷ Formerly known as European Community. Includes the former German Democratic Republic.

Note.—Data do not add to the total shown because of independent rounding.

Source: Calculated from statistics of the International Iron and Steel Institute.

INTERNATIONAL PRODUCTION, CONSUMPTION, AND TRADE—Continued

Table 1
Raw steel: Production of top 25 steelmakers, 1984 and 1994¹

Company	Country	1984	1994	Volume change 1984-94	Percent change 1984-94
<i>Million short tons</i>					
Nippon Steel	Japan	32.43	28.11	(4.32)	(13.3)
Posco	Korea	10.13	24.38	14.25	140.7
Usinor-Sacilor	France	² 19.51	20.39	0.88	4.5
British Steel	U.K.	14.04	14.23	0.19	1.4
NKK	Japan	13.78	11.97	(1.81)	(13.1)
Thyssen	Germany	11.96	11.79	(0.17)	(1.4)
U.S. Steel	U.S.	15.10	11.67	(3.43)	(22.7)
ILVA Group	Italy	³ 14.90	11.35	(3.55)	(23.8)
Sumitomo Metal	Japan	12.46	11.14	(1.32)	(10.6)
Kawasaki	Japan	12.44	11.09	(1.35)	(10.9)
SAIL	India	6.93	11.02	4.09	59.0
Bethlehem	U.S.	12.20	9.79	(2.41)	(19.8)
BHP	Australia	6.74	9.31	2.57	38.1
Arbed Group	Luxembourg	12.11	9.23	2.88	23.8
Shougang	China	(4)	9.08	(5)	(5)
Anshan	China	(4)	8.99	(5)	(5)
LTV Steel	U.S.	⁶ 10.00	8.26	(1.74)	(17.4)
Magnitogorsk	Russia	(4)	8.08	(5)	(5)
Baoshan	China	(4)	8.01	(5)	(5)
Cherepovets	Russia	(4)	7.76	(5)	(5)
Iscor	South Africa	6.36	7.62	1.26	19.8
Nucor	U.S.	1.54	7.29	5.75	373.4
China Steel	Taiwan	3.68	6.75	3.07	83.4
Hoogovens	Netherlands	6.10	6.56	0.46	0.8
Riva	Italy	(4)	6.36	(5)	(5)

¹ The total raw steel production of the top 25 steelmakers was 280.23 million tons which represented 35 percent of world raw steel production in 1994.

² Represents the combined production of Usinor and Sacilor, which merged to form Usinor-Sacilor in 1987.

³ Represents the production of FINSIDER, many of whose facilities were taken over by ILVA in early 1989.

⁴ Not available.

⁵ Not applicable.

⁶ Represents the combined production of Jones & Laughlin Steel and Republic Steel, which merged to form LTV Steel in 1984.

Source: Metal Bulletin, *Metal Bulletin Handbook*, 1985, vol. 2: Statistics and Memoranda, p. 271, and Metal Bulletin, Feb. 23, 1995, p. 19.

INTERNATIONAL PRODUCTION, CONSUMPTION, AND TRADE—Continued

Table 2
Raw steel: Production by specified regions/countries, 1984, 1991-94, and percent change 1984-94

Region/country	1984	1991	1992	1993	1994	Percent change 1984-94
	<i>1,000 short tons</i>					
EU-12 ¹	156,506	151,427	145,898	145,720	153,625	(1.84)
Germany	51,767	46,483	43,774	41,474	45,011	(13.05)
Italy	26,524	27,681	27,376	28,351	28,834	8.71
France	20,944	20,329	19,816	18,861	19,875	(5.11)
UK	16,668	17,871	17,871	18,326	19,426	16.55
Other W. Europe ²	24,994	26,884	27,511	28,575	29,551	18.23
Former U.S.S.R.	170,009	146,430	130,047	107,789	85,692	(49.60)
Russia	(3)	(3)	73,887	64,245	53,751	(4)
Ukraine	(3)	(3)	46,031	35,667	26,233	(4)
NAFTA ⁵	116,979	110,990	117,632	123,867	124,399	6.34
United States	92,529	87,896	92,949	97,877	97,895	5.80
Canada	16,203	14,316	15,358	15,859	15,291	(5.63)
Mexico	8,247	8,779	9,324	10,130	11,213	35.95
Asia/Oceania	213,494	282,286	284,780	305,554	306,703	43.66
Japan	116,389	120,867	108,172	109,815	108,350	(6.91)
China	47,751	78,264	89,215	98,700	100,897	111.30
Korea	14,368	28,661	30,925	36,405	37,256	159.31
Australia	6,947	6,817	7,599	9,656	9,287	33.69
Central/Eastern Europe ⁶	57,832	36,554	32,451	32,778	35,511	(38.60)
Latin America ⁷	28,670	34,816	37,224	37,957	39,271	36.98
Brazil	20,267	24,931	26,383	27,786	28,327	39.77
Africa/Mideast ⁸	14,664	21,907	21,976	22,967	23,099	57.52
South Africa	8,523	10,315	9,988	9,619	9,171	7.60
World Total	783,148	811,295	797,519	805,207	797,841	1.88

¹ Formerly known as the European Community. Includes the former German Democratic Republic.

² Includes Austria, Finland, Norway, Sweden, Switzerland, Turkey, and the former Yugoslavia.

³ Not available.

⁴ Not applicable.

⁵ NAFTA=North American Free Trade Area; members are Canada, Mexico, and the United States.

⁶ Includes Albania, Bulgaria, Czech Republic, Hungary, Poland, Romania, and Slovak Republic.

⁷ Excludes Mexico.

⁸ Includes Algeria, Egypt, Iran, Lybia, Nigeria, Qatar, Saudi Arabia, South Africa, Tunisia, and Zimbabwe.

Source: Compiled from data supplied by the International Iron and Steel Institute.

INTERNATIONAL PRODUCTION, CONSUMPTION, AND TRADE—Continued

Table 3
Steel: Imports of semifinished and finished steel products by specified regions/countries, 1983, 1990-93, and percent change 1983-93

Region/country	1983	1990	1991	1992	1993	Percent change 1983-93
	<i>1,000 short tons</i>					
EU-12 ¹	49,388	70,928	69,278	70,011	57,107	15.6
Germany	19,059	20,368	18,572	19,602	14,974	(23.2)
Italy	5,275	11,957	11,312	11,590	9,000	70.6
France	8,351	11,596	11,355	11,066	9,406	12.6
UK	3,781	5,958	6,141	6,018	5,420	43.4
Other W. Europe ²	10,239	12,752	11,973	12,875	13,296	29.9
Former U.S.S.R.	9,981	7,782	5,082	21,758	17,111	71.4
Russia	(3)	(3)	(3)	14,418	9,199	(4)
Ukraine	(3)	(3)	(3)	4,299	5,853	(4)
NAFTA ⁵	18,549	21,632	21,461	23,136	25,766	38.9
USA	16,657	17,351	16,018	17,209	19,648	18.0
Canada	1,419	3,167	2,813	2,628	4,129	191.1
Mexico	473	1,113	2,630	3,2999	1,990	320.7
Asia/Oceania	35,174	49,721	62,050	62,040	101,667	189.0
Japan	3,025	7,856	9,959	6,837	6,736	122.7
China	9,333	4,519	3,973	6,671	40,389	332.7
Korea	2,336	6,184	9,461	6,790	5,881	151.8
Australia	661	953	1,279	949	883	33.5
Central/Eastern Europe ⁶	5,761	2,081	1,789	2,234	4,087	(29.0)
Latin America ⁷	3,126	3,393	3,997	5,117	3,838	22.8
Brazil	93	216	176	196	214	131.0
Africa/Mideast ⁸	24,296	16,489	16,613	19,171	17,186	(29.3)
South Africa	197	222	207	259	256	29.6
World Total	157,066	184,778	192,121	216,242	240,082	52.9

¹ Formerly known as the European Community. Includes the former German Democratic Republic.

² Includes Austria, Finland, Norway, Sweden, Switzerland, Turkey, and the former Yugoslavia.

³ Not available.

⁴ Not applicable.

⁵ NAFTA=North American Free Trade Area; members are Canada, Mexico, and the United States.

⁶ Includes Albania, Bulgaria, Czech Republic, Hungary, Poland, Romania, and Slovak Republic.

⁷ Excludes Mexico.

⁸ Includes Algeria, Egypt, Iran, Lybya, Nigeria, Qatar, Saudi Arabia, South Africa, Tunisia, and Zimbabwe.

Source: Compiled from data supplied by the International Iron and Steel Institute.

INTERNATIONAL PRODUCTION, CONSUMPTION, AND TRADE—Continued

Table 4
Steel: Exports of semifinished and finished steel products by specified regions/countries, 1983, 1990-93, and percent change 1983-93

Region/country	1983	1990	1991	1992	1993	Percent change 1983-93
	<i>1,000 short tons</i>					
EU-12 ¹	71,370	83,187	83,688	82,115	84,822	18.8
Germany	23,214	28,424	21,659	20,841	19,978	(13.9)
Italy	7,965	9,053	9,870	10,547	13,106	64.5
France	10,504	12,524	13,180	12,932	12,744	21.3
UK	4,537	7,816	8,775	9,188	9,042	99.3
Other W. Europe ²	10,472	16,491	18,871	17,113	18,920	80.7
Former U.S.S.R.	5,864	9,348	5,913	23,637	31,432	436.0
Russia	(3)	(3)	(3)	7,910	18,297	(3)
Ukraine	(3)	(3)	(3)	11,023	11,023	(3)
NAFTA ⁵	5,598	10,082	13,015	11,558	11,697	109.0
USA	1,209	4,332	6,386	4,334	4,066	236.3
Canada	3,280	4,188	5,127	5,407	5,473	66.8
Mexico	1,108	1,562	1,502	1,817	2,157	94.7
Asia/Oceania	45,523	35,910	40,749	45,853	51,068	12.2
Japan	34,034	18,333	19,749	20,463	25,911	(23.9)
China	542	2,304	4,106	4,080	1,386	155.5
Korea	6,314	8,347	8,887	11,818	12,293	94.7
Australia	1,426	2,086	2,184	2,592	2,964	107.8
Central/Eastern Europe ⁶	11,089	11,813	12,578	13,679	16,784	51.4
Latin America ⁷	7,690	14,525	15,869	16,657	16,735	117.6
Brazil	5,658	9,915	12,039	12,993	13,489	138.4
Africa/Mideast ⁸	3,014	5,224	5,774	6,662	6,422	113.1
South Africa	1,917	3,250	3,936	4,523	4,135	115.7
World Total	160,620	186,578	194,447	217,273	237,878	48.1

¹ Formerly known as the European Community. Includes the former German Democratic Republic.

² Includes Austria, Finland, Norway, Sweden, Switzerland, Turkey, and the former Yugoslavia.

³ Not available.

⁴ Not applicable.

⁵ NAFTA=North American Free Trade Area; members are Canada, Mexico, and the United States.

⁶ Includes Albania, Bulgaria, Czech Republic, Hungary, Poland, Romania, and Slovak Republic.

⁷ Excludes Mexico.

⁸ Includes Algeria, Egypt, Iran, Lybya, Nigeria, Qatar, Saudi Arabia, South Africa, Tunisia, and Zimbabwe.

Source: Compiled from data supplied by the International Iron and Steel Institute.

INTERNATIONAL PRODUCTION, CONSUMPTION, AND TRADE—Continued

Table 5
Raw steel: Apparent open market consumption by specified regions/countries, 1983, 1990-93, and percent change 1983-93

Region/country	1983	1990	1991	1992	1993	Percent change 1983-93
	<i>1,000 short tons</i>					
EU-12 ¹	98,972	142,496	136,272	132,009	114,508	15.70
Germany	36,712	43,596	43,013	42,386	35,887	(2.25)
Italy	18,013	31,310	29,313	28,535	23,786	32.03
France	14,420	19,926	18,294	17,736	15,138	4.98
UK	12,475	18,398	16,094	14,836	14,517	16.37
Other W. Europe ²	19,008	25,082	22,681	23,866	26,451	39.16
Former U.S.S.R.	136,240	168,163	145,356	127,315	89,078	(34.62)
Russia	(3)	(3)	(3)	82,295	52,598	(4)
Ukraine	(3)	(3)	(3)	37,085	28,778	(4)
NAFTA ⁵	97,484	133,615	121,477	129,818	137,930	41.49
USA	81,951	112,147	99,690	106,540	113,629	38.65
Canada	9,731	12,367	11,691	12,220	14,353	47.50
Mexico	5,801	9,102	10,096	11,057	9,947	71.46
Asia/Oceania	162,182	295,423	308,702	306,970	365,001	125.06
Japan	67,426	109,164	109,295	92,638	88,834	31.75
China	42,726	75,657	78,113	94,643	142,616	233.80
Korea	8,310	23,675	28,735	25,615	29,443	254.29
Australia	4,255	6,075	5,788	5,744	6,321	48.55
Central/Eastern Europe ⁶	38,248	36,055	22,875	17,526	17,491	(54.27)
Latin America ⁷	15,619	19,706	21,095	23,992	24,106	54.34
Brazil	8,392	11,233	10,886	11,277	12,061	43.73
Africa/Mideast ⁸	32,532	32,264	33,841	36,264	35,511	9.16
South Africa	4,752	6,090	5,589	4,884	5,251	10.51
World Total	600,285	852,791	812,298	796,652	810,075	34.95

¹ Formerly known as the European Community. Includes the former German Democratic Republic.

² Includes Austria, Finland, Norway, Sweden, Switzerland, Turkey, and the former Yugoslavia.

³ Not available.

⁴ Not applicable.

⁵ NAFTA=North American Free Trade Area; members are Canada, Mexico, and the United States.

⁶ Includes Albania, Bulgaria, Czech Republic, Hungary, Poland, Romania, and Slovak Republic.

⁷ Excludes Mexico.

⁸ Includes Algeria, Egypt, Iran, Lybya, Nigeria, Qatar, Saudi Arabia, South Africa, Tunisia, and Zimbabwe.

Source: Compiled from data supplied by the International Iron and Steel Institute.

Structural Changes in World Steel Consumption and Trade

Over the last decade large structural changes have been occurring in raw steel production, trade, and consumption patterns among the steel producing countries of the world. Significant changes include the decline in steel production and open market consumption among many industrialized countries, and increases in steel production and consumption in industrializing countries in general and in several Far East countries, notably China and Korea. Data on imports and exports suggests that the commodity composition of steel trade has changed somewhat, spurred by the increasing number of joint ventures and strategic alliances among producers and processors in different countries.¹⁴ Several of these changes are examined below.

In general, while raw steel production overall declined in many industrially developed countries or regions (for example, the European Union, Japan, former U.S.S.R., and Central and Eastern Europe)¹⁵ between 1984 and 1994, raw steel production increased in countries of the Far East (excluding Japan) and grew moderately in Latin America, the Middle East, and other smaller countries. Raw steel production rose by more than 110 percent to 101 million tons in China during 1984-94,¹⁶ and several emerging steel producing countries, including Korea, Brazil, and India, rose in position to the list of top-10 steel producing countries in 1993.

While raw steel production generally declined in many developed countries, apparent open market consumption increased worldwide from 1983 to 1993. In many developed regions, per capita consumption of steel has not increased. This has been brought about by the move toward more service-oriented economies, and the development of newer and more efficient steels (generally, lighter weight and improved mechanical and physical properties), as well as by steelmaking and steel processing improvements (for example, continuous-strand casting)¹⁷ that have resulted in less

raw steel being needed to produce the same amount of finished steel products.¹⁸ As a result of increases in continuous-strand casting and other technological improvements, the open market consumption of finished steel has risen relative to the production of raw steel.

Consumption also has become more evenly balanced with respect to production in many small steel consuming countries during the last 10 years. In general, the share of world steel consumption accounted for by industrializing countries has risen in relation to industrialized countries. The most significant increase is represented by that of the Far East whose share of world steel consumption rose from 27 percent to 45 percent between 1983 and 1993 (table 5, presented earlier).¹⁹

In most industrialized countries steel intensity²⁰ declined during the early 1980s, reportedly as a result of efforts by consumers to achieve more efficient use of steel products following the second oil crisis. The overall decline in steel intensity (and the importance of steel in the economy) is likely caused by a decrease in the importance of the main steel-using industries and sectors in the generation of national wealth.²¹

With respect to the product composition of steel consumption, there has been a general increase in the share held by flat-rolled products (plate, sheet, and strip) that are used increasingly by the automotive, construction, container, machinery, and appliance industries. Data also indicate that steel trade has become more important for the steel producers as well, and that the share of semifinished products in

¹⁸ See also, United Nations Economic Commission for Europe (UNECE), *Structural Changes in Consumption and Trade in Steel* (New York: United Nations, 1994), p. 4.

¹⁹ Calculated from statistics supplied by IISI.

²⁰ Steel intensity is a measure of the share of steel in the national economy, usually expressed as a share of gross domestic product (GDP), for example tons (or grams) per dollar of GDP. For a discussion of steel intensity, see UNECE, *Structural Changes*, pp. 56-65.

²¹ This would indicate the change in perception of the steel industry as an engine of national growth, and likely provide some impetus to privatize state-owned steelmakers. However, it appears that increased activity in the steel industry led national economic growth as steel intensity increased in certain developing countries, including Korea and Egypt. With respect to steel company privatization, the Government of England privatized British Steel in 1989 and the Government of France recently indicated its intention to privatize Usinor Sacilor, while Italy intends to divest itself of ILVA. Privatization was completed in Mexico and in Brazil in 1993, and has started in Central and Eastern Europe. Steel company privatizations are planned in Portugal, Turkey, and India. UNECE, *Structural Change*, pp. 33 and 57.

¹⁴ Associated with these changes is trend toward globalization of the steel industry and privatization of state-owned steelmakers.

¹⁵ Table 2, presented earlier, based on data supplied by the International Iron and Steel Institute (IISI).

¹⁶ China accounted for almost 55 percent of the 97-million-ton-increase in raw steel production in Asia/Oceania between 1984 and 1994. Calculated from data supplied by IISI.

¹⁷ The ratio of continuously-strand cast steel to raw steel produced has increased in nearly all regions of the world, except Central and Eastern Europe and the former U.S.S.R.

world steel trade is increasing. Exports are perceived as increasingly important to supply overseas joint ventures, risk-sharing arrangements, cross-border mergers, and strategic alliances, many of which tend to increase product specialization among steelmakers and processors.²²

World exports increased between 1983 and 1993 (table 4, presented earlier), although steel exports from Japan²³ and Germany declined during the period. As the total world volume of exports increased, the relative export shares by regions changed. For example, the share of total world exports accounted for by the EU-12 declined from 44 to 36 percent, while the share of total world exports accounted for by Japan declined from 21 to 11 percent from 1983 to 1993. At the same time, the share of total world exports accounted for by the former U.S.S.R. increased from 4 to 13 percent. Export data show there has been an increase in the ratio of total exports to domestic shipments and to domestic steel consumption between 1983 and 1993.²⁴ Steel exports from Central and Eastern Europe (particularly after 1990) and the former U.S.S.R. increased because of the dissolution of trade links within the Council for Mutual Economic Assistance (CMEA),²⁵ weak domestic and regional demand because of economic restructuring, excessive installed steel production capacity, and hard currency needs.

The ratio of imports to open market consumption increased in most countries and regions of the world during 1983-93 (calculated from tables 3 and 5, presented earlier). The ratio of imports to open market consumption increased in several developed countries

²² Japanese, European, Korean, and Canadian steelmakers have invested in the U.S. steel industry in finishing and steelmelting operations. Western European steelmakers have invested in distribution and steelmaking facilities in other European countries, and Japanese investment has flowed into developing Asian nations.

²³ Exports from Japan declined approximately 26 percent to 26 million tons, from 35 percent to 24 percent of shipments, and from 21 to about 11 percent of world steel exports during 1983-93. Based on data supplied by IISI. This suggests that exports are less important to the Japanese steel industry, illustrating the importance of Japanese overseas investment.

²⁴ Calculated from data supplied by IISI. Producers in Korea, Brazil, Africa, the Middle East, Latin America, and Oceania increased their exports during 1983-93. Much of the increase in imports may be attributed to a buildup of steelmaking capacity at a faster rate than domestic steel consumption. However, the ratio of exports to domestic shipments declined in Asia/Oceania (including Korea and Japan) and in Africa/Middle East as steel consumption increased during 1983-93.

²⁵ Trade within CMEA was managed and mutually balanced by the member governments under a system of 5- and 1-year trade and production plans.

as well, suggesting that their producers are specializing in certain product lines.²⁶ Import levels, as well as the relative shares of imports by countries in the Far East, including Japan and China, increased with the total increase in such imports accounting for approximately two-thirds of the total increase in world steel imports during 1983-93.²⁷ China and the United States are the two single largest destinations for exports (table 3, presented earlier), and changes in demand in these two markets significantly affect world trade.²⁸

Flat-rolled products increased to nearly 54 percent of total world steel trade between 1980 and 1992; semifinished steel products (slabs, blooms, and billets) also increased by 3 percentage points to approximately 10 percent of world steel trade during the same period. As noted earlier, flat-rolled products are becoming more important in the structure of consumption. ■

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The Uruguay Round Agreements and U.S. Unfair Trade Laws

Since mid-1991, steel and related input products have been the subject of almost 200 antidumping and countervailing duty investigations at the Commission (see appendix E for a detailed listing). Changes in the U.S. antidumping and countervailing duty laws²⁹ made to conform with the Uruguay Round Agreements may have significance to U.S. steel producers, importers, and purchasers because of the domestic steel industry's extensive use of these laws. Several important areas of change are noted below.

One change affects the treatment of "captive production"—the production consumed by domestic producers themselves. For purposes of determining "material injury," the new legislation provides that if certain specific tests are met, the Commission is to focus primarily on the merchant or open market in assessing market share and analyzing factors relating to financial performance. The Commission previously has

²⁶ For example, this ratio increased for several countries in EU-12, including Italy, France, and the UK. A comparison of the data for 1983 and 1993 indicates that the ratio of imports to consumption declined for several small steel consuming regions (Africa and Mideast, for example) which were becoming more self-sufficient during the period.

²⁷ Based on data supplied by IISI.

²⁸ Based on data supplied by IISI.

²⁹ These laws were amended by the Uruguay Round Agreement Act (URAA) which became effective January 1, 1995.

based its material injury determinations on total domestic industry production, whether captively consumed or sold in the open market, but has considered as a condition of competition the fact that dumped or subsidized imports may affect the merchant or open market operations differently than operations involving captive production.

Also under the new law, when imports from a particular country are subject to an antidumping or countervailing duty investigation are determined by the Commission to be “negligible,” the investigation with respect to those imports must be terminated. Thus, if the Commission determines that subject imports from a specific country are negligible, it does not make a material injury or threat determination with respect to those imports. Prior to the URAA, a separate determination on negligibility was not required apart from a consideration in determining whether imports from more than one country should be cumulated. The new law generally defines “negligible imports” as imports from the country subject to investigation that account for less than 3 percent of the volume of all such merchandise imported into the United States in the 12-month period preceding the filing of the petition.³⁰ Imports from all subject countries, which otherwise would be deemed to have negligible imports, are not defined as negligible if the aggregate volume of subject imports from those countries exceeds 7 percent of total imports, provided the petitions were filed and/or investigations were self-initiated by Commerce on the same day. For countervailing duty investigations, the negligibility threshold for certain developing countries is 4 percent (rather than 3 percent) for the volume of imports from individual subject countries and 9 percent for the aggregate volume of such subject imports.

The new law also changes the requirements for when the Commission is to “cumulate” imports in determining material injury by reason of subject imports from two or more countries under investigation. Under the new provision, the Commission generally must cumulate all imports from all countries, if such imports compete with each other and with domestic like products in the U.S. market, but only for petitions filed or investigations self-initiated by Commerce on the same day. In the past, the Commission has cumulated imports from investigations for which petitions had been filed on

³⁰ This 3 percent figure is not 3 percent of U.S. apparent consumption (calculated as the sum of domestic shipments plus imports minus exports), but rather 3 percent of total imports of the product corresponding to the domestic like product.

different days, provided that they were still “subject to investigation” on the date of the Commission’s vote. The new provision also requires that a cumulative analysis be made generally on the basis of the same record, even if the simultaneously filed investigations end up with differing final deadlines because of extensions of time granted by the U.S. Department of Commerce (Commerce).

The new legislation adds a requirement that the Commission consider the “magnitude of the margin of dumping” determined by Commerce, but not subsidization, in examining the impact of subject imports on domestic producers of the domestic like product.

New rules apply to Commerce’s determinations as well, specifically changes to the methodology used to calculate dumping and subsidy margins. Additionally, under the URAA, weighted-average dumping margins of less than 2 percent are defined as *de minimis*, and *de minimis* margins must be disregarded by Commerce in making its determination.³¹ Previously, under Commerce regulations, a weighted-average dumping margin or aggregate net subsidy margin that was less than 0.5 percent was defined as *de minimis* in antidumping or countervailing duty investigations, respectively. The change in the definition of *de minimis* under the URAA applies only to new antidumping or countervailing subsidy investigations; the Commerce regulatory standard for *de minimis* of less than 0.5 percent still applies to reviews of existing orders.

In countervailing duty investigations, a countervailable subsidy generally is defined as *de minimis* if the aggregate of the net countervailable subsidies is less than 1 percent. There are exceptions for developing countries that define *de minimis* as countervailable subsidy rates that do not exceed 2 percent and for least developed countries that define *de minimis* as rates that do not exceed 3 percent.³²

One other provision affects Commission procedures in these investigations. The new law requires that the agency record be closed prior to the Commission vote. Prior to the URAA, the record was closed at the time of the vote, with comments permitted only if there was sufficient time between the disclosure of late-arriving material and the vote. Interested parties to the investigation are now permitted to have access to all information of record and make final comments (which cannot contain new

³¹ If all alleged dumping or subsidy margins with respect to imports from a country are found to be *de minimis* the corresponding antidumping or countervailing duty investigation is terminated.

³² 19 U.S.C. 1671b(b)(4), as amended by URAA.

factual information) on all information not previously disclosed. The new provision gives parties to the investigation a more comprehensive opportunity to inspect the record and comment prior to the vote.

Another important change for the steel industry under the Uruguay Round Agreements is the provision that requires the Commission to conduct a review no later than 5 years after the issuance of an antidumping or countervailing duty order to determine whether revocation of the order would be likely to lead to continuation or recurrence of dumping or countervailable subsidies and injury. Known as the "sunset provision," this new requirement will result in the review of all existing and future antidumping and countervailing duty orders.³³ ■

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Increasing Use of Steel in Residential Construction Could Signal a Potentially Significant Developing Market³⁴

Light-gauge galvanized (zinc-coated) structural steel that has been roll-formed to the shape of angles, channels, or zees is beginning to make inroads in the residential construction market as a framing material. Such steel shapes may be used in floor, wall, and roof systems as a direct substitute for conventional wood-framing systems; they are available in dimensions that correspond to standard lumber sizes currently used in residential construction. Steel studs have been used extensively for framing non-loadbearing partitions in commercial construction, but only recently have penetrated the residential construction market. Increased presence in this market illustrates the improvements made in steel product quality and technology, price competitiveness vis-a-vis lumber, and the industry's vigorous marketing efforts and technical assistance programs.

³³ In order to eliminate unnecessary reviews, if there is no response from domestic interested parties within 90 days to the notice of initiation of a review, Commerce will revoke the order without review.

³⁴ For more detailed information, refer to the entire article which appears in USITC, *Industry, Trade, and Technology Review*, Mar. 1995. Requests for copies of the *ITTR* may be made by writing the Office of the Secretary, U.S. International Trade Commission, 500 E Street, S.W., Washington, D.C. 20436. Requests may be faxed to 202-205-3161.

Despite lumber price increases, price volatility, and concerns about declining lumber quality and future availability, increased use of substitute materials has been impeded by price-cost disadvantages and institutional barriers. Although many homebuilders are experimenting or studying the use of steel in residential construction, local building codes reportedly are oriented to the use of lumber. Steel framing in residential construction is being promoted through seminars for designers and builders, the construction of model homes,³⁵ and the joint development of fasteners and more efficient fastening techniques by the building industry and equipment manufacturers. These development and demonstration efforts, designed to overcome some of the impediments to further use, gained momentum during the past several years as indicated by the increasing number of builders using or considering using steel framing, and by the increasing share of steel in the market for new home construction. Moreover, code development efforts made jointly by the steel industry and National Association of Home Builders (NAHB) are allowing increasing penetration of steel into residential construction, and NAHB research indicates that the higher thermal conductivity of steel may not pose as much a hinderance to substitution for lumber as previously believed.

Currently, steel framing appears to enjoy a materials cost advantage in most stud sizes and possibly an installation cost advantage over lumber framing in residential construction. There is considerable interest on the part of building contractors in combining steel and wood in hybrid framing systems, to mitigate the higher thermal conductivity of steel, as well as to counter the increasing prices and higher price volatility of lumber. Steel-framed residential construction represented about 13 thousand of the 1.3 million new units built in 1993. The steel industry has targeted 75,000 to 85,000 new homes in 1994, with further increases projected to 250,000 to 350,000 units³⁶ by 1997. If these estimates are fulfilled, steel shipments for residential construction would represent the fastest growing and most significant new market to arise in a number of years. Steel framing is expanding fastest in areas of

³⁵ For example, several steel frames for houses have been built at seminar and association-meeting sites (most recently at the annual meeting of the International Iron and Steel Institute), illustrating construction speed and ease of assembly. Several sites are currently under development, including Homestead, FL, where 200 houses are being constructed with the assistance of Habitat for Humanity.

³⁶ If achieved, these targets represent about 25 percent of expected new home starts currently, equivalent to about 1.8 million short tons of steel.

rebuilding following certain weather-related and natural disasters, but its use also is likely to expand in areas that are farthest from traditional sources of dimension lumber, where steel is likely to have a price advantage because of lower transportation costs. Additional steel sheet hot-rolling, galvanizing, and roll-forming production capacity is expected to restrain future steel price increases.■

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Stainless Steel Imports on Increase as Global Market Forces Lead to Widespread Industry Restructuring³⁷

The domestic industry supplied a declining share of the U.S. open market for stainless steel mill products during 1989-93. As a result, the U.S. industry consolidated and restructured, increasing the number of mergers and acquisitions with both foreign and domestic partners, and the amount of spending on capital programs.

During 1989-93, U.S. open market consumption of stainless steel mill products rose substantially as demand from the automotive and construction industries strengthened. Imports increasingly supplied

³⁷ Further explanation of market and competitive trends in the specialty steel market are contained in USITC, *Industry and Trade Summary: Stainless Steel Mill Products*, USITC Publication 2880, Apr. 1995). This summary may be ordered without charge by calling 202-205-1809, or by writing the Office of the Secretary, U.S. International Trade Commission, 500 E Street, SW, Washington, DC 20436. Requests may be faxed to 202-205-2104.

the growth as import penetration in the U.S. market rose by 12 percentage points during the period. The increase in imports has been attributed in part to relatively higher U.S. prices for certain stainless steel products, combined with reduced economic activity in Europe and Japan late in the period, and the consequent decline in steel demand in those countries. In addition, the fact that some domestic producers are foreign owned or have set up joint ventures with producers in other countries has contributed to increased intra- and intercompany trade, and increased U.S. imports.

Despite this increase in imports, the U.S. stainless steel industry as a whole maintained its profitability during 1989-93. However, decreased exports and increased imports caused the U.S. trade deficit in stainless steel mill products to reach \$913.6 million in 1993, almost double its 1992 level. The United States recorded trade deficits in these products in 1993 with every major trading partner.

Acquisitions, mergers, joint ventures, new mill construction, and significant investment in plant and equipment characterized the stainless steel mill products industry over the past decade. Industry restructuring efforts have attempted to enhance production synergies, with many transactions resulting in the vertical integration of operations between companies. Several new companies entered the stainless steel industry during the past decade. Some of these companies constructed new facilities while others entered the industry by converting existing facilities to production of stainless steel products.■

*Nancy Fulcher*³⁸

³⁸ For further information, please direct enquiries to Ms. Cheryl Badra, 202-205-3436.

Market Conditions

Domestic Open Market Shipments and Trade

Carbon and Certain Alloy Steel

Steel open market consumption, net open market shipments,³⁹ and imports of carbon and certain alloy steel all increased in 1994 from 1993, spurred by demand for steel mill products from major end-use markets. Domestic net open market shipments increased by 8 percent to 93.6 million short tons, the highest level since 1979, and a 17-percent increase in apparent open market consumption lifted the 1994 total to nearly 120 million short tons (table 6), the highest level since 1973. Imports increased by 53 percent to 30.2 million tons, supplying both end-use markets and domestic steelmakers. Imports of semifinished steel shapes, which are used by domestic steelmakers to ameliorate imbalances between installed steel melting and steel finishing capacity,⁴⁰ rose by approximately 60 percent to nearly 8 million tons from 1993 to 1994.

Growth in domestic steel shipments and finished steel imports in 1994 was led by demand for steel in the automotive, construction (including contractors products), and machinery sectors; domestic shipments to these sectors increased by 17 percent (to 14.3 million tons), by 12 percent (to 11.9 million tons), and by 17 percent (to 2.1 million tons) during the years 1993 to 1994, respectively.⁴¹ Steel consumption by the U.S. automobile industry increased primarily because of higher vehicle production levels.⁴² Also, some substitution of lightweight steel (thinner gauge, higher strength steel) occurred for plastics and other non-steel materials in certain automobile parts.⁴³ Construction activity increased between 1993 and 1994, and more steel was used in residential construction. Increased domestic investment in capital goods also contributed to increased demand for steel in machinery, appliances, and electrical equipment (domestic shipments to these

three markets increased by nearly 9 percent to 6.1 million tons), in the oil and gas industry (up by 3 percent to 1.4 million tons),⁴⁴ and in rail transportation (up by 5 percent to 1.1 million tons).⁴⁵

Increased domestic economic activity has led to price increases, although rising input prices (steel scrap, for example) also have exerted cost-push pressures. Transaction prices for most carbon steel products generally rose during March 1993-December 1994 (figure 7).

Stainless and Alloy Tool Steel

Apparent open market consumption, net open market shipments, and imports of stainless and alloy tool steel all reached new highs in 1994 (table 6). Exports also increased, by 9 percent to 122,995 tons. Apparent consumption of stainless and alloy tool steels rose by 14 percent to 2.5 million tons between 1993 and 1994. Increased imports accounted for nearly one-half of the increase in U.S. apparent consumption. Shipments to the automotive industry, where stainless steel is used for automobile parts (e.g., as the surround on catalytic converters, some automotive exhaust piping, and for automobile trim), accounted for most of the increase. The construction and contractor product sectors also accounted for a significant increase in shipments, rising by 12.8 and by 8.8 percent between 1993 and 1994, respectively. Although transaction prices for two of the most common grades of stainless steel sheet have fallen somewhat since March 1993, they have been on an increasing trend since the first quarter of 1994, shown in figure 8.

Market Impact of U.S. Trade

Total U.S. exports declined by about 3 percent to 4.1 million tons between 1993 and 1994, continuing a general trend following the 1991 export high-point of 6.7 million tons (appendix table F-3). Total U.S. imports of steel products⁴⁶ reached 31.1 million tons in 1994 (appendix table F-2), a record high. As a result, the trade deficit in steel mill products increased, as did the level of import penetration,⁴⁷ which rose from

³⁹ Excludes captive consumption.

⁴⁰ Steel industry restructuring has left the U.S. industry with greater steel rolling capacity than raw steelmaking capacity. See also, related discussion below under "Market Impact from Imports," and under "Capital Expenditures."

⁴¹ Compiled from data supplied by the American Iron and Steel Institute.

⁴² Automotive News, Jan. 9, 1995, p.55.

⁴³ Steelmakers remain concerned about competition between steel and other metals or plastics in automobiles.

⁴⁴ The oil and gas sector continued to benefit in early 1994 from certain tax credit provisions of Section 29 of the Crude Oil Windfall Profits Act, although this section expired at the end of 1993.

⁴⁵ Compiled from data supplied by the American Iron and Steel Institute.

⁴⁶ Including certain fabricated steel products. See appendix D for a complete description of products in this report.

⁴⁷ Import penetration is the ratio of imports to apparent open market consumption (calculated as the sum of open market shipments minus exports plus imports).

Table 6
Steel: U.S. net open market shipments, imports, exports, apparent open market consumption,¹ import penetration, exports as a percent of shipments, and trade balance, 1989-94

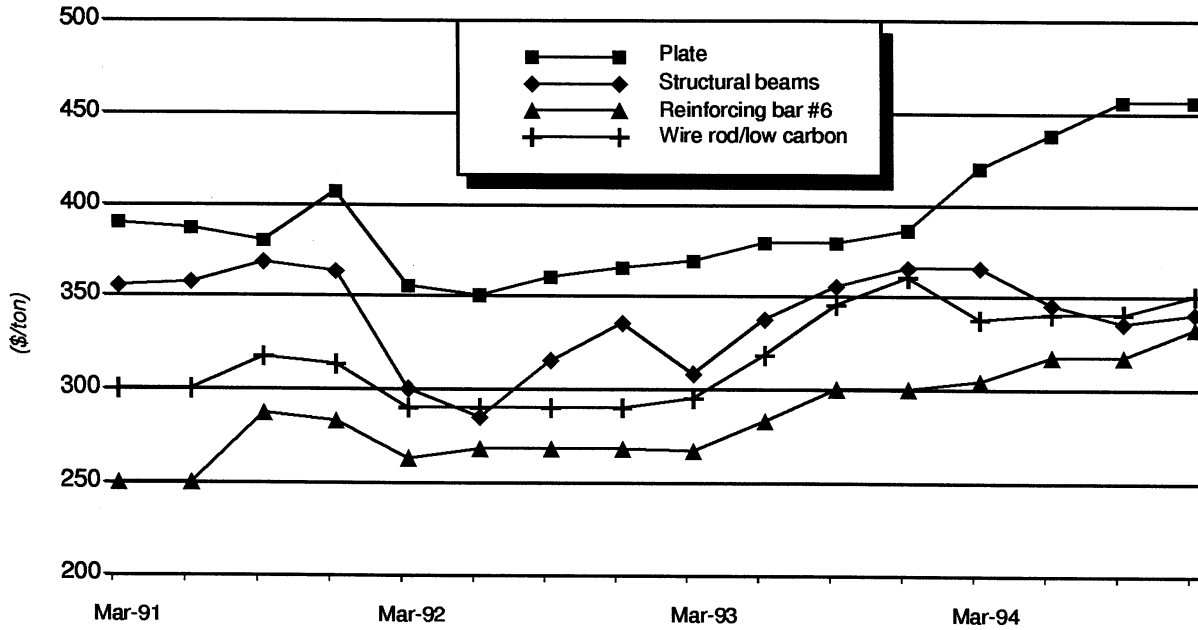
Year	U.S. shipments	Imports	Exports	Apparent consumption ¹	Import penetration ²	Exports/shipments	Trade balance	
							Volume	Value
		1,000 short tons		Percent		1,000 short tons		Million dollars
Carbon and certain alloy steel								
1989	82,720	17,948	4,657	96,011	18.7	5.6	(13,291)	(6,036)
1990	83,407	17,727	4,718	96,416	18.4	5.7	(13,008)	(5,386)
1991	77,341	15,953	6,537	86,758	18.4	8.5	(9,416)	(3,788)
1992	80,776	17,305	4,410	93,671	18.5	5.5	(12,895)	(4,548)
1993	86,799	19,674	4,175	102,298	19.2	4.8	(15,499)	(5,184)
1994	93,557	30,201	4,018	119,740	25.2	4.3	(26,183)	(8,508)
Stainless and alloy tool steel								
1989	1,539	397	121	1,815	21.9	7.9	(275)	(716)
1990	1,503	417	122	1,798	23.2	8.1	(295)	(637)
1991	1,500	428	175	1,754	24.4	11.6	(254)	(535)
1992	1,578	475	135	1,918	24.8	8.6	(340)	(653)
1993	1,601	720	113	2,208	32.6	7.1	(607)	(1,016)
1994	1,786	859	123	2,522	34.0	7.0	(736)	(1,151)

¹ Apparent open market consumption is defined as shipments plus imports minus exports.

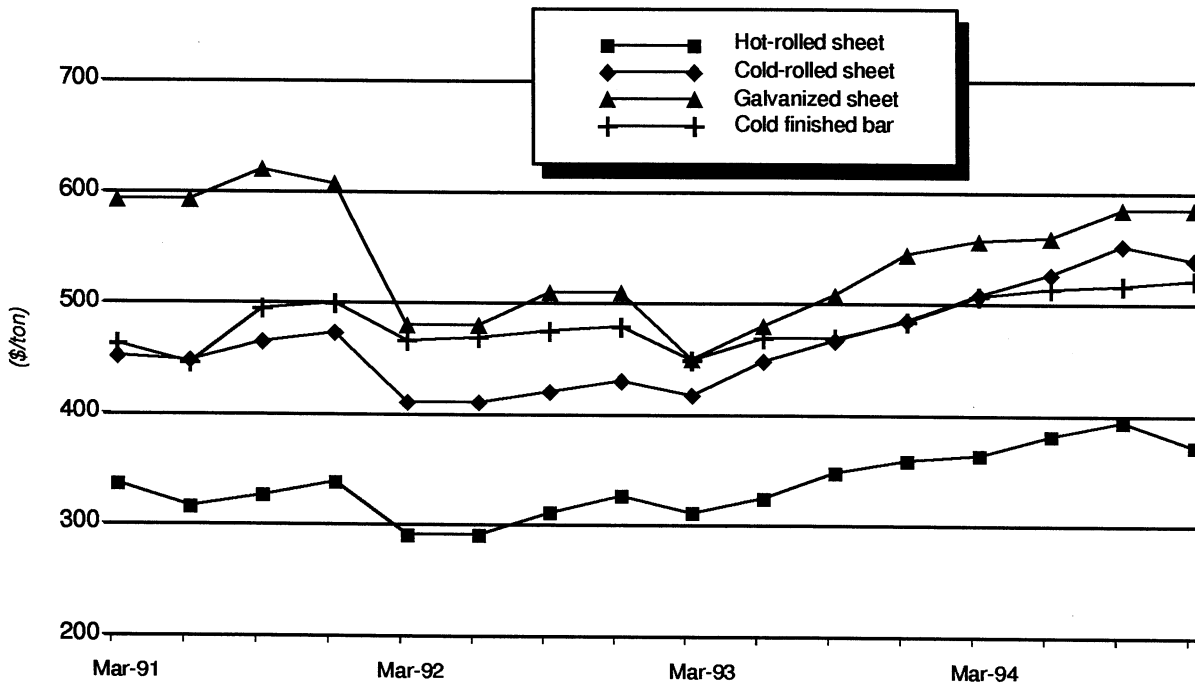
² Import penetration is defined as imports as a percent of apparent open market consumption. Import penetration may be slightly exaggerated as most semifinished imports are processed by the steel industry into downstream products.

Note.—Because of rounding, figures may not calculate to the results shown. Import penetration and exports/shipments percentages are based on quantity figures. Source: Compiled from data of the American Iron and Steel Institute and from official statistics of the U.S. Department of Commerce.

Figure 7
Steel: U.S. transaction prices for selected carbon and certain alloy steel mill products, by quarter, March 1991-December 1994

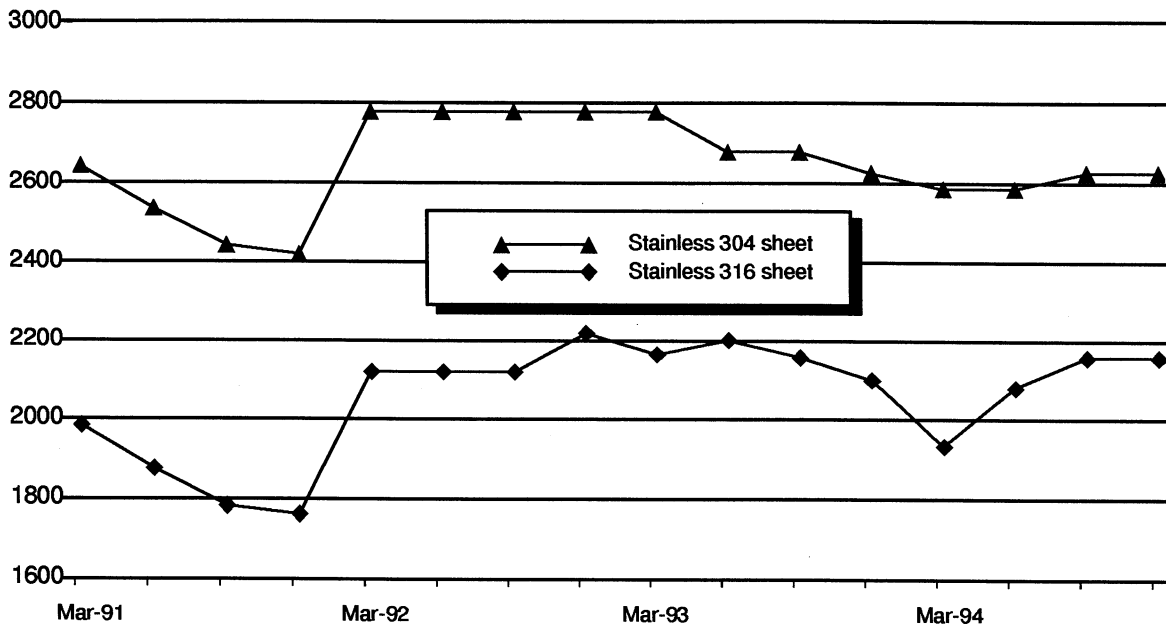


Source: Derived from transaction prices reported in Purchasing Magazine, various issues.



Source: Derived from transaction prices reported in Purchasing Magazine, various issues.

Figure 8
Steel: U.S. transaction prices for selected stainless steel mill products, by quarter, March 1991-December 1994



Source: Derived from transaction prices reported in Purchasing Magazine, various issues.

19.5 percent in 1993 to 25.4 percent in 1994 (appendix table F-5). Import levels increased in all product categories examined in this report; data show that imports in the categories of flat-rolled steel products (plate, sheet, and strip) and semifinished products had the largest increase.⁴⁸

The remainder of this section discusses the market impact of imports and exports on the steel industry sectors producing carbon and certain alloy steel and stainless and alloy tool steel.

Imports

Carbon and certain alloy steel

Strong domestic demand, concurrent with weaker demand in many foreign markets early in 1994, contributed to increased imports of carbon and certain alloy steel that rose by 54 percent to 30.2 million tons between 1993 and 1994 (appendix table F-2)—a historic high.

⁴⁸ Data show an increase in total imports of plate by 92 percent (to 1.4 million tons), of sheet and strip by 70 percent (to 12.8 million tons), and of semifinished products by 60 percent (to 7.9 million tons), between 1993 and 1994, respectively (appendix table F-2).

U.S. demand, composed of demand from end-users and from steelmakers and converters contributed to a 101-percent increase in imports from Japan between 1993 and 1994, as that country returned to its status as the number 2 supplier of these products to the United States. Despite a modest decline in U.S. imports from Canada, that country continues to be the U.S.'s single largest source, by quantity, supplying 15.6 percent (4.7 million tons) of total U.S. imports of carbon and certain alloy steel (table F-17). On a regional basis, although U.S. imports of carbon steel products from the EU-12, East Asia, and Latin America increased by 36 percent (to 9.1 million tons), by 81 percent (to 5.7 million tons), and by 83 percent (to 4.7 million tons), respectively, the share of U.S. imports accounted for by each of these regions remained relatively unchanged, and they collectively accounted for nearly two-thirds of total U.S. imports of carbon and certain alloy steel (appendix table F-17). Import levels rose significantly for Central and Eastern Europe (CEE) in 1994, increasing by 352 percent from the level of the previous year, to 878,117 tons, and almost tripling that regional share of U.S. imports.

Data show that imports in all product categories increased between 1993 and 1994 (appendix table F-2), with the greatest increases in the categories of

flat-rolled products and semifinished steel products (typically slabs that are then rolled into sheet products). The sheet products that are processed (or rolled in the case of slab) are typically used in the consuming industries in which demand increased most between 1993 and 1994. Strong demand and production cutbacks at certain domestic mills because of scheduled repair, renovation, and modernization of equipment imposed constraints on the ability of domestic producers as a whole to satisfy orders from domestic and foreign customers. Moreover, most U.S. mills are operating at full or nearly full installed capacity (see discussion on *Capacity Utilization*, later). Hence, most of the increased imports of semifinished and a significant portion of U.S. imports of flat-rolled products were imported by U.S. steel producers and converters to satisfy domestic demand and to maintain the most efficient operation of installed finishing capacity in 1994 (see discussion on *Factors affecting producers' exports and imports*, later).

Overall, the high level of imports of flat-rolled plate, sheet, and strip underscores the relatively strong demand in North American markets, and slower economic recovery in East Asia and the EU-12 compared with that in the United States. Total U.S. imports of these products rose 74 percent to 13.8 million tons between 1993 and 1994 (appendix tables F-8 and F-9). Other factors that stimulated the increase in U.S. imports included: the imposition of tariff quotas by the EU-12 on imports from certain countries in Central and Eastern Europe, experiencing difficult economic conditions, Russia, Ukraine, and Kazakhstan; and increased steel production and the reduction of imports into China.⁴⁹ Imports from all countries rose from 1993 to 1994, except from Canada; U.S. imports from Russia rose at the fastest rate (from 115,890 tons to 1,255,267 tons) between 1993 and 1994. The decline in imports from Canada likely reflects the high level of concurrent economic activity within the three NAFTA countries in 1994,⁵⁰ and the restructuring by Dofasco, a major Canadian steelmaker.⁵¹ Imports of sheet and strip products

⁴⁹ Also see "Structural changes in world steel consumption and trade," presented earlier.

⁵⁰ The North American Free Trade Area agreement (NAFTA) was implemented on January 1, 1994, and provides for staged tariff reductions between the United States and Mexico, and between Canada and Mexico. Staged tariff reductions had gone into effect earlier between the United and Canada pursuant to the United States-Canada Free Trade Agreement.

⁵¹ Total flat-rolled production in Canada was curtailed by Dofasco's shutdown of its ingot-producing and older hot-rolling facilities in 1993. (See, Dofasco Inc., 1994

increased by 81 percent (to 6.9 million tons) from the EU-12 and East Asia (appendix table F-9). U.S. imports of carbon steel plate also increased, nearly 95 percent to 1.4 million tons, from all sources (appendix table F-8). About one-half of the increase in plate imports was accounted for by increased imports from Russia and Ukraine.

U.S. imports of semifinished products (chiefly, slab and billet)⁵² surged by 60 percent to 7.8 million tons in 1994 from the already high levels of 1993.⁵³ Rising imports of semifinished steel products reflects the U.S. steel industry's efforts to modernize facilities by concentrating investment on sheet-rolling facilities,⁵⁴ the imbalance between installed steel melting and steel finishing capacity (following a period in which excess steelmaking capacity was closed),⁵⁵ and the overall high rate of capacity utilization among domestic steelmakers to meet the upsurge in steel demand.⁵⁶ Imports of slab are used by steelmakers or converters in their rolling mills to produce flat-rolled products such as plate, sheet, and strip. Billet is converted by rolling into bar and rod (rod may be further drawn into wire and fabricated into wire products).

⁵¹—Continued

company annual report.) A majority of automobile production in Canada and the United States is integrated, i.e., increases in consumption by the automobile industry affect steelmakers and fabricators in both countries. Moreover, most trade in automobile parts between the two countries is duty-free.

⁵² The Harmonized Tariff Schedules of the United States do not differentiate explicitly among the types of semifinished steel products.

⁵³ U.S. imports of semifinished steel more than doubled to 4.9 million tons between 1992 and 1993. See appendix table F-7.

⁵⁴ Several sheet rolling facilities in the United States rely entirely or primarily on imported slab, e.g., Tuscaloosa (Tuscaloosa, AL) and California Steel Industries (Fontana, CA). Others rely on hot-rolled coils supplied by a foreign or domestic joint venture partner (e.g., USS-POSCO Industries, Pittsburg, CA, or I/N Tek, New Carlisle, IN).

⁵⁵ The closure of steelmaking facilities and subsequent uneven investment allocation is reflected in the industry's ability to finish more steel than it can melt. For further information, see USITC, *Steel Industry Annual Report: On Competitive Conditions In The Steel Industry And Industry Efforts To Adjust And Modernize*, investigation No. 332-289, USITC publication 2316, Sept. 1990, p. 26.

⁵⁶ Several steel industry analysts have expressed their view that the U.S. steel industry is currently operating at full effective capacity, at least in terms of steelmaking. For example, see PaineWebber, *World Steel Dynamics, Steel Production Track*, Jan. 13, 1995, p. 3.

Brazil, Mexico, and Japan⁵⁷ were the top three suppliers of imported semifinished steel in 1994, accounting for 48 percent (3.7 million tons) of the total (appendix table F-7). Imports from Japan and Mexico increased the most by quantity from 1993 to 1994, accounting for two-thirds of the total increase in U.S. imports of semifinished steel between 1993 and 1994; the increase in U.S. imports of semifinished products from Mexico accounted for nearly all of the increase in total U.S. imports from Mexico. Imports from several new suppliers (for example, Russia and Ukraine) also increased significantly.⁵⁸

Stainless and alloy tool steel

Total imports of stainless and alloy tool steel into the United States registered another significant increase from 1993 to 1994, rising by 19 percent to 858,576 tons (appendix tables F-2 and F-26). The share of U.S. apparent consumption accounted for by imports increased from 32.6 percent to 34 percent between 1993 and 1994 (appendix table F-5). This rising import trend reflects increased demand and relatively higher prices in the U.S. market. In addition, joint ventures and foreign ownership of domestic, Mexican, and Canadian producers have contributed to increased intra- and inter-company trade.⁵⁹

On a product-basis, imports of stainless and alloy tool steel rose in all categories from 1993 to 1994 (appendix table F-2). U.S. imports of semifinished products, which are generally rolled into sheet, rose by

33 percent to 150,507 tons in the period (and by 216 percent from 1992 to 1994). U.S. imports of flat-rolled stainless steel products also increased; imports of sheet and strip (the single largest category of imports of stainless steel, by quantity) rose by 17 percent to 420,686 tons, while imports of plate rose by a more modest 8 percent to 20,564 tons. U.S. imports of stainless steel wire rod (which is typically drawn into wire) and wire increased by 23 percent to 76,878 tons.

On a regional basis, the EU-12 remained the leading supplier of stainless and alloy tool steel, accounting for about 40 percent of total U.S. imports of these products in 1994 (appendix table F-26). The share of U.S. imports from the EU-12 accounted for by semifinished and by flat-rolled products (plate, sheet, and strip) rose by 58 percent and by 20 percent from 1993 to 1994, respectively (appendix tables F-19 and F-20). Among individual countries, imports from Canada rose by 37 percent, displacing Japan from its historical status as the top foreign supplier of stainless and alloy tool steels, and imports from Spain rose by 70 percent to make that country the third largest source of U.S. imports of stainless steel. An increase in U.S. imports of stainless steel sheet and strip accounted for most of the overall increase in imports from Canada and Spain.

Exports

Carbon and certain alloy steel

Despite a weaker dollar, exports of carbon and certain alloy steel fell by 4 percent between 1993 and 1994 to approximately 4 million tons (appendix table F-17). This small decline in exports is likely explained by strong domestic demand (and relatively weak foreign demand), as indicated by a significant increase in shipments to most domestic end-user markets and by anecdotal information that suggests many domestic steelmakers controlled the acceptance of customer orders or imposed other steel allocation systems in order to give domestic customers priority in obtaining steel and ameliorate overbooking by customers.⁶⁰

⁶⁰ During surges in market demand many customers overbook or double-book orders with steel mills. Once the order has been filled by one mill, the customer cancels it with other mills. The allocation systems impose some order on this overbooking and is usually based on the customer's historical pattern of purchases. Initiation of "controlled order entry" or other allocation systems is usually indicative of high market demand. During these periods, steel mills assign priority to filling the orders of domestic customers first.

⁵⁷ Demand for finished steel products was relatively weaker in Japan than in the United States, but appreciation of the yen reduced the price competitiveness of such exports from Japan in 1994. The input costs (e.g., scrap, iron ore, fuel) of many Japanese steelmakers reportedly are denominated in U.S. dollars, enhancing the price competitiveness of intermediate products, like semifinished products, relative to finished steel products. This theoretically would provide an incentive to a Japanese steelmaker to export semifinished, rather than finished, products; moreover, steelmakers usually maintain steelmaking operations at relatively high levels because of the higher fixed costs of such operations (furnaces are rarely shut down completely on a temporary basis because of the possible damage that results, hence the fixed costs and some operating costs continue to accrue even if the furnace is not being used).

⁵⁸ Data show there were no imports of semifinished steel products from Russia and Ukraine prior to 1993; such imports from these two countries increased to 641,520 tons, comprising 38 percent of total U.S. imports of semifinished steel in 1994.

⁵⁹ For further information on foreign ownership in the U.S. stainless steel industry see, USITC, *Industry and Trade Summary: Stainless Steel*, USITC Publication 2880, Apr. 1995.

Although Canada and Mexico together account for 75 percent of total U.S. exports of carbon and certain alloy steel, data show that U.S. exports of steel mill products to these two countries diverged between 1993 and 1994: U.S. steel exports to Canada increased by 23 percent to 2.1 million tons, while U.S. steel exports to Mexico declined by 14 percent to 866,024 tons. This decrease accounted for most of the decrease in total U.S. steel exports to the Latin American Integration Association, or LAIA. The automotive and machinery industries in the United States and Canada are integrated to a greater extent and U.S. exports undoubtedly benefit from increased economic activity in these industries in Canada. Newly-privatized Mexican steelmakers have restructured and increased production and are more able to serve Mexican markets for wire rod, semifinished products, and sheet and strip that have been traditionally supplied by U.S. exporters.

Overall, U.S. steel exports to East Asia fell by 42 percent between 1993 and 1994, to 384,294 tons. This decline is mainly attributed to sharply reduced U.S. exports to China and Japan. China has rapidly increased its domestic steel production, enabling the country to meet more of its steel demand and reduce its import dependence. Government officials in China also announced plans to curb imports because of high inventories of steel and to control inflation.⁶¹ Demand in Japan for steel, which depends on exports of industrial machinery, automobiles, and construction equipment, has been weakened by appreciation of the yen.

On a product basis, the most significant changes occurred in exports of carbon steel pipe and tubes, which rose by 51 percent to 836,570 tons from 1993 to 1994. U.S. exports of steel pipes and tubes accounted for 21 percent of total U.S. exports of carbon and certain alloy steel products in 1994—appendix table F-3. These increased exports resulted from increased demand from the industry performing crude petroleum exploration and oil well development in Canada and in East Asia (where the increase in U.S. exports of pipe and tube partly was accounted by increased exports to Thailand). U.S. exports of steel sheet and strip rose by 3 percent to 1.5 million tons between 1993 and 1994, with exports to Mexico and Canada accounting for the bulk of U.S. exports of these products (sheet and strip exports accounted for 38 percent of total U.S. exports of carbon and certain alloy steel in 1994; the

⁶¹ Gene Linn, "China's Import Reform a Matter of Life or Death for Steel Sector", *The Journal of Commerce*, Dec. 19, 1994.

increase in exports to Canada accounted for most of the total increase in this product category). Exports of carbon steel semifinished products declined by 72 percent from 1993 to 1994, attributable to increased demand by domestic steelmakers and converters discussed earlier.

Stainless and alloy tool steel

Reductions in import tariffs under NAFTA appear to have affected international trade flows for U.S.-produced stainless steel, as well as the positioning of the domestic industry in global markets. After several years of joint-venture and direct investment activity, the recently integrated North American market is beginning to affect overall structural changes in the industry. U.S. trade with Canada and Mexico rose, as did trade between Canada and Mexico.

U.S. exports of stainless steel rose by 9 percent to 122,995 tons between 1993 and 1994 (appendix table F-3), with exports to Canada and Mexico accounting for nearly two-thirds of total U.S. exports in 1994 (appendix table F-26) and a majority of the increase during 1993-94.

On a product basis, exports of stainless pipe and tubes, bars and shapes, and semifinished steel products rose by 29 percent (to 18,147 tons), by 25 percent (to 14,354 tons), and by 23 percent (to 9,199 tons) from 1993 to 1994, respectively. Higher exports to Mexico, Kazakhstan, and Qatar accounted for the majority of increased U.S. exports of stainless steel pipe and tube (appendix table F-24); increased U.S. exports of bars and shapes and of semifinished steel products to Canada, Mexico, and Korea accounted for the bulk of the increase in total U.S. exports of these products.

Factors Influencing Producers' Exports and Imports

Exports

Firms responding to the Commission's annual survey provided information on the quantity and value of their exports, and identified new country markets in 1994. Producers were also asked to rank the factors affecting their ability to expand exports, to indicate whether their exports had been adversely affected by nontariff barriers, and to rank the relative importance of government policy factors that may affect their ability to expand exports. A total of 165 firms provided information, although individual companies may not have completed each section of the questionnaire. U.S.

exports of steel mill products reported in questionnaires were 1.8 million short tons, representing 43 percent of total U.S. steel exports (based on quantity) in 1994.

Efforts by steel producers to develop new export markets appear to be significant. Thirty-one firms reported exporting to new⁶² country markets in 1994. Canada and Mexico were cited as new markets more frequently than other countries, although other countries in Latin America and the Far East were also listed. Consistent with rising domestic demand and reduced exports overall, the number of new export destinations for U.S. exports was smaller than reported 1 year ago.⁶³

The most frequently cited factors identified as “very important” in determining producers’ ability to expand steel mill product exports were relative prices, home-market demand, and exchange rates (table 7). A greater percentage of responses indicated that capacity constraints were “very important” in influencing producers’ ability, or lack thereof, to expand steel mill product exports in 1994 compared to the Commission survey of conditions in 1993.⁶⁴

Tariffs are expected to pose less of a barrier to U.S. exports following conclusion of the Uruguay Round Agreements (URA) in December 1994,⁶⁵ and fewer producers indicated that tariffs are a “very important” factor influencing their export decision.⁶⁶ The United States, together with the EU-12, Japan, Korea, Canada, Austria, Sweden, Finland, and Norway, agreed to eliminate tariffs on steel products over a 10-year period under a zero-for-zero agreement. Although Mexico did not agree to steel tariff eliminations in the URA, staged steel tariff elimination for U.S. products is already provided for under the North American Free-Trade Agreement (NAFTA). Countries agreeing to steel tariff elimination under the URA or NAFTA, collectively

⁶² For the purposes of this report, new country markets are those to which questionnaire respondents had not exported previously.

⁶³ For further information see, USITC, *Steel Semiannual Monitoring Report*, USITC publication 2759, Apr. 1994, p. 16.

⁶⁴ Compare, USITC, *Steel Semiannual Monitoring Report*, USITC Publication 2759, Apr. 1994, table 7 (p. 17).

⁶⁵ For further details of the Uruguay Round Agreements, see USITC, *Potential Impact on the U.S. Economy and Industries of the GATT Uruguay Round Agreements*, USITC Publication 2790, June 1994, Vol. I, pp. V-26-27.

⁶⁶ Compare, USITC, *Steel Semiannual Monitoring Report*, USITC Publication 2759, Apr. 1994, table 7 (p. 17).

accounted for approximately 77 percent of U.S. imports by value, and 75 percent of U.S. exports by value in 1993.

Nontariff barriers (NTBs) apparently did not pose significant problems for most of the firms responding (tables 7 & 8), and were identified along with tariff barriers as increasingly unimportant in affecting export opportunities. Foreign government procurement practices and minimum domestic content requirements were cited as the most common NTBs, but appeared on only 10 percent of all questionnaires received. Some companies cited other NTBs, such as cartel practices and interlocking company ownership (which would favor a domestic supplier over a foreign supplier) that hinder U.S. exports by impeding sales by U.S. companies; some companies also indicated that their export competitiveness was impeded by foreign government policies subsidizing freight and industry research and development, export consortia, and delays in clearing customs.

Producers were asked to rank as positive, negative, or of no discernible effect, the importance of several government policy measures on their ability to expand exports. These measures included the implementation of the NAFTA, the expected outcome of the Multilateral Steel Agreement (MSA) negotiations, the GATT Uruguay Round implementing legislation, and the expansion of free trade negotiations to include Chile within NAFTA. A total of 86 firms provided information, presented in table 9, although each section of this part of the questionnaire may not have been completed by all firms. Similar to responses received last year,⁶⁷ the majority of companies answering this question perceived each of these government policy initiatives as having a positive effect on their ability to expand exports. Meanwhile, the remaining minority reported that these policy initiatives have a negative effect on their company’s efforts to expand exports. Among specific issues, the positive perception of the MSA seems to have diminished since last year, as has the negative perception of NAFTA. It is likely that in both instances the strength of the domestic market in 1994 influenced the steel industry’s perception of trade policy, as it focused itself on domestic markets despite favorable exchange rates and improved quality competitiveness.⁶⁸

⁶⁷ USITC, *Steel Semiannual Monitoring Report*, USITC Publication 2759, Apr. 1994, table 9 (p. 18).

⁶⁸ For further discussion of quality and service issues, see USITC, *Steel Semiannual Monitoring Report*, USITC publication 2807, Sept. 1994.

Table 7
U.S. producers perceptions of the factors influencing their ability to expand steel mill product export levels: Share of respondents choosing each level of importance, and the share of total questionnaire respondents that commented on each particular factor in 1994

(Percent)

Export factor	Very important	Important	Somewhat important	Unimportant	Response
Capacity constraints	25	24	19	32	92
Customer product specifications	14	21	33	31	91
Exchange rates	30	34	20	16	95
Home market demand	45	28	14	13	92
Relative price	57	26	11	6	94
Nontariff barriers	18	19	33	31	93
Tariff barriers	29	27	29	16	93
Other	60	10	0	30	9

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

Table 8
Share of total questionnaire respondents that have reportedly encountered nontariff barriers to steel mill product exports in 1994¹

(Percent)

Nontariff barriers	Share
Government procurement policies	10
Minimum domestic content requirements	10
Other ²	7
Licensing requirements	4
Quotas	4
Restrictions on foreign direct investment	3

¹ There were 85 questionnaire respondents who reported export activity on the questionnaire.

² Respondents cited Japanese cartel and interlocking ownership practices, export consortia, subsidized freight policies, untimely customs clearing practices, foreign government "buy domestic" pressures on foreign purchasers and home market brand loyalty, and more stringent foreign product specifications.

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

Table 9
U.S. producers perception of the effect of government policy on their ability to expand steel mill product export levels, number of respondents choosing each effect, and the share of respondents choosing each level of importance for each effect, 1994

Government policy	Positive effect					Negative effect					No discernible effect				
	Percent					Percent					Percent				
	No. of respondents	Very important	Important	Somewhat important	Unimportant	No. of respondents	Very important	Important	Somewhat important	Unimportant	No. of respondents	Very important	Important	Somewhat important	Unimportant
Implementation of the North American Free-Trade Agreement	63	31	37	31	2	5	0	40	40	20	18	0	17	33	50
Multilateral Steel Agreement negotiations	37	28	25	39	8	4	75	0	25	0	39	3	8	28	62
Uruguay Round implementing legislation (WTO)	24	35	22	35	9	8	38	25	38	0	50	2	6	26	66
Proposed free trade expansion to include Chile	22	14	10	62	14	2	50	50	0	0	57	0	4	25	72
Other ¹	1	100	0	0	0	0	0	0	0	0	1	0	0	0	0

¹ For positive effect, respondents cited proposed revisions to U.S. tax policy to stimulate investment and the reduction of government regulations; for no discernible effect, respondents cited unfair trade practices by foreign governments.

Note.—Because of rounding, shares may not total to 100 percent.

Source: Compiled from data submitted in response to questionnaires of the USITC.

Imports

Firms responding to the Commission survey also were asked to provide information on the quantity and value of their imports, to identify sources of imports in 1994, and to rank factors affecting their decision to expand imports. Forty steel producers and converters reported importing from new country sources in 1994. These imports accounted for 5.6 million short tons and represented 18 percent of total U.S. steel imports (based on quantity) in 1994. Steel processors and producers reported importing steel semifinished products (mostly slabs) and wire rod from Japan, Brazil, Russia, and Germany; several other new country origins of imports were listed as well in Europe and Latin America.

Respondents identified relative prices and home market demand as “very important” among the factors (table 10) influencing producers’ willingness to expand steel mill product imports. Capacity constraints⁶⁹ were identified as “very important” and “important” by a combined total of 50 percent of respondents; as indicated earlier, the fastest growing segment of imports (and one identified by most respondents indicating new products and new import sources) is that of semifinished steel products.

Production, Capacity, and Capacity Utilization

Strong demand by the automotive, construction, and machinery and equipment industries, lifted total

⁶⁹ Capacity constraints in certain production steps may pose bottlenecks that can be overcome by purchasing intermediate products.

raw steel production by 3 percent in 1994, to an estimated 100.6 million tons. Meanwhile, production capacity fell by 2 percent (table 11), resulting in generally higher levels of capacity utilization from 1993 to 1994. General scheduled maintenance of steelmaking facilities curtailed capacity in the short term, while efficiencies gained through modernization and upgrades contributed to the increase in production and higher utilization rates. Raw steelmaking capacity is expected to increase by an estimated 9 to 12 percent as several new flat-rolled, and bar and rod mills come on line during the next 2 years.⁷⁰ Overall, the industry’s efforts to become more competitive, by changing product mix toward stronger, lighter weight, higher value-added products, is expected to continue as indicated by steelmakers’ recent expenditure patterns that focus on upgrades and modernization of existing facilities (see also discussion under *Capital Expenditures*, later).

The ratio of continuous-strand casting to raw steel production⁷¹ increased from 86.4 percent to 88.6 percent between 1993 and 1994 (table 12). Although

⁷⁰ For further details, see USITC, *Steel Semiannual Monitoring Report*, USITC publication 2759, Apr. 1994, pp. 34-35.

⁷¹ This ratio compares the amount of raw steel poured through continuous-strand casters to the total amount of raw steel produced. In continuous strand casting, semifinished steel shapes (slabs, blooms, and billets) are cast directly in the desired cross-sectional dimensions and are cut to desired length following solidification. In the ingot-based process, molten steel is cast into ingots. The ingots are then hot-rolled on a primary breakdown mill to semifinished shapes. Hence, the continuous strand casting process bypasses several steps of the ingot-based process and possesses the benefits of improved product quality, increased yield, decreased energy consumption, and less pollution. However, the ingot-based process may be preferred to continuous strand casting to produce certain products because of their desired sizes or chemistry.

Table 10
U.S. producers perceptions of the factors influencing their decision to expand steel mill product import levels: Share of respondents choosing each level of importance, and the share of total questionnaire respondents that commented on each particular factor in 1994

(Percent)

Import factor	Very important	Important	Somewhat important	Unimportant	Response rate
Capacity constraints	24	26	20	30	78
Customer product specifications	15	17	29	38	81
Exchange rates	28	31	21	21	91
Home market demand	40	38	6	17	83
Relative price	49	33	9	9	89
Nontariff barriers	16	22	29	33	80
Tariff barriers	31	28	24	17	84
Other	50	0	0	50	6

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

SPECIAL FOCUS: U.S. INDUSTRY CONDITIONS—Continued

Table 11
Steel: U.S. producers' and converters' reported capacity, production, and capacity utilization, 1993 and 1994

Item	Capacity		Production		Capacity utilization		Percentage change	
	1993	1994	1993	1994	1993	1994	Capacity	Production
	<i>1,000 tons</i>						<i>Percent</i>	
Carbon and certain alloy steel:								
Cokemaking	19,739	19,018	18,501	17,651	94	93	(4)	(5)
Ironmaking	62,287	59,965	53,554	54,937	86	92	(4)	3
Steelmaking:								
Basic oxygen process & other	69,392	68,642	60,314	61,795	87	90	(1)	2
Electric furnace	41,382	40,451	35,257	36,006	85	89	(2)	2
Products:								
Sheet and strip:								
Hot-rolled	165,154	66,391	156,570	61,208	87	92	2	8
Cold-rolled	38,626	37,689	30,835	31,415	80	83	(2)	2
Galvanized	12,694	12,369	10,773	11,340	85	92	(3)	5
Other coated	6,124	5,894	4,973	5,291	81	90	(4)	6
Plates	6,404	6,129	4,925	5,574	77	91	(4)	13
Bars and light structurals:								
Hot-finished	16,695	18,916	14,941	17,431	89	92	13	17
Cold-finished	1,413	1,426	1,120	1,222	79	86	1	9
Medium and heavy structurals ²	16,296	6,059	15,352	5,015	185	83	(4)	(6)
Pipes and tubes:								
Seamless pipes and tubes	2,435	3,228	1,762	2,339	72	72	(³)	(³)
Welded pipes and tubes	16,173	5,887	3,764	3,817	61	65	(5)	1
Rails and rail products	1,319	1,125	714	625	54	56	(³)	(³)
Wire rods	6,440	6,771	5,640	6,207	88	92	5	10
Wire	3,517	3,466	2,325	2,542	66	73	(1)	9
Wire products	1,531	2,286	896	1,628	59	71	(³)	(³)
Stainless and alloy tool steel:								
Electric furnace	3,124	2,964	2,217	2,819	71	80	(5)	27
Products:								
Sheet and strip:								
Hot-rolled	2,065	1,903	1,295	1,707	63	90	(8)	32
Cold-rolled	1,876	1,933	1,242	1,706	66	88	3	37
Plates	192	161	130	133	67	83	(16)	3
Bars and light structurals:								
Hot-finished	147	134	114	88	78	66	(9)	(23)
Cold-finished	190	188	140	159	74	84	(1)	13
Pipes and tubes	93	125	63	94	68	76	(³)	(³)
Wire rods	68	134	26	47	38	35	76	29
Wire and wire products	48	88	40	64	82	72	(³)	(³)

¹ Revised.

² Structural shapes with a cross-section exceeding 3 inches.

³ Year to year comparisons are not appropriate due to variations in the group of companies reporting.

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

Table 12
Steel: Ratio of steel produced by continuous-strand casting to total raw steel production in 1993 and 1994

Item	1993	1994
Total raw steel production (million tons)	97.8	100.6
Continuously cast production (million tons)	84.5	89.1
Share of production continuously cast (percent)	86.4	88.6

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

the continuous-strand casting ratio remains somewhat lower in the United States than in other major producing countries,⁷² it is expected that this ratio will continue to increase in the near future because virtually all modernization projects on existing mills and planned new steel mills include the installation of continuous strand casters rather than ingot-casting equipment.

Carbon and Certain Alloy Steel

As in previous years, integrated producers accounted for the majority of carbon and certain alloy steel production; however, minimills⁷³ and converters continued to erode the market share of integrated producers.

Capacity utilization in 1994 rose in most of the aggregated product categories used in this report to track imports. Hot-finished bars attained the highest level with 92 percent, followed closely by plate and sheet and strip (table 13). The high capacity utilization for these three products reflects the strong demand discussed earlier. Capacity utilization was lowest for rails and rail products at 56 percent, followed by pipes and tubes at 68 percent.⁷⁴

⁷² For example, the average continuous-strand casting ratio among OECD members was 91.8, in the EU-12 it was 92.3, in Japan it was 95.7 percent, and in Korea the ratio stood at 97.8 percent in 1993. Organization for Economic Cooperation and Development (OECD), *The Steel Market in 1993 and Outlook for 1994* (Paris: OECD, 1994), p. 4.

⁷³ This term is imprecise because of adoption of electric furnace steelmaking by former-integrated producers (who historically utilized only coke ovens, blast furnaces, and basic oxygen or open hearth furnaces to produce steel) and expansion of product mix by non-integrated steelmakers (who melt scrap in electric arc furnaces) beyond typical minimill product mix.

⁷⁴ Although aggregate utilization figures indicate some unused capacity, certain firms reported production levels having been constrained by existing capacity and imported steel to relieve capacity bottlenecks (table 10).

For the year, integrated producers accounted for the production of the majority of flat products, while non-integrated steelmakers remain the dominant producers of structurals,⁷⁵ merchant bar, and wire rod.⁷⁶ Although there were a number of nonintegrated sheet mill projects announced in 1994,⁷⁷ only one nonintegrated steelmaker currently produces flat-rolled sheet. This company, Nucor Steel Corp., commercialized thin-slab casting, and expanded into sheet steel production, the last domain of integrated steel producers.⁷⁸ Other companies have facilities in the planning stage (with implementation dates between 1998 and 2005) or under construction with startup dates in 1995 and 1996. These new facilities reportedly will add 13 to 19 million tons of production capacity and are designed to produce commercial grade hot-rolled sheet, although improvements in rolling mill technology have blurred somewhat the distinction between hot-rolled sheet and cold-rolled sheet. These new production facilities are based on electric arc furnace steelmaking and thin-slab casting; their design will enable the initial production capacity to be doubled with relatively low additional capital

⁷⁵ Expansion of production of medium and heavy structural by non-integrated steelmakers eroded the market share of integrated producers. Currently, only one integrated producer makes medium and heavy structurals, down from at least three such firms 10 years ago. For further details, see USITC, *Industry and Trade Summary: Heavy Structural Steel Shapes*, USITC Publication 2587, Jan. 1993.

⁷⁶ In the United States, nonintegrated steel producers and converters gained market share from integrated producers during the 1980s. Bethlehem Steel, the last remaining integrated producer of wire rod and wire products, closed its Bar, Rod and Wire division (mills at Lackawanna, NY and Johnstown, PA) and exited the market in 1993.

⁷⁷ There are 16 such projects listed (including Nucor's 2 mills) in William T. Hogan, *Steel in the 21st Century: Competition Forges a New World Order* (New York: Lexington Books, 1994), pp. 82-83.

⁷⁸ Nucor's two mills, located at Hickman, AR and Crawfordsville, IN, possess a total steelmaking capacity of about 4 million tons. Nucor recently announced its intention to build a "greenfield" mill in South Carolina near Charleston that will add 1.4 million tons of production capacity and become operational within the next 3 years.

Table 13
Carbon and certain alloy steel: Weighted average capacity utilization among major product groups, 1993 and 1994

(Percent)

Item	1993	1994
Sheet and strip	84	89
Plate	77	91
Bars and light structurals	89	92
Medium and heavy structurals ¹	85	83
Pipes and tubes	64	68
Rails and rail products	54	56
Wire rod, wire, and wire products	77	83

¹ Structural shapes with a cross-section exceeding 3 inches.

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

investment.⁷⁹ This additional production capacity may serve to recapture U.S. market share from imports of carbon steel sheet and strip, and to put price pressure on hot-rolled and cold-rolled sheet in the U.S. market.

Stainless and Alloy Tool Steel

Total steelmaking capacity of specialty steelmakers (stainless and alloy tool producers) declined by 5 percent from 1993 to 1994, as did production capacity in four of eight product categories (table 11). These decreases show the impact of product line realignment that the sector is still undergoing. However, raw steel production increased, as did the production of most products in the sector that were surveyed (except for hot-finished bar), from 1993 to 1994, resulting in increases in capacity utilization. Capacity utilization increased most for flat-rolled products and cold-rolled bar. Capacity utilization for wire rod (35 percent) remains low, despite the imposition of antidumping duties on imports from Brazil, France, and India in February 1993,⁸⁰ as additional capacity was brought on stream in 1994.

These production increases and higher rates of capacity utilization reflect the increase in demand for trim, exhaust systems and air bag components from the automotive industry, as well as increased applications in the manufacture of high-end appliances, including

⁷⁹ For example, Mexico's steelmakers are also adding flat rolled production capacity aimed at the export market. Hylsa recently brought on line 730,000 tons a year of hot-rolling capacity to be expanded in its second phase to 1.5 million tons. Meanwhile, AHMSA is currently revamping its operations to increase hot-rolled capacity to 2.5 million tons a year by 1996.

⁸⁰ USITC, *Stainless Steel Wire Rod from India*, USITC publication 2704, (investigation No. 731-TA-638 (Final)), Nov. 1993.

washing machines and clothes dryers drums, ranges and stoves, and refrigerators.

Financial Conditions

U.S. steel producers enjoyed a prosperous year during 1994 as robust economic conditions stimulated demand in steel-consuming industries (see prior related discussion in *Market Conditions*). Increased shipments and higher prices caused total industry revenues to rise by 14 percent to \$54.5 billion between 1993 and 1994 (derived from table 14). Gross profits on sales (net sales less cost of goods sold) generated by the steel industry rose 35 percent to \$6.8 billion between 1993 and 1994, and the industry recorded net operating income before other expenses and taxes of \$4.4 billion, a significant increase of 62 percent from 1993. The ratio of operating income to total net sales (an indicator of industry profitability on an operating basis) increased by one third from 1993 to 1994 to almost 8 percent for the carbon and alloy segment; this ratio declined for the stainless and alloy tool segment, although steel producers in this segment who melt their own steel reported an improvement in gross profit and operating income between the 2 years.

Both segments of the industry recorded improved levels of operating profits in 1994 (table 14). The improvement in this indicator for the industry as a whole was driven by a large increase in operating profits of the carbon and alloy segment (up \$1.65 billion), while operating profits of the stainless and alloy tool segment increased to a much lesser extent (up \$23.4 million). The ratio of operating income as a share of net sales improved in the carbon and alloy segment but decreased in the stainless and alloy tool steel segment. Total costs as a share of net sales fell in the carbon and certain alloy segment while staying the

Table 14
Financial experience of U.S. steel producers and converters,¹ 1993 and 1994

(1,000 dollars)

Item	Carbon and certain alloy steel		Stainless and alloy tool steel	
	1993	1994	1993	1994
Total net sales: ²	43,234,544	49,339,446	4,542,744	5,115,319
Cost of goods sold (including intracompany and intercompany transfers):				
Raw materials	10,642,943	14,355,838	1,459,579	1,815,207
Direct labor	5,142,122	6,620,770	419,569	525,950
Other	11,495,676	14,073,127	1,170,604	1,811,295
Total cost of goods sold ³	38,975,091	43,379,842	3,762,741	4,275,756
Gross profit or (loss)	4,259,452	5,959,604	780,003	839,563
General, selling, and administrative expenses	2,021,295	2,071,877	309,614	345,765
Operating income or (loss)	2,238,157	3,887,727	470,389	493,798
Other income or (expense):				
Net interest income or (expense)	(820,716)	(760,508)	(66,270)	(58,997)
All other income or (expense) ⁴	⁵ 645,973	(93,657)	(3,555)	(18,701)
Total other income or (expense)	(174,743)	(854,165)	(69,825)	(77,698)
Net income or (loss) before taxes	2,063,414	3,033,562	400,563	416,100
Depreciation and amortization	1,843,944	1,968,339	221,516	135,309
Financial ratios:				
Operating income/sales (percent)	5.18	7.88	10.35	9.65
Operating income/ton ⁶ (dollars)	23	40	212	209

¹ Certain respondents included financial information on related products.

² Includes intracompany and intercompany transfers, less discounts, returns, and allowances.

³ Including nonitemized figures.

⁴ Certain respondents reported extraordinary and nonrecurring expenses.

⁵ Revised.

⁶ Per ton of raw steel produced.

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

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

same in the stainless and alloy tool segment between 1993 and 1994. These divergent cost trends, coupled with the significantly larger increase in operating income per ton for the carbon and alloy segment, led to the differences in year-to-year performance of the two segments.

The improved performance of the carbon and alloy segment was driven by the integrated segment. Operating income of integrated mills rose to \$2.6 billion, an increase of more than 490 percent, as the ratio of operating income to sales increased to 9.3 percent between 1993 and 1994 (tables 15 and 16). Survey data collected for minimills, specialty mills, and processors show that the ratio of operating income to net sales decreased between 1993 and 1994, countering the overall industry trend and indicating an increase in their production costs between the two years. This measure of profitability fell by almost 60 percent for processors, by 11 percent for specialty (stainless and alloy tool) steelmakers, and by 9 percent

for minimills responding to the Commission survey. Higher steel prices in 1994 increased input prices for steel converters, who process purchased semifinished products and hot-rolled coils. Unlike integrated producers who enjoy fairly stable prices for their primary input (iron ore) through long term contracts at negotiated prices, the scrap used by electric furnace steelmakers is far more volatile in price. Increased scrap demand forced average scrap prices higher in 1994,⁸¹ causing production costs for scrap-based steelmakers to rise. Higher prices for alloying elements (e.g., cobalt, molybdenum, and nickel) increased direct costs for specialty producers.

On a product basis, survey data indicate that a majority of carbon and specialty steel products were profitable on an operating income basis in 1994 (table 17). With respect to the industry sector producing carbon and certain alloy steel, the data shows that, in general, flat-rolled products (plate, sheet, and strip,

⁸¹ American Metal Market, Feb. 6, 1995, p. 7.

SPECIAL FOCUS: U.S. INDUSTRY CONDITIONS—Continued
Table 15
Financial experience of U.S. steel producers and converters¹, 1993
(1,000 dollars)

Item	Integrated	Minimills	Specialty	Processors
Total net sales: ²	24,810,736	12,309,798	4,644,018	6,012,737
Cost of goods sold (including intracompany and intercompany transfers):				
Raw materials	4,147,302	3,029,669	1,297,616	3,627,936
Direct labor	3,689,203	1,010,972	403,898	457,618
Other	7,043,647	3,409,800	1,178,970	1,033,864
Total cost of goods sold ³	23,383,214	10,907,414	3,877,694	4,569,511
Gross profit or (loss)	1,427,522	1,402,384	766,324	1,443,226
General, selling, and administrative expenses	991,284	595,186	312,477	431,962
Operating income or (loss)	436,238	807,198	453,847	1,011,263
Other income or (expense):				
Net interest income or (expense)	(544,901)	(189,808)	(67,929)	(89,348)
All other income or (expense) ⁴	616,276	(156,572)	15,027	(36,451)
Total other income or (expense)	224,995	(295,566)	(52,902)	(121,095)
Net income or (loss) before taxes	661,233	511,632	400,945	890,168
Depreciation and amortization	1,223,977	528,224	134,204	179,056
Financial ratio:				
Operating income/sales	1.8	6.6	9.8	16.8

¹ Certain respondents included financial information on related products.

² Includes intracompany and intercompany transfers, less discounts, returns, and allowances.

³ Includes nonitemized figures.

⁴ Certain respondents reported extraordinary and nonrecurring expenses.

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

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

Table 16
Financial experience of U.S. steel producers and converters,¹ 1994
(1,000 dollars)

Item	Integrated	Minimills	Specialty	Processors
Total net sales: ²	27,726,751	13,754,094	5,289,597	7,684,323
Cost of goods sold (including intracompany and intercompany transfers):				
Raw materials	5,434,855	4,520,148	1,760,052	4,455,990
Direct labor	4,895,735	1,188,420	528,734	533,831
Other	8,560,299	3,996,924	1,977,646	1,349,553
Total cost of goods sold ³	24,224,827	12,287,732	4,477,911	6,665,128
Gross profit or (loss)	3,501,924	1,466,362	811,686	1,019,195
General, selling, and administrative expenses	926,397	646,579	349,097	495,569
Operating income or (loss)	2,575,527	819,783	462,589	523,626
Other income or (expense):				
Net interest income or (expense)	(510,486)	(156,886)	(57,937)	(94,196)
All other income or (expense) ⁴	103,946	(188,225)	(10,291)	(17,788)
Total other income or (expense)	(406,540)	(345,111)	(68,228)	(111,984)
Net income or (loss) before taxes	2,168,987	474,672	394,361	411,642
Depreciation and amortization	1,165,606	545,137	153,825	229,080
Financial ratio:				
Operating income/sales	9.3	6.0	8.7	6.8

¹ Certain respondents included financial information on related products.

² Includes intracompany and intercompany transfers, less discounts, returns, and allowances.

³ Including nonitemized figures.

⁴ Certain respondents reported extraordinary and nonrecurring expenses.

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

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

Table 17
Steel: Total net sales and net operating income or (loss) as a percentage of sales, by selected products, 1993 and 1994

Item	Total net sales ¹		Operating income or (loss) as a percent of sales	
	1993	1994	1993	1994
	<i>1,000 tons</i>		<i>Percent</i>	
Carbon and certain alloy steel:				
Semifinished	971,355	1,094,231	(4.92)	(1.32)
Plates	2,128,709	2,529,821	(3.20)	4.46
Sheet and strip:				
Hot-rolled	7,369,802	8,473,252	(0.34)	6.13
Cold-rolled	6,687,069	7,213,875	(0.80)	7.23
Galvanized	6,272,934	7,234,353	1.42	9.12
Other	3,641,878	4,368,750	3.31	4.00
Subtotal, sheet and strip	27,066,747	30,914,282	0.64	6.38
Bars:				
Hot-finished	4,968,364	5,396,141	4.68	5.38
Cold-finished	839,808	894,273	5.93	7.29
Subtotal, bars	5,808,172	6,290,414	4.86	5.65
Wire rod	1,614,009	2,021,899	4.51	5.86
Wire	1,168,309	1,470,001	6.34	7.71
Wire products	613,768	1,053,169	3.58	3.26
Structural shapes and units	2,058,552	2,476,489	2.26	5.51
Rails and related products	407,478	430,764	(1.68)	3.82
Pipe and tube:				
Line	566,490	776,146	(4.94)	(2.77)
Mechanical	849,867	1,244,220	12.69	12.75
Oil country tubular goods	703,531	740,199	(5.68)	(5.69)
Structural	227,800	179,993	5.51	12.22
Pressure	167,160	195,634	(1.17)	(1.12)
Other	1,223,522	1,323,910	6.42	7.05
Subtotal, pipe and tube	3,738,370	4,460,102	3.45	4.67
Subtotal, carbon and certain alloy steel ²	42,475,405	49,117,120	1.86	6.02
Stainless and alloy tool steel:				
Semifinished	345,834	283,590	1.96	5.99
Plates	489,043	512,163	8.77	3.24
Sheet and strip	2,554,384	2,816,547	10.65	12.29
Bars and shapes	696,167	809,703	4.36	7.30
Wire rod	71,783	94,082	(1.62)	(1.06)
Wire	160,754	261,036	10.85	8.31
Pipe and tube	228,097	261,428	4.39	9.91
Subtotal, stainless and alloy tool steel ²	4,546,062	5,038,549	8.32	9.64
Total	47,021,467	54,155,669	2.49	6.35

¹ Includes intracompany and intercompany transfers, less discounts, returns, and allowances.

² Total net sales differ from the totals reported in tables 14-16 because certain companies included sales in those tables of products not included in the investigation.

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

increased the most in profitability between 1993 and 1994. Semifinished shapes and some pipe products generated losses for carbon steel producers on an operating basis. With respect to the specialty steel segment, for the second consecutive year stainless steel wire rod was the only unprofitable product, despite the imposition of antidumping duties on imports of stainless steel rod in late 1993 and early 1994.⁸²

With respect to acquisitions, mergers, and bankruptcies affecting the U.S. steel industry, Caparo Group acquired most of the assets of Sharon Steel (in bankruptcy since 1992) in late 1994.⁸³ Tennessee Valley Steel Corp., a minimill, filed for chapter 11 bankruptcy status as debtor-in-possession on November 11, 1994.⁸⁴ Also, Veritas Capital, Inc. acquired the bar, rod, and wire division from Bethlehem Steel Corp. on September 26, 1994, renaming it BRW Steel, after formally announcing its intent in February 1994.⁸⁵ Restructuring continued in the stainless steel industry as Armco divested several facilities: Republic Engineered Steel acquired the Armco subsidiary, Baltimore Specialty Steels Corp.; Avesta Sheffield purchased Eastern Stainless Steel; and, the management of Stainless and Alloy Products purchased that facility located at Bridgeville, PA, renaming it, Universal Stainless and Alloy Products.⁸⁶

Capital Expenditures

The Commission surveyed firms in the industry regarding capital expenditures in their respective steel-making facilities in 1994 and requested that the respondents identify investment by purpose. Categories included expenditures for environmental control, compliance with governmental regulations, facility maintenance and replacement, additional capacity, improvements in operating efficiency, and improved consumer service and product quality. Firms could choose multiple reasons.

In 1994, higher worldwide demand for steel products, as well as profitability for the last 2

⁸² USITC, *Stainless Steel Wire Rod from India*, investigation No. 731-TA-638 (Final), USITC Publication 2704, Nov. 1993. See also appendix E.

⁸³ "Caparo Becomes Steelmaker in US," *Steel Times*, Nov. 1994, p. 423. Also see, "Caparo Group Secures US Steelworks," *Metal Bulletin*, Oct. 31, 1994, p. 17.

⁸⁴ Telephone conversation between Paula Schmidt, Controller, Tennessee Valley Steel Corporation, and USITC staff on Apr. 11, 1995.

⁸⁵ Telephone conversation between James R. Powers, President and C.E.O. of BRW Steel Corp. and USITC staff on Mar. 14, 1995.

⁸⁶ USITC, *Industry and Trade Summary: Stainless Steel Mill Products*, USITC Publication 2880, Apr. 1995.

consecutive years, has enabled domestic steelmakers to increase investment in their facilities. Both sectors of the industry reported that in 1994 investment to maintain and replace facilities prompted specific expenditures most often, followed by investment to improve operating efficiency (appendix tables G-1 and G-2). These results were similar to the Commission survey in 1993.⁸⁷ Overall capital spending reported by the U.S. steel industry in 1994 was \$2.8 billion, an increase of more than 14 percent from 1993 levels of \$2.4 billion. Expenditures for pollution abatement represented 10 percent of overall spending by the industry (see related discussion in *Pollution Abatement and Related Expenditures*, following).

Capital expenditures made by the steel industry in 1994 are reported below by type of steel (i.e., carbon and certain alloy steel and stainless and alloy tool steel), which includes a discussion on capital expenditures made by type of producer (i.e., integrated firms, minimills, specialty steel producers, and processors).⁸⁸

Carbon and Certain Alloy Steel

Capital expenditures by carbon steel producers totaled \$2.7 billion in 1994, 16-percent higher than the level of expenditures (\$2.3 billion) reported in 1993 (table 18). Carbon steel-producing firms reported that maintenance and replacement of facilities motivated these expenditures most often (appendix table G-1). Improved operating efficiency was the second-most-cited reason, while spending for new capacity, for improved product quality and service, and for meeting governmental regulation trailed in importance for the second consecutive year.

Investment in continuous-strand casting facilities represented the greatest proportion of total spending (14 percent worth \$363.7 million) by carbon steel producers, representing maintenance and replacement of existing facilities and increases in capacity; between 1993 and 1994 these expenditures rose by

⁸⁷ USITC, *Steel Semiannual Monitoring Report*, USITC Publication 2759, Apr. 1994, appendix tables G-1 and G-2.

⁸⁸ Processors (or converters) purchase intermediate steel mill products for further processing and do not possess steel-melting capacity.

Table 18
Carbon and certain alloy steel: U.S. producers' and converters' capital expenditures,¹ 1993 and 1994

Item	1993		1994		Percentage change	
	Pollution abatement	Total	Pollution abatement	Total	Pollution abatement	Total
	<i>1,000 dollars</i>					
Cokemaking facilities	92,774	203,286	86,026	288,571	(7)	42
Ironmaking facilities	25,335	303,542	28,744	358,828	13	18
Raw steelmaking facilities:						
Basic oxygen process	34,838	70,890	49,460	93,165	42	31
Electric furnace	23,928	129,673	52,784	211,893	121	63
Continuous casting	1,879	330,256	10,319	363,698	449	10
Secondary steelmaking facilities ³	(4)	9,560	(4)	16,553	(4)	73
Flat-rolled products:						
Plate mills	(4)	42,537	(4)	(4)	(4)	(4)
Sheet and strip:						
Hot strip mills	7,053	186,287	1,844	117,400	(74)	(37)
Cold-rolled sheet mills	3,300	183,882	3,075	218,897	(7)	19
Galvanizing facilities	2,005	43,247	3,098	50,591	55	17
Other coating facilities	1,359	38,817	2,418	64,118	78	65
Bars, shapes, and light structural mills:						
Hot-finished	(4)	166,724	(4)	251,882	(4)	51
Cold-finished	(4)	13,661	(4)	9,950	(4)	(27)
Medium and heavy structural mills ⁵	(4)	(4)	(4)	24,164	(4)	(4)
Rail mills	0	(4)	0	(4)	0	(4)
Wire rod mills	(4)	18,520	(4)	77,875	(4)	320
Wire drawing machines	1,133	24,159	1,637	37,784	44	56
Wire products	1,808	34,846	143	34,874	(92)	0
Pipes and tubes:						
Seamless pipe mills	502	14,651	(4)	9,132	(4)	(38)
Welded pipe mills	1,946	49,301	2,786	47,720	43	(3)
Other ⁶	33,994	197,265	28,176	264,979	(17)	34
Total	235,992	2,297,658	275,014	2,674,357	17	16

¹ Includes expenditures for the specific type of facility as well as related facilities. Also includes expenditures for plant and equipment, land and land improvement, occupational safety and health, and environmental control.

² Less than 0.5 percent.

³ Includes ladle treatment (heat balance, alloy addition, degassing, decarburization, etc.) and other secondary refining processes (vacuum arc remelt, electroslag remelting, etc.).

⁴ Withheld to avoid disclosing confidential business information.

⁵ Structural shapes with a cross-section exceeding 3 inches.

⁶ Includes expenditures that companies could not allocate to product groups.

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

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

10 percent.⁸⁹ Thin slab casting,⁹⁰ which improves efficiency by increasing product yields and decreasing energy requirements for rolling, represents an increasing share of investment in this area.

⁸⁹ Expenditures for pollution abatement composed 25 percent of this rise. For a detailed discussion, please refer to the section below on pollution abatement and related expenditures.

⁹⁰ Thin slab casting is the pouring of molten steel into molds that are 2 to 4 inches thick to form "thin" semifinished steel products called slabs. Conventional slab-casting methods produce slabs that are 8 to 10 inches thick.

Spending on electric arc furnaces used by scrap-based steel makers, the industry segment that includes minimills, composed 8 percent of total capital expenditures by carbon steel producers in 1994, a 63-percent increase from 1993. According to survey results, about one-third of the specific capital expenditures made by electric furnace operators were to maintain and replace their facilities, about 25 percent were to increase operating efficiency, while about 15 percent of such expenditures were made to expand electric furnace steelmaking capacity (appendix

table G-1). Some of this investment was for the installation of direct current (DC) electric furnaces, which came into commercial operation during the mid-1980s. Although the initial capital costs are higher for a DC furnace than an AC furnace,⁹¹ the DC furnace bottom lasts longer, capacity is larger, and the DC furnace uses energy more efficiently (resulting in lower electrode and electricity consumption), generally resulting in lower unit operating costs.

Integrated Producers and Processors

Integrated producers spent \$1.6 billion on capital projects, representing 61 percent of expenditures made by the carbon steel segment. This is up from \$1.3 billion reported in 1993. For the second consecutive year, integrated producers concentrated investment in their ironmaking and coke-making operations, comprising 22 percent and 18 percent, respectively, of their total capital expenditures in 1994. In 1993, ironmaking investment comprised 14 percent of total capital spending while coke-making expenditures accounted for 10 percent. Expenditures for ironmaking facilities rose by 18 percent from 1993, reflecting the ongoing upgrading and replacement of capital equipment. Bethlehem, LTV, Rouge Steel, U.S. Steel, Wheeling-Pittsburgh, and Weirton Steel have relined or made short duration repairs to their blast furnaces in 1994.⁹² Integrated producers allocated 16 percent of their capital spending to continuous casting facilities in 1993 but only 9 percent in 1994.

In addition, integrated steelmakers are installing coal and gas injection systems to improve the operating efficiency of their blast furnaces. The injection of either pulverized coal or natural gas reduces the amount of coke required in the blast furnace, as well as allows the use of lower quality coals. Whether the mill selects coke, coal, or gas depends on the respective relative fuel prices, as well as the environmental consequences. For example, Inland Steel ceased producing coke and installed a coal injection system to limit its dependence on purchased coke, and

⁹¹ George J. Mcmanus, "Improved Performance by Both DC and AC Electrics," *New Steel*, Feb. 1994, pp. 26-30.

⁹² Norman L. Samways, "Developments in the North American Iron and Steel Industry — 1994," *Iron and Steel Engineer*, Feb. 1995, pp. D1-D24. Also, Staff report, "Repairing, Rebuilding to Extend BF Life," *33 Metal Producing*, July 1994, p. 26.

Wheeling-Pittsburgh converted one of its injection systems from coal to natural gas in order to reduce emissions and eliminate ash.⁹³

Integrated steel producers reported \$288.6 million in expenditures on coke-making facilities, accounting for 11 percent of total capital expenditures by carbon steel producers in 1994. Capital spending on coking facilities increased by 42 percent from 1993 levels. Firms surveyed reported that governmental regulation was most often the reason for specific capital expenditures on coking equipment. However, replacement of aging and/or inefficient facilities, expectations of higher coke prices, and continued concerns about the availability of high quality scrap and scrap price volatility also are likely factors explaining why integrated producers are investing in heavily-regulated coking facilities. At least five integrated producers invested in coke oven battery upgrades⁹⁴ and two made major rehabilitations during 1994. For example, Bethlehem Steel completely rebuilt one of its batteries in Burns Harbor from the pad upward. LTV Steel Co., Inc. made major renovations to its battery in South Chicago, replacing its gas collecting main and refractory bricks on flues; and, in anticipation of stricter coke oven emissions standards enforceable on January 1, 1995, LTV installed new coke oven doors and other associated equipment at its Pittsburgh battery.⁹⁵

Capital expenditures for flat-rolled products was 17 percent of the total spent by integrated producers of carbon steel products in 1994, down slightly from 18 percent in 1993. Capital spending on hot-strip mills (used primarily by integrated producers), totaled \$117 million and accounted for just over 4 percent of total expenditures by all carbon steel producers (it comprised 7 percent of total capital expenditures by integrated steelmakers) in 1994; however spending on hot-strip mills decreased by 37 percent between 1993 and 1994. Capital expenditures for hot-strip mills have been decreasing since the mid to late 1980s, when most integrated producers invested in upgrading hot-strip mills.

Expenditures on cold-rolled sheet totaled 10 percent of all capital spending by integrated firms in 1994. Capital spending on cold-rolled sheet mills increased by 19 percent from 1993 levels and accounted for over 8 percent of total capital

⁹³ Scott Robertson, "Cleaning Up Big Steel," *New Steel*, Sept. 1994, pp. 26 and 28.

⁹⁴ See *Environmental Control and Related Expenditures*, below.

⁹⁵ Scott Robertson, "Cleaning Up Big Steel," *New Steel*, Sept. 1994, pp. 22-28.

expenditures by carbon steel producers in 1994. Weirton Steel made a portion of these expenditures to rebuild one of its cold-rolling mills after a major fire.⁹⁶ Increased demand for this value-added sheet product ultimately used for various consumer products seems to have motivated producers to increase investment in these facilities.

Minimill Producers and Processors

Capital spending by the minimill steel producers composed 28 percent or \$764 million of total spending by the steel industry, down slightly from 30 percent in 1993. Now more than 30 years old,⁹⁷ the scrap-based steel-making segment of the industry has continued to upgrade and replace existing facilities. Minimill producers dedicated 28 percent of their total 1994 capital expenditures to upgrading and expanding their continuous casting operations and 15 percent to their electric furnaces.

The minimill segment of the industry plans to continue expansion into production of steel sheet products (see prior discussion under *Production, Capacity, and Capacity Utilization*). This has helped to stimulate minimill investment in new and existing flat-rolled mills based on cost effective thin-slab casting. This includes expenditures for additional electric furnace and continuous casting capacity. For example, Nucor added a second thin-slab caster to boost annual production to 2 million tons at its Hickman plant.⁹⁸

Survey data indicate that bar producers (mostly minimills) have continued to invest in upgrading their mills, increasing capital expenditures by 51 percent in 1994, compared with 1993. According to the survey, 39 percent of specific expenditures were allocated to replacement and maintenance of existing mills, while 24 percent of the specific outlays were made to improve operating efficiency (appendix table G-1). High capacity utilization levels seem to be spurring some minimill producers to expand capacity to supply increased domestic demand for hot-finished bar and, in particular, for reinforcing bar or "rebar," primarily used in construction. Improved production efficiency will enable firms to better compete against imported bar

and rod. The minimill segment invested 33 percent of its total capital expenditures in bar mills. During 1994, several companies announced their intention to construct at least three new rod and bar mills and one new processing plant, perhaps partially motivated by the continued strength of domestic demand for bar and rod (see prior related discussion in *Market Conditions*). For example, Birmingham Steel Corp. plans to install a new high quality bar and rod mill at its American Steel & Wire subsidiary; Cascade Steel Rolling Mills, Inc. announced its plans to build a new bar and wire rod mill at its existing facility in McMinnville, OR; and, North Star Steel Co. announced the completion of negotiations to build a new bar and rod mill in Kingman, AZ with annual capacity of 500,000 tons. Finally, Charter Steel Co. announced plans to install a new rod and wire processing line at its existing facility in Saukville, WI.⁹⁹

Stainless and Alloy Tool Steel

Capital expenditures made by the stainless and alloy tool (specialty steel producers) segment of the steel industry were 4 percent of total steel industry spending, down from 6 percent in 1993 (table 19). In 1994, investment by specialty steel producers covered all stages of production from steelmaking to finishing and expenditures for the environment. Stainless and alloy tool steel producers reported total capital expenditures of \$111.6 million, a decrease of 20 percent from the level in 1993 (table 19). However, pollution abatement expenditures increased by 199 percent from the \$5 million reported for 1993 to \$15 million in 1994. This was mainly due to an increase in other environmental control expenditures that producers could not specifically relate to any product line. Stainless and alloy tool steel producers reported that although facility maintenance and efficiency improvements were the two primary reasons for capital expenditures in 1994, capacity expansion, complying with governmental regulation, and improving product quality were important secondary reasons for spending.

Investment in cold-rolled sheet mills reported by stainless and alloy tool steel producers represented the largest category (10 percent) of total capital expenditures shown¹⁰⁰, but spending levels on such mills decreased by 69 percent from the level reported in 1993 (table 19). Although combined spending on plate mills and on cold-finished bar mills by stainless steel producers represented only 6 percent of the total

⁹⁶ Samways, "Developments," p. D12.

⁹⁷ McManus, "Minimill Priorities — Thin-Slab Steel, DC Furnaces, Direct-Reduced Iron," *New Steel*, Sept. 1994, pp. 32-36.

⁹⁸ Adam Ritt, "How Good is Nucor's Thin-Slab Steel?" *New Steel*, May 1994, p. 22. Also, see William T. Hogan, *Steel in the 21st Century: Competition Forges a New World Order* (New York: Lexington Books, 1994), pp. 82-83.

⁹⁹ McManus, "Minimill Priorities," pp. 32-36.

¹⁰⁰ To preserve confidentiality, some categories remain undisclosed although reported by survey respondents.

Table 19
Stainless and alloy tool steel: U.S. producers' and converters' capital expenditures,¹ 1993 and 1994

Item	1993		1994		Percentage change	
	Pollution abatement	Total	Pollution abatement	Total	Pollution abatement	Total
	1,000 dollars					
Raw steelmaking facilities:						
Electric furnace	1,756	8,329	(2)	8,564	(2)	3
Continuous casting	(2)	(2)	(2)	(2)	(2)	(2)
Secondary steelmaking facilities ³	0	(2)	(2)	(2)	(2)	(2)
Flat-rolled products:						
Plate mills	(2)	2,220	(2)	3,380	(2)	52
Sheet and strip:						
Hot strip mills	(2)	2,261	0	(2)	(2)	(2)
Cold-rolled sheet mills	162	34,726	(2)	10,721	(2)	(69)
Bars and shapes:						
Hot-finished	(2)	(2)	0	(2)	(2)	(2)
Cold-finished	(2)	1,024	95	3,346	(2)	227
Wire rod mills	(2)	(2)	(2)	(2)	(2)	(2)
Wire drawing machines	(2)	(2)	(2)	(2)	(2)	(2)
Pipes and tubes:						
Seamless pipe mills	0	(2)	0	0	0	(2)
Welded pipe mills	(2)	7,243	(2)	3,646	(2)	(50)
Other ⁴	1,507	76,145	5,404	56,331	259	(26)
Total	4,980	139,762	14,891	111,612	199	(20)

¹ Includes expenditures for the specific type of facility as well as related facilities. Also includes expenditures for plant and equipment, land and land improvement, occupational safety and health, and environmental control.
² Withheld to avoid disclosure of confidential business information.
³ Includes ladle treatment (heat balance, alloy addition, degassing, decarburization, etc.) and other secondary refining processes (vacuum arc remelt, electroslag remelting, etc.).
⁴ Includes expenditures that companies could not allocate to product groups.

Note.—Because of rounding, figures may not add to totals shown.
 Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

expenditures reported, expenditures actually increased from 1993 levels by 52 percent and 227 percent, respectively. Specialty producers are upgrading and adding capacity to their melt shops, as well as to continuous casting facilities, representing 12 percent of total capital expenditures in 1994. Other expenditures were made for finishing operations and welded pipe mills.

Pollution Abatement and Related Expenditures¹⁰¹

While the Clean Air Act and its 1990 Amendments (CAAA) continue to dominate U.S. steelmakers' environmental concerns, its impact on expenditures

¹⁰¹ Capital and operating expenditures for environmental control reported in this section are likely to be understated. Certain firms responding to the Commission survey indicated an inability to identify these costs.

diminished as the enforcement date of January 1, 1995 approached. In 1994, steelmakers and other coke and coal users, such as electric utilities located in Midwestern States, had their last opportunity to comply with phase I of the CAAA.

Capital Expenditures for Pollution Abatement

Total steel industry capital expenditures for pollution abatement rose 20 percent to \$289.9 million from 1993 to 1994, and accounted for about 10 percent of total steel industry capital expenditures in both years. The bulk of spending was accounted for by the industry segment producing carbon and certain alloy steels, in which these expenditures rose by 17 percent to \$275 million from 1993¹⁰² to 1994 (table 20).

¹⁰² The U.S. Department of Commerce has reported that the steel industry spent \$462 million in 1993 on pollution abatement projects compared with Commission survey data of \$241 million. The data are not comparable

Table 20
Carbon and certain alloy steel: U.S. producers' expenditures on pollution abatement, 1993 and 1994

Item	1993	1994	Percentage change
	— 1,000 dollars —		
Capital expenditures:			
Air	169,980	191,732	13
Water	45,679	40,491	(11)
Solid waste	20,333	35,863	76
Unallocated ¹	(2)	6,928	(2)
Subtotal	235,992	275,014	17
Operating expenditures:			
Air	248,276	205,355	(17)
Water	154,083	257,579	67
Solid waste	93,955	133,360	42
Subtotal	496,314	616,304	24
Environmental fines	8,872	8,773	(1)
Environmental litigation costs	7,691	7,121	(7)

¹ Respondents could not allocate this portion of their environment-related expenditures to controls for air, water, or solid waste.

² Not applicable.

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

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

Expenditures for meeting CAAA emissions standards for volatile organic compounds (VOC) and particulate matter overshadowed all other environment-related expenditures made by carbon and certain alloy steel producers in 1994 and accounted for almost 70 percent of all pollution abatement expenditures (table 20). Expenditures on coke-making facilities, where emissions are most likely to exceed VOC standards, accounted for 31 percent of total capital expenditures for pollution abatement. Several integrated producers made improvements to coke oven batteries during 1994.¹⁰³ For example, Bethlehem Steel Corp. and Wheeling-Pittsburgh both upgraded their emissions control systems; Geneva Steel, Gulf States Steel, and Wheeling-Pittsburgh installed emergency flare stacks at their coke plants; and Gulf States Steel upgraded its coke oven doors and replaced its larry charging car.¹⁰⁴ Air-quality related spending

¹⁰²—Continued

because the Commerce Department sampled from a larger population of firms and other differences in the survey population.

¹⁰³ For further details, refer to Samways, pp. D1-D24. Also, see Robertson, pp. 22-28.

¹⁰⁴ After transporting coking coal from storage, the larry car travels atop the coke oven battery and aligns itself with lids on top of each oven. The larry car removes the lids, dropping or "charging" coal into the oven, which commences the next phase of cokemaking.

on steel-making furnaces accounted for 37 percent of total pollution abatement expenditures by carbon steel producers. Electric furnace operators upgraded and increased capacity of their baghouses, redesigning dust collection systems when necessary. Integrated producers upgraded emissions controls systems associated with basic oxygen furnaces, as well as dust-collecting equipment such as baghouses and electrostatic precipitators.¹⁰⁵

Spending by carbon steel producers on water and solid waste controls comprised a lesser portion of total capital expenditures for environmental control in 1994. Producers completed projects associated with secondary water treatment facilities and the disposal of captured dust from steel-making operations.

Capital expenditures on pollution abatement by specialty steelmakers (stainless and alloy tool steel producers) rose by 199 percent to nearly \$15 million in 1994 (table 21). Specialty producers generally were unable to allocate these expenditures to air, water, or solid waste control. Nevertheless, specific expenditures for air-quality controls increased by 109 percent to \$6.6 million between 1993 and 1994, accounting for 44 percent of total environmental capital spending by specialty steelmakers. In particular, specialty producers

¹⁰⁵ Robertson, pp. 22-28.

Table 21
Stainless and alloy tool steel: U.S. producers' expenditures on pollution abatement, 1993 and 1994

Item	1993	1994	Percentage change
	— 1,000 dollars —		
Capital expenditures:			
Air	3,165	6,601	109
Water	1,457	1,369	(6)
Solid waste	358	507	42
Unallocated ¹	(²)	6,414	(²)
Subtotal	4,980	14,891	199
Operating expenditures:			
Air	17,429	10,997	(37)
Water	23,543	12,694	(46)
Solid waste	19,080	15,258	(20)
Subtotal	60,052	38,949	(35)
Environmental fines	332	149	(55)
Environmental litigation costs	363	477	31

¹ Respondents could not allocate this portion of their environment-related expenditures to controls for air, water, or solid waste.

² Not applicable.

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

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

invested in dust collection equipment associated with electric arc furnaces. For instance, at least three producers purchased new or upgraded existing baghouses to control airborne dust in melt shops and from the top of electric furnaces. Also, Armco, Inc. enhanced its existing secondary emissions systems while Washington Steel Corp. installed a new system at its melt shop.¹⁰⁶

Expenditures made by specialty steel producers on water controls accounted for \$1.4 million, 9 percent of total capital expenditures for pollution abatement. Allegheny Ludlum Corp., one of the largest specialty producers, reportedly will include a new secondary water treatment facility as part of a larger \$55.8 million project to install a new annealing and pickling line at one of its Pennsylvania plants.¹⁰⁷

Solid waste controls accounted for the balance of new capital expenditures for pollution abatement as stainless steel producers constructed new, upgraded existing, or closed landfills to meet environmental regulations.

¹⁰⁶ Robertson, "Accelerating Spending on Stainless," *New Steel*, Sept. 1994, pp. 47-49.

¹⁰⁷ *Ibid.*, p. 45.

Operating Expenditures for Pollution Abatement

Operating expenditures for specialty steelmakers accounted for 72 percent of total environmental expenditures, compared to 69 percent for carbon and certain alloy steelmakers. Operating expenditures for environmental control increased by 24 percent in 1994 to \$616 million for carbon and certain alloy producers (table 20, presented earlier), but declined by 35 percent to \$39 million for specialty steel producers (table 21, presented earlier). For carbon and certain alloy steel producers, the operating expenditures related to pollution abatement comprised approximately 1.4 percent of the cost of carbon steel products sold in 1994,¹⁰⁸ a slight increase from the 1.3-percent calculated for 1993. The ratio of total environmental operating expenditures to the cost of stainless steel goods sold was less than 1 percent in 1994, down from 1.6 percent in 1993.

Operating expenditures for water-quality control led spending by the carbon steel segment, whereas solid waste control accounted for specialty

¹⁰⁸ Cost of goods sold is a proxy for total operating expenditures. Because the cost of goods sold includes depreciation, this percentage represents a minimum.

steelmakers' largest share of total expenditures (tables 20 and 21). Overall, environmental spending patterns by specialty steelmakers and carbon and certain alloy steelmakers reflect expansion of steelmaking and finishing facilities.

Firms surveyed identified the number and cost of pollution abatement-related fines and litigation expenses. Such fines and litigation costs for carbon and certain alloy producers declined by 1 percent and by 7 percent in 1994, respectively, compared with 1993, according to the Commission survey. Meanwhile, fines imposed on specialty steelmakers for environmental violations fell by 55 percent, but their litigation costs rose by 31 percent to just under \$0.5 million.

Research and Development

Despite improved financial performance, the steel industry reduced expenditures for research and development (R&D) in 1994. As reported in the Commission survey,¹⁰⁹ expenditures for R&D, totaling approximately \$130 million, represented 0.24 percent of reported net sales for the industry as a whole. Steel industry expenditures for R&D by producers of carbon and certain alloy steel declined by about 13 percent to \$90.8 million representing 0.18 percent of net sales between 1993 and 1994 (table 22); reflecting the generally stronger financial condition of specialty steel producers, this industry segment expended relatively more on research and development as a share of net sales (\$39.2 million representing 0.78 percent of net sales in 1994) compared to producers of carbon steels.¹¹⁰ Integrated producers of carbon and certain alloy steel spent more, both overall and in relation to their net sales, than did their minimill counterparts (whereas most integrated producers reported expenditures for R&D, relatively few minimill producers reported such expenditures). This may be due in part to the products primarily produced by each industry segment: most minimills produce established commodity products while major integrated firms have a customer base that includes companies (e.g.,

¹⁰⁹ R&D data are likely to be understated. Certain firms responding to the Commission survey expressed concerns about their ability to identify and allocate R&D expenditures among processes and products. Understatement of R&D data may be due partly to the transfer of personnel from company laboratories performing basic research to more applied work within mills and the consequent blurring of lines between research and production activities.

¹¹⁰ Questionnaire data show that the ratios of R&D expenditures to cost of goods sold and to operating income declined from 1993 to 1994 for both industry sectors.

automotive, machinery, and appliance) demanding continuously improved performance from the steel they purchase.

In the carbon steel segment of the steel industry, R&D expenditures on cold-rolled and coated sheet¹¹¹ processes accounted for nearly 34 percent (\$31 million) of total R&D expenditures in 1994 (table 19). Research and development expenditures are also focused on improvements in ironmaking and steelmaking technology (\$4 million and \$13 million, respectively), and continuous-strand casting (\$3 million). Improvements in product quality (including developing new products), enhancing operating efficiency, and reducing energy consumption or pollution levels were reasons most often cited by survey respondents as the basis for R&D spending (appendix tables H-1 and H-2).

The focus of most recent steel industry R&D continues to be to reduce the capital cost of new plants; to raise energy efficiencies, yields, and reduce cycle times; to improve process efficiency and reduce pollutant generation levels; and, to improve steel quality to meet competition from alternative materials. However, a considerable amount of steel company research has been moved into the "beta phase" of research—implementing improvements in operation of installed equipment or existing processes. Anecdotal information suggests that steel companies increasingly require formal performance guarantees from equipment manufacturers, especially when installing cutting edge technology.

The steel industry continues to utilize cooperative research programs as a means of spreading the cost of R&D and more widely disseminating the information gained. This includes several consortia involving steelmakers, equipment suppliers, universities, and Federal research laboratories.¹¹² For example, during fiscal year 1994 approximately \$7 million was spent by steelmakers and the U.S. Department of Energy (which funded about 70 percent of the total) on three projects:¹¹³ advanced process control, waste oxide recycling, and the completion in March 1994 of the

¹¹¹ These products, primarily produced by integrated firms, are used extensively in downstream industries that are demanding improved material performance.

¹¹² For more detailed information on certain of these cooperative research programs and on the introduction of newer technologies and techniques, see USITC, *Steel Semiannual Monitoring Report*, investigation 332-327, USITC publication 2655, Apr. 1993, pp. 25-28.

¹¹³ Telephone conversation between William Obenchain, program manager, Office of Industrial Processes, U.S. Department of Energy, and USITC staff on Mar. 23, 1995.

Table 22
Research and development expenditures, by processes and products, 1993 and 1994

Item	1993		1994		Percentage change	
	Carbon and certain alloy steel	Stainless and alloy tool steel	Carbon and certain alloy steel	Stainless and alloy tool steel	Carbon and certain alloy steel	Stainless and alloy tool steel
	1,000 dollars					
Cokemaking facilities	3,478	(1)	2,176	(1)	(37)	(2)
Ironmaking facilities	4,400	(1)	3,637	(1)	(17)	(2)
Raw steelmaking facilities:						
Basic oxygen process & other	5,753	(4)	6,071	(4)	(6)	(2)
Electric furnace	8,194	(4)	7,306	(4)	11	(2)
Continuous casting	6,978	(4)	3,413	(4)	(51)	(2)
Secondary steelmaking facilities ³	(4)	(4)	(4)	(4)	(2)	(2)
Flat-rolled products:						
Plate mills	6,549	(4)	3,235	(4)	(51)	(2)
Sheet and strip:						
Hot strip mills	4,870	(4)	3,817	(4)	(22)	(2)
Cold-rolled sheet mills	14,978	(4)	16,235	(4)	8	(2)
Galvanizing facilities	14,037	(1)	9,923	(1)	(29)	(2)
Other coating facilities	11,210	(1)	4,611	(1)	(59)	(2)
Bars, shapes, and light structural mills:						
Hot-finished	(4)	(4)	1,789	(4)	(2)	(2)
Cold-finished	(4)	(4)	(1)	(4)	(2)	(2)
Medium and heavy structural mills ⁵	(4)	(1)	(4)	(1)	(2)	(2)
Rail mills	(4)	(1)	(1)	(1)	(2)	(2)
Wire rod mills	272	92	(4)	92	(2)	(2)
Wire drawing machines	(4)	(4)	2,021	(4)	(2)	(2)
Wire products	(4)	(1)	(4)	(4)	(2)	(2)
Pipes and tubes:						
Seamless pipe and tube mills	(4)	(4)	(4)	(4)	(2)	(2)
Welded pipe and tube mills	2,060	(4)	(4)	(4)	(2)	(2)
Other ⁷	12,795	17,606	16,483	9,815	29	(44)
Total	104,327	45,183	90,832	39,153	(13)	(13)

¹ None reported.

² Not applicable.

³ Includes ladle treatment (heat balance, alloy addition, degassing, decarburization, etc.) and other secondary refining processes (vacuum arc remelt, electroslag remelting, etc.).

⁴ Withheld to avoid disclosing confidential business information.

⁵ Structural shapes with a cross-section exceeding 3 inches.

⁶ Less than 0.5 percent.

⁷ Includes expenditures that could not be effectively allocated to product groups.

Source: Compiled from data submitted in response to USITC questionnaires.

direct ironmaking project.¹¹⁴ Additionally, some cooperative research was conducted on continuing projects based on carryover funds from fiscal year 1993.¹¹⁵ The amount of government-funded R&D may rise considerably if Geneva Steel (Vineyard, UT) obtains DOE funding for a Corex ironmaking plant, worth approximately \$150 million during fiscal years 1995-99. Also, steelmakers reportedly asked an appropriations subcommittee recently to allow DOE to continue funding, through fiscal year 1996, for construction of two pilot plants: the Waste Recycling Demonstration Program (\$16.5 million) and the Advanced Process Control Program (\$4.4 million). The waste-recycling program is to process steel plant waste oxides into iron inputs for electric furnaces or basic oxygen furnaces; the advanced process control program focuses on improvements in sensor and control systems.¹¹⁶

Labor Issues

Contract Negotiations

In contract negotiations during 1994, the United Steelworkers of America (USWA) continued to pursue a strategy, labeled the "New Directions Bargaining Program (NDBP)," which was established at the annual Basic Steel Industry Conference (BSIC) held in January 1993. The NDBP goal is to address both the long-standing issues of wages and benefits and the demands of competitiveness in the global market. The contract goals of the NDBP can be grouped in three broad categories: workplace organization, corporate behavior, and economic issues. Workplace organizational goals include greater worker involvement in operational decisions and a reduction in the ratio of supervisors to workers. Corporate behavior matters involve successorship guarantees, revitalized apprenticeship and training programs, company acceptance of union-organizing efforts at unorganized facilities, union/worker involvement in corporate strategic planning, company commitment to capital investment, elimination of significant contracting out,

¹¹⁴ Also see, USITC, "Direct Ironmaking: A Case Study in Government and Industry Efforts to Commercialize New Manufacturing Processes for Materials," *Industry Trade and Technology Review*, scheduled for May 1995.

¹¹⁵ The amount of such carryover funding is unspecified. USITC staff telephone conversation with William Obenchain, on Mar. 23, 1995.

¹¹⁶ Bill Schmitt, "Steelmakers seeking funds for DOE efforts," *American Metal Market*, Mar. 29, 1995, p. 7.

and a joint company/union public policy agenda. Economic issues deal with securing higher wages, long-term agreements, guarantees against layoffs, cuts in health care costs, and funding pension and postretirement health care costs.¹¹⁷ USWA statements indicate a desire to take advantage of new technology, but to ensure that workers are protected and properly trained.¹¹⁸

Building on the training aspects of its NBDP, the USWA sponsored the third annual conference of the Institute for Career Development (ICD) in June, which brought together 129 members of local joint committees and 30 ICD coordinators from 11 steel companies¹¹⁹ that have joined with the USWA to support worker training and education. The goal of the conference was to call attention to the necessity of training all steelworkers to meet the increasing demands of new technology in the work place.¹²⁰

During the year, the USWA reached agreements with LTV Steel, Allegheny-Ludlum, Wheeling Pittsburgh, and Koppel Steel.¹²¹ The agreements at the first three companies generally followed the "New Directions" precedent established by agreements with several major integrated mills in 1993.¹²²

The Allegheny-Ludlum agreement was signed after a 10-week strike. Provisions of the 4-year agreement include significant monetary gains for members, including incentive wage increases, a ratification bonus, increases in profit-sharing percentages, and a new fund for retiree health and insurance benefits and higher pension levels. Although the union did not secure the right to appoint a director, the company did agree to pay for the union selection of an outside consultant to study capital expenditure plans. Similarly, union members at LTV voted to accept a 5-year agreement that provides wage and pension increases, bonuses, employment security, and a greater voice for workers that includes continuing representation on the

¹¹⁷ Statement by the Basic Steel Industry United Steelworkers of America, adopted Jan. 5, 1993, p. 42-45.

¹¹⁸ "The Challenge of Partnerships Between Union and Management," *New Steel*, Nov. 1994.

¹¹⁹ Republic Engineered Steels and Allegheny Ludlum Steel Corp. recently joined other companies supporting the program, such as Armco, Bethlehem, Inland, LTV, National Steel, U.S. Steel, USS/Kobe, USS-Posco, Wheeling-Pittsburgh, J&L Specialty Steel, and WCI Steel Co.

¹²⁰ United Steelworkers of America, "Career Institute Looks to the Future," *Steelabor*, July-Aug. 1994, p. 5.

¹²¹ Koppel is a subsidiary of NS Group, which also owns Newport Steel, Erlanger Tubular, and other firms.

¹²² United States International Trade Commission (USITC), staff discussions with USWA official, Mar. 30, 1995.

LTV board of directors.¹²³ After a 2-day strike, Wheeling-Pittsburgh and the USWA agreed to a 2-1/2 year contract¹²⁴ that included provisions on wages and pensions, health care, craft combinations, and retiree insurance.¹²⁵

The Koppel Steel agreement, signed in November, has a 58-month duration. Main points of the contract include improved pension, health, and vacation benefits; wage increases; and annual bonuses.¹²⁶

As a result of success in achieving greater worker involvement in production decisions, amendments are being considered in the Congress to modify section 8(a)(2) of the 1937 National Labor Relations Act (NLRA) that prohibits any employer from dominating, supporting, or involving itself with labor organizations. Consideration of these issues stems from recommendations of the Dunlop Commission,¹²⁷ which also recommended a number of less controversial changes to labor laws and regulatory procedures. The Dunlop Commission's recommendations on amending the NLRA mirrored bills introduced, but not voted on, last year by Senator Nancy Kassebaum (KS) and Representative Steve Gunderson (WI).¹²⁸ The USWA opposes this proposed change, contending that, as interpreted by the National Labor Relations Board (NLRB), section 8(a)(2) of the NLRA has allowed employer-dominated worker groups to discuss matters of mutual interest, such as quality, productivity, safety, and efficiency. Although the proposed changes would still not allow such groups to enter into collective bargaining agreements, they would allow discussion of terms and conditions of work or compensation. Union leaders see this as a loophole that could lead to "company unions," even though the Dunlop Commission explicitly stated its opposition to company dominated labor organizations.¹²⁹

¹²³ USWA, *Steelabor*, July-Aug. 1994, p. 5.

¹²⁴ The contract ends in October 1996.

¹²⁵ "Wheel-Pitt Pact Ends USW Strike," *American Metal Market*, Mar. 4, 1994, p. 1.

¹²⁶ Staff telephone discussions with official of Koppel Steel, Apr. 3, 1995.

¹²⁷ Named after its chairman, former Labor Secretary John Dunlop, the commission was created by current Labor Secretary Robert Reich to study how U.S. industry can become more competitive.

¹²⁸ "When Laws Hamper Cooperation Between Labor and Management," *New Steel*, Nov. 1994, p. 19.

¹²⁹ "Dunlop Proposal Would Aid Anti-Union Employers", *Steelabor*, Jan.Feb. 1995, p. 11-12.

Employment, Productivity, and Compensation

Although employment in the steel industry continues to decline, the earnings of labor are once again on the rise. The number of the total workers and the production workers in the steel industry both decreased by just under 2 percent from 1993 to 1994 (table 23). Nominal hourly earnings rose by 2.7 percent in the steel sector, after falling by 2.8 percent from 1992 to 1993. Steel industry workers maintained their lead in pay scale over manufacturing workers as a whole, with wage rates of approximately 140 percent of the aggregate average. Steel workers' total compensation increased by 4 percent, while workers' compensation in the manufacturing sector as a whole rose by 3 percent.

Steel Industry Health Care Costs

The cost of health care is one part of the total compensation of steel industry employees. Although the industry has had much success in containing or lowering various areas of costs over the past decade, steel industry health care costs on a per-ton basis have risen sharply over that period and have become an increasingly important factor affecting U.S. competitiveness in the global steel market. Industry officials have expressed concern that payment of health care costs reduces the availability of funds for investment in plant and equipment, research and development, and employee training and benefits, thereby limiting the ability of the industry to compete in the global market.¹³⁰ Health care costs per ton of steel produced rose by about 64 percent from \$14.99 in 1985 to a high of \$24.58 in 1993¹³¹ and were the fastest growing component of total hourly compensation, rising from 11 percent of total compensation in 1985 to a high of 16 percent in 1993 (table 24). Industry efforts to contain such costs reversed the trend in 1994, as health care costs per ton, per hour, and as a share of total compensation all fell from 1993 to 1994.

¹³⁰ Curtis H. Barnette, chairman, Bethlehem Steel Co., "Remarks on Health Care Innovations and Cost Control," speech at the AISI, Annual Meeting, in New York, NY, May 19, 1994.

¹³¹ Data provided by AISI. Also, David J. Cantor, specialist in industry economics, Congressional Research Service, *Steel Industry Health Benefit Costs and Their Effect on Costs of Production of Steel Mill Products*, Feb. 18, 1993.

Table 23
Employment: Average annual employment of the steel industry, and productivity, nominal earnings, and nominal compensation for workers in steel and all manufacturing industries, 1993 and 1994

Year	Number of workers ¹		Productivity index ²		Nominal earnings ³		Nominal compensation ⁴	
	Total	Production	Steel ⁵	Manufacturing	Steel	Manufacturing	Steel ⁶	Manufacturing
	<i>Dollars per hour</i>							
1993	238,300	181,700	252.0	⁷ 131.6	16.39	⁷ 11.76	31.89	⁷ 21.04
1994	233,900	178,100	252.5	138.0	16.84	12.11	33.17	⁷ 21.63

¹ Employees in S.I.C. 331. Includes establishments producing raw steel and steel mill products, independent pipe producers, and independent wire drawers. Totals are slightly overstated as employees in the ferroalloy industry are included as well.

² 1982=100.

³ Including overtime earnings.

⁴ Compensation, as defined in the national income and products account, includes both direct and indirect payments to workers. Direct payments include payment for time worked (e.g. wages), payment for time not worked (e.g. vacation and holiday pay), bonuses, and other incentive or special pay. Indirect payments include employer contributions to insurance programs and contractual and private benefit plans.

⁵ Calculated from data of the American Iron and Steel Institute.

⁶ Data provided by American Iron and Steel Institute.

⁷ Revised.

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

Table 24
Steel industry health care costs and total hourly compensation of production workers, 1984-94

Year	Health care costs		Total compensation	Ratio of hourly health care costs to total hourly compensation
	<i>per ton</i>	<i>per hour</i>	<i>per hour</i>	
1985	14.99	2.54	22.81	.11
1986	14.42	2.72	23.24	.12
1987	13.44	2.80	23.71	.12
1988	12.54	2.85	24.65	.12
1989	13.20	3.00	24.62	.12
1990	14.32	3.41	25.62	.13
1991	18.81	4.18	27.64	.15
1992	23.41	4.59	29.57	.16
1993	24.58	5.23	31.89	.16
1994	21.19	5.06	33.17	.15

Source: American Iron and Steel Institute (AISI), *Annual Statistical Report*, various years; and unpublished data provided by AISI.

Steel industry executives contend that the United States leads the world with the highest health care cost per capita, an assertion supported by data collected by the Organization for Economic Cooperation and Development (OECD).¹³² Industry officials also point out that health care costs in the United States are borne principally by the larger employers, as purchasers of private insurance and self-insured employers pay for much of the care received by the uninsured (termed

“cost shifting”).¹³³ The American Iron and Steel Institute (AISI) has identified three sources of cost shifting that reportedly cost the steel industry more than \$400 million in 1993:¹³⁴

- Higher charges to publicly and privately insured patients by health care providers who treat, but are not paid by, uninsured patients;

¹³³ Barnette, “Remarks.”

¹³⁴ “Cutting Health-Care Costs at Bethlehem,” *New Steel*, Aug. 1994.

¹³² “OECD In Figures, Statistics on the Member Countries,” supplement to the *OECD Observer*, No. 188, June-July 1994, pp. 44-45.

- Higher charges to privately insured patients because the public programs, such as Medicare and Medicaid, fall short of reimbursing providers for the self-determined full value of their services; and,
- Workers who decline coverage or who work for firms that do not provide benefits, but are covered as dependents by other firms that do provide benefits.

Health care costs of retirees are another important determinant of overall health care costs for the steel industry, and, in terms of corporate financial performance, they represent a significant future liability. Changes in accounting standards by the Financial Accounting Standards Board (FASB) compelled firms to recognize the costs of health care for future retirees as current expenses beginning in 1993.¹³⁵ In an effort to accelerate the recognition of rapidly rising health care costs, the FASB issued Statement of Financial Accounting Standards (SFAS) 106, that required public companies to recognize liabilities for company retirees, other than pension costs, as of the first quarter of 1993. Under SFAS 106, companies are required to estimate the future cost of providing retiree health benefits as an expense while employees render services rather than when benefits are paid.¹³⁶ This means that companies must accrue the health care costs of retirees during their working lives. Companies reportedly have two accounting options to recognize liability benefits that have not been adequately provided for: they can either take a one-time charge or they can amortize the liabilities over 20 years.¹³⁷ The steel industry's high ratio of retirees to active workers is likely to increase the burden of complying with the requirements of SFAS 106.

Companies are pursuing ways to minimize the impact of SFAS 106. For example, Wheatland Tube Co. decided to fund retiree health insurance liabilities for its hourly employees through the establishment of an account defined in section 401(h) of the Internal Revenue Code. A 401(h) account permits the transfer of excess pension assets from a defined benefit plan to an account established to pay current retiree health liabilities for the taxable year of the transfer. According

¹³⁵ For further discussion, see USITC, *Steel Semiannual Monitoring Report*, USITC publication 2655, June 1993.

¹³⁶ Kidder, Peabody Equity Research, *Steel Industry—The Impact of FASB 106 (Accounting for Health Care Costs)*, Nov. 12, 1992.

¹³⁷ *Ibid.*

to an official of Wheatland Tube, the company benefited by gaining access to excess funds from its pension plan that probably would not have been tapped otherwise.¹³⁸ This option is not available for most steel firms because they do not have excess pension assets.

Industry Efforts to Manage Health Care Costs

Between 1985 and 1993 total hourly employment costs, including health insurance, rose by 40 percent, while hourly health care costs rose 106 percent (table 24). Concern over the rise in the health care cost component has spurred steel companies to pursue efforts to reduce these expenditures. A variety of approaches have been tried, including the establishment of company sponsored health care clinics (sometimes including union participation), the negotiation of better rates with independent health care providers, and the negotiation of labor contracts that replace standard insurance coverage with preferred-provider (PPOs) or health maintenance organizations (HMOs). These efforts seem to be generating some returns, as health care costs per employee hour and health care costs per ton both fell from 1993 to 1994, by 3 percent and by 14 percent, respectively.

The large number of retirees and the history of generous health care benefits written into labor contracts in the 1950s and 1960s have caused the problem of health care costs to loom largest for the integrated segment of the industry.¹³⁹ Several integrated companies have developed initiatives to control these costs, often including the establishment of their own health care delivery facilities. The goal of each of these companies' efforts is to change the manner in which health care is delivered to their employees and local retirees, thereby reducing unnecessary medical services and costs.¹⁴⁰ Such facilities generally deliver primary care, while more traditional organizations are used for more specialized care.

¹³⁸ "The Establishment and Implementation of a 401(h) Retiree Medical Account," statement presented by James E. Feeney, Senior Vice President of Operations, Wheatland Tube Co., at the AISI annual meeting, May 1994.

¹³⁹ For a discussion of labor negotiations during the period, see John P. Hoerr, *And the Wolf Finally Came* (Pittsburgh, PA: University of Pittsburgh Press, 1988), pp. 109-133.

¹⁴⁰ USITC staff discussion with the General Manager of Compensation and Benefits at LTV Steel Co., Feb. 1995.

Bethlehem Steel began development of a 5-year strategic health plan for managing and controlling its health care costs in 1989. Bethlehem's actions include the establishment in June 1993 of a family health center (a full-service primary-care facility), which covers active employees, retirees, and their dependents; the development of PPO networks in each of Bethlehem's plant communities; the implementation of a database to track health care spending; and the negotiation with Bethlehem's insurance carriers of maximum discounts on costs.¹⁴¹ As a result of its efforts, Bethlehem lowered its health care costs by 2 percent in 1993 from 1992, following several years of steadily increasing costs.¹⁴²

USX Corp. (the parent company of U.S. Steel) established a family medical center near Gary, IN, in 1993 that serves 30,000 to 40,000 current employees, retirees, and their families. The center is a fully integrated facility in that it attempts to offer any medical service that can be performed on an outpatient basis, including x-ray services, diagnostic testing, immunizations, and physical therapy. By report, the center is fairly widely used although participation is voluntary.¹⁴³

LTV Steel implemented a managed care Point of Service program that resembles an HMO in operation. The program emphasizes prevention and wellness and covers salaried and union employees.¹⁴⁴

Such efforts have not been limited to the integrated sector. The USWA and Northwestern Steel and Wire Co. recently opened a Family Health Center that will serve approximately 10,000 employees, retirees, and their dependents.¹⁴⁵ The center will address primary needs, with an emphasis on preventative medicine. The joint venture care center is a result of the work of a union/management Health Care Cost Containment Committee formed under the aegis of their 1992 labor agreement. Both the company and the Union contributed funds to finance the center.

Because of the costs involved and importance of health care to workers, such issues have often contributed to a break down in labor contract

bargaining. In an effort to remove health care as a stumbling block, the USWA has created the Steelworkers Health and Welfare Fund (SHWF).¹⁴⁶ The fund is an effort by the union's leaders to continue to acquire the best possible health care for their members while recognizing that there can be advantages to controlling health care costs at companies they have organized. In order to offer companies a cheaper alternative to their traditional coverage, this partnership with Blue Cross and Blue Shield is now the insurer of choice for about 100 USWA local unions and more than 35,000 active members and retirees.¹⁴⁷ The Fund tailors its health care coverage systems for each individual company, including both managed care networks (PPO's) and more traditional health insurance. The union reports the partnership can offer better benefits for the workers and has offered savings of 10 to 50 percent to participating employers.¹⁴⁸

While most of those covered by the Fund are from other industries,¹⁴⁹ the SHWF has begun provide health coverage to steel industry employees. While union officials concede that it may be difficult to improve on their members' coverage at large integrated firms, they expect the SHWF to be able to craft "win-win" solutions (better coverage/lower costs) at smaller steel firms.¹⁵⁰ While changes in health care coverage usually occur as new contracts are negotiated, the union has authorized the reopening of certain contracts to allow workers and companies to switch to the Fund in mid-contract.

A number of other strategies for health care cost containment have also been promoted by both labor and management in the steel industry. For example, prior to last year's health care deliberations in Congress, the USWA developed a variety of health care proposals through the Joint National Health Care Policy Committee. The union proposals were designed to win enactment of an overall reform program incorporating the principles of universal access, quality care, cost containment, and fair and equitable financing.¹⁵¹ The USWA and numerous steel

¹⁴¹ "News Front—Cutting Health-Care Costs at Bethlehem," *New Steel*, Aug. 1994.

¹⁴² *Ibid.*

¹⁴³ USITC staff discussion with USX Medical Director during February 1995; and "A One-Year Checkup—How Healthy Are Bethlehem Steel's and U.S. Steel's Health Care Centers?" *Iron and Steelmaker*, Aug. 1994.

¹⁴⁴ USITC staff discussion with the General Manager of Compensation and Benefits, LTV Steel Co., Feb. 1995.

¹⁴⁵ "New clinic scores a hit", *Steellabor*, Jan.-Feb. 1995, p. 15-16.

¹⁴⁶ "Steelworker plan takes health costs off the table", *Steellabor*, March/April 1995, P. 9.

¹⁴⁷ USITC staff discussion with official of the USWA, April 28, 1995.

¹⁴⁸ "Steelworker plan takes health costs off the table", *Steellabor*, March/April 1995, p. 11.

¹⁴⁹ The USWA represents workers in a wide variety of industries.

¹⁵⁰ USITC staff discussion with official of the USWA, April 28, 1995.

¹⁵¹ "Campaigns for Justice: Unions Join Health Care Fight," *Steellabor*, May-June 1993.

companies also participate in the National Leadership Coalition for Health Care Reform, made up of union, business, government, and academic leaders. The USWA continues to support comprehensive reform of the health care system and is concerned that efforts to reduce Medicaid and Medicare expenditures, stemming

from deficit-reduction actions, will result in a shifting of costs to private-sector plans.¹⁵² ■

¹⁵² George Becker, International President, United Steelworkers of America, testimony before the Senate Steel Caucus, Mar. 23, 1995.

APPENDIX A
Structure of the Report and
Notes on Product Coverage and
Methodology

STRUCTURE

- Figures 1 through 4, presented in *U.S. Steel Industry Highlights*, show key performance and trade data for the U.S. steel industry covering the most recent 4 years.
- Figure 5 and tables 1 and 2 present international steel production during 1984-94 for various regions and countries, and highlight the geographic distribution of world production in 1984 and 1994.
- Figure 6 and tables 3 through 5 present international steel import and export data during 1983-93 for various countries/country groups, and highlight the geographic distribution of steel consumption in 1983 and 1993.
- The section on recent steel industry developments highlights developments in both the U.S. and foreign steel industries.
- The special focus section analyzes current conditions in the U.S. industry, including information on recent developments in steel consumption, trade, capacity, production, capital expenditures, environmental expenditures, spending on research and development, employment, and financial performance. Data on U.S. industry conditions, compiled primarily from questionnaires, are provided in tables 6 through 23. U.S. shipment and trade data, compiled from secondary sources, are provided in appendix F, tables F-1 through F-37, described below.
- Tables F-1 through F-5 show data on shipments, imports, exports, apparent open market consumption, and imports as a percent of apparent open market consumption by major product for all grades of steel, plus carbon and specialty products separately.
- Tables F-6 through F-26 show data on the quantity of major carbon and specialty steel imports and exports on a product-by-product basis. The top 15 country suppliers, the top 10 country markets, and major regional groupings are specified.
- Table F-27 shows data on the total value of carbon and specialty steel imports and exports on a product basis.
- Tables F-28 and F-29 show data on the unit values of selected imports and exports of carbon and specialty steel products.
- Tables F-30 and F-31 show data on imports and exports of selected carbon and specialty steel products. The tables also provide information that permits an examination of the extent to which shifts in product mix within major product categories occur.
- Tables F-32 through F-37 show data on imports of steel mill products and certain fabricated products, by U.S. customs area.

NOTES

Data on foreign trade and domestic shipments are compiled from official statistics of the U.S. Department of Commerce and from statistics of the American Iron and Steel Institute (AISI), respectively. Apparent consumption is calculated as the sum of open market shipments (data on captive consumption are not available) plus imports minus exports.

The products for which foreign trade data are collected generally correspond to those covered by the voluntary restraint agreements (VRAs). Since the VRAs included certain fabricated products (defined as wire strand, wire ropes, cables, cordage, and fabricated structural units), the data may exceed that compiled by other organizations such as the AISI. The additional tonnage, however, is relatively small, about 30,000 tons out of the 30.2 million tons reported by AISI in 1994. The product categories most affected are structural shapes and units (which include fabricated structurals in this report) and wire and wire products (which include wire rope and wire strand).

The source for the data on employment levels in table 23 is the U.S. Department of Labor, Bureau of Labor Statistics (BLS), rather than AISI. AISI employment figures cover reporting companies only; these companies represent approximately 70 percent of total raw steel production. The BLS data cover the entire steel industry, as defined by Standard Industrial Code (SIC) 331, which includes the electrometallurgical products (or ferroalloy) industry. In the past, the ferroalloy industry, which is not generally defined as part of the steel industry, has represented less than 3 percent of total employment levels reporting under this SIC.

The regional groupings in tables F-6 through F-26 are defined as follows:

East Asia includes Brunei, Burma, Cambodia, China, Hong Kong, Indonesia, Japan, South Korea, Laos, Macao, Malaysia, Philippines, Singapore, Taiwan, Thailand, and South Vietnam;

EU-12 (formerly the European Community) includes Belgium, Luxembourg, Denmark, France, Germany (beginning in 1992, including former East Germany), Greece, Ireland, Italy, Netherlands, Portugal, Spain, and the United Kingdom;

Central and Eastern Europe includes Bulgaria, the Czech Republic (formerly part of Czechoslovakia), East Germany (included only through 1991), Hungary, Poland, Romania, and Slovak Republic (formerly part of Czechoslovakia);

The Latin American Integration Association (LAIA) is the former Latin American Free Trade Area (LAFTA) and includes Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Mexico, Paraguay, Peru, Uruguay, and Venezuela.

Trade data include imports under sections 9802.0060 and 9802.0080 of the *Harmonized Tariff Schedule of the United States (HTS)*. These provisions apply to U.S. merchandise that is exported, processed, and reimported into the United States.

Data on tool steel imports exclude bearing steel products. This is consistent with industry practice and reports, which treat bearing steel as an alloy steel and categorize it according to its end form—either plate, sheet and strip, or rod. Unlike data on imports and shipments, available data on tool steel exports include some bearing steel products. As a result, apparent open market consumption calculations (see table F-4) are slightly understated in the case of tool steel, and slightly overstated in the case of plate, sheet and strip, and rod. The USITC staff estimates, however, that the degree of understatement/overstatement is minor, as exports of bearing steel products are believed to be relatively low.

Following consultation with the U.S. Department of Commerce and with AISI, the USITC staff made the following revision to certain trade data: 1,258 tons (\$1,537,000) of February 1991 tool steel exports to Mexico were reclassified as alloy bar exports; and 19,920 tons (\$3,443,000) of May 1993 carbon steel semifinished imports were reclassified as hot-rolled carbon steel plate.

The rails and related products category includes both new and used rails (see appendix D for complete definition). Of the 268,764 tons of rails and related products imported into the United States during 1993, 29 percent (or 77,272 tons) was used rails.

In tables F-28 and F-29, unit values are calculated using unrounded data. Import values are customs value, i.e., the data do not include insurance and freight charges from the country of origin to the United States.

To reflect industry terminology and operations more accurately, coiled plate products are included in the sheet and strip product category rather than the plate product category, effective with the June 1993 report. To adjust import data accordingly, *HTS* subheadings 7208.11.0000, 7208.12.0000, 7208.21.1000, 7208.21.5000, 7208.22.1000, 7208.22.5000, 7211.12.0000, 7211.22.0090, 7225.30.3000, 7225.30.3005, 7225.30.3050, and 7226.91.5000 were transferred from the carbon and certain alloy plate product categories to the hot-rolled carbon and certain alloy sheet categories, and *HTS* subheadings 7219.11.0000, 7219.12.0000, 7219.12.0005, 7219.12.0015, 7219.12.0030, 7219.12.0045, 7219.12.0060, 7219.12.0075, 7219.12.0080, and 7220.11.0000 were transferred from the stainless steel plate category to the stainless steel sheet and strip category. To adjust export data, *Schedule B* subheadings 7208.11.0000, 7208.12.0000, 7208.21.0000, 7208.22.0000, 7211.12.0000, 7211.22.0000, and 7225.30.0000 were reassigned from the carbon and certain alloy plate category to hot-rolled carbon and certain alloy sheet, and *Schedule B* subheadings 7219.11.0000, 7219.12.0000, and 7220.11.0000 were transferred from stainless steel plate to stainless steel sheet and strip.

APPENDIX B
Request Letter from the
Honorable Dan Rostenkowski,
Chairman of the Committee on
Ways and Means,
U.S. House of Representatives

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COMMITTEE ON WAYS AND MEANS

U.S. HOUSE OF REPRESENTATIVES
WASHINGTON, DC 20515-6348

June 11, 1992

ROBERT J. LEONARD, CHIEF COUNSEL AND STAFF DIRECTOR

PHILLIP D. MOSELEY, MINORITY CHIEF OF STAFF

The Honorable Donald Newquist
Chairman
U.S. International Trade Commission
500 E Street, S.W.
Washington, D.C. 20436

Dear Mr. Chairman:

The recent expiration of the Voluntary Restraint Agreements (VRAs), the apparent collapse of the negotiations for a Multilateral Steel Agreement (MSA) and the filing of trade cases by the U.S. industry have combined to create an uncertain future for U.S. steel trade that is a source of continued concern to the Committee on Ways and Means. In light of this, the Committee hereby requests the U.S. International Trade Commission to provide it with semi-annual monitoring reports, under Section 332 of the Tariff Act of 1930, on the the status of, and prospects for, the U.S. steel industry for the period from January 1992 through December 1994.

This series of reports should combine concise analysis of global industry trends and competitiveness issues with key product trade information. They should generally follow the format of, and contain trade data and information similar to that provided in, the reports on all carbon and alloy (including stainless steel) mill products which the Commission has been providing under investigation No. 332-226. In addition, each year one of the reports should contain an annual review focusing primarily on developments and conditions in the U.S. industry and should highlight significant developments in the industry's competitiveness since 1990 (e.g. operating performance, capital expenditures and R&D, technology, and environmental expenditures). Finally, the Committee recognizes that limited primary data gathering, particularly the use of questionnaires, is necessary to examine these developments.

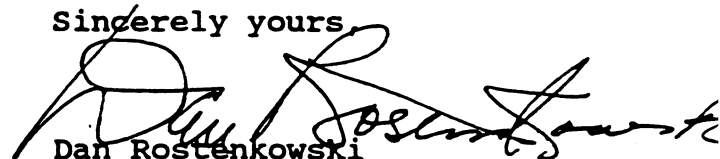
As you know, the Commission's current series of quarterly reports on the steel industry will be completed in June 1992, and will contain data through March 1992, when the recent VRAs expired. The first report under the new series should be published in September 1992 (covering data from January through

The Honorable Donald Newquist
June 11, 1992
Page Two

June 1992). Subsequent reports should then appear in April and September, with the April report containing an annual review of the domestic industry. I request that the Commission provide the Committee with these semiannual reports through April 1995, at which time the Committee will reevaluate the Commission's monitoring efforts in terms of their relevance to the global steel trade environment.

Thank you for your cooperation in this matter.

Sincerely yours,



Dan Rostenkowski
Chairman

APPENDIX C
Notice of the Commission's Investigation

UNITED STATES INTERNATIONAL TRADE COMMISSION
Washington, DC

(332-327)

Steel: Semiannual Monitoring Report

AGENCY: United States International Trade Commission

ACTION: Institution of investigation.

EFFECTIVE DATE: July 9, 1992

FOR FURTHER INFORMATION CONTACT: Ms. Nancy Fulcher, Office of Industries/Minerals and Metals Division (202-205-3434), or Mr. Mark Paulson, Office of Industries/Minerals and Metals Division (202-205-3429), U.S. International Trade Commission, Washington, D.C. 20436. Hearing-impaired persons are advised that information on this investigation can be obtained by contacting the Commission's TDD terminal on 202-205-2648.

BACKGROUND AND SCOPE OF INVESTIGATION: Following receipt on June 11, 1992, of a request from the Committee on Ways and Means of the U.S. House of Representatives, the Commission on July 9, 1992, instituted investigation No. 332-327, under section 332(g) of the Tariff Act of 1930 (19 U.S.C. 1332(g)) concerning the status of, and prospects for, the U.S. steel industry for the period from January 1991 through December 1994.

As requested by the Committee, the Commission will provide semiannual reports in which it will seek to combine concise analysis of global industry trends and competitiveness issues with key product trade information. The reports will generally follow the format of, and contain trade data and information similar to that provided in, the reports on all carbon and alloy (including stainless steel) mill products which the Commission provided under investigation No. 332-226: Quarterly Report on the Status of the Steel Industry. In addition, each year one of the reports will contain an annual review focusing primarily on developments and conditions in the U.S. industry and will highlight significant developments in the industry's competitiveness since 1990 (e.g., operating performance, capital expenditures and R&D, technology, and environmental expenditures).

As requested by the Committee, the Commission intends to submit its first report under the new series no later than September 1992 (covering data from January through June 1992). Subsequent reports will be submitted in April and September, with the April report containing the annual review of the domestic industry. Reports will be provided through April 1995.

WRITTEN SUBMISSIONS: Interested persons are invited to submit written statements concerning the matters to be addressed in the report containing the Commission's annual review of the domestic industry. Commercial or financial information that a 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. (Generally, submission of separate confidential and public versions of the submission would be appropriate.) 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 in the Office of the Secretary of the Commission for inspection by interested persons. To be assured of consideration by the Commission, written statements should be submitted to the Commission at the earliest practical date and should be received no later than February 26, 1993; February 25, 1994; and February 24, 1995. All submissions should be addressed to the Secretary to the Commission at the Commission's Office in Washington, DC.

By order of the Commission.



Paul R. Bardos
Acting Secretary

Issued: July 10, 1992

APPENDIX D
Definitions of Certain Terms
and Descriptions of the Products
Subject to the Investigation

1. *Steel*.—An alloy of iron and carbon that is malleable as first cast and which contains by weight 2 percent or less of carbon. Steel may contain other elements, but iron must predominate, by weight, over each of the other elements.

2. *Carbon steel*.—Steel, other than chromium, that by weight contains 2 percent or less of carbon, and in which none of the elements listed below meets or exceeds the quantity, by weight, respectively indicated:

- 1.65 percent of manganese; or
- 0.25 percent of phosphorus; or
- 0.35 percent of sulphur; or
- 0.60 percent of silicon; or
- 0.40 percent of copper; or
- 0.30 percent of aluminum; or
- 0.30 percent of chromium; or
- 0.30 percent of cobalt; or
- 0.40 percent of lead; or
- 0.30 percent of nickel; or
- 0.30 percent of tungsten; or
- 0.10 percent of any other metallic element.

3. *Alloy steel*.—Steel that contains any of the elements listed in definition 2 (above) in excess of its specified quantity.

(i) *Stainless steel*.—Any alloy steel that contains by weight 1.2 percent or less of carbon and 10.5 percent or more of chromium, with or without other elements.

(ii) *Tool steel*.—Alloy steels that contain the following combinations of elements in the quantity, by weight, respectively indicated:

- More than 1.2 percent carbon and more than 10.5 percent chromium; or
- Not less than 0.3 percent carbon and 1.25 percent or more but less than 10.5 percent chromium; or
- Not less than 0.85 percent carbon and 1 percent to 1.8 percent, inclusive, manganese; or
- 0.9 percent to 1.2 percent, inclusive, chromium and 0.9 percent to 1.4 percent, inclusive, molybdenum; or
- 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.

(iii) *Certain alloy steel*.—Alloy steel not covered under 3.(i) “Stainless steel” or 3.(ii) “Tool steel.”

4. *Galvanized*.—Steel which has been coated or plated with zinc.

5. *Hot-rolled*.—Steel reduced to its final thickness by heating and rolling the product at elevated temperature (usually above 2,200 degrees F).

6. *Cold-rolled*.—Steel reduced to its final thickness by rolling the product without heating it immediately prior to the rolling operation.

7. *Continuous strand casting*.—The method of producing semifinished products in which molten steel flows evenly into a caster where it is rapidly cooled, causing it to solidify directly into semifinished products such as slabs, blooms, and billets.

8. *Short ton*.—Two thousand (2,000) pounds.

Unlike the system of classification under the *Tariff Schedules of the United States Annotated (TSUSA)*, the *Harmonized Tariff Schedule of the United States (HTS)* does not differentiate by dimension those steel products formerly referred to as blooms and billets, slabs and sheet bars, plate, sheet, and strip. Instead, these products are included in two larger categories: flat-rolled and semifinished (described below). However, for purposes

of data comparability with previous Commission reports under investigation No. 332-226 (*Monthly and Quarterly Reports on the Status of the Steel Industry*), and in the interest of providing useful information and coverage of the steel industry, this report will continue to designate such product categories (e.g., blooms and billets, slabs and sheet bars, plate, hot-rolled and cold-rolled sheet, and strip). A partial basis for classification are those definitions found in *Federal Register* notice 52897, December 29, 1988.

For certain products, export categories under the *Schedule B* classification system are broader than import product categories under the *HTS*; therefore, there is no overall one-to-one correspondence between the two classification systems. For this reason, export classifications are listed separately from import classifications in the following definitions.

9. *Semifinished products include—*

Continuous cast products of solid section, not presented in coils, whether or not subjected to primary hot-rolling.

Other products of solid section that have not been further worked than subjected to primary hot-rolling or roughly shaped by forging, including blanks, angles, shapes, or sections.

For the purposes of this investigation, semifinished products are classified as follows:

(i) *Ingots.*—Castings resulting from the solidification of molten steel and having a columnar form suitable for working by rolling or forging. Ingots are included in AISI (American Iron and Steel Institute) product group No. 1A.

(A) *Carbon and certain alloy ingots*; provided for in subheadings 7206.10.0000, 7206.90.0000, 7224.10.0005, 7224.10.0075 of the *HTS*.

(B) *Stainless steel ingots*; provided for in subheading 7218.10.0000 of the *HTS*.

(ii) *Blooms, billets, slabs, and sheet bars.*—Other continuous cast products of solid cross section, which have not been further worked than subjected to primary hot-rolling or roughly shaped by forging including blanks for angles, shapes or sections. These products are not presented in coils and are included in AISI product group No. 1B.

(A) *Carbon and certain alloy blooms and billets*; provided for in subheadings 7207.11.0000, 7207.12.0010, 7207.19.0030, 7207.19.0090, 7207.20.0025, 7207.20.0075, 7207.20.0090, 7224.90.0005, 7224.90.0045, 7224.90.0065, 7224.90.0075 of the *HTS*.

(B) *Carbon and certain alloy slabs and sheet bars*; provided for in subheadings 7207.12.0050, 7207.20.0045, 7224.90.0055 of the *HTS*.

(C) *Stainless steel blooms and billets*; provided for in subheadings 7218.90.0005, 7218.90.0015, 7218.90.0025, 7218.90.0032, 7218.90.0040, 7218.90.0050, 7218.90.0060, 7218.90.0075, 7218.90.0085, 7218.90.0095 of the *HTS*.

(D) *Stainless steel slabs and sheet bars*; provided for in subheading 7218.90.0038 of the *HTS*.

Exports of carbon and certain alloy semifinished products are provided for in *Schedule B* subheadings 7206.10.0000, 7206.90.0000, 7207.11.0000, 7207.12.0000, 7207.19.0000, 7207.20.0000, 7224.10.0000, 7224.90.0000.

Exports of stainless steel semifinished products are provided for in *Schedule B* subheadings 7218.10.0000, 7218.90.0000.

10. *Flat-rolled products.*—Rolled products of solid rectangular (other than square) cross section, whether perforated, corrugated, polished, or with a pattern derived from

rolling, which do not conform to the definition of semifinished products above in the form of:

- Coils of successively superimposed layers; or
- Straight lengths, which, if of a thickness less than 4.75 mm, are of a width measuring at least 10 times the thickness, or, if of a thickness of 4.75 mm or more, are of a width exceeding 150 mm and measuring at least twice the thickness. Also those products of a shape other than rectangular or square of a width of 600 mm or more, not elsewhere specified.

(i) *Plates (cut-to-length)*.—Flat-rolled products with a thickness equal to or exceeding 4.75 mm, not in coils. Plates are included in AISI product group No. 6A.

(A) *Carbon plate*; provided for in subheadings 7208.31.0000, 7208.32.0000, 7208.33.1000, 7208.33.5000, 7208.41.0000, 7208.42.0000, 7208.43.0000, 7210.90.1000, 7211.11.0000, 7211.21.0000, 7211.22.0045 of the *HTS*.

Exports of carbon plates are provided for in *Schedule B* subheadings 7208.31.0000, 7208.32.0000, 7208.33.0000, 7208.41.0000, 7208.42.0000, 7208.43.0000, 7210.90.1000, 7211.11.0000, 7211.21.0000.

(B) *Certain alloy plate*; provided for in subheadings 7225.40.1015, 7225.40.3005, 7225.40.3050, 7225.50.6000 of the *HTS*.

Exports of certain alloy plates are provided for in *Schedule B* subheadings 7225.30.0000, 7225.40.0000.

(C) *Stainless steel plate*; provided for in subheadings 7219.21.0005, 7219.21.0050, 7219.22.0005, 7219.22.0050, 7219.31.0010, 7219.31.0050 of the *HTS*.

Exports of stainless steel plates are provided for in *Schedule B* subheadings 7219.21.0000, 7219.22.0000, 7219.31.0000.

(ii) *Sheets and strip (including coiled plate)*.—Flat-rolled products in either coils or straight lengths. Sheet has a width equal to or exceeding 600 mm; strip width is less than 600 mm (but at least 10 times the thickness). Sheets and strip are included in AISI product group Nos. 6B, 28, 29, 29A, 30, 31, 32, 33A, 33B, 34, 35, 36, and 37. For the purposes of this investigation, sheets and strip are classified as follows:

(A) *Hot-rolled carbon and certain alloy sheet*; provided for in subheadings 7208.11.0000, 7208.12.0000, 7208.13.1000, 7208.13.5000, 7208.14.1000, 7208.14.5000, 7208.21.1000, 7208.21.5000, 7208.22.1000, 7208.22.5000, 7208.23.1000, 7208.23.5030, 7208.23.5090, 7208.24.1000, 7208.24.5030, 7208.24.5090, 7208.34.1000, 7208.34.5000, 7208.35.1000, 7208.35.5000, 7208.44.0000, 7208.45.0000, 7208.90.0000, 7211.12.0000, 7211.22.0090, 7225.30.3000, 7225.30.3005, 7225.30.3050, 7225.30.5030, 7225.30.7000, 7225.40.5030, 7225.40.7000, 7226.91.1530, 7226.91.5000 of the *HTS*.

Exports of hot-rolled carbon and certain alloy sheet are provided for in *Schedule B* subheadings 7208.11.0000, 7208.12.0000, 7208.13.0000, 7208.14.0000, 7208.21.0000, 7208.22.0000, 7208.23.0000, 7208.24.0000, 7208.34.0000, 7208.35.0000, 7208.44.0000, 7208.45.0000, 7208.90.0000, 7211.12.0000, 7211.22.0000, 7225.30.0000.

(B) *Hot-rolled carbon and certain alloy strip*; provided for in subheadings 7211.19.1000, 7211.19.5000, 7211.29.1000, 7211.29.3000, 7211.29.5000, 7211.29.7030, 7211.29.7060, 7211.29.7090, 7226.91.2530, 7226.91.7000, 7226.91.8000 of the *HTS*.

Exports of hot-rolled carbon and certain alloy strip are provided for in *Schedule B* subheadings 7211.19.0000, 7211.29.0000, 7226.91.0000.

(C) *Cold-rolled carbon and certain alloy sheet and strip*:

(a) *Black plate*; provided for in subheading 7209.24.1000 of the *HTS*.

Exports of black plate are provided for in *Schedule B* subheading 7209.24.1000.

(b) *Electrical sheet and strip*; provided for in subheadings 7225.10.0030, 7225.10.0060, 7226.10.1030, 7226.10.1060, 7226.10.5015, 7226.10.5020, 7226.10.5065, and 7226.10.5070 of the *HTS*.

Exports of electrical sheet and strip are provided for in *Schedule B* subheadings 7225.10.0000, 7226.10.0000.

(c) *Other sheet*; provided for in subheadings 7209.11.0000, 7209.12.0030, 7209.12.0090, 7209.13.0030, 7209.13.0090, 7209.14.0030, 7209.14.0090, 7209.21.0000, 7209.22.0000, 7209.23.0000, 7209.24.5000, 7209.31.0000, 7209.32.0000, 7209.33.0000, 7209.34.0000, 7209.41.0000, 7209.42.0000, 7209.43.0000, 7209.44.0000, 7209.90.0000, 7210.70.3000, 7225.50.1030, 7225.50.7000, 7225.50.8010, 7225.50.8090, 7225.90.0010, 7225.90.0090 of the *HTS*.

Exports of other cold-rolled sheet are provided for in *Schedule B* subheadings 7209.11.0000, 7209.12.0000, 7209.13.0000, 7209.14.0000, 7209.21.0000, 7209.22.0000, 7209.23.0000, 7209.24.0000, 7209.24.5000, 7209.31.0000, 7209.32.0000, 7209.33.0000, 7209.34.0000, 7209.41.0000, 7209.42.0000, 7209.43.0000, 7209.44.0000, 7209.90.0000, 7225.50.0000, 7225.90.0000.

(d) *Other strip*; provided for in subheadings 7211.30.1030, 7211.30.1090, 7211.30.3000, 7211.30.5000, 7211.41.1000, 7211.41.3030, 7211.41.3090, 7211.41.5000, 7211.41.7030, 7211.41.7060, 7211.41.7090, 7211.49.1030, 7211.49.1090, 7211.49.3000, 7211.49.5030, 7211.49.5060, 7211.49.5090, 7211.90.0000, 7212.40.1000, 7212.40.5000, 7226.92.1030, 7226.92.3030, 7226.92.5000, 7226.92.7005, 7226.92.7050, 7226.92.8005, 7226.92.8050, 7226.99.0000 of the *HTS*.

Exports of other cold-rolled strip are provided for in *Schedule B* subheadings 7210.70.0000, 7211.30.0000, 7211.41.0000, 7211.49.0000, 7211.90.0000, 7212.40.0000, 7226.92.4000, 7226.99.0000.

(D) *Galvanized sheet and strip*; provided for in subheadings 7210.31.0000, 7210.39.0000, 7210.41.0000, 7210.49.0030, 7210.49.0090, 7210.70.6030, 7210.70.6060, 7212.21.0000, 7212.29.0000, 7212.30.1030, 7212.30.1090, 7212.30.3000, 7212.30.5000 of the *HTS*.

Exports of galvanized sheet and strip are provided for in *Schedule B* subheadings 7210.31.0000, 7210.39.0000, 7210.41.0000, 7210.49.0000, 7212.21.0000, 7212.29.0000, 7212.30.0000.

(E) *Tin plate*; provided for in subheadings 7210.11.0000, 7210.12.0000, 7212.10.0000 of the *HTS*.

Exports of tin plate are provided for in *Schedule B* subheadings 7210.11.0000, 7210.12.0000, 7212.10.0000.

(F) *Tin free*; provided for in subheading 7210.50.0000 of the *HTS*.

Exports of tin free sheets are provided for in *Schedule B* subheading 7210.50.0000.

(G) *Other metallic coated sheet and strip*; provided for in subheadings 7210.20.0000, 7210.60.0000, 7210.70.6090, 7210.90.6000, 7210.90.90000, 7212.50.0000, 7212.60.0000 of the *HTS*.

Exports of other metallic coated sheet and strip are provided for in *Schedule B* subheadings 7210.20.0000, 7210.60.0000, 7210.90.5000, 7212.50.0000, 7212.60.0000.

(H) *Stainless steel hot-rolled sheet*; provided for in subheadings 7219.11.0000, 7219.12.0000, 7219.12.0005, 7219.12.0015, 7219.12.0030, 7219.12.0045, 7219.12.0060, 7219.12.0075, 7219.12.0080, 7219.13.0030, 7219.13.0060, 7219.14.0030, 7219.14.0065, 7219.14.0090, 7219.23.0030, 7219.23.0060, 7219.24.0030, 7219.24.0060, 7220.11.0000 of the *HTS*.

Exports of stainless steel hot-rolled sheet are provided for in *Schedule B* subheadings 7219.11.0000, 7219.12.0000, 7219.13.0000, 7219.14.0000, 7219.23.0000, 7219.24.0000, 7220.11.0000.

(I) *Stainless steel cold-rolled sheet*; provided for in subheadings 7219.32.0005, 7219.32.0010, 7219.32.0035, 7219.32.0040, 7219.32.0045, 7219.32.0060, 7219.33.0005, 7219.33.0010, 7219.33.0035, 7219.33.0040, 7219.33.0045, 7219.33.0060, 7219.34.0005, 7219.34.0015, 7219.34.0050, 7219.35.0010, 7219.35.0050, 7219.90.0010, 7219.90.0090 of the *HTS*.

Exports of stainless steel cold-rolled sheet are provided for in *Schedule B* subheadings 7219.32.0000, 7219.33.0000, 7219.34.0000, 7219.35.0000, 7219.90.0000.

(J) *Stainless steel strip*; provided for in subheadings 7220.12.1000, 7220.12.5000, 7220.20.1000, 7220.20.6005, 7220.20.6050, 7220.20.7005, 7220.20.7050, 7220.20.8000, 7220.20.9000, 7220.90.0000 of the *HTS*.

Exports of stainless steel strip are provided for in *Schedule B* subheadings 7220.12.0000, 7220.20.0000, 7220.90.0000.

11. *Bars*.—Hot-rolled products, over 0.55 inches (14mm) in diameter, whether or not in irregularly wound coils, which have a solid cross-section along their length in the shape of circles, segments of circles, ovals, rectangles (including squares), triangles, or other convex polygons. Such products may—

- Have indentations, ribs, grooves or other deformations produced during the rolling process (reinforcing bars and rods);
- Be twisted after rolling.

For purposes of this investigation the term “bars” also includes hollow drill steel, which is a hollow product suitable for making mining drills or mining drill rods, of which the greatest external dimension of the cross-section exceeds 15 mm but does not exceed 52 mm, and of which the greatest internal dimension does not exceed one-half of the greatest external dimension. Bars and hollow drill steel are found in AISI product groups Nos. 14, 14A, 15, and 16.

For the purposes of this investigation, bars and light structural shapes are classified as follows:

(i) *Hot-rolled carbon bars*.—Provided for in subheadings 7213.39.0060, 7213.49.0060, 7213.50.0060, 7214.10.0000, 7214.30.0000, 7214.40.0010, 7214.40.0030, 7214.40.0050, 7214.50.0010, 7214.50.0030, 7214.50.0050, 7214.60.0010, 7214.60.0030, 7214.60.0050, 7215.90.1000 of the *HTS*, and included in AISI product group No. 14.

Exports of hot-rolled carbon bars are provided for in *Schedule B* subheadings 7213.20.0000, 7214.10.0000, 7214.30.0000, 7214.40.0000, 7214.50.0000, 7214.60.0000.

(ii) *Hot-rolled certain alloy bars*.—Provided for in subheadings 7227.20.0000, 7227.90.6005, 7227.90.6050, 7228.20.1000, 7228.30.8005, 7228.30.8050, 7228.40.0000, 7228.60.6000, 7228.80.0000 of the *HTS*, and included in AISI product group No. 14.

Exports of hot-rolled alloy bars are provided for in *Schedule B* subheadings 7227.20.0000, 7228.20.0000, 7228.30.8000, 7228.40.0000, 7228.60.5000, 7228.80.0000.

(iii) *Cold-formed carbon bars*.—Provided for in subheadings 7215.10.0000, 7215.20.0000, 7215.30.0000, 7215.40.0000, 7215.90.3000, 7215.90.5000 of the *HTS*, and included in AISI product group No. 16.

Exports of cold-formed carbon bars are provided for in *Schedule B* subheadings 7215.10.0000, 7215.20.0000, 7215.30.0000, 7215.40.0000, 7215.90.0000.

(iv) *Cold-formed certain alloy bars*.—Provided for in subheadings 7228.20.5000, 7228.50.5005, 7228.50.5050, 7228.60.8000 of the *HTS*, and included in AISI product group No. 16.

Exports of cold-formed certain alloy bars are provided for in *Schedule B* subheading 7228.50.5000.

(v) *Reinforcing carbon and certain alloy steel bars*.—Hot-rolled steel bars, of solid cross section, having deformations of various patterns on their surfaces; provided for in subheadings 7213.10.0000, 7214.20.0000 of the *HTS*, and included in AISI product group No. 15.

Exports of reinforcing carbon and certain alloy steel bars are provided for in *Schedule B* subheadings 7213.10.0000, 7214.20.0000.

(vi) *Light structural shapes*.—Bar-size light shapes having a cross-sectional dimension of less than 7.62 cm provided for in subheadings 7216.10.0010, 7216.10.0050, 7216.21.0000, 7216.22.0000, 7228.70.3060, 7228.70.3080 of the *HTS*, and included in AISI product group No. 14A.

Exports of light structural shapes are provided for in *Schedule B* subheadings 7216.10.0000, 7216.21.0000, 7216.22.0000.

(vii) *Stainless steel bars and shapes*.—Provided for in subheadings 7221.00.0005, 7221.00.0045, 7221.00.0075, 7222.10.0005, 7222.10.0050, 7222.20.0005, 7222.20.0045, 7222.20.0075, 7222.30.0000, 7222.40.3060, 7222.40.3080 of the *HTS* and included in AISI product group Nos. 14, 15, and 16.

Exports of stainless steel bars and shapes are provided for in *Schedule B* subheadings 7222.10.0000, 7222.20.0000, 7222.30.0000, 7222.40.0000.

12. *Wire rods and related products*—

(i) *Wire rods*.—Coiled, semifinished, hot-rolled products of solid cross section, approximately round in cross section, not over 19mm in diameter. Wire rods are included in AISI product group No. 3.

For the purposes of this investigation, wire rods are classified as follows:

(A) *Carbon steel wire rods*; provided for in subheadings 7213.31.3000, 7213.31.6000, 7213.39.0030, 7213.39.0090, 7213.41.3000, 7213.41.6000, 7213.49.0030, 7213.49.0090, 7213.50.0020, 7213.50.0040, 7213.50.0080 of the *HTS*.

Exports of carbon steel wire rods are provided for in *Schedule B* subheadings 7213.31.0000, 7213.39.0000, 7213.41.0000, 7213.49.0000, 7213.50.0000.

(B) *Certain alloy steel wire rods*; provided for in subheadings 7227.90.1030, 7227.90.2030, 7228.30.2000, 7228.50.1010, 7228.60.1030 of the *HTS*.

Exports of certain alloy steel wire rods are provided for in *Schedule B* subheading 7227.90.0000.

(C) *Stainless steel wire rods*; provided for in subheadings 7221.00.0015, 7221.00.0030 of the *HTS*.

Exports of stainless steel wire rods are provided for in *Schedule B* subheading 7221.00.0000.

(ii) *Steel wire*.—Cold-formed products in coils, of any uniform solid cross section along their whole length, which do not conform to the definition of flat-rolled products. Steel wire is included in AISI product group No. 23.

For the purpose of this investigation, steel wire is classified as follows:

(A) *Carbon steel wire*; provided for in subheadings 7217.11.1000, 7217.11.2000, 7217.11.3000, 7217.11.5020, 7217.11.5040, 7217.11.5060, 7217.11.5080, 7217.11.7030, 7217.11.7090, 7217.11.9000, 7217.12.1000, 7217.12.3030, 7217.12.3060, 7217.12.5000, 7217.12.7000, 7217.13.1000, 7217.13.3030, 7217.13.3060, 7217.13.5000,

7217.13.7000, 7217.19.5000, 7217.21.1000, 7217.21.3015, 7217.21.3030, 7217.21.3045, 7217.21.3060, 7217.21.3075, 7217.21.3090, 7217.21.5000, 7217.22.1015, 7217.22.1030, 7217.22.1050, 7217.22.5000, 7217.23.1015, 7217.23.1030, 7217.23.1050, 7217.23.5000, 7217.29.5000, 7217.31.1000, 7217.31.3015, 7217.31.3030, 7217.31.3045, 7217.31.3060, 7217.31.3075, 7217.31.3090, 7217.31.5000, 7217.32.1015, 7217.32.1030, 7217.32.1050, 7217.32.5000, 7217.33.1015, 7217.33.1030, 7217.33.1050, 7217.33.5000, 7217.39.5000 of the *HTS*.

Exports of carbon steel wire are provided for in *Schedule B* subheadings 7217.11.0000, 7217.12.0000, 7217.13.0000, 7217.19.0000, 7217.21.0000, 7217.22.0000, 7217.23.0000, 7217.29.0000, 7217.31.0000, 7217.32.0000, 7217.33.0000, 7217.39.0000.

(B) *Certain alloy steel wire*; provided for in subheadings 7229.20.0000, 7229.90.1000, 7229.90.5015, 7229.90.5030, 7229.90.5050, 7229.90.9000 of the *HTS*.

Exports of certain alloy steel wire are provided for in *Schedule B* subheadings 7229.20.0000, 7229.90.0000.

(C) *Stainless steel wire*; provided for in subheadings 7223.00.1015, 7223.00.1030, 7223.00.1045, 7223.00.1060, 7223.00.1075, 7223.00.5000, 7223.00.9000 of the *HTS*.

Exports of stainless steel wire are provided for in *Schedule B* subheading 7223.00.0000.

(iii) *Carbon and certain alloy steel wire products—*

(A) *Nails and brads, spikes, staples, and tacks*; fasteners, of one piece construction, made of round wire, and not including thumb tacks, staples in strip form, corrugated fasteners, glaziers' points, hook nails, ring nails, or fasteners suitable for use in power-actuated hand tools; as provided for in subheadings 7317.00.1000, 7317.00.5505, 7317.00.5510, 7317.00.5520, 7317.00.5530, 7317.00.5540, 7317.00.5550, 7317.00.5560, 7317.00.5570, 7317.00.5580, 7317.00.5590, 7317.00.7500, 8305.20.0000 of the *HTS*. Nails and staples are included in AISI product group No. 51 (pt.).

Exports of nails and brads, spikes, staples, and tacks are provided for in *Schedule B* subheadings 7317.00.1000, 7317.00.9000, 8305.20.0000.

(B) *Barbed wire*; a wire, or strand of twisted wires, armed with barbs or sharp points; as provided for in subheading 7313.00.0000 of the *HTS*. Barbed wire is included in AISI product group No. 52.

Exports of barbed wire are provided for in *Schedule B* subheading 7313.00.0000.

(C) *Wire expanded metal, grill and fencing*; products, whether or not galvanized, wholly of round wire with a maximum cross-sectional diameter of 3 mm or more, having a mesh size of 100 cm² or more, whether or not such wire is covered with plastics; as provided for in subheadings 7314.20.0000, 7314.30.1000, 7314.30.5000, 7314.41.0030, 7314.41.0060, 7314.42.0030, 7314.42.0060, 7314.49.3000, 7314.49.6000 of the *HTS*. The products are included in AISI product group No. 50.

Exports of wire expanded metal, grill and fencing are provided for in *Schedule B* subheadings 7314.20.0000, 7314.30.0000, 7314.41.0000, 7314.42.0000, 7314.49.0000.

(D) *Baling wire and ties*; with or without buckles or fastenings and whether or not coated with paint or other substance; as provided for in subheading 7326.20.0010 of the *HTS* and included in AISI product group No. 53.

(E) *Wire strand*; two or more wires that together constitute one of the parts which are twisted together to form rope, cord, or cordage, suitable for fencing purposes, not fitted with fittings, not made up into articles, not of brass plated wire, as provided for in subheadings 7312.10.1030, 7312.10.1050, 7312.10.1070, 7312.10.3005, 7312.10.3010, 7312.10.3012, 7312.10.3020, 7312.10.3065, 7312.10.3070, 7312.10.3074, 7312.10.3080 of the *HTS*. Wire strand is included in AISI product group No. 47.

Exports of wire strand are provided for in *Schedule B* subheadings 7312.10.3015, 7312.10.3500.

(F) *Wire ropes, cables, and cordage*; products made by the twisting of a number of wire strands and are not covered with nonmetallic material, not fitted with fittings, not made up into articles, and, if valued 13 cents or more per pound, not of brass plated wire; as provided for in subheadings 7312.10.6000, 7312.10.9030, 7312.10.9060, 7312.10.9090 of the *HTS*. Wire ropes, cables, and cordage are included in AISI product group No. 46.

Exports of wire ropes, cables, and cordage are provided for in *Schedule B* subheading 7312.10.8500.

13. *Structurals*.—Nontubular products not conforming completely to the respective specifications set forth in the *HTS* for semifinished, flat-rolled, bars and rod or wire.

(i) *Heavy structural shapes*.—Products having a maximum cross-sectional dimension of 7.62 cm or more, and *sheet piling*; as provided for in subheadings 7216.31.0000, 7216.32.0000, 7216.33.0030, 7216.33.0060, 7216.33.0090, 7216.40.0010, 7216.40.0050, 7216.50.0000, 7222.40.3020, 7222.40.3040, 7228.70.3020, 7228.70.3040, 7301.10.0000 of the *HTS*. These products are included in AISI product group Nos. 4 and 5.

Exports of heavy structural shapes and sheet piling are provided for in *Schedule B* subheadings 7216.31.0000, 7216.32.0000, 7216.33.0000, 7216.40.0000, 7216.50.0000, 7216.60.0000, 7216.90.0000, 7301.10.0000.

(ii) *Fabricated structural units*.—Columns, pillars, posts, beams, girders, and similar structural units; as provided for in subheadings 7216.60.0000, 7216.90.0000, 7222.40.6000, 7228.70.6000, 7301.20.1000, 7301.20.5000, 7308.10.0000, 7308.20.0000, 7308.40.0000, 7308.90.3000, 7308.90.6000, 7308.90.7000, 7308.90.9530, 7308.90.9560, 7308.90.9590, 8430.49.4000 of the *HTS*. These products are included in AISI product group Nos. 38 and 39.

Exports of fabricated structural units are provided for in *Schedule B* subheadings 7228.70.0000, 7301.20.1000, 7301.20.5000, 7308.10.0000, 7308.20.0000, 7308.40.0000, 7308.90.1000, 7308.90.9030, 7308.90.9090, 8430.49.4000.

14. *Rails and related railway products*—

(i) *Rails*.—Hot-rolled steel products, whether punched or not punched, weighing not less than 8 pounds per yard, with cross-sectional shapes intended for carrying wheel loads in railroad, railway, and crane runway applications; as provided for in subheadings 7302.10.1010, 7302.10.1015, 7302.10.1025, 7302.10.1035, 7302.10.1045, 7302.10.1055, 7302.10.1065, 7302.10.1075, 7302.10.5020, 7302.10.5040, 7302.10.5060 of the *HTS*. Rails are included in AISI product group Nos. 7, 8, and 41.

Exports of rails are provided for in *Schedule B* subheadings 7302.10.1020, 7302.10.1030, 7302.10.1080, 7302.10.5000.

(ii) *Joint bars*.—Hot-rolled steel products, usually punched or slotted, designed to connect the ends of adjacent rails in track; *tie plates* are hot-rolled steel products which are punched to provide holes for spikes and have one or two shoulder sections as rail guides and are used to support rails in track, to maintain track gauge, and to protect the ties; all the foregoing, as provided for in subheadings 7302.20.0000, 7302.30.0000, 7302.40.0000, 7302.90.0000 of the *HTS*. Joint bars and tie plates are included in AISI product group Nos. 9 and 42.

Exports of joint bars, tie plates, and other railway track material are provided for in *Schedule B* subheadings 7302.20.0000, 7302.30.0000, 7302.40.0000, 7302.90.0000.

(iii) *Railway track spikes*.—Products of one-piece construction, used to secure tie plates or ties; as provided for in subheadings 7317.00.6530, 7317.00.6560 of the *HTS*. Railway track spikes are included in AISI product group No. 42 (pt.).

(iv) *Railroad and railway axles and wheels, parts thereof, and axle bars.*—Provided for in subheadings 8607.19.1000, 8607.19.2000 of the *HTS*. These articles are included in AISI product group No. 43.

Exports of railroad and railway axles and wheels, parts thereof, and axle bars are provided for in *Schedule B* subheadings 8607.19.1000 and 8607.19.2000.

15. *Pipes and tubes and blanks therefor.*—Tubular products, including hollow bars and hollow billets but not including hollow drill steel, of any cross-sectional configuration, by whatever process made, whether seamless, brazed, or welded and whether with an open or lock seam or joint. For the purposes of this investigation, pipes and tubes and blanks therefor are classified as follows:

(i) *Oil country tubular goods.*—Provided for in subheadings 7304.20.1000, 7304.20.1010, 7304.20.1020, 7304.20.1030, 7304.20.1040, 7304.20.1050, 7304.20.1060, 7304.20.1080, 7304.20.2000, 7304.20.2010, 7304.20.2020, 7304.20.2030, 7304.20.2040, 7304.20.2050, 7304.20.2060, 7304.20.2080, 7304.20.3000, 7304.20.3010, 7304.20.3020, 7304.20.3030, 7304.20.3040, 7304.20.3050, 7304.20.3060, 7304.20.3080, 7304.20.4010, 7304.20.4020, 7304.20.4030, 7304.20.4040, 7304.20.4050, 7304.20.4060, 7304.20.4080, 7304.20.5015, 7304.20.5030, 7304.20.5045, 7304.20.5060, 7304.20.5075, 7304.20.6015, 7304.20.6030, 7304.20.6045, 7304.20.6060, 7304.20.6075, 7304.20.7000, 7304.20.8030, 7304.20.8045, 7304.20.8060, 7305.20.2000, 7305.20.4000, 7305.20.6000, 7305.20.8000, 7306.20.1030, 7306.20.1090, 7306.20.2000, 7306.20.3000, 7306.20.4000, 7306.20.6010, 7306.20.6050, 7306.20.8010, 7306.20.8050 of the *HTS*. Oil country tubular goods are included in AISI product group No. 19.

Exports of oil country tubular goods are provided for in *Schedule B* subheadings 7304.20.1500, 7304.20.3500, 7304.20.5000, 7304.20.6000, 7304.20.7000, 7304.20.8000, 7305.20.3000, 7305.20.7000, 7306.20.1500, 7306.20.2500, 7306.20.6000, 7306.20.8000.

(ii) *Line pipe.*—Provided for in subheadings 7304.10.1020, 7304.10.1030, 7304.10.1045, 7304.10.1060, 7304.10.1080, 7304.10.5020, 7304.10.5050, 7304.10.5080, 7305.11.1030, 7305.11.1060, 7305.11.5000, 7305.12.1030, 7305.12.1060, 7305.12.5000, 7305.19.1030, 7305.19.1060, 7305.19.5000, 7306.10.1010, 7306.10.1050, 7306.10.5010, 7306.10.5050 of the *HTS*. Line pipe is included in AISI product group No. 20.

Exports of line pipe are provided for in *Schedule B* subheadings 7304.10.1020, 7304.10.1050, 7304.10.1080, 7304.10.5020, 7304.10.5050, 7304.10.5080, 7305.11.1000, 7305.11.5000, 7305.12.1000, 7305.12.5000, 7305.19.1000, 7305.19.5000, 7306.10.1000, 7306.10.5000.

(iii) *Mechanical pipe.*—Provided for in subheadings 7304.31.3000, 7304.31.6050, 7304.39.0028, 7304.39.0032, 7304.39.0040, 7304.39.0044, 7304.39.0052, 7304.39.0056, 7304.39.0068, 7304.39.0072, 7304.51.1000, 7304.51.5060, 7304.59.1000, 7304.59.6000, 7304.59.8020, 7304.59.8025, 7304.59.8035, 7304.59.8040, 7304.59.8050, 7304.59.8055, 7304.59.8065, 7304.59.8070, 7304.90.5000, 7304.90.7000, 7306.30.1000, 7306.30.5015, 7306.30.5020, 7306.30.5035, 7306.50.1000, 7306.50.5030, 7306.50.5050, 7306.50.5070, 7306.60.5000, 7306.60.7000 of the *HTS*. Mechanical pipe is included in AISI product group No. 21A.

(iv) *Structural pipe.*—Provided for in subheadings 7304.90.1000, 7304.90.3000, 7305.31.2000, 7305.31.4000, 7305.31.6000, 7306.30.3000, 7306.50.3000, 7306.60.1000, 7306.60.3000 of the *HTS*. Structural pipe is included in AISI product group No. 22A.

(v) *Pressure tubing.*—Provided for in subheadings 7304.31.6010, 7304.39.0002, 7304.39.0004, 7304.39.0006, 7304.39.0008, 7304.51.5015, 7304.51.5045, 7304.59.2030, 7304.59.2040, 7304.59.2045, 7304.59.2055, 7304.59.2060, 7304.59.2070, 7304.59.2080, 7306.30.5010, 7306.50.5010 of the *HTS*. Pressure tubing is included in AISI product group No. 21B.

(vi) *Stainless steel pipes and tubes.*—Provided for in subheadings 7304.41.0005, 7304.41.0015, 7304.41.0045, 7304.41.3005, 7304.41.3015, 7304.41.3045, 7304.41.6005,

7304.41.6015, 7304.41.6045, 7304.49.0005, 7304.49.0015, 7304.49.0045, 7304.49.0060, 7306.40.1000, 7306.40.5005, 7306.40.5015, 7306.40.5045, 7306.40.5060, 7306.40.5075 of the *HTS*. Stainless steel pipes and tubes are included in AISI product group Nos. 21C and 21D.

Exports of stainless steel pipes and tubes are provided for in *Schedule B* subheadings 7304.41.0000, 7304.49.0010, 7304.49.0040, 7306.40.1000, 7306.40.5000.

(vii) *Other, including standard*.—Provided for in subheadings 7304.39.0016, 7304.39.0020, 7304.39.0024, 7304.39.0036, 7304.39.0048, 7304.39.0062, 7304.39.0076, 7304.39.0080, 7304.39.0090, 7304.51.5005, 7304.59.8010, 7304.59.8015, 7304.59.8030, 7304.59.8045, 7304.59.8060, 7304.59.8080, 7305.39.1000, 7305.39.5000, 7305.90.1000, 7305.90.5000, 7306.30.5025, 7306.30.5028, 7306.30.5032, 7306.30.5040, 7306.30.5055, 7306.30.5085, 7306.30.5090, 7306.90.1000, 7306.90.5000 of the *HTS*. Other, including standard pipe is included in AISI product group Nos. 18, 21E, and 22B.

Exports of other pipes and tubes, including mechanical, structural, pressure, and standard are provided for in *Schedule B* subheadings 7304.31.0000, 7304.39.0000, 7304.51.0000, 7304.59.0000, 7304.90.4000, 7304.90.6000, 7305.31.2000, 7305.31.4000, 7305.31.6000, 7305.39.1000, 7305.39.5000, 7305.90.1000, 7305.90.5000, 7306.30.1000, 7306.30.1500, 7306.50.1000, 7306.50.4500, 7306.60.2500, 7306.60.6500, 7306.90.1000, 7306.90.5000.

16. *Alloy tool steel (all forms)*.—Provided for in subheadings 7224.10.0045, 7224.90.0015, 7224.90.0025, 7224.90.0035, 7225.20.0000, 7225.30.1000, 7225.30.5060, 7225.40.1090, 7225.40.5060, 7225.50.1060, 7226.20.0000, 7226.91.0500, 7226.91.1560, 7226.91.2560, 7226.92.1060, 7226.92.3060, 7227.10.0000, 7227.90.1060, 7227.90.2060, 7228.10.0010, 7228.10.0030, 7228.10.0060, 7228.30.4000, 7228.30.6000, 7228.50.1020, 7228.50.1040, 7228.50.1060, 7228.50.1080, 7228.60.1060, 7229.10.0000 of the *HTS*. Alloy tool steel is included in AISI product group No. 17.

Exports of alloy tool steel (all forms) are provided for in *Schedule B* subheadings 7225.20.0000, 7226.20.0000, 7226.92.2000, 7227.10.0000, 7228.10.0000, 7228.30.5000, 7228.50.1000, 7228.60.1000, 7229.10.0000.

Please refer to appendix A, Notes on Product Coverage and Methodology, for further explanation.

APPENDIX E
Status of Recent Antidumping (AD) and
Countervailing Duty (CVD) Investigations
on Steel Products and Ferroalloys

Table E-1
Status of recent antidumping (AD) and countervailing duty (CVD) investigations on steel products and ferroalloys

Product description	Country	AD (731-TA)	CVD (701-TA)	USITC ¹ preliminary determination		USITC ¹ final determination	
				Date ²	Outcome	Date ²	Outcome
Certain carbon steel buttweld pipe fittings	China	520		7-8-91	A	6-24-92	A
	Thailand	521		7-8-91	A	6-24-92	A
Certain circular, welded nonalloy steel pipes and tubes.	Brazil	532		11-8-91	A	10-26-92	A
	Korea	533		11-8-91	A	10-26-92	A
	Mexico	534		11-8-91	A	10-26-92	A
	Romania	535		11-8-91	A	10-26-92	N
	Taiwan	536		11-8-91	A	10-26-92	A
	Venezuela	537		11-8-91	A	10-26-92	A
Certain welded stainless steel pipes	Korea	540		1-2-92	A	12-18-92	A
	Taiwan	541		1-2-92	A	12-18-92	A
Steel wire rope.	Korea	546		5-26-92	A	3-15-93	A
	Mexico	547		5-26-92	A	3-15-93	A
Certain hot-rolled lead and bismuth carbon steel product.	Brazil	552	314	5-28-92	A	3-10-93	A
	France	553	315	5-28-92	A	3-10-93	A
	Germany	554	316	5-28-92	A	3-10-93	A
	United Kingdom	555	317	5-28-92	A	3-10-93	A
New steel rails	Japan	557		6-15-92	N		
	Luxembourg	558		6-15-92	N		
	United Kingdom	559		6-15-92	A	3-26-93	N
Certain stainless steel buttweld pipe fittings	Korea	563		7-6-92	A	2-16-93	A
	Taiwan	564		7-6-92	A	6-3-93	A
Ferrosilicon	Argentina	565		7-6-92	A	(³)	
	Kazakhstan	566		7-6-92	A	3-23-93	A
	China	567		7-6-92	A	3-4-93	A
	Russia	568		7-6-92	A	6-16-93	A
	Ukraine	569		7-6-92	A	3-23-93	A
	Venezuela	570		7-6-92	A	6-16-93	A
	Brazil	641		2-23-93	A	1-24-94	A
	Egypt	642		2-23-93	A	10-22-93	N
Special quality carbon and certain alloy hot-rolled steel bars and rods and semi- finished product	Brazil	572		7-24-92	A	7-9-93	N

See footnotes at end of table.

Table E-1—Continued
Status of recent AD and CVD investigations on steel products and ferroalloys

Product description	Country	AD (731-TA)	CVD (701-TA)	USITC ¹ preliminary determination		USITC ¹ final determination	
				Date ²	Outcome	Date ²	Outcome
Certain hot-rolled carbon steel flat products	Belgium	588	329	8-14-92	A	8-9-93	N
	Brazil	589	330	8-14-92	A	8-9-93	N
	Canada	590		8-14-92	A	8-9-93	N
	France	591	331	8-14-92	A	8-9-93	N
	Germany	592	332	8-14-92	A	8-9-93	N
	Italy	593	333	8-14-92	N		
	Japan	594		8-14-92	A	8-9-93	N
	Korea	595	334	8-14-92	A	8-9-93	N
	Netherlands	596		8-14-92	A	8-9-93	N
New Zealand	335		8-14-92	N			
Cold-rolled carbon steel flat products	Argentina	597		8-14-92	A	8-9-93	N
	Australia	598		8-14-92	N		
	Austria	599	336	8-14-92	A	8-9-93	N
	Belgium	600	337	8-14-92	A	8-9-93	N
	Brazil	601	338	8-14-92	A	8-9-93	N
	Canada	602		8-14-92	A	8-9-93	N
	France	603	339	8-14-92	A	8-9-93	N
	Germany	604	340	8-14-92	A	8-9-93	A
	Italy	605	341	8-14-92	A	8-9-93	N
	Japan	606		8-14-92	A	8-9-93	N
	Korea	607	342	8-14-92	A	8-9-93	A
	Netherlands	608		8-14-92	A	8-9-93	A
	New Zealand	343		8-14-92	N		
	Spain	609	344	8-14-92	A	8-9-93	N
	Taiwan	610	345	8-14-92	N		
United Kingdom	611	346	8-14-92	N			
Certain corrosion- resistant carbon steel flat products	Australia	612		8-14-92	A	8-9-93	A
	Brazil	613	347	8-14-92	A	8-9-93	N
	Canada	614		8-14-92	A	8-9-93	A
	France	615	348	8-14-92	A	8-9-93	A
	Germany	616	349	8-14-92	A	8-9-93	A
	Japan	617		8-14-92	A	8-9-93	A
	Korea	618	350	8-14-92	A	8-9-93	A
	Mexico	619	351	8-14-92	A	8-9-93	N
	New Zealand	352		8-14-92	A	8-9-93	N
	Sweden	353		8-14-92	A	8-9-93	N
	Taiwan	620	354	8-14-92	N		
Cut-to-length carbon steel plate	Belgium	573	319	8-14-92	A	8-9-93	A
	Brazil	574	320	8-14-92	A	8-9-93	A
	Canada	575		8-14-92	A	8-9-93	A
	Finland	576		8-14-92	A	8-9-93	A
	France	577	321	8-14-92	A	8-9-93	N
	Germany	578	322	8-14-92	A	8-9-93	A
	Italy	579	323	8-14-92	A	8-9-93	N
	Japan	580		8-14-92	N		
	Korea	581	324	8-14-92	A	8-9-93	N
	Mexico	582	325	8-14-92	A	8-9-93	A
	Poland	583		8-14-92	A	8-9-93	A
	Romania	584		8-14-92	A	8-9-93	A
	Spain	585	326	8-14-92	A	8-9-93	A
	Sweden	586	327	8-14-92	A	8-9-93	A
	United Kingdom	587	328	8-14-92	A	8-9-93	A

See footnotes at end of table.

Table E-1—Continued
Status of recent AD and CVD investigations on steel products and ferroalloys

Product description	Country	AD (731-TA)	CVD (701-TA)	USITC ¹ preliminary determination		USITC ¹ final determination	
				Date ²	Outcome	Date ²	Outcome
Compact ductile iron waterworks fittings	China	621		8-24-92	A	8-19-93	A
Stainless steel wire rod	Brazil	636		2-16-93	A	1-21-94	A
	France	637		2-16-93	A	1-21-94	A
	India	638		2-16-93	A	11-23-93	A
Stainless steel flanges.	India	639		2-16-93	A	2-2-94	A
	Taiwan	640		2-16-93	A	2-2-94	A
Welded stainless steel pipe	Malaysia	644		4-2-93	A	3-7-94	N
Carbon steel wire rod	Brazil	646		6-7-93	A	3-25-94	N
	Canada	647		6-7-93	A		(⁴)
	Japan	648		6-7-93	A	3-25-94	N
	Trinidad and Tobago	649		6-7-93	N		
Class 150 stainless steel threaded pipe fittings	Taiwan	658		9-16-93	A		(⁴)
Grain-oriented silicon electrical steel	Italy	659		10-12-93	A	8-8-94	A
	Italy		355	10-12-93	A	5-27-94	A
	Japan	660		10-12-93	A	5-27-94	A
Silicomanganese	Brazil	671		12-27-93	A	12-14-94	A
	The People's Republic of China	672		12-27-93	A	12-14-94	A
	Ukraine	673		12-27-93	A	12-14-94	A
	Venezuela	674		12-27-93	A	12-14-94	N
Stainless steel bar	Brazil	678		2-14-94	A	2-10-95	A
	India	679		2-14-94	A	2-10-95	A
	Italy	680		2-14-94	A	2-10-95	A
	Japan	681		2-14-94	A	2-10-95	A
	Spain	682		2-14-94	A	2-10-95	A
Certain steel wire rod	Belgium	686		3-31-94	A		(⁴)
	Germany	687	359	3-31-94	N		
Certain carbon steel butt-weld pipe fittings	France	688		4-14-94	A	4-3-95	N
	India	689	360	4-14-94	A	4-3-95	N
	Israel	690	361	4-14-94	A	4-3-95	N
	Malaysia	691		4-14-94	A	4-3-95	N
	Korea	692		4-14-94	A	4-3-95	N
	Thailand	693		4-14-94	A	4-3-95	N
	United Kingdom	694		4-14-94	A	4-3-95	N
	Venezuela	695		4-14-94	A	4-3-95	N

See footnotes at end of table.

Table E-1—Continued
Status of recent AD and CVD investigations on steel products and ferroalloys

Product description	Country	AD (731-TA)	CVD (701-TA)	USITC ¹ preliminary determination		USITC ¹ final determination	
				Date ²	Outcome	Date ²	Outcome
Stainless steel angles	Japan	699		5-23-94	A		
Ferrovandium	Russia	702		7-19-94	A		
Certain seamless pipe ...	Argentina	707		8-8-94	A		
	Brazil	708		8-8-94	A		
	Germany	709		8-8-94	A		
	Italy	710	362	8-8-94	A		
Oil country tubular goods	Argentina	711		8-15-94	A		
	Austria	712	363	8-15-94	A		
	Italy	713	364	8-15-94	A		
	Japan	714		8-15-94	A		
	Korea	715		8-15-95	A		
	Mexico	716		8-15-94	A		
	Spain	717		8-15-94	A		
Certain light-walled rectangular pipe and tube	Mexico	730		5-15-95			

¹ United States International Trade Commission.

² Date that the Commission officially reports its determination to the U.S. Department of Commerce. Votes by the Commission take place approximately 1 week prior to the determination date. USITC final determinations may be awaiting Commerce's preliminary dumping/subsidy determination.

³ The Department of Commerce reached negative preliminary and final determinations with respect to this case, resulting in its termination.

⁴ Withdrawn by petitioner.

APPENDIX F
Statistical Tables on U.S. Shipments (of)
and U.S. Trade in Steel Mill Products and
Certain Fabricated Steel Products, 1991-94

Table F-1
Steel mill products:¹ U.S. producers' net open market shipments, by products and grades of steel, 1991-94

(Short tons)

Item	1991	1992	1993	1994
All grades of steel:				
Semifinished	2,548,961	2,292,847	2,481,939	2,708,273
Plate	4,271,412	4,361,596	4,769,891	5,249,927
Sheet and strip	43,300,206	46,456,874	50,275,252	54,656,319
Bars & certain shapes ²	12,840,512	13,435,487	14,305,414	15,638,023
Wire rod	4,365,595	4,486,926	4,875,336	4,832,494
Wire	865,092	880,710	792,182	751,879
Wire products	(³)	(³)	(³)	(³)
Structural shapes & units	5,675,786	5,716,306	5,808,514	5,955,683
Rails & related products	486,185	525,582	645,893	586,399
Pipe and tube	4,488,014	4,197,881	4,445,436	4,964,963
Total	78,841,763	82,354,209	88,399,857	95,343,960
Carbon & certain alloy⁴ steel:				
Semifinished	2,469,217	2,226,029	2,436,843	2,681,353
Plate	4,174,312	4,266,415	4,664,022	5,129,338
Sheet and strip	42,254,291	45,325,716	49,104,314	53,332,603
Bars & certain shapes	12,654,917	13,236,284	14,100,686	15,408,665
Wire rod	4,331,673	4,457,404	4,850,148	4,798,126
Wire	841,602	856,252	767,983	725,054
Wire products	(³)	(³)	(³)	(³)
Structural shapes & units	5,675,786	5,716,306	5,808,514	5,955,683
Rails & related products	486,185	525,582	645,893	586,399
Pipe and tube	4,453,781	4,166,362	4,420,107	4,939,811
Total	77,341,764	80,776,350	86,798,510	93,557,032
Stainless & alloy tool steel:				
Stainless steel:				
Semifinished	79,744	66,818	45,096	26,920
Plate	97,100	95,181	105,869	120,589
Sheet and strip	1,045,915	1,131,158	1,170,938	1,323,716
Bars & certain shapes	134,405	135,293	137,184	162,864
Wire rod	33,922	29,522	25,188	34,368
Wire	23,490	24,458	24,199	26,825
Pipe and tube	34,233	31,519	25,329	25,152
Tool steel (all forms)	51,190	63,910	67,544	66,494
Total stainless and tool	1,499,999	1,577,859	1,601,347	1,786,928

¹ Shipment data compiled by the American Iron and Steel Institute (AISI) exclude certain fabricated products (wire strand, wire ropes, cables, cordage, and fabricated structural units).

² Includes tool steel.

³ Not applicable. Shipment and apparent consumption data for wire and wire products have been combined and reported in the category designated "wire."

⁴ "Certain alloy" refers to alloy steel other than stainless or tool steel.

Source: Compiled from data of the American Iron & Steel Institute (AISI).

Table F-2
Steel mill products and certain fabricated steel products: U.S. imports, by products and grades of steel, 1991-94

(Short tons)

Item	1991	1992	1993	1994
All grades of steel:				
Semifinished	2,045,572	2,344,321	4,972,667	7,937,077
Plate	792,605	893,403	731,274	1,406,089
Sheet and strip	7,107,749	8,793,326	7,568,536	12,843,439
Bars & certain shapes ¹	1,041,496	1,152,617	1,514,351	1,956,741
Wire rod	846,923	1,146,420	1,397,196	1,734,156
Wire	391,804	430,981	528,192	593,026
Wire products	511,839	586,916	614,823	627,275
Structural shapes & units	604,361	589,613	742,074	988,762
Rails & related products	303,596	299,418	268,764	425,240
Pipe and tube	2,735,372	1,543,490	2,056,092	2,548,315
Total	16,381,316	17,780,504	20,393,968	31,060,119
Carbon & certain alloy² steel:				
Semifinished	1,996,610	2,307,144	4,859,205	7,786,570
Plate	779,002	878,172	712,211	1,385,524
Sheet and strip	6,930,919	8,567,140	7,208,481	12,422,753
Bars & certain shapes	943,845	1,057,195	1,393,135	1,815,766
Wire rod	821,026	1,106,805	1,356,489	1,683,769
Wire	374,750	411,892	506,223	566,535
Wire products	511,839	586,916	614,823	627,275
Structural shapes & units	604,361	589,613	742,074	988,762
Rails & related products	303,596	299,418	268,764	425,240
Pipe and tube	2,687,154	1,500,877	2,012,557	2,499,348
Total	15,953,102	17,305,171	19,673,962	30,201,543
Stainless & alloy tool steel:				
Stainless steel:				
Semifinished	48,962	37,177	113,462	150,507
Plate	13,602	15,231	19,063	20,564
Sheet and strip	176,830	226,186	360,054	420,686
Bars & certain shapes	52,493	57,499	70,067	78,712
Wire rod	25,897	39,616	40,707	50,387
Wire	17,054	19,089	21,969	26,491
Pipe and tube	48,218	42,612	43,535	48,967
Tool steel (all forms)	45,158	37,923	51,150	62,263
Total stainless and tool	428,214	475,333	720,007	858,576

¹ Includes tool steel.

² "Certain alloy" refers to alloy steel other than stainless or tool steel.

Note.—Imports of steel mill products only (excluding fabricated steel products): 15,748,077 short tons, 1991; 17,062,421 short tons, 1992; 19,580,163 short tons, 1993; 30,231,726 short tons, 1994.

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

Table F-3
Steel mill products and certain fabricated steel products: U.S. exports of domestic merchandise, by products and grades of steel, 1991-94

(Short tons)

Item	1991	1992	1993	1994
All grades of steel:				
Semifinished	699,080	422,911	537,030	157,937
Plate	245,035	172,083	173,292	138,295
Sheet and strip	3,355,880	1,996,522	1,526,290	1,572,414
Bars & certain shapes ¹	585,849	536,713	644,677	563,951
Wire rod	166,455	70,846	62,310	34,365
Wire	89,415	90,138	90,361	99,435
Wire products	51,552	56,573	71,370	72,699
Structural shapes & units	657,019	446,412	498,413	532,586
Rails & related products	108,056	74,208	115,447	114,394
Pipe and tube	753,109	679,283	568,414	854,718
Total	6,711,450	4,545,690	4,287,605	4,140,793
Carbon & certain alloy² steel:				
Semifinished	679,017	417,424	529,560	148,739
Plate	235,842	165,485	166,481	129,468
Sheet and strip	3,257,888	1,918,453	1,465,044	1,510,913
Bars & certain shapes	560,268	510,804	626,675	544,091
Wire rod	162,231	68,590	59,749	31,712
Wire	86,775	87,957	87,811	96,627
Wire products	51,552	56,573	71,370	72,699
Structural shapes & units	657,019	446,412	498,413	532,586
Rails & related products	108,056	74,208	115,447	114,394
Pipe and tube	738,176	664,582	554,303	836,570
Total	6,536,824	4,410,489	4,174,853	4,017,799
Stainless & alloy tool steel:				
Stainless steel:				
Semifinished	20,063	5,487	7,470	9,199
Plate	9,193	6,598	6,811	8,827
Sheet and strip	97,991	78,069	61,246	61,500
Bars & certain shapes	16,989	19,935	11,457	14,354
Wire rod	4,224	2,256	2,561	2,653
Wire	2,640	2,181	2,550	2,808
Pipe and tube	14,934	14,701	14,111	18,147
Tool steel (all forms)	8,592	5,974	6,545	5,507
Total stainless and tool	174,626	135,201	112,752	122,995

¹ Includes tool steel.

² "Certain alloy" refers to alloy steel other than stainless or tool steel.

Note.—Exports of steel mill products only (excluding fabricated steel products): 6,392,652 short tons, 1991; 4,304,215 short tons, 1992; 4,013,632 short tons, 1993; 3,859,523 short tons, 1994.

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

Table F-4
Steel mill products and certain fabricated steel products: Apparent U.S. open market consumption,
by products and grades of steel, 1991-94

(Short tons)

Item	1991	1992	1993	1994
All grades of steel:				
Semifinished	3,895,453	4,214,257	6,917,576	10,487,413
Plate	4,818,982	5,082,916	5,327,873	6,517,721
Sheet and strip	47,052,075	53,253,678	56,317,498	65,927,344
Bars & certain shapes ¹	13,296,159	14,051,391	15,175,088	17,030,813
Wire rod	5,046,063	5,562,500	6,210,222	6,532,285
Wire	1,627,768	1,751,896	1,773,466	1,800,046
Wire products	(²)	(²)	(²)	(²)
Structural shapes & units	5,623,128	5,859,507	6,052,175	6,411,859
Rails & related products	681,725	750,792	799,210	897,245
Total	88,511,630	95,589,025	104,506,222	122,263,286
Carbon & certain alloy³ steel:				
Semifinished	3,786,810	4,115,749	6,766,488	10,319,184
Plate	4,717,472	4,979,102	5,209,752	6,385,394
Sheet and strip	45,927,322	51,974,403	54,847,751	64,244,443
Bars & certain shapes	13,038,494	13,782,675	14,867,146	16,680,340
Wire rod	4,990,468	5,495,619	6,146,888	6,450,183
Wire	1,589,864	1,710,530	1,729,848	1,749,538
Wire products	(²)	(²)	(²)	(²)
Structural shapes & units	5,623,128	5,859,507	6,052,175	6,411,859
Rails & related products	681,725	750,792	799,210	897,245
Pipe and tube	6,402,759	5,002,657	5,878,361	6,602,589
Total	86,758,042	93,671,034	102,297,619	119,740,775
Stainless & alloy tool steel:				
Stainless steel:				
Semifinished	108,643	98,508	151,088	168,228
Plate	101,509	103,814	118,121	132,326
Sheet and strip	1,124,754	1,279,275	1,469,746	1,682,902
Bars & certain shapes	169,909	172,857	195,794	227,222
Wire rod	55,595	66,882	63,334	82,102
Wire	37,904	41,366	43,618	50,508
Pipe and tube	67,517	59,430	54,753	55,972
Tool steel (all forms)	87,756	95,859	112,149	123,250
Total stainless and tool	1,753,587	1,917,991	2,208,603	2,522,510

¹ Includes tool steel.

² Not applicable. Shipment and apparent consumption data for wire and wire products have been combined and reported in the category designated "wire."

³ "Certain alloy" refers to alloy steel other than stainless or tool steel.

Note.—Apparent consumption of steel mill products only (excluding fabricated steel products): 88,201,112 short tons, 1991; 95,112,415 short tons, 1992; 104,347,921 short tons, 1993; 121,716,163 short tons, 1994.

Source: Compiled from data of the American Iron & Steel Institute, and official statistics of the U.S. Department of Commerce.

Table F-5
Steel mill products and certain fabricated steel products: U.S. imports as a percent of apparent net consumption, by products and grades of steel, 1991-94

(Percent)

Item	1991	1992	1993	1994
All grades of steel:				
Semifinished	52.5	55.6	71.9	75.7
Plate	16.4	17.6	13.7	21.6
Sheet and strip	15.1	16.5	13.4	19.5
Bars & certain shapes ¹	7.8	8.2	10.0	11.5
Wire rod	16.8	20.6	22.5	26.5
Wire	55.5	58.1	64.5	67.8
Wire products	(²)	(²)	(²)	(²)
Structural shapes & units	10.7	10.1	12.3	15.4
Rails & related products	44.5	39.9	33.6	47.4
Pipe and tube	42.3	30.5	34.7	38.3
Total	18.5	18.6	19.5	25.4
Carbon & certain alloy³ steel:				
Semifinished	52.7	56.1	71.8	75.5
Plate	16.5	17.6	13.7	21.7
Sheet and strip	15.1	16.5	13.1	19.3
Bars & certain shapes	7.2	7.7	9.4	10.9
Wire rod	16.5	20.1	22.1	26.1
Wire	55.8	58.4	64.8	68.2
Wire products	(²)	(²)	(²)	(²)
Structural shapes & units	10.7	10.1	12.3	15.4
Rails & related products	44.5	39.9	33.6	47.4
Pipe and tube	42.0	30.0	34.2	37.9
Total	18.4	18.5	19.2	25.2
Stainless & alloy tool steel:				
Stainless steel:				
Semifinished	45.1	37.7	75.1	89.5
Plate	13.4	14.7	16.1	15.5
Sheet and strip	15.7	17.7	24.5	25.0
Bars & certain shapes	30.9	33.3	35.8	34.6
Wire rod	46.6	59.2	64.3	61.4
Wire	45.0	46.1	50.4	52.4
Pipe and tube	71.4	71.7	79.5	87.5
Tool steel (all forms)	51.5	39.6	45.6	50.5
Total stainless and tool	24.4	24.8	32.6	34.0

¹ Includes tool steel.

² Not applicable. Shipment and apparent consumption data for wire and wire products have been combined and reported in the category designated "wire."

³ "Certain alloy" refers to alloy steel other than stainless or tool steel.

Note.—U.S. imports as a percent of apparent consumption of steel mill products only (excluding fabricated steel products): 17.9 percent, 1991; 17.9 percent, 1992; 18.8 percent, 1993; 24.8 percent, 1994.

Source Compiled from data of the American Iron & Steel Institute, and from official statistics of the U.S. Department of Commerce.

Table F-6
Steel mill products and certain fabricated steel products: U.S. imports for consumption and U.S. exports, by selected countries and country groups, 1991-94

(Short tons)

Item	1991	1992	1993	1994
U.S. imports for consumption:				
Canada	3,189,823	4,493,860	5,093,245	4,855,698
Japan	2,880,969	2,716,559	1,852,809	3,611,289
Germany	1,448,397	1,383,401	1,920,246	2,342,516
Brazil	1,321,907	1,565,028	1,449,134	2,271,018
Russia	0	3,498	188,578	1,847,072
Mexico	534,216	456,236	893,621	1,801,622
Korea	1,583,466	1,759,996	1,181,779	1,627,881
France	929,415	962,084	1,166,881	1,470,520
Netherlands	494,184	563,949	742,267	1,360,395
Belgium	452,790	397,624	726,661	1,169,448
Italy	330,724	267,509	1,072,949	1,131,405
United Kingdom	626,679	619,573	707,917	1,024,098
Ukraine	0	13,835	134,790	528,517
Spain	222,981	212,128	275,161	520,708
Republic of South Africa	415	254,958	406,554	476,302
All others	2,365,350	2,110,268	2,581,377	5,021,630
Total	16,381,316	17,780,504	20,393,968	31,060,119
East Asia	4,689,214	4,680,736	3,296,709	5,861,308
EU-12	4,749,489	4,627,807	6,930,701	9,414,541
Central/Eastern Europe	201,883	110,322	194,592	879,686
LAIA ¹	2,184,428	2,215,447	2,654,271	4,777,628
U.S. exports:				
Canada	1,729,394	1,481,796	1,762,054	2,163,694
Mexico	1,370,880	1,464,634	1,024,569	893,820
Thailand	37,506	81,927	43,777	150,347
Venezuela	117,485	61,268	39,617	65,453
China	100,367	97,331	101,681	47,909
United Kingdom	47,017	66,152	44,954	47,562
Italy	78,215	55,851	43,642	46,066
Hong Kong	50,857	61,192	68,246	42,893
Philippines	9,423	17,100	25,583	37,105
Japan	704,128	134,455	105,597	36,967
All others	2,466,178	1,023,984	1,027,884	608,977
Total	6,711,450	4,545,690	4,287,605	4,140,793
East Asia	2,435,240	643,201	683,868	397,251
EU-12	273,576	201,201	149,667	146,407
Central/Eastern Europe	2,244	3,672	4,439	7,514
LAIA ¹	1,596,980	1,735,554	1,294,449	1,055,372

¹ Latin American Integration Association.

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

Table F-7
Carbon and certain alloy¹ semifinished steel: U.S. imports for consumption and U.S. exports, by selected countries and country groups, 1991-94

(Short tons)

Item	1991	1992	1993	1994
U.S. imports for consumption:				
Brazil	704,348	967,561	1,083,108	1,290,723
Mexico	201,417	124,381	449,445	1,283,858
Japan	3,450	21	27,974	1,143,387
Germany	244,191	282,030	654,325	547,419
Netherlands	63,861	69,044	181,419	452,380
Russia	0	0	59,495	450,615
Italy	29	6	646,301	435,116
France	125,539	39,083	537,021	387,170
Australia	160,936	149,901	314,715	356,059
Belgium	60,690	97,312	349,205	309,753
United Kingdom	212,479	223,297	154,636	296,931
Canada	82,534	177,583	220,378	239,184
Ukraine	0	0	12,446	190,905
Venezuela	0	44,130	44,372	180,795
Finland	46,472	31,939	23,832	48,838
All others	90,663	100,856	100,534	173,437
Total	1,996,610	2,307,144	4,859,205	7,786,570
East Asia	3,451	21,688	28,015	1,143,448
EU-12	706,828	710,791	2,545,334	2,437,155
Central/Eastern Europe	0	0	1,165	55,913
LAIA ²	905,765	1,136,072	1,576,925	2,772,515
U.S. exports:				
Canada	64,671	30,603	66,264	75,532
Mexico	58,606	169,090	91,049	21,736
Dominican Republic	5,731	3,722	7,031	13,307
Ecuador	11,869	58,739	101,016	11,172
Panama	747	3,898	8,028	3,023
Japan	54,715	6,606	33,035	2,490
United Kingdom	2,085	5,071	1,982	2,371
Australia	41,852	3,312	1,487	2,352
China	96	105	21,980	2,058
France	18,274	6,923	1,933	1,593
All others	420,371	129,357	195,755	13,104
Total	679,017	417,424	529,560	148,739
East Asia	374,529	75,978	234,236	6,292
EU-12	40,556	23,087	8,350	5,980
Central/Eastern Europe	2	14	0	1
LAIA ²	76,435	252,335	194,739	34,116

¹ "Certain alloy" refers to alloy steel other than stainless or tool steel.

² Latin American Integration Association.

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

Table F-8
Carbon and certain alloy¹ steel plate:² U.S. imports for consumption and U.S. exports, by selected countries and country groups, 1991-94

(Short tons)

Item	1991	1992	1993	1994
U.S. imports for consumption:				
Ukraine	0	13,835	116,752	296,314
Russia	0	0	31,515	230,268
Republic of South Africa	0	79,295	102,752	115,546
India	0	18,124	97,460	103,502
The Czech Republic	0	0	26,711	74,604
Belgium	97,096	62,666	62,468	71,455
Canada	92,872	202,904	83,566	69,864
Sweden	87,154	113,894	36,958	56,440
Italy	18,925	4,170	1,375	51,326
France	20,064	14,696	13,028	46,438
Korea	15,186	9,047	10,641	40,621
Indonesia	0	540	5,188	33,408
Japan	27,425	10,656	15,231	31,062
Germany	47,197	31,478	23,520	26,875
Finland	55,762	47,579	23,200	23,536
All others	317,321	269,288	61,845	114,265
Total	779,002	878,172	712,211	1,385,524
East Asia	42,611	20,243	31,060	113,719
EU-12	291,632	193,350	115,694	209,193
Central/Eastern Europe	106,306	47,924	30,591	103,815
LAIA ³	93,301	110,505	13,087	17,849
U.S. exports:				
Canada	79,648	54,275	61,349	76,435
Mexico	37,765	66,617	49,692	45,261
Korea	33,687	17,716	12,091	1,638
Chile	297	242	497	882
Honduras	181	29	94	820
Sierra Leone	0	0	135	757
Colombia	133	75	65	533
Taiwan	11,436	4,595	18,128	417
Turkey	0	115	628	415
Dominican Republic	50	3	7	311
All others	72,646	21,819	23,796	1,998
Total	235,842	165,485	166,481	129,468
East Asia	112,521	30,245	50,172	2,572
EU-12	1,310	263	458	224
Central/Eastern Europe	33	0	0	0
LAIA ³	40,132	77,947	51,055	46,945

¹ "Certain alloy" refers to alloy steel other than stainless or tool steel.

² Excluding coiled plate. See appendix A for details.

³ Latin American Integration Association.

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

Table F-9
Carbon and certain alloy¹ steel sheet and strip:² U.S. imports for consumption and U.S. exports, by selected countries and country groups, 1991-94

(Short tons)

Item	1991	1992	1993	1994
U.S. imports for consumption:				
Canada	1,158,944	1,933,969	2,159,802	1,827,026
Japan	1,655,243	1,796,481	816,681	1,290,087
Germany	684,639	777,922	768,143	1,198,076
Russia	0	3,333	84,375	1,024,999
Korea	953,719	1,239,400	586,675	926,432
Netherlands	416,072	478,970	504,213	853,041
France	501,952	657,044	276,636	704,222
Brazil	254,375	313,010	80,779	667,953
Belgium	209,306	143,226	168,243	546,028
Italy	173,042	202,651	258,294	452,625
Republic of South Africa	0	130,982	219,125	236,645
Spain	26,029	51,765	74,654	232,532
Bulgaria	0	0	12,593	211,803
United Kingdom	57,572	61,851	124,489	190,655
Mexico	88,650	113,764	179,271	163,938
All others	751,376	662,772	894,509	1,896,692
Total	6,930,919	8,567,140	7,208,481	12,422,753
East Asia	2,662,545	3,073,699	1,496,615	2,526,753
EU-12	2,144,354	2,429,159	2,334,209	4,414,056
Central/Eastern Europe	15,448	38,611	130,726	545,832
LAIA ³	467,724	471,219	379,300	1,096,061
U.S. exports:				
Canada	732,203	650,698	706,579	879,635
Mexico	743,429	751,139	463,473	367,218
Italy	43,004	43,279	31,508	42,254
Hong Kong	28,667	40,091	29,505	37,952
India	12,509	17,332	21,331	33,607
Pakistan	18,099	20,571	18,297	25,849
Japan	527,868	110,320	44,023	25,243
Republic of South Africa	10,969	42,390	3,330	7,711
Taiwan	222,969	7,140	36,962	5,538
Colombia	2,930	7,547	7,337	5,458
All others	915,239	227,946	102,699	80,446
Total	3,257,888	1,918,453	1,465,044	1,510,913
East Asia	1,536,791	284,435	133,061	88,457
EU-12	99,314	62,669	49,387	56,218
Central/Eastern Europe	152	344	332	3,621
LAIA ³	803,492	809,943	507,442	392,164

¹ "Certain alloy" refers to alloy steel other than stainless or tool steel.

² Including coiled plate. See appendix A for details.

³ Latin American Integration Association.

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

Table F-10
Carbon and certain alloy¹ steel bars and light shapes: U.S. imports for consumption and U.S. exports,
by selected countries and country groups, 1991-94

(Short tons)

Item	1991	1992	1993	1994
U.S. imports for consumption:				
Canada	341,964	512,747	732,079	841,540
Turkey	27,370	60,002	56,078	212,159
United Kingdom	159,667	139,106	182,128	165,544
Brazil	85,635	55,550	85,535	149,090
Japan	84,049	86,218	75,714	66,497
Mexico	11,194	7,254	26,103	65,299
France	68,718	60,035	60,077	65,204
Germany	48,104	52,893	44,888	57,540
Korea	20,105	8,332	5,566	30,277
Venezuela	21,847	17,657	6,684	24,220
Spain	10,259	9,598	12,823	23,131
Italy	1,265	4,628	3,374	18,019
Netherlands	3,599	3,010	22,106	16,515
Trinidad and Tobago	8,520	11,461	10,720	16,284
Argentina	6,389	375	7,716	14,646
All others	45,161	28,331	61,545	49,801
Total	943,845	1,057,195	1,393,135	1,815,766
East Asia	110,440	99,060	83,312	101,075
EU-12	292,972	270,071	327,518	347,990
Central/Eastern Europe	730	344	3,585	2,081
LAIA ²	146,281	80,836	126,197	254,018
U.S. exports:				
Canada	226,334	195,480	293,536	348,609
Mexico	171,716	158,183	127,117	135,408
Greece	20	43	165	6,885
Thailand	21	24,259	22,526	5,756
Bahamas	4,626	3,160	3,815	4,699
Philippines	116	58	289	3,977
Korea	1,188	27,197	5,398	3,124
Venezuela	2,608	3,752	3,675	3,122
Taiwan	904	7,879	34,464	2,635
Israel	858	893	1,584	2,474
All others	151,876	89,899	134,104	27,402
Total	560,268	510,804	626,675	544,091
East Asia	28,050	79,835	143,972	20,376
EU-12	7,242	6,988	11,574	11,137
Central/Eastern Europe	110	61	552	435
LAIA ²	180,199	178,583	134,521	141,589

¹ "Certain alloy" refers to alloy steel other than stainless or tool steel.

² Latin American Integration Association.

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

Table F-11
Carbon and certain alloy¹ steel wire rod: U.S. imports for consumption and U.S. exports, by selected countries and country groups, 1991-94

(Short tons)

Item	1991	1992	1993	1994
U.S. imports for consumption:				
Canada	378,768	505,521	488,006	361,403
Trinidad and Tobago	45,466	80,986	93,648	225,661
Japan	193,795	229,977	234,623	201,819
Germany	17,051	30,813	188,480	178,191
United Kingdom	705	6,310	39,983	114,443
France	50,167	53,781	135,012	102,942
Venezuela	5,467	14,925	4,435	71,640
Turkey	64,336	52,693	21,459	64,015
Belgium	126	1,357	41,277	59,520
Brazil	19,547	90,035	46,845	45,163
Egypt	0	0	0	44,207
Spain	471	2,578	7,628	42,797
Poland	0	0	1,029	39,345
Italy	2,070	1,226	8,056	32,312
India	19	55	0	29,005
All others	43,038	36,547	46,005	71,305
Total	821,026	1,106,805	1,356,489	1,683,769
East Asia	194,490	230,639	235,308	208,169
EU-12	83,344	115,422	439,255	545,602
Central/Eastern Europe	0	0	7,323	66,702
LAIA ²	29,080	104,989	51,786	123,928
U.S. exports:				
Canada	54,997	23,842	23,091	17,753
Mexico	51,094	35,768	29,943	9,318
Russia	0	0	5	1,378
Venezuela	1,094	1,270	739	1,310
Brazil	3	13	69	274
Guyana	170	0	810	239
Surinam	0	0	0	214
Argentina	1	381	82	157
Australia	10	4	1	123
Taiwan	513	67	23	114
All others	54,351	7,244	4,986	833
Total	162,231	68,590	59,749	31,712
East Asia	42,925	6,068	3,923	298
EU-12	541	214	239	219
Central/Eastern Europe	0	0	0	0
LAIA ²	60,630	37,543	30,947	11,110

¹ "Certain alloy" refers to alloy steel other than stainless or tool steel.

² Latin American Integration Association.

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

Table F-12
Carbon and certain alloy¹ steel wire: U.S. imports for consumption and U.S. exports, by selected countries and country groups, 1991-94

(Short tons)

Item	1991	1992	1993	1994
U.S. imports for consumption:				
Canada	153,425	182,612	226,810	248,960
Japan	59,440	64,382	68,223	77,241
Belgium	33,139	36,734	43,482	42,236
France	24,759	28,062	30,787	34,814
Taiwan	10,308	11,835	10,890	19,144
United Kingdom	15,959	16,648	19,676	19,021
China	7,418	7,397	9,719	15,586
Brazil	13,397	9,962	13,760	14,857
Republic of South Africa	22	1,287	4,382	14,465
Germany	11,351	11,905	10,897	10,323
Venezuela	8,124	6,645	7,607	9,441
Sweden	7,738	7,119	10,278	9,186
Korea	4,944	3,525	7,680	7,726
Argentina	2,117	1,909	5,323	7,561
Italy	1,697	1,495	2,746	7,128
All others	20,912	20,375	33,963	28,845
Total	374,750	411,892	506,223	566,535
East Asia	82,454	87,910	98,041	120,967
EU-12	88,833	97,861	112,889	120,450
Central/Eastern Europe	215	223	385	1,580
LAIA ²	28,282	21,997	30,690	37,522
U.S. exports:				
Canada	33,308	39,994	47,416	50,070
Mexico	18,163	25,919	26,893	34,043
United Kingdom	1,345	696	830	1,316
Brazil	3,987	687	1,951	834
Costa Rica	792	594	721	757
Germany	1,091	867	835	713
Belgium	38	357	297	591
China	56	10,651	8	573
Peru	9	42	98	561
Philippines	100	229	1,032	513
All others	27,888	7,923	7,731	6,655
Total	86,775	87,957	87,811	96,627
East Asia	22,932	11,768	2,358	2,734
EU-12	2,820	2,391	2,363	2,950
Central/Eastern Europe	985	682	253	143
LAIA ²	22,628	27,363	30,823	35,986

¹ "Certain alloy" refers to alloy steel other than stainless or tool steel.

² Latin American Integration Association.

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

Table F-13
Carbon and certain alloy¹ steel wire products: U.S. imports for consumption and U.S. exports, by selected countries and country groups, 1991-94

(Short tons)

Item	1991	1992	1993	1994
U.S. imports for consumption:				
Korea	155,381	164,631	176,287	169,314
Canada	97,098	102,061	109,392	121,361
China	23,727	47,279	37,821	48,949
Japan	41,508	48,096	49,847	40,800
Mexico	26,959	27,825	23,660	29,134
Spain	16,375	25,263	26,468	25,170
Taiwan	11,071	14,592	15,348	21,755
Indonesia	14,540	26,684	20,670	19,490
Brazil	11,622	13,258	17,146	15,085
United Arab Emirates	7,294	6,659	8,622	11,485
Italy	12,639	13,303	16,014	11,284
France	8,655	11,076	9,940	10,423
Poland	10,354	7,351	6,713	10,375
Germany	6,222	7,899	7,069	7,422
Belgium	10,201	12,905	14,531	7,210
All others	58,193	58,035	75,294	78,017
Total	511,839	586,916	614,823	627,275
East Asia	249,162	305,438	307,181	308,501
EU-12	63,172	79,239	82,825	70,580
Central/Eastern Europe	12,840	8,506	8,271	13,977
LAIA ²	54,541	53,852	58,921	66,663
U.S. exports:				
Canada	21,473	28,376	36,253	42,233
Mexico	9,620	6,584	13,316	12,564
Panama	760	1,664	3,286	3,156
Dominican Republic	392	988	1,128	845
Venezuela	601	402	400	699
Saudi Arabia	896	734	358	635
Colombia	283	694	215	616
Bahamas	778	1,061	1,040	577
Trinidad and Tobago	92	35	102	550
Chile	536	935	792	528
All others	16,122	15,101	14,478	10,294
Total	51,552	56,573	71,370	72,699
East Asia	2,437	4,401	2,574	2,639
EU-12	3,185	2,086	1,918	1,678
Central/Eastern Europe	33	22	13	22
LAIA ²	12,654	9,644	15,727	15,047

¹ "Certain alloy" refers to alloy steel other than stainless or tool steel.

² Latin American Integration Association.

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

Table F-14
Carbon and certain alloy¹ steel structural shapes and units: U.S. imports for consumption and U.S. exports, by selected countries and country groups, 1991-94

(Short tons)

Item	1991	1992	1993	1994
U.S. imports for consumption:				
Canada	217,538	233,622	275,218	315,877
United Kingdom	82,168	69,872	111,853	126,482
Luxembourg	88,005	101,856	102,884	110,854
Belgium	22,295	32,745	26,837	110,025
Spain	41,845	19,445	52,765	65,987
Germany	19,376	26,210	33,725	52,679
Mexico	13,031	8,936	35,576	52,634
Russia	0	0	12,009	48,719
Japan	48,069	44,362	34,147	30,030
Brazil	10,883	5,735	17,377	23,377
France	8,512	16,000	12,015	14,695
Poland	24,309	3,231	6,929	13,008
Norway	39	105	2,581	4,094
Korea	12,012	2,967	1,507	2,741
Indonesia	0	0	4	2,650
All others	16,279	24,527	16,646	14,910
Total	604,361	589,613	742,074	988,762
East Asia	63,441	49,265	37,496	38,156
EU-12	263,352	267,931	342,570	484,844
Central/Eastern Europe	24,371	3,231	7,064	13,106
LAIA ²	31,620	14,937	54,639	76,722
U.S. exports:				
Canada	202,996	139,901	160,709	220,128
Mexico	120,608	133,102	113,828	135,754
Philippines	511	6,310	14,207	28,451
Venezuela	8,477	13,780	16,172	17,397
United Kingdom	13,166	27,140	14,839	16,469
Taiwan	15,195	2,066	1,965	11,269
Panama	5,901	7,313	10,083	5,774
Thailand	2,671	19,990	7,548	5,123
Japan	46,451	2,213	2,577	4,524
Costa Rica	2,653	2,634	2,138	4,352
All others	238,390	91,963	154,348	83,344
Total	657,019	446,412	498,413	532,586
East Asia	173,428	50,577	76,719	65,687
EU-12	36,435	34,839	28,937	26,307
Central/Eastern Europe	655	68	52	302
LAIA ²	133,113	152,611	151,944	169,187

¹ "Certain alloy" refers to alloy steel other than stainless or tool steel.

² Latin American Integration Association.

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

Table F-15
Carbon and certain alloy¹ steel rails and related products: U.S. imports for consumption and U.S. exports, by selected countries and country groups, 1991-94

(Short tons)

Item	1991	1992	1993	1994
U.S. imports for consumption:				
Japan	97,927	79,538	93,357	120,702
Canada	144,179	133,453	136,602	89,501
Russia	0	0	156	80,328
Poland	6	454	832	44,176
Germany	7,791	7,069	10,589	28,619
Luxembourg	18,162	23,979	12,686	16,402
Ukraine	0	0	199	12,847
United Kingdom	17,636	30,948	647	11,642
Austria	3,642	7,505	3,761	6,214
Nicaragua	0	0	0	4,848
France	2,872	5,336	999	3,948
Korea	3,609	3,312	1,260	1,725
Australia	1,324	1,769	940	1,545
Belgium	191	321	533	1,102
Italy	461	368	359	330
All others	5,796	5,366	5,845	1,311
Total	303,596	299,418	268,764	425,240
East Asia	101,908	83,125	95,065	122,791
EU-12	47,188	68,024	25,841	62,096
Central/Eastern Europe	46	455	869	44,354
LAIA ²	4,510	3,230	4,371	484
U.S. exports:				
Canada	25,407	32,837	50,768	54,142
Mexico	63,187	29,051	45,965	44,247
China	165	5	42	2,461
Australia	896	412	1,509	1,871
Egypt	4,345	3,602	4,378	1,817
Colombia	49	144	359	1,241
Peru	1,017	1,128	2,089	1,227
Chile	253	108	956	973
Belize	587	912	1,297	785
Panama	972	81	706	640
All others	11,178	5,928	7,378	4,989
Total	108,056	74,208	115,447	114,394
East Asia	1,621	1,506	2,645	3,434
EU-12	684	1,152	1,075	1,338
Central/Eastern Europe	55	8	0	1
LAIA ²	67,276	31,731	50,465	48,612

¹ "Certain alloy" refers to alloy steel other than stainless or tool steel.

² Latin American Integration Association.

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

Table F-16
Carbon and certain alloy¹ steel pipe and tube: U.S. imports for consumption and U.S. exports, by selected countries and country groups, 1991-94

(Short tons)

Item	1991	1992	1993	1994
U.S. imports for consumption:				
Canada	473,741	459,583	576,166	624,515
Japan	579,441	263,132	329,051	507,128
Korea	397,957	287,013	361,099	396,858
Germany	334,299	120,549	121,661	190,568
Mexico	133,064	68,642	111,547	139,494
Argentina	71,650	45,992	82,782	78,457
Republic of South Africa	0	20,059	44,111	62,457
Turkey	5,709	5,950	15,092	61,980
Thailand	6,519	20,466	29,798	57,944
Italy	101,440	18,917	85,501	57,608
France	82,614	30,827	40,783	50,588
Brazil	138,046	43,673	71,547	40,100
Spain	25,830	11,398	32,592	36,003
Romania	14,914	1,516	479	27,553
Netherlands	7,919	9,055	12,822	20,787
All others	314,012	94,106	97,525	147,309
Total	2,687,154	1,500,877	2,012,557	2,499,348
East Asia	1,053,805	581,110	728,032	999,550
EU-12	616,761	227,256	320,504	374,213
Central/Eastern Europe	39,145	10,840	4,155	30,757
LAIA ²	381,849	162,346	276,122	261,457
U.S. exports:				
Canada	247,967	244,367	269,279	346,970
Thailand	295	1,240	400	133,654
Mexico	41,690	42,937	47,478	60,475
Venezuela	71,970	19,119	11,994	37,474
China	93,475	66,293	4,913	33,388
Algeria	43,178	22,560	13,650	29,062
Tunisia	3,089	380	542	27,637
United Kingdom	8,282	13,154	15,521	15,374
Indonesia	1,085	3,280	3,781	15,046
Guatemala	1,389	2,175	1,470	10,874
All others	225,756	249,077	185,275	126,618
Total	738,176	664,582	554,303	836,570
East Asia	113,178	88,451	18,568	191,805
EU-12	50,794	46,958	30,948	29,285
Central/Eastern Europe	174	2,454	3,136	2,959
LAIA ²	140,473	106,071	106,200	129,037

¹ "Certain alloy" refers to alloy steel other than stainless or tool steel.

² Latin American Integration Association.

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

Table F-17
Total, carbon and certain alloy¹ steel products: U.S. imports for consumption and U.S. exports, by selected countries and country groups, 1991-94

(Short tons)

Item	1991	1992	1993	1994
U.S. imports for consumption:				
Canada	3,141,061	4,444,054	5,008,020	4,739,232
Japan	2,790,348	2,622,861	1,744,848	3,508,755
Germany	1,420,222	1,348,768	1,863,298	2,297,712
Brazil	1,313,084	1,552,062	1,431,837	2,260,473
Russia	0	3,333	188,348	1,846,524
Mexico	501,740	413,781	828,755	1,741,862
Korea	1,562,912	1,739,892	1,150,756	1,581,146
France	893,852	915,940	1,116,296	1,420,444
Netherlands	493,465	563,182	740,411	1,358,434
Belgium	443,048	389,542	710,257	1,149,109
Italy	312,350	247,679	1,023,655	1,067,884
United Kingdom	600,606	597,606	654,591	951,181
Ukraine	0	13,835	133,489	527,990
Republic of South Africa	413	248,381	380,529	455,768
Turkey	104,418	128,524	117,139	453,257
All others	2,375,583	2,075,729	2,581,733	4,841,771
Total	15,953,102	17,305,171	19,673,962	30,201,543
East Asia	4,564,307	4,552,176	3,140,127	5,683,129
EU-12	4,598,435	4,459,103	6,646,640	9,066,179
Central/Eastern Europe	199,101	110,133	194,134	878,117
LAIA ²	2,142,954	2,159,982	2,572,039	4,707,218
U.S. exports:				
Canada	1,689,005	1,440,372	1,715,244	2,111,509
Mexico	1,315,877	1,418,389	1,008,753	866,024
Thailand	37,057	81,640	43,512	150,134
Venezuela	115,551	59,074	38,137	64,992
China	100,217	97,126	100,339	47,632
Italy	77,458	55,465	43,154	45,486
United Kingdom	40,670	57,490	40,949	42,827
Hong Kong	46,844	59,549	64,668	40,838
Philippines	8,751	16,791	25,468	36,845
Japan	701,950	132,888	102,029	36,018
All others	2,403,443	991,705	992,601	575,494
Total	6,536,824	4,410,489	4,174,853	4,017,799
East Asia	2,408,414	633,263	668,226	384,294
EU-12	242,881	180,649	135,248	135,337
Central/Eastern Europe	2,198	3,653	4,338	7,484
LAIA ²	1,537,031	1,683,771	1,273,863	1,023,794

¹ "Certain alloy" refers to alloy steel other than stainless or tool steel.

² Latin American Integration Association.

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

Table F-18
Stainless semifinished steel: U.S. imports for consumption and U.S. exports, by selected countries
and country groups, 1991-94

(Short tons)

Item	1991	1992	1993	1994
U.S. imports for consumption:				
Canada	21,273	19,831	42,837	55,413
United Kingdom	7,316	157	26,935	45,662
Sweden	14,318	11,385	16,819	29,059
Republic of South Africa	0	213	17,866	8,810
France	1	117	2	3,291
Italy	2,354	1,840	2,234	2,025
Japan	2,101	654	997	2,021
Germany	1,012	2,783	4,564	1,763
Spain	66	29	129	1,273
Netherlands	0	0	0	426
Belgium	0	0	925	420
India	0	0	0	221
Brazil	0	29	0	67
Taiwan	0	0	0	32
Finland	0	0	4	23
All others	521	138	151	1
Total	48,962	37,177	113,462	150,507
East Asia	2,101	654	1,052	2,053
EU-12	10,749	4,927	34,788	54,861
Central/Eastern Europe	0	0	0	0
LAIA ¹	65	136	95	67
U.S. exports:				
Mexico	713	1,794	1,845	2,705
Canada	754	655	803	2,701
Korea	541	43	362	1,038
Panama	63	29	3	497
United Kingdom	458	275	246	293
Pakistan	96	32	20	239
Hong Kong	34	248	214	171
Japan	334	392	278	128
Taiwan	210	212	86	123
Guatemala	10	23	92	115
All others	16,850	1,784	3,519	1,188
Total	20,063	5,487	7,470	9,199
East Asia	1,298	1,092	1,379	1,656
EU-12	15,155	542	696	598
Central/Eastern Europe	9	0	0	1
LAIA ¹	1,510	2,140	1,995	2,900

¹ Latin American Integration Association.

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

Table F-19
Stainless steel plate:¹ U.S. imports for consumption and U.S. exports, by selected countries and country groups, 1991-94

(Short tons)

Item	1991	1992	1993	1994
U.S. imports for consumption:				
Belgium	4,070	3,358	5,863	4,801
Republic of South Africa	2	1,959	3,393	3,529
Germany	2,689	2,209	2,172	2,294
Finland	397	798	1,191	2,216
Spain	49	212	386	1,928
Japan	2,508	2,003	1,313	1,428
United Kingdom	2,598	2,845	625	909
Canada	18	135	665	767
France	65	679	483	699
Korea	17	0	267	684
Sweden	659	673	859	534
India	0	0	19	234
Italy	66	0	0	137
Austria	464	259	175	109
Brazil	0	89	686	91
All others	0	13	965	202
Total	13,602	15,231	19,063	20,564
East Asia	2,525	2,003	1,579	2,113
EU-12	9,538	9,316	9,538	10,779
Central/Eastern Europe	0	0	0	0
LAIA ²	0	89	686	165
U.S. exports:				
Canada	4,029	5,307	5,061	5,232
Portugal	0	0	764	1,017
Mexico	938	811	493	856
Taiwan	45	83	28	721
Korea	3,251	19	25	190
India	0	0	0	155
Spain	3	0	0	149
Australia	0	22	41	123
Brazil	13	0	42	120
Pakistan	0	1	0	79
All others	913	355	357	184
Total	9,193	6,598	6,811	8,827
East Asia	3,545	174	78	930
EU-12	423	153	838	1,230
Central/Eastern Europe	17	0	0	0
LAIA ²	985	813	669	1,016

¹ Excluding coiled plate. See appendix A for details.

² Latin American Integration Association.

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

Table F-20
Stainless steel sheet and strip:¹ U.S. imports for consumption and U.S. exports, by selected countries and country groups, 1991-94

(Short tons)

Item	1991	1992	1993	1994
U.S. imports for consumption:				
Spain	17,318	22,978	39,986	78,522
Japan	43,150	44,261	58,100	59,185
Mexico	31,782	41,268	64,095	58,963
Canada	3,326	14,089	19,050	31,436
Italy	4,483	5,165	26,322	30,195
France	23,317	26,263	33,019	28,236
Korea	8,687	13,523	20,648	23,884
Germany	12,216	14,962	31,453	19,251
United Kingdom	10,469	11,974	17,157	17,844
Sweden	7,003	7,814	14,002	17,833
Finland	8,438	11,749	11,383	17,430
Belgium	5,205	4,167	8,856	14,450
Republic of South Africa	0	4,406	4,574	7,645
Slovenia	0	0	433	4,985
India	361	1,145	4,361	4,444
All others	1,075	2,424	6,615	6,384
Total	176,830	226,186	360,054	420,686
East Asia	51,906	57,817	79,301	85,691
EU-12	73,078	85,568	157,297	189,110
Central/Eastern Europe	19	0	0	434
LAIA ²	32,511	43,359	69,195	61,124
U.S. exports:				
Canada	22,743	22,131	27,750	29,862
Mexico	42,876	35,168	5,017	12,900
United Kingdom	3,800	1,545	2,862	2,038
Hong Kong	3,175	918	3,181	1,759
Germany	1,963	3,667	2,432	1,617
Australia	781	666	2,159	1,467
Korea	7,240	457	1,282	1,394
Brazil	132	846	687	1,148
Taiwan	1,554	1,568	1,698	1,113
France	1,527	3,033	4,234	1,013
All others	12,201	8,069	9,944	7,188
Total	97,991	78,069	61,246	61,500
East Asia	14,676	4,053	9,548	5,918
EU-12	9,829	10,999	10,124	5,357
Central/Eastern Europe	19	9	98	3
LAIA ²	44,854	37,446	7,338	15,350

¹ Including coiled plate. See appendix A for details.

² Latin American Integration Association.

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

Table F-21

Stainless steel bars and shapes: U.S. imports for consumption and U.S. exports, by selected countries and country groups, 1991-94

(Short tons)

Item	1991	1992	1993	1994
U.S. imports for consumption:				
Canada	5,089	5,762	8,466	12,404
Italy	3,347	4,537	7,556	12,266
Japan	19,988	19,742	20,965	10,725
Korea	3,822	3,343	3,546	9,298
Spain	5,626	5,971	7,773	6,976
Germany	566	1,308	2,045	6,369
France	3,047	4,293	4,402	4,060
Sweden	3,595	3,379	2,221	3,111
India	1,404	2,226	4,314	2,943
Brazil	3,334	4,716	5,096	2,416
United Kingdom	1,757	1,240	1,574	2,150
Slovenia	0	63	580	1,603
Taiwan	125	150	283	1,542
Austria	136	140	193	714
Thailand	0	39	239	406
All others	657	588	814	1,729
Total	52,493	57,499	70,067	78,712
East Asia	23,946	23,275	25,037	22,009
EU-12	14,349	17,396	23,407	31,916
Central/Eastern Europe	259	132	300	410
LAIA ¹	3,349	4,723	5,183	2,491
U.S. exports:				
Canada	3,590	3,340	2,755	4,133
Mexico	1,202	1,695	2,181	3,221
United Kingdom	1,285	6,334	509	1,925
Korea	110	130	38	1,393
Dominican Republic	177	419	931	685
Switzerland	272	168	234	268
Netherlands	667	238	127	231
Iceland	2	0	352	228
Republic of South Africa	1	10	77	201
Singapore	240	129	75	198
All others	9,444	7,473	4,178	1,871
Total	16,989	19,935	11,457	14,354
East Asia	3,096	1,835	920	1,926
EU-12	3,294	7,268	1,151	2,519
Central/Eastern Europe	0	1	2	17
LAIA ¹	2,073	3,227	2,922	3,494

¹ Latin American Integration Association.

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

Table F-22
Stainless steel wire rod: U.S. imports for consumption and U.S. exports, by selected countries and country groups, 1991-94

(Short tons)

Item	1991	1992	1993	1994
U.S. imports for consumption:				
Taiwan	126	924	4,681	8,646
Italy	2,922	2,890	4,117	8,079
Korea	1,604	750	2,800	8,071
Japan	4,574	7,356	6,559	7,037
Sweden	4,244	5,191	6,023	6,643
France	5,547	10,475	6,205	5,646
Spain	3,309	3,828	4,603	3,021
Germany	0	98	112	1,604
United Kingdom	120	523	1,131	1,581
India	1,729	4,305	3,680	21
Netherlands	0	21	4	18
Poland	0	0	0	14
Canada	48	10	0	5
Austria	3	0	0	0
Mexico	0	0	1	0
All others	1,671	3,243	789	0
Total	25,897	39,616	40,707	50,387
East Asia	6,305	9,030	14,040	23,754
EU-12	11,898	17,836	16,173	19,949
Central/Eastern Europe	0	0	0	14
LAIA ¹	1,671	3,243	789	0
U.S. exports:				
Canada	674	215	969	1,287
Mexico	875	156	143	158
Russia	0	0	2	146
Taiwan	640	81	51	131
Germany	25	20	171	127
Israel	144	45	100	114
China	0	6	63	108
Turkey	0	0	0	86
Dominican Republic	0	29	18	82
Italy	12	18	12	66
All others	1,855	1,685	1,032	348
Total	4,224	2,256	2,561	2,653
East Asia	1,186	593	519	361
EU-12	161	155	304	243
Central/Eastern Europe	0	0	0	1
LAIA ¹	1,702	1,076	478	190

¹ Latin American Integration Association.

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

Table F-23

Stainless steel wire: U.S. imports for consumption and U.S. exports, by selected countries and country groups, 1991-94

(Short tons)

Item	1991	1992	1993	1994
U.S. imports for consumption:				
Sweden	2,531	3,099	3,121	3,936
Canada	2,156	2,370	2,884	3,602
Korea	778	905	1,313	2,562
Japan	2,677	2,702	2,595	2,471
Taiwan	1,441	2,090	1,420	2,349
France	1,862	1,894	1,489	2,215
Italy	1,447	1,271	2,673	2,121
United Kingdom	1,082	1,560	1,446	1,669
Spain	932	677	1,005	1,541
Germany	361	646	495	1,061
Switzerland	591	467	603	798
India	337	341	1,124	576
Belgium	386	511	621	471
Thailand	105	191	600	437
Brazil	321	22	434	317
All others	47	342	146	366
Total	17,054	19,089	21,969	26,491
East Asia	5,002	5,904	5,945	7,996
EU-12	6,070	6,581	7,731	9,134
Central/Eastern Europe	4	0	0	0
LAIA ¹	341	162	455	319
U.S. exports:				
Canada	1,119	1,029	1,164	1,307
Mexico	507	356	453	604
Dominican Republic	0	5	50	122
Sweden	57	17	43	92
Germany	105	74	116	76
United Kingdom	171	96	102	58
Korea	12	43	61	51
Switzerland	20	34	31	45
Japan	25	20	30	45
Republic of South Africa	3	5	13	40
All others	619	502	487	369
Total	2,640	2,181	2,550	2,808
East Asia	122	140	156	203
EU-12	397	285	349	209
Central/Eastern Europe	1	4	1	4
LAIA ¹	530	454	571	664

¹ Latin American Integration Association.

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

Table F-24
Stainless steel pipe and tube: U.S. imports for consumption and U.S. exports, by selected countries
and country groups, 1991-94

(Short tons)

Item	1991	1992	1993	1994
U.S. imports for consumption:				
Japan	11,333	11,932	11,715	14,810
Canada	4,479	3,457	5,883	7,304
Italy	2,729	3,452	5,103	6,262
Taiwan	9,333	4,172	4,005	5,338
United Kingdom	1,238	2,409	3,302	1,906
France	1,446	1,504	1,675	1,806
Korea	5,391	1,445	1,701	1,518
Spain	4,969	3,400	1,612	1,407
Finland	2	0	302	1,214
Sweden	908	690	640	1,003
Germany	517	1,447	516	1,001
Netherlands	650	675	1,225	826
Mexico	511	607	493	688
Austria	441	697	447	568
Republic of South Africa	0	0	191	551
All others	4,272	6,724	4,725	2,765
Total	48,218	42,612	43,535	48,967
East Asia	28,278	24,176	21,419	23,146
EU-12	11,554	12,904	13,440	13,304
Central/Eastern Europe	1,993	1	1	44
LAIA ¹	526	618	584	790
U.S. exports:				
Canada	5,623	6,386	5,739	5,479
Mexico	2,652	3,911	3,513	5,026
Kazakhstan	0	0	0	1,632
Qatar	0	0	0	1,063
Singapore	342	731	752	769
Nigeria	0	0	342	632
Saudi Arabia	1,480	9	8	454
Korea	2,050	590	789	352
United Kingdom	299	125	161	285
Philippines	140	191	42	178
All others	2,348	2,758	2,764	2,278
Total	14,934	14,701	14,111	18,147
East Asia	2,673	1,849	2,173	1,637
EU-12	816	380	575	536
Central/Eastern Europe	0	0	0	5
LAIA ¹	2,971	4,224	4,221	5,545

¹ Latin American Integration Association.

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

Table F-25

Alloy tool steel (all forms): U.S. imports for consumption and U.S. exports, by selected countries and country groups, 1991-94

(Short tons)

Item	1991	1992	1993	1994
U.S. imports for consumption:				
Germany	10,814	11,179	15,592	11,460
Sweden	6,246	7,687	7,250	7,949
Finland	172	3	0	5,785
Canada	12,371	4,151	5,440	5,535
Brazil	2,766	2,770	5,104	5,454
Japan	4,291	5,047	5,717	4,856
France	277	919	3,309	4,122
China	299	191	496	3,335
Austria	4,139	3,013	3,079	3,080
Taiwan	0	324	1,299	2,508
Italy	1,027	674	1,291	2,435
Turkey	0	0	0	2,118
United Kingdom	1,493	1,259	1,156	1,197
Slovenia	0	0	40	866
Korea	254	138	695	717
All others	1,010	567	681	845
Total	45,158	37,923	51,150	62,263
East Asia	4,844	5,701	8,208	11,416
EU-12	13,818	14,177	21,688	19,309
Central/Eastern Europe	506	56	158	666
LAIA ¹	3,011	3,134	5,245	5,455
U.S. exports:				
Mexico	5,241	2,355	2,170	2,325
Canada	1,859	2,360	2,568	2,185
Germany	270	338	229	194
Korea	84	8	17	191
Indonesia	23	9	9	79
United Kingdom	177	159	53	79
Peru	36	0	1	52
France	20	12	42	51
Netherland Antilles	52	8	42	47
Kuwait	0	2	2	27
All others	831	723	1,411	277
Total	8,592	5,974	6,545	5,507
East Asia	230	202	870	326
EU-12	621	769	381	378
Central/Eastern Europe	0	5	0	0
LAIA ¹	5,322	2,403	2,392	2,419

¹ Latin American Integration Association.

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

Table F-26

Total, stainless and alloy tool steel products: U.S. imports for consumption and U.S. exports, by selected countries and country groups, 1991-94

(Short tons)

Item	1991	1992	1993	1994
U.S. imports for consumption:				
Canada	48,761	49,806	85,226	116,466
Japan	90,622	93,697	107,961	102,534
Spain	32,396	37,230	55,604	94,694
United Kingdom	26,073	21,966	53,326	72,917
Sweden	39,503	39,920	50,936	70,069
Italy	18,374	19,830	49,295	63,521
Mexico	32,476	42,455	64,865	59,760
France	35,562	46,144	50,584	50,077
Korea	20,554	20,104	31,023	46,734
Germany	28,175	34,633	56,948	44,804
Finland	9,018	12,582	12,891	26,722
Taiwan	11,043	7,693	12,175	22,950
Republic of South Africa	2	6,577	26,024	20,534
Belgium	9,742	8,082	16,404	20,339
Brazil	8,823	12,966	17,297	10,545
All others	17,090	21,649	29,447	35,910
Total	428,214	475,333	720,007	858,576
East Asia	124,908	128,560	156,582	178,179
EU-12	151,054	168,705	284,062	348,362
Central/Eastern Europe	2,782	189	459	1,569
LAIA ¹	41,474	55,465	82,232	70,411
U.S. exports:				
Canada	40,390	41,424	46,810	52,186
Mexico	55,003	46,245	15,816	27,796
United Kingdom	6,347	8,662	4,006	4,735
Korea	13,313	1,589	2,598	4,642
Taiwan	3,995	2,229	2,115	2,265
Germany	7,791	4,628	3,284	2,210
Hong Kong	4,013	1,643	3,578	2,055
Australia	1,272	881	2,504	1,955
Singapore	1,000	1,541	1,504	1,709
Kazakhstan	0	0	2	1,653
All others	41,503	26,359	30,536	21,788
Total	174,626	135,201	112,752	122,995
East Asia	26,826	9,937	15,642	12,957
EU-12	30,695	20,552	14,419	11,070
Central/Eastern Europe	46	19	101	30
LAIA ¹	59,949	51,783	20,586	31,578

¹ Latin American Integration Association.

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

Table F-27
Steel mill products and certain fabricated steel products: Value of U.S. imports for consumption and U.S. exports, by products and grades of steel, 1991-94

(1,000 dollars)

Item	1991	1992	1993	1994
U.S. imports for consumption:				
Carbon & certain alloy¹ steel:				
Semifinished	505,791	500,125	1,025,150	1,747,813
Plate	305,405	303,747	250,502	450,321
Sheet and strip	3,089,470	3,717,099	3,086,184	5,044,614
Bars & certain shapes	440,348	459,340	616,117	773,218
Wire rod	294,588	377,494	480,795	566,946
Wire	278,526	312,454	360,385	409,443
Wire products	527,030	604,201	646,520	644,748
Structural shapes & units	325,913	296,698	396,549	492,785
Rails & related products	134,028	146,054	140,226	163,954
Pipe and tube	1,661,570	894,401	1,143,233	1,389,051
Subtotal	7,562,669	7,611,614	8,145,661	11,682,893
Stainless & alloy tool steel:				
Stainless steel:				
Semifinished	73,116	55,367	129,127	174,974
Plate	35,120	33,566	36,872	36,257
Sheet and strip	348,586	423,746	633,706	686,970
Bars & certain shapes	133,704	133,954	149,893	163,651
Wire rod	60,057	78,746	77,044	92,987
Wire	69,145	73,179	78,583	95,178
Pipe and tube	194,508	173,769	161,252	170,986
Tool steel (all forms)	78,904	80,677	96,162	107,533
Subtotal	993,141	1,053,004	1,362,641	1,528,537
Total	8,555,810	8,664,618	9,508,302	13,211,430
U.S. exports:				
Carbon & certain alloy¹ steel:				
Semifinished	244,988	170,144	184,337	93,131
Plate	98,910	79,752	77,558	76,737
Sheet and strip	1,472,553	1,102,121	932,151	933,757
Bars & certain shapes	284,511	271,458	309,102	312,150
Wire rod	64,478	34,571	27,339	17,975
Wire	91,063	94,553	107,740	130,589
Wire products	90,003	115,954	132,016	129,561
Structural shapes & units	595,121	403,889	485,054	540,956
Rails & related products	82,168	64,789	89,498	101,226
Pipe and tube	752,052	726,230	616,680	839,252
Subtotal	3,775,847	3,063,460	2,961,475	3,175,334
Stainless & alloy tool steel:				
Stainless steel:				
Semifinished	49,913	30,847	28,953	42,240
Plate	21,569	19,747	17,838	22,568
Sheet and strip	214,439	195,163	153,601	160,465
Bars & certain shapes	55,686	41,667	33,809	41,357
Wire rod	12,170	7,044	7,820	7,020
Wire	14,235	12,317	16,273	14,617
Pipe and tube	66,996	67,284	62,713	68,133
Tool steel (all forms)	21,482	25,478	25,766	21,292
Subtotal	456,490	399,547	346,773	377,693
Total	4,232,337	3,463,008	3,308,248	3,553,027

¹ "Certain alloy" refers to alloy steel other than stainless or tool steel.

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

Table F-28
Steel mill products and certain fabricated steel products: Unit value of U.S. imports for consumption, 1991-94

(Per short ton)

Item	1991	1992	1993	1994
Carbon and certain alloy¹ steel:				
Semifinished ²	\$253	\$217	\$211	\$224
Plate	392	346	352	325
Sheet and strip:				
Hot rolled	317	299	306	309
Cold rolled	492	486	505	455
Galvanized	542	545	499	504
Tin plate	624	617	614	581
Tin free	606	614	611	567
Other coated	619	588	589	598
Average, sheet and strip	446	434	428	406
Bar:				
Hot finished	462	434	433	432
Cold finished	701	701	652	676
Reinforcing	319	258	259	241
Light shapes	328	321	322	341
Average, bar	467	434	442	426
Wire rod	359	341	354	337
Wire	743	759	712	723
Wire products	1,030	1,029	1,052	1,028
Structural shapes and units:				
Heavy structurals	403	374	376	360
Fabricated structurals	1,373	1,255	1,176	1,051
Average, structurals	539	503	534	498
Rails and related products	441	488	522	386
Pipe and tube:				
Oil country tubular goods	757	989	685	669
Line pipe	597	541	475	446
Mechanical pipe	920	886	814	823
Structural pipe	519	477	480	511
Pressure tubing	1,082	1,081	1,011	993
Other (incl. standard)	522	517	516	512
Average, pipe and tube	618	596	568	556
Average, all carbon and certain alloy ¹ steel	474	440	414	387
Stainless and alloy tool steel:				
Stainless steel:				
Semifinished ²	\$1,493	\$1,489	\$1,138	\$1,163
Plate	2,582	2,204	1,934	1,763
Sheet and strip:				
Sheet	1,798	1,712	1,647	1,517
Strip	3,211	3,304	3,020	2,633
Average, sheet and strip	1,971	1,873	1,760	1,633
Bars and shapes	2,547	2,330	2,139	2,079
Wire rod	2,319	1,988	1,893	1,845
Wire	4,054	3,834	3,577	3,593
Pipe and tube	4,034	4,078	3,704	3,492
Alloy tool steel (all forms)	1,747	2,127	1,880	1,727
Average, all stainless and alloy tool steel	2,319	2,215	1,893	1,780

¹ Includes alloy steel other than stainless or tool steel.

² Semifinished steel includes ingots, blooms, billets, slabs, and sheet bars.

Source: Compiled from data of the American Iron & Steel Institute, and from official statistics of the U.S. Department of Commerce.

Table F-29
Steel mill products and certain fabricated steel products: Unit value of U.S. exports, 1991-94
(Per short ton)

Item	1991	1992	1993	1994
Carbon and certain alloy¹ steel:				
Semifinished ²	\$371	\$403	\$328	\$817
Plate	419	482	466	593
Sheet and strip:				
Hot rolled	329	393	419	475
Cold rolled	652	697	713	678
Galvanized	694	671	693	710
Tin plate	518	527	515	494
Tin free	624	613	600	510
Other coated	1,150	1,051	964	974
Average, sheet and strip	452	574	636	618
Bar:				
Hot finished	634	660	581	584
Cold finished	1,023	830	890	887
Reinforcing	288	286	283	334
Light shapes	465	484	467	518
Average, bar	508	531	493	574
Wire rod	397	504	458	567
Wire	1,049	1,075	1,227	1,351
Wire products	1,746	2,050	1,850	1,782
Structural shapes and units:				
Heavy structurals	423	453	477	540
Fabricated structurals	1,682	1,675	1,845	1,966
Average, structurals	906	905	973	1,016
Rails and related products	760	873	775	885
Pipe and tube:				
Oil country tubular goods	919	1,082	1,080	941
Line pipe	891	925	950	861
Other ³	1,286	1,228	1,214	1,191
Average, pipe and tube	1,019	1,093	1,113	1,003
Average, all carbon and certain alloy ¹ steel	579	691	713	797
Stainless and alloy tool steel:				
Stainless steel:				
Semifinished ²	\$2,488	\$5,622	\$3,876	\$4,592
Plate	2,346	2,993	2,619	2,557
Sheet and strip:				
Sheet	2,226	2,604	2,350	2,424
Strip	2,156	2,426	2,622	2,751
Average, sheet and strip	2,188	2,500	2,508	2,609
Bars and shapes	3,278	2,090	2,951	2,881
Wire rod	2,881	3,122	3,054	2,646
Wire	5,392	5,648	6,382	5,205
Pipe and tube	4,486	4,577	4,444	3,755
Alloy tool steel (all forms)	2,500	4,265	3,937	3,866
Average, all stainless and alloy tool steel	2,614	2,955	3,076	3,071

¹ Includes alloy steel other than stainless or tool steel.

² Semifinished steel includes ingots, blooms, billets, slabs, and sheet bars.

³ Includes mechanical, standard, structural, and pressure pipe and tube.

Source: Compiled from data of the American Iron & Steel Institute, and from official statistics of the U.S. Department of Commerce.

Table F-30
Steel mill products and certain fabricated steel products: U.S. imports for consumption of specified products and imports as a percent of major product groupings, 1991-94

Item	1991	1992	1993	1994
	<i>Quantity (short tons)</i>			
Carbon and certain alloy ¹ steel:				
Semifinished:				
Ingots	2,706	4,922	17,795	196,047
Blooms and billets	586,127	680,504	838,106	1,564,946
Slabs and sheet bars	1,407,776	1,621,717	4,003,304	6,025,577
Total	1,996,610	2,307,144	4,859,205	7,786,570
Plate:				
Carbon	694,877	784,529	551,838	1,181,889
Alloy	84,125	93,643	160,373	203,635
Total	779,002	878,172	712,211	1,385,524
Sheet and strip:				
Hot rolled:				
Sheet	2,606,689	3,360,533	2,865,498	5,336,297
Strip	105,520	136,782	144,431	105,942
Cold rolled:				
Black plate	129,488	152,394	85,178	162,879
Electrical	81,976	81,842	114,857	100,852
Other sheet	1,744,854	1,954,906	1,849,048	3,866,475
Other strip	119,987	147,309	141,282	180,406
Galvanized	1,527,317	1,995,612	1,473,969	1,906,072
Tin plate	310,962	321,674	260,038	367,775
Tin free	114,267	132,334	127,086	176,619
Other coated	189,857	283,754	147,094	219,435
Total, sheet and strip	6,930,919	8,567,140	7,208,481	12,422,753
Bars:				
Hot rolled:				
Carbon	421,611	448,213	522,137	657,511
Alloy	231,736	290,495	418,563	457,032
Cold rolled:				
Carbon	79,946	84,107	156,047	178,045
Alloy	38,520	32,088	58,837	76,941
Reinforcing	107,344	119,273	120,665	328,012
Light structural shapes	64,689	83,021	116,886	118,225
Total, bars	943,845	1,057,195	1,393,135	1,815,766
Wire rod and related products:				
Wire rod:				
Carbon	800,363	1,078,013	1,319,508	1,628,324
Alloy	20,663	28,792	36,981	55,445
Wire:				
Carbon	337,141	373,587	462,777	508,970
Alloy	37,609	38,305	43,446	57,565
Wire products:				
Nails	286,915	339,944	353,957	369,050
Barbed wire	11,167	12,106	16,740	14,866
Wire fencing	36,793	38,382	38,813	54,881
Bale ties	497	558	896	1,202
Wire strand	102,065	122,722	133,926	114,258
Wire rope	74,402	73,204	70,491	73,018
Total, wire rod and related products	1,707,616	2,105,612	2,477,534	2,877,578
Structurals:				
Heavy	519,377	503,124	594,921	790,309
Fabricated	84,984	86,488	147,153	198,452
Total	604,361	589,613	742,074	988,762

See footnotes at end of table.

Table F-30—Continued
Steel mill products and certain fabricated steel products: U.S. imports for consumption of specified products and imports as a percent of major product groupings, 1991-94

Item	1991	1992	1993	1994
	<i>Quantity (short tons)</i>			
Rails and related products:				
Rails	254,189	245,144	204,265	406,367
Joint bars and tie plates	12,991	9,596	12,670	16,207
Track spikes	3,352	3,094	2,985	2,666
Wheels and axles	33,064	41,586	48,844	0
Total	303,596	299,418	268,764	425,240
Pipes and tubes:				
Oil country tubular goods	412,616	100,646	353,300	341,866
Line pipe	1,003,500	404,234	514,241	651,686
Mechanical pipe	169,832	147,732	195,861	263,093
Structural pipe	209,824	227,314	288,680	359,354
Pressure tubing	35,881	27,536	37,351	35,847
Other (including standard)	855,502	593,415	623,125	847,502
Total	2,687,154	1,500,877	2,012,557	2,499,348
Stainless and alloy tool steel:				
Stainless:				
Semifinished:				
Ingots	2,702	340	987	3,176
Blooms and billets	32,516	26,317	59,432	77,645
Slabs and sheet bars	13,744	10,520	53,043	69,685
Total	48,962	37,177	113,462	150,507
Plate	13,602	15,231	19,063	20,564
Sheet and strip:				
Sheet:				
Hot rolled	12,595	29,254	60,122	124,608
Cold rolled	142,537	174,041	270,327	252,361
Strip	21,698	22,891	29,605	43,717
Total, sheet and strip	176,830	226,186	360,054	420,686
Bars and shapes	52,493	57,499	70,067	78,712
Wire rod	25,897	39,616	40,707	50,387
Wire	17,054	19,089	21,969	26,491
Pipe and tube	48,218	42,612	43,535	48,967
Alloy tool steel (all forms):				
Semifinished ²	10,608	2,348	7,850	11,837
Bars	25,407	25,509	27,845	34,157
Other	9,143	10,066	15,454	16,270
Total, stainless and alloy tool steel	45,158	37,923	51,150	62,263

See footnotes at end of table.

Table F-30—Continued
Steel mill products and certain fabricated steel products: U.S. imports for consumption of specified products and imports as a percent of major product groupings, 1991-94

Item	1991	1992	1993	1994
<i>Share of product group total (percent)</i>				
Carbon and certain alloy ¹ steel:				
Semifinished:				
Ingots	0.14	0.21	0.37	2.52
Blooms and billets	29.36	29.50	17.25	20.10
Slabs and sheet bars	70.51	70.29	82.39	77.38
Total	100.00	100.00	100.00	100.00
Plate:				
Carbon	89.20	89.34	77.48	85.30
Alloy	10.80	10.66	22.52	14.70
Total	100.00	100.00	100.00	100.00
Sheet and strip:				
Hot rolled:				
Sheet	37.61	39.23	39.75	42.96
Strip	1.52	1.60	2.00	0.85
Cold rolled:				
Black plate	1.87	1.78	1.18	1.31
Electrical	1.18	0.96	1.59	0.81
Other sheet	25.17	22.82	25.65	31.12
Other strip	1.73	1.72	1.96	1.45
Galvanized	22.04	23.29	20.45	15.34
Tin plate	4.49	3.75	3.61	2.96
Tin free	1.65	1.54	1.76	1.42
Other coated	2.74	3.31	2.04	1.77
Total, sheet and strip	100.00	100.00	100.00	100.00
Bars:				
Hot rolled:				
Carbon	44.67	42.40	37.48	36.21
Alloy	24.55	27.48	30.04	25.17
Cold rolled:				
Carbon	8.47	7.96	11.20	9.81
Alloy	4.08	3.04	4.22	4.24
Reinforcing	11.37	11.28	8.66	18.06
Light structural shapes	6.85	7.85	8.39	6.51
Total, bars	100.00	100.00	100.00	100.00
Wire rod and related products:				
Wire rod:				
Carbon	46.87	51.20	53.26	56.59
Alloy	1.21	1.37	1.49	1.93
Wire:				
Carbon	19.74	17.74	18.68	17.69
Alloy	2.20	1.82	1.75	2.00
Wire products:				
Nails	16.80	16.14	14.29	12.83
Barbed wire	0.65	0.57	0.68	0.52
Wire fencing	2.15	1.82	1.57	1.91
Bale ties	0.03	0.03	0.04	0.04
Wire strand	5.98	5.83	5.41	3.97
Wire rope	4.36	3.48	2.85	2.54
Total, wire rod and related products	100.00	100.00	100.00	100.00
Structurals:				
Heavy	85.94	85.33	80.17	79.93
Fabricated	14.06	14.67	19.83	20.07
Total	100.00	100.00	100.00	100.00

See footnotes at end of table.

Table F-30—Continued
Steel mill products and certain fabricated steel products: U.S. imports for consumption of specified products and imports as a percent of major product groupings, 1991-94

Item	1991	1992	1993	1994
<i>Share of product group total (percent)</i>				
Rails and related products:				
Rails	83.73	81.87	76.00	95.56
Joint bars and tie plates	4.28	3.20	4.71	3.81
Track spikes	1.10	1.03	1.11	0.63
Wheels and axles	10.89	13.89	18.17	0.00
Total	100.00	100.00	100.00	100.00
Pipes and tubes:				
Oil country tubular goods	15.36	6.71	17.55	13.68
Line pipe	37.34	26.93	25.55	26.07
Mechanical pipe	6.32	9.84	9.73	10.53
Structural pipe	7.81	15.15	14.34	14.38
Pressure tubing	1.34	1.83	1.86	1.43
Other (including standard)	31.84	39.54	30.96	33.91
Total	100.00	100.00	100.00	100.00
Stainless and alloy tool steel:				
Stainless:				
Semifinished:				
Ingots	5.52	0.91	0.87	2.11
Blooms and billets	66.41	70.79	52.38	51.59
Slabs and sheet bars	28.07	28.30	46.75	46.30
Total	100.00	100.00	100.00	100.00
Plate	100.00	100.00	100.00	100.00
Sheet and strip:				
Sheet:				
Hot rolled	7.12	12.93	16.70	29.62
Cold rolled	80.61	76.95	75.08	59.99
Strip	12.27	10.12	8.22	10.39
Total, sheet and strip	100.00	100.00	100.00	100.00
Bars and shapes	100.00	100.00	100.00	100.00
Wire rod	100.00	100.00	100.00	100.00
Wire	100.00	100.00	100.00	100.00
Pipe and tube	100.00	100.00	100.00	100.00
Alloy tool steel (all forms):				
Semifinished ²	23.49	6.19	15.35	19.01
Bars	56.26	67.26	54.44	54.86
Other	20.25	26.54	30.21	26.13
Total, stainless and alloy tool steel	100.00	100.00	100.00	100.00

¹ "Certain alloy" refers to alloy steel other than stainless or tool steel.

² Semifinished steel includes ingots, blooms, billets, slabs, and sheet bars.

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

Table F-31
Steel mill products and certain fabricated steel products: U.S. exports of specified products and exports as a percent of major product groupings, 1991-94

Item	1991	1992	1993	1994
	<i>Quantity (short tons)</i>			
Carbon and certain alloy ¹ steel:				
Semifinished ²	679,017	417,424	529,560	148,739
Plate:				
Carbon	219,715	150,589	148,242	106,189
Alloy	16,128	14,895	18,239	23,279
Total	235,842	165,485	166,481	129,468
Sheet and strip:				
Hot rolled:				
Sheet	2,063,015	619,949	262,778	322,428
Strip	36,709	56,051	38,027	62,731
Cold rolled:				
Black plate	4,883	4,734	6,462	5,142
Electrical	84,184	47,875	52,226	43,586
Other sheet	380,228	338,486	343,143	429,483
Other strip	126,341	127,654	121,387	112,089
Galvanized	303,358	297,788	268,182	202,039
Tin plate	150,737	279,122	192,715	208,138
Tin free	37,987	59,805	70,921	38,408
Other coated	70,446	86,990	109,203	86,871
Total, sheet and strip	3,257,888	1,918,453	1,465,044	1,510,913
Bars:				
Hot rolled:				
Carbon	136,338	125,435	141,944	136,378
Alloy	91,126	91,015	127,628	135,508
Cold rolled:				
Carbon	38,469	51,764	49,970	66,652
Alloy	10,179	13,046	14,816	19,889
Reinforcing	234,616	183,557	227,254	106,123
Light structural shapes	49,540	45,987	65,063	79,541
Total, bars	560,268	510,804	626,675	544,091
Wire rod and related products:				
Wire rod:				
Carbon	155,710	58,416	47,786	24,804
Alloy	6,522	10,174	11,964	6,908
Wire:				
Carbon	75,236	76,421	72,473	78,217
Alloy	11,539	11,536	15,337	18,410
Wire products:				
Nails	14,135	17,143	17,819	22,262
Barbed wire	3,997	2,124	2,938	2,568
Wire fencing	10,794	14,209	20,667	16,571
Wire strand	18,245	18,170	21,485	24,064
Wire rope	4,380	4,927	8,461	7,234
Total, all wire rod and related products	300,559	213,121	218,930	201,037
Structurals:				
Heavy	405,222	281,533	317,701	354,885
Fabricated	251,796	164,879	180,713	177,701
Total	657,019	446,412	498,413	532,586
Rails and related products:				
Rails	77,005	34,769	62,255	51,132
Joint bars and tie plates	15,601	19,416	31,302	32,391
Wheels and axles	15,450	20,023	21,890	30,870
Total	108,056	74,208	115,447	114,394

See footnotes at end of table.

Table F-31—Continued
Steel mill products and certain fabricated steel products: U.S. exports of specified products and exports as a percent of major product groupings, 1991-94

Item	1991	1992	1993	1994
	<i>Quantity (short tons)</i>			
Pipes and tubes:				
Oil country tubular goods	362,765	227,245	171,759	230,235
Line pipe	162,052	187,652	125,818	301,468
Other ³	213,358	249,684	256,725	304,867
Total	738,176	664,582	554,303	836,570
Stainless and alloy tool steel:				
Stainless:				
Semifinished ²	20,063	5,487	7,470	9,199
Plate	9,193	6,598	6,811	8,827
Sheet and strip:				
Sheet:				
Hot rolled	14,500	9,239	3,781	6,923
Cold rolled	30,906	23,204	21,943	19,766
Strip	52,586	45,625	35,522	34,811
Total, sheet and strip	97,991	78,069	61,246	61,500
Bars and shapes	16,989	19,935	11,457	14,354
Wire rod	4,224	2,256	2,561	2,653
Wire	2,640	2,181	2,550	2,808
Pipe and tube	14,934	14,701	14,111	18,147
Alloy tool steel (all forms)	8,592	5,974	6,545	5,507
Total, stainless and alloy tool steel	174,626	135,201	112,752	122,995
	<i>Share of product group total (percent)</i>			
Carbon and certain alloy ² steel:				
Semifinished ²	100.00	100.00	100.00	100.00
Plate:				
Carbon	93.16	91.00	89.04	82.02
Alloy	6.84	9.00	10.96	17.98
Total	100.00	100.00	100.00	100.00
Sheet and strip:				
Hot rolled:				
Sheet	63.32	32.32	17.94	21.34
Strip	1.13	2.92	2.60	4.15
Cold rolled:				
Black plate	0.15	0.25	0.44	0.34
Electrical	2.58	2.50	3.56	2.88
Other sheet	11.67	17.64	23.42	28.43
Other strip	3.88	6.65	8.29	7.42
Galvanized	9.31	15.52	18.31	13.37
Tin plate	4.63	14.55	13.15	13.78
Tin free	1.17	3.12	4.84	2.54
Other coated	2.16	4.53	7.45	5.75
Total, sheet and strip	100.00	100.00	100.00	100.00
Bars:				
Hot rolled:				
Carbon	24.33	24.56	22.65	25.07
Alloy	16.26	17.82	20.37	24.91
Cold rolled:				
Carbon	6.87	10.13	7.97	12.25
Alloy	1.82	2.55	2.36	3.66
Reinforcing	41.88	35.93	36.26	19.50
Light structural shapes	8.84	9.00	10.38	14.62
Total, bars	100.00	100.00	100.00	100.00

See footnotes at end of table.

Table F-31—Continued
Steel mill products and certain fabricated steel products: U.S. exports of specified products and exports as a percent of major product groupings, 1991-94

Item	1991	1992	1993	1994
	Share of product group total (percent)			
Wire rod and related products:				
Wire rod:				
Carbon	51.81	27.41	21.83	12.34
Alloy	2.17	4.77	5.46	3.44
Wire:				
Carbon	25.03	35.86	33.10	38.91
Alloy	3.84	5.41	7.01	9.16
Wire products:				
Nails	4.70	8.04	8.14	11.07
Barbed wire	1.33	1.00	1.34	1.28
Wire fencing	3.59	6.67	9.44	8.24
Wire strand	6.07	8.53	9.81	11.97
Wire rope	1.46	2.31	3.86	3.60
Total, all wire rod and related products	100.00	100.00	100.00	100.00
Structurals:				
Heavy	61.68	63.07	63.74	66.63
Fabricated	38.32	36.93	36.26	33.37
Total	100.00	100.00	100.00	100.00
Rails and related products:				
Rails	71.26	46.85	53.93	44.70
Joint bars and tie plates	14.44	26.16	27.11	28.32
Wheels and axles	14.30	26.98	18.96	26.99
Total	100.00	100.00	100.00	100.00
Pipes and tubes:				
Oil country tubular goods	49.14	34.19	30.99	27.52
Line pipe	21.95	28.24	22.70	36.04
Other ³	28.90	37.57	46.31	36.44
Total	100.00	100.00	100.00	100.00
Stainless and alloy tool steel:				
Stainless:				
Semifinished ²	100.00	100.00	100.00	100.00
Plate	100.00	100.00	100.00	100.00
Sheet and strip:				
Sheet:				
Hot rolled	14.80	11.83	6.17	11.26
Cold rolled	31.54	29.72	35.83	32.14
Strip	53.66	58.44	58.00	56.60
Total, sheet and strip	100.00	100.00	100.00	100.00
Bars and shapes	100.00	100.00	100.00	100.00
Wire rod	100.00	100.00	100.00	100.00
Wire	100.00	100.00	100.00	100.00
Pipe and tube	100.00	100.00	100.00	100.00
Alloy tool steel (all forms)	100.00	100.00	100.00	100.00
Total, stainless and alloy tool steel	100.00	100.00	100.00	100.00

¹ "Certain alloy" refers to alloy steel other than stainless or tool steel.

² Semifinished steel includes ingots, blooms, billets, slabs, and sheet bars.

³ Includes mechanical, standard, structural, and pressure pipe and tube.

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

Table F-32
Steel mill products and certain fabricated steel products: U.S. imports for consumption, by customs areas, 1991-94

(Short tons)

Item	1991	1992	1993	1994
Atlantic Coast	2,796,230	2,856,868	2,987,820	4,870,379
Great Lakes-Canadian border	5,092,319	6,788,052	8,602,841	10,469,092
Gulf Coast-Mexican border	4,388,184	4,051,683	5,107,798	10,489,344
Off-shore	267,302	293,409	308,971	365,212
Pacific Coast	3,837,281	3,790,493	3,386,538	4,866,092
Total	16,381,316	17,780,504	20,393,968	31,060,119

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

Table F-33
Steel mill products and certain fabricated steel products: U.S. imports for consumption through the Atlantic coast customs area, 1991-94

(Short tons)

Item	1991	1992	1993	1994
Carbon and certain alloy¹ steel:				
Semifinished ²	215,983	197,728	359,030	612,653
Plate	135,459	119,918	101,359	231,874
Sheet and strip	1,363,034	1,474,263	1,244,121	2,198,501
Bars and certain shapes	75,641	90,076	81,101	158,540
Wire rod	150,070	206,153	264,586	415,705
Wire	56,557	60,118	80,773	92,215
Wire products	142,681	180,784	197,623	185,565
Structural shapes and units	91,410	85,277	127,664	215,434
Rails and related products	27,479	22,651	15,049	14,037
Pipe and tube	366,760	216,592	177,944	314,937
Total	2,625,076	2,653,559	2,649,250	4,439,461
Stainless and alloy tool steel:				
Stainless steel:				
Semifinished ²	14,741	12,091	61,457	89,582
Plate	3,742	6,506	9,815	10,199
Sheet and strip	66,343	85,256	155,033	201,414
Bars and certain shapes	23,850	27,003	33,816	36,111
Wire rod	18,497	31,080	31,087	36,485
Wire	9,195	9,461	12,318	14,795
Pipe and tube	15,230	11,508	12,916	13,179
Tool steel (all forms)	19,555	20,405	22,127	29,153
Total, Stainless and tool	171,154	203,309	338,570	430,918
Grand total	2,796,230	2,856,868	2,987,820	4,870,379

¹ "Certain alloy" refers to alloy steel other than stainless or tool steel.

² Semifinished steel includes ingots, blooms, billets, slabs, and sheet bars.

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

Table F-34
Steel mill products and certain fabricated steel products: U.S. imports for consumption through the
Great Lakes-Canadian border customs area, 1991-94

(Short tons)

Item	1991	1992	1993	1994
Carbon and certain alloy¹ steel:				
Semifinished ²	147,430	497,809	1,752,089	1,691,232
Plate	225,946	296,303	198,824	219,767
Sheet and strip	2,472,889	3,409,624	3,425,242	5,198,802
Bars and certain shapes	557,758	722,328	990,709	1,098,784
Wire rod	394,153	527,597	618,847	457,305
Wire	197,111	231,314	288,854	328,582
Wire products	87,258	100,003	104,274	109,596
Structural shapes and units	267,925	284,051	331,629	410,603
Rails and related products	125,448	128,874	119,670	86,435
Pipe and tube	517,440	481,639	604,683	660,498
Total	4,993,357	6,679,543	8,434,821	10,261,604
Stainless and alloy tool steel:				
Stainless steel:				
Semifinished ²	21,834	19,847	43,838	55,502
Plate	1,496	1,883	3,485	5,302
Sheet and strip	29,589	48,531	67,160	83,577
Bars and certain shapes	9,236	11,456	14,093	19,252
Wire rod	1,866	2,765	2,971	5,336
Wire	5,214	6,311	7,475	8,718
Pipe and tube	7,264	6,080	8,634	11,111
Tool steel (all forms)	22,463	11,637	20,364	18,689
Total, Stainless and tool	98,962	108,509	168,020	207,488
Grand total	5,092,319	6,788,052	8,602,841	10,469,092

¹ "Certain alloy" refers to alloy steel other than stainless or tool steel.

² Semifinished steel includes ingots, blooms, billets, slabs, and sheet bars.

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

Table F-35
Steel mill products and certain fabricated steel products: U.S. imports for consumption through the Gulf Coast-Mexican border customs area, 1991-94

(Short tons)

Item	1991	1992	1993	1994
Carbon and certain alloy¹ steel:				
Semifinished ²	603,254	576,719	1,500,259	3,832,825
Plate	361,340	418,292	352,910	825,642
Sheet and strip	1,369,315	1,646,240	1,259,810	2,915,972
Bars and certain shapes	150,691	100,628	153,957	298,443
Wire rod	197,187	302,093	398,005	705,653
Wire	44,736	48,401	53,152	54,309
Wire products	133,800	152,177	158,996	169,070
Structural shapes and units	128,798	124,448	190,693	246,873
Rails and related products	61,407	72,166	44,184	228,095
Pipe and tube	1,233,838	503,817	852,849	1,059,685
Total	4,284,367	3,944,981	4,964,815	10,336,567
Stainless and alloy tool steel:				
Stainless steel:				
Semifinished ²	11,879	5,145	7,629	5,099
Plate	6,001	4,933	4,147	3,550
Sheet and strip	54,715	62,099	94,195	96,365
Bars and certain shapes	10,425	10,128	11,626	14,077
Wire rod	2,142	1,769	2,188	3,691
Wire	1,848	2,224	1,326	1,866
Pipe and tube	15,145	16,738	15,456	18,098
Tool steel (all forms)	1,663	3,666	6,415	10,031
Total, Stainless and tool	103,818	106,701	142,983	152,777
Grand total	4,388,184	4,051,683	5,107,798	10,489,344

¹ "Certain alloy" refers to alloy steel other than stainless or tool steel.

² Semifinished steel includes ingots, blooms, billets, slabs, and sheet bars.

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

Table F-36
Steel mill products and certain fabricated steel products: U.S. imports for consumption through the off-shore customs area, 1991-94

(Short tons)

Item	1991	1992	1993	1994
Carbon and certain alloy¹ steel:				
Semifinished ²	0	0	2	0
Plate	5,182	3,615	5,819	5,989
Sheet and strip	66,482	87,630	84,308	98,418
Bars and certain shapes	99,676	98,240	115,183	160,812
Wire rod	12,199	10,073	16,870	14,137
Wire	13,339	10,667	10,851	9,217
Wire products	5,953	5,300	6,199	4,295
Structural shapes and units	11,587	12,444	10,575	13,354
Rails and related products	439	1,040	1,061	92
Pipe and tube	49,995	63,428	58,092	58,882
Total	264,852	292,438	308,960	365,194
Stainless and alloy tool steel:				
Stainless steel:				
Semifinished ²	0	(³)	0	5
Plate	0	0	0	0
Sheet and strip	0	(³)	10	(³)
Bars and certain shapes	0	(³)	0	(³)
Wire rod	0	0	0	0
Wire	64	(³)	(³)	(³)
Pipe and tube	2,386	970	1	0
Tool steel (all forms)	0	0	0	12
Total, Stainless and tool	2,450	971	11	18
Grand total	267,302	293,409	308,971	365,212

¹ "Certain alloy" refers to alloy steel other than stainless or tool steel.

² Semifinished steel includes ingots, blooms, billets, slabs, and sheet bars.

³ Less than 0.5 short tons.

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

Table F-37
Steel mill products and certain fabricated steel products: U.S. imports for consumption through the Pacific coast customs area, 1991-94

(Short tons)

Item	1991	1992	1993	1994
Carbon and certain alloy¹ steel:				
Semifinished ²	1,029,943	1,034,887	1,247,824	1,649,860
Plate	51,075	40,044	53,298	102,252
Sheet and strip	1,659,198	1,949,383	1,195,000	2,011,061
Bars and certain shapes	60,079	45,923	52,185	99,188
Wire rod	67,417	60,889	58,181	90,969
Wire	63,008	61,391	72,594	82,212
Wire products	142,147	148,652	147,730	158,749
Structural shapes and units	104,641	83,393	81,513	102,498
Rails and related products	88,822	74,687	88,801	96,582
Pipe and tube	519,121	235,402	318,989	405,347
Total	3,785,451	3,734,651	3,316,116	4,798,717
Stainless and alloy tool steel:				
Stainless steel:				
Semifinished ²	507	94	538	318
Plate	2,363	1,910	1,615	1,514
Sheet and strip	26,184	30,299	43,657	39,330
Bars and certain shapes	8,981	8,912	10,532	9,272
Wire rod	3,392	4,002	4,461	4,875
Wire	733	1,094	849	1,111
Pipe and tube	8,193	7,315	6,527	6,578
Tool steel (all forms)	1,478	2,215	2,244	4,377
Total, Stainless and tool	51,831	55,842	70,423	67,375
Grand total	3,837,281	3,790,493	3,386,538	4,866,092

¹ "Certain alloy" refers to alloy steel other than stainless or tool steel.

² Semifinished steel includes ingots, blooms, billets, slabs, and sheet bars.

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

APPENDIX G
U.S. PRODUCERS' AND CONVERTERS'
CAPITAL EXPENDITURES AND
REASONS FOR SUCH EXPENDITURES,
1993 AND 1994

**Table G-2
Stainless and alloy tool steel: U.S. producers' and converters' capital expenditures and reasons for such expenditures,¹ 1993 and 1994**

Item	1993						1994										
	Pollution abatement		Reasons for expenditures ²				Pollution abatement		Reasons for expenditures ²								
	Total	\$1,000	A	B	C	D	E	F	Total	\$1,000	A	B	C	D	E	F	
Raw steelmaking facilities:																	
Electric furnace	1,756	8,329	6	3	6	1	4	0	5,872	8,564	8	5	7	1	2	1	
Continuous casting	0	(³)	1	0	1	0	0	0	(³)	(³)	2	2	1	0	0	0	
Secondary steelmaking facilities ⁴	0	(³)	2	2	1	0	0	0	(³)	(³)	1	0	0	0	0	0	
Flat-rolled products:	(³)	2,220	3	2	3	0	1	0	799	3,380	2	1	3	1	0	0	
Plate mills	(³)																
Sheet and strip:	(³)	2,261	3	0	4	1	1	0	(³)	(³)	2	1	2	1	0	1	
Hot strip mills	162	34,726	4	3	4	1	2	0	1,753	10,721	4	2	4	1	1	0	
Cold-rolled sheet mills	(³)																
Hot-finished	(³)		1	0	1	0	2	0	(³)	(³)	3	1	2	0	1	0	
Cold-finished	(³)	1,024	2	0	2	1	1	1	95	3,346	4	1	5	1	0	0	
Wire rod mills	0	(³)	1	1	1	1	0	1	(³)	(³)	1	1	2	0	0	0	
Wire drawing machines	(³)	(³)	2	1	2	1	0	0	(³)	(³)	2	2	3	2	0	0	
Pipes and tubes:																	
Seamless pipe and tube mills	0	(³)	0	0	1	0	0	0	(³)	(³)	0	0	0	0	0	0	
Welded pipe and tube mills	(³)	7,243	3	2	3	0	1	0	511	3,646	4	2	5	0	1	0	
Other ⁵	1,507	76,145	0	0	0	0	0	0	5,404	56,331	7	5	6	2	3	0	
Total	4,980	139,762	28	14	29	6	12	2	14,891	111,612	40	23	40	9	8	2	

¹ Includes expenditures for the specific type of facility as well as related facilities. Also includes expenditures for plant and equipment, land and land improvement, occupational safety and health, and environmental control.

² Principal reason(s) for investment are coded as follows: A = Facility maintenance and replacement; B = Increased capacity; C = Improvement in operating efficiency; D = Improvement in response to increased customer demand for higher quality products and improved service; E = Government regulation; F = Other (primarily safety reasons).

³ Withheld to avoid disclosure of confidential business information.

⁴ Includes ladle treatment (heat balance, alloy addition, degassing, decarburization, etc.) and other secondary refining processes (vacuum arc remelt, electroslag remelting, etc.).

⁵ Includes expenditures which companies could not allocate to product groups.

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

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

APPENDIX H
U.S. Producers' and Converters'
Research and Development Expenditures
and, Reasons for Such Expenditures,
1993 and 1994

Table H-1
Carbon and certain alloy steel: U.S. producers' and converters' research and development expenditures and reasons for such expenditures, 1993 and 1994

Item	1993	1994	Reasons for expenditures in 1994 ¹					
			A	B	C	D	E	F
	———— \$1,000 ————		———— Number of responses ————					
Cokemaking facilities	3,478	2,176	3	2	4	1	0	0
Ironmaking facilities	4,400	3,637	4	2	2	0	1	0
Raw steelmaking facilities:								
Basic oxygen process	5,753	6,071	6	5	2	2	3	0
Electric furnace	8,194	7,306	6	7	5	5	4	0
Continuous casting	6,978	3,413	7	5	4	2	2	0
Secondary steelmaking facilities ³	(2)	(2)	2	3	2	2	0	0
Flat-rolled products:								
Plate mills	6,549	3,235	2	2	0	2	0	0
Sheet and strip:								
Hot strip mills	4,870	3,817	5	5	2	3	1	0
Cold-rolled sheet mills	14,978	16,235	6	7	3	7	1	0
Galvanizing facilities	14,037	9,923	4	3	2	3	1	0
Other coating facilities	11,210	4,611	3	1	1	2	0	0
Bars, shapes, and light structural mills:								
Hot-finished	(2)	1,789	2	3	3	3	2	0
Cold-finished	(2)	(2)	0	0	0	0	0	0
Medium and heavy structural mills ⁴	(2)	(2)	0	0	0	0	0	1
Rail mills	(2)	(2)	0	0	0	0	0	0
Wire rod mills	272	(2)	2	4	2	1	1	0
Wire drawing machines	(2)	2,021	4	6	2	7	0	1
Wire products	(2)	(2)	2	2	2	4	0	0
Pipes and tubes:								
Seamless pipe mills	(2)	(2)	3	1	1	1	1	0
Welded pipe mills	2,060	(2)	4	3	3	2	0	0
Other ⁵	12,795	16,483	5	5	4	2	3	0
Total	104,327	90,832	71	66	44	49	20	3

¹ Principal reason(s) for R&D expenditures are coded as follows: A = To improve operating efficiency; B = To respond to increased customer demand for higher quality products; C = To reduce energy consumption and/or pollution levels; D = To develop new steel products; E = To develop new steelmaking processes; F = Other.

² Withheld to avoid disclosing confidential business information.

³ Includes ladle treatment (heat balance, alloy addition, degassing, decarburization, etc.) and other secondary refining processes (vacuum arc remelt, electroslag remelting, etc.).

⁴ Structural shapes with a cross-section exceeding 3 inches.

⁵ Includes expenditures that companies could not allocate to product groups.

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

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

Table H-2
Stainless and alloy tool steel: U.S. producers' and converters' research and development expenditures and reasons for such expenditures, 1993 and 1994

Item	1993	1994	Reasons for expenditures in 1994 ¹						
			A	B	C	D	E	F	
	————— \$1,000 —————		————— Number of responses —————						
Raw steelmaking facilities:									
Electric furnace	(2)	(2)	1	1	1	1	0	0	
Continuous casting	(2)	(2)	1	1	0	1	1	0	
Secondary steelmaking facilities ⁴	(2)	(2)	1	1	0	1	0	0	
Flat-rolled products:									
Plate mills	(2)	(2)	2	2	0	1	0	0	
Sheet and strip:									
Hot strip mills	(2)	(2)	1	2	1	2	0	0	
Cold-rolled sheet mills	(2)	(2)	2	3	1	3	2	0	
Bars and shapes:									
Hot-finished	(2)	(2)	0	1	0	2	0	0	
Cold-finished	(2)	(2)	1	1	1	0	0	0	
Wire rod mills	92	183	2	2	1	1	0	0	
Wire drawing machines	(2)	(2)	2	2	1	1	0	0	
Pipes and tubes:									
Seamless pipe mills	(2)	(2)	0	0	0	0	0	0	
Welded pipe mills	(2)	(2)	1	0	1	0	0	0	
Other ⁵	17,606	9,815	4	2	3	3	1	0	
Total	45,183	39,153	18	18	10	15	6	0	

¹ Principal reason(s) for R&D expenditures are coded as follows: A = To improve operating efficiency; B = To respond to increased customer demand for higher quality products; C = To reduce energy consumption and/or pollution levels; D = To develop new steel products; E = To develop new steelmaking processes; F = Other.

² Withheld to avoid disclosing confidential business information.

³ Includes ladle treatment (heat balance, alloy addition, degassing, decarburization, etc.) and other secondary refining processes (vacuum arc remelt, electroslag remelting, etc.).

⁴ Structural shapes with a cross-section exceeding 3 inches.

⁵ Includes expenditures that companies could not allocate to product groups.

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

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

