



Industry Canada

Industrie Canada

Primary Steel in Canada



Industry Snapshot



**Industry
Sector**
Metals and
Minerals Processing

**Secteur
de l'industrie**
Transformation
des métaux et minéraux

Canada

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La version française est aussi disponible.

Industry Snapshot Primary Steel in Canada

Introduction

This document presents an economic profile of the other primary steel industries over the 1988-1995 time period.

The analysis contained in this profile is based on statistics collected by Statistics Canada for the other primary steel industries. For the purpose of data collection, Statistics Canada uses a coding system, known as the Standard Industrial Classification (SIC) that categorizes companies, whose major activities are similar, into industrial groups. Statistics Canada classifies the Canadian Primary Metal Industries into the following SICs:

- 291 Primary Steel Industries
- 2911 Ferro-Alloys Industry
- 2912 Steel Foundries
- 2919 Other Primary Steel Industries

- 2921 Steel Pipe and Tube Industry

- 2941 Iron Foundries

- 295 Non-Ferrous Metal Smelting and Refining Industries
- 2951 Primary Production of Aluminum Industry
- 2959 Other Primary Smelting and Refining of Non-Ferrous Metal Industries

- 2961 Aluminum Rolling, Casting and Extruding Industry

- 2971 Copper and Copper Alloy Rolling, Casting and Extruding Industry

- 2999 Other Rolled, Cast and Extruded Non-Ferrous Metal Products Industries

This profile has three main sections:

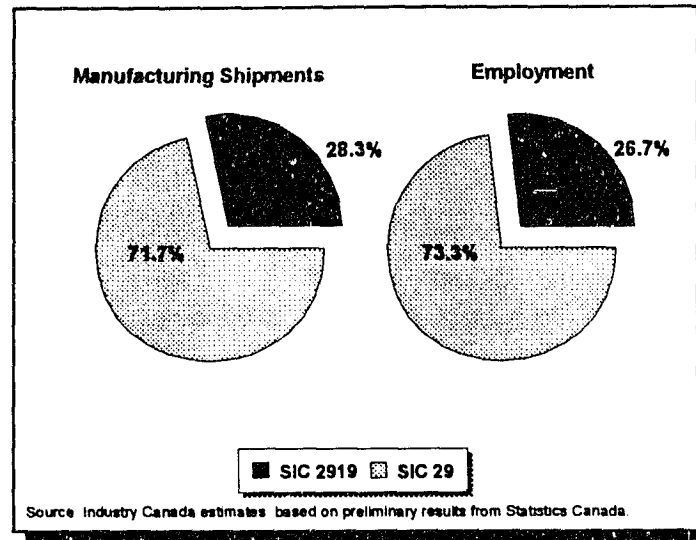
- Industry Overview — a summary of the industry's manufacturing processes and its economic outlook
- Industry Structure — information on structural measures such as industry size, trade, concentration and costs as of 1995
- Industry Performance — data on performance measures, including changes in industry size and efficiency indicators, between 1988 and 1995

The information provided in this document should be useful to firms to observe trends and to measure performance against industry averages. This profile also contains useful reference information: a list of the major firms in the industry, a partial listing of industry products, a glossary and references to additional information on the industry.

1 Industry Overview

The other primary steel industries are a significant part of the larger metals industry (Figure 1). In the Standard Industrial Classification (SIC), SIC 2919 represents Other Primary Steel Industries, SIC 29 the Primary Metal Industries. SIC 29 includes both primary and semi-fabricated metals.

Figure 1: SIC 2919 and SIC 29, 1995



SIC 2919 defines the other primary steel industries as follows:

Establishments classified to this industry comprise two main types - integrated and non-integrated. Integrated operations generally include establishments producing pig iron in blast furnaces for subsequent smelting into molten steel in steel making vessels. Subsequent processing steps include the casting and rolling of the steel into primary shapes. Non-integrated establishments may produce molten steel from scrap or pre-reduced pellets in a steel making vessel prior to casting and rolling the same products as an integrated producer or the establishments may perform only the final step of rolling the primary shapes. Establishments primarily engaged in extruding steel pipe are classified in **2921 - Steel Pipe and Tube Industry**.

SIC 2919 includes:

- Bands, iron and steel
- Bars, steel
- Billets, steel
- Blooms, steel
- Pig iron (incl. remelted iron)
- Plates, steel
- Primary iron
- Rails
- Rods, steel
- Sheet and strip, unfabricated, steel
- Slabs, steel

Sponge iron
Steel ingots and continuous cast steel
Steel rolling, casting and extruding (exc. pipe extruding)
Structural shapes, unfabricated, steel

It should be noted that data reported by Statistics Canada for the other primary steel industries may be somewhat understated due to the fact that the activities of some companies that are involved in the other primary steel industries may be reported under a different SIC. If at least 50% of an establishment's value added derives from activities associated with a particular SIC code, the establishment is classified in that industry.

Steel making Process:

Molten steel is produced by two primary means (Figure 2):

- one using a blast furnace in combination with the basic oxygen furnace (BOF)
- the other using an electric arc furnace (EAF)

Operations employing a BOF are called integrated mills, whereas operations using an EAF are called minimills. The primary difference between the two processes is the scale of operation and the cost of facilities. The relative operating cost differences between BOF and EAF steel making depend largely on the relative price of fuels, scrap and hot metal.

In an integrated mill, the process of making steel is made up of six basic operations: coke production (coke oven), iron ore agglomeration (sinter strand), iron making (blast furnace), steel making, casting and finishing. A major advantage enjoyed by minimills is that an EAF operation does not require a coke oven, sinter strand or blast furnace. Apart from the large capital investment required for these items, coke ovens and blast furnaces, in particular, are the major sources of pollution in an integrated steel operation.

Coke production is the process for carbonising coal. Coke is mixed with iron material (iron ore, pellets, and/or sinter) and flux in the blast furnace to reduce the iron material and form pig iron. Impurities are separated from the iron in the blast furnace and are expelled either in the furnace slag or in gases. Excess carbon is removed in the BOF to produce carbon steel. Alloy steel is made with the addition of various elements either during or after carbon removal.

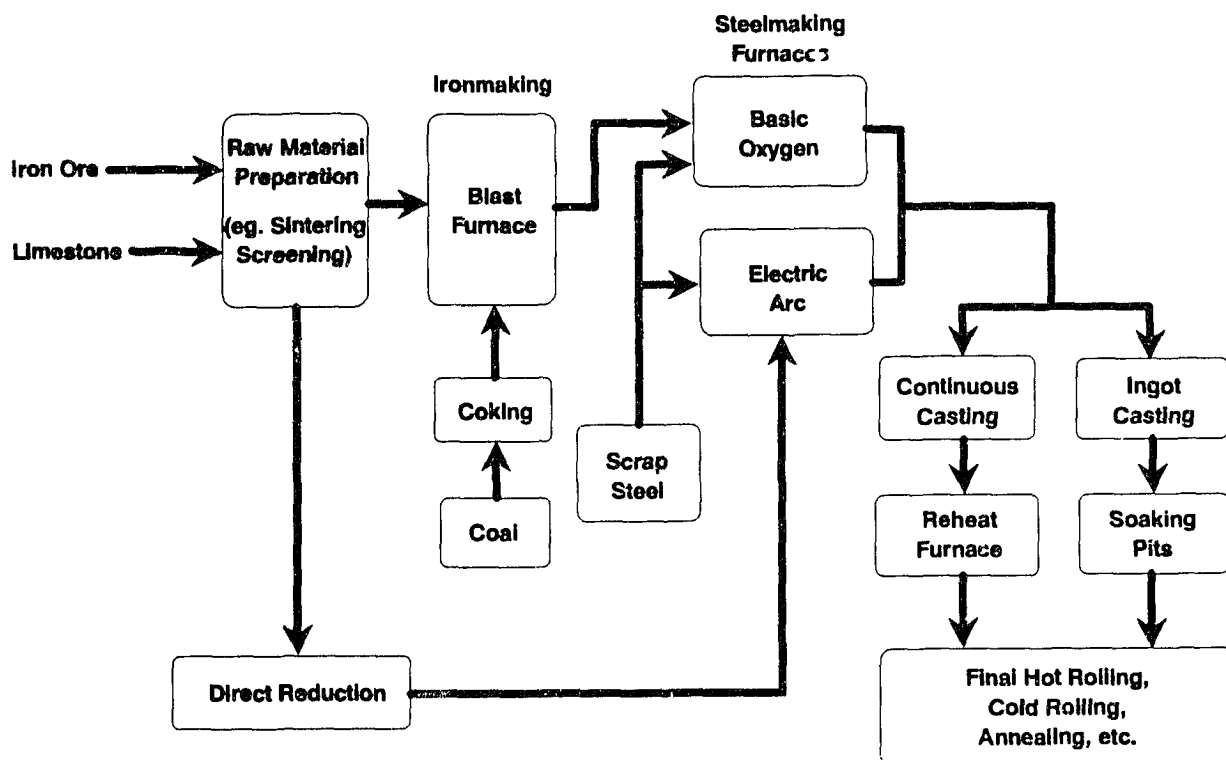
The BOF further refines the carbon steel by removing impurities. Molten steel is transferred into a ladle and then poured into ingots or into a continuous caster that produces a semi-finished product. Continuous casting requires less energy and labour than ingots, which must be reheated before the finishing operation.

Semi-finished products include slabs, blooms and billets. By mechanical means, such as hot rolling and cold rolling, slabs are converted into plates and sheet steel. Sheet steel may then be tin plated or galvanized. Blooms and billets are forged, extruded or drawn to produce structural shapes, rails, bars, pipe or wire rods.

The EAF generally uses only steel scrap, which is melted to produce molten steel. This technology requires significantly less capital investment per ton of steel than BOF technology. To reduce dependency on the availability of scrap steel and exposure to the volatility of steel scrap prices, as well as to minimize impurities caused by trace elements, minimills are developing and using direct reduced iron technology (i.e., reducing iron without the need for coke).

Figure 2: The Steel Production Process

Simplified Steelmaking Flowsheet



Summary and Outlook

The period 1988 to 1995 covers about one complete cycle in the steel industry - from boom to recession and back to boom. In 1990, industry demand dropped as the effects of the recession of 1990 to 1992 took hold. Indeed, industry profitability turned negative in the fourth quarter of 1990 and did not turn positive again until the second quarter of 1993. Industry employment declined from about 44,000 in 1988 to 32,000 in 1995, with the biggest drop occurring in 1990 as employment fell 7,200 to 36,000. That decline was aggravated by major labour disputes at Algoma and Stelco which closed their operations for about 100 days. Along with the recession and falling steel prices, several firms, including Algoma Steel and Stelco Inc., were facing financial difficulties.

The result was a major restructuring of the industry as several firms struggled to survive financially and the entire industry focussed on cutting costs, reducing employment, improving quality and moving from a production to a customer focused orientation. In this period, capital expenditures were drastically curtailed and numerous firms ceased paying dividends to common and preferred shareholders.

Canada's trade surplus for SIC 2919 declined significantly in 1990 before increasing in 1991 and 1992. In 1993, the trade surplus again declined and continued to decline in 1994 and 1995. In fact, in 1994 and 1995 Canada had a negative trade balance. With over 80% of Canada's exports going to the United States and the United States supplying about half of Canada's steel imports, a strong steel trade surplus with the United States is needed to offset a trade deficit with the rest of the world. In 1993, with the closure of some production facilities in Canada and some Canadian steel makers resorting to importing large volumes of semis to operate their rolling mills at near capacity levels, Canada's overall steel trade surplus began to be reduced. Indeed, the trade balance turned negative in 1994 and worsened in 1995. This was due primarily to the large volume of imports by producers but was aggravated by a recovery in demand that began in 1993, accelerated in 1994 and peaked in 1995. The upswing in demand throughout North America led to an overall increase in prices and imports. Whereas in 1988, steel imports accounted for 18.9% of apparent domestic consumption in Canada, in 1995 this had risen to 29.9%. Over the same time, the U.S. share of such imports rose from 8.6% of apparent domestic consumption to 17.5%.

Major Firms

- Algoma Steel Inc. — plate, hot rolled sheet, cold rolled sheet and structural shapes
- Co-Steel Lasco — rebar, flats, rounds, squares and channels
- Dofasco Inc — hot rolled sheet, cold rolled sheet, galvanized, galvalume, tin plate, and prepainted steels
- Ipsco Inc — slabs, plate, hot rolled coil
- Sammi Atlas Inc. — stainless steel sheet, strip, plate and stainless steel ingots, blooms, billets and bars
- Sidbec-Dosco (Ispat Inc.) — billets, hot and cold rolled sheet, skelp, merchant and special quality bars, shapes, rebar and galvanized steels
- Stelco Inc. — plate, hot rolled sheet, cold rolled sheet, galvanized sheet, bars and shapes
- Sydney Steel Corporation — slabs, blooms and rails

2 Industry Structure

- In 1995, the value of industry shipments in SIC 2919 was approximately \$10.3 billion, measured in current dollars (Table 1). In the same year, the value of all exports was \$3.0 billion, and the value of all imports was \$3.4 billion (Table 2). Canada was a net importer of the products of this industry in 1995, having a net trade balance with all countries of -\$357.2 million (Table 2).
- In 1995, manufacturing value added totalled \$3.9 billion (Table 1), and manufacturing value added per worker was \$120,428.
- There are about thirty establishments in the Canadian industry (Table 1). Since shipping costs can be a significant factor in the delivered cost of industry products, establishments are located in Ontario and Quebec, close to major Canadian and American markets. In 1993, 56.7% of all establishments in SIC 2919 were in Ontario, and 26.7% in Quebec.
- The industry is highly concentrated, with the four largest enterprises accounting for 74.4% of the industry's manufacturing shipments in 1992 (Table 3). By the same token, that year these four enterprises accounted for 33.3% of the industry's establishments, 80.3% of its wages and salaries, 72.7% of its fuel and electricity costs, and 71.9% of the costs of materials and supplies used in the industry (Table 3). In the same year, the eight largest enterprises accounted for 90.9% of the industry's manufacturing shipments, 60.0% of its establishments, 91.7% of its wages and salaries, 89.8% of its fuel and electricity costs, and 91.6% of the costs of materials and supplies used in the industry (Table 3).

Table 1: Industry Size, Other Primary Steel Industries, 1995

Indicator	Value*
Number of Establishments	34
Total Revenue (\$)	10,316.9
Manufacturing Shipments (\$)	10,273.6
Manufacturing Shipments (constant 1986 \$)	8,393.4
Apparent Domestic Market** (\$)	10,515.8
Manufacturing Value Added (\$)	3,854.3
Total Employment	32,005

* Unless otherwise indicated, dollar amounts are in millions of current dollars.

** Apparent domestic market is defined as the value of manufacturing shipments plus the value of imports minus the value of exports.

Source: Industry Canada estimates, based on preliminary results from Statistics Canada.

Table 2: Value of Trade, Other Primary Steel Industries, 1995*

	Source/Destination		
	United States	Rest of World	All Countries
Imports	1,652.1	1,724.5	3,376.6
Exports	2,650.7	368.7	3,019.3
Trade Balance**	998.6	-1,355.8	-357.2

* Millions of current dollars.

** Exports minus imports.

Source: Statistics Canada/Industry Canada Business Integrated Database

- In 1995, materials and supplies accounted for 70.86% of total industry operating costs, wages and salaries for 20.84%, and fuel and electricity for 8.30% (Table 4). This cost distribution differs from that for all manufacturing mainly in the area of fuel and electricity; all manufacturing had the following cost distribution in 1995: 75.78% for materials and supplies, 20.79% for wages and salaries, and 3.42% for fuel and electricity. The higher average percentage for fuel and electricity is a reflection of the energy intensive nature of the industry to convert raw materials into liquid steel and then to process it by casting and rolling.
- Wages are significantly higher than in the manufacturing sector as a whole. In 1995, the average wage was \$52,809 in SIC 2919, and \$36,916 in all manufacturing (source: Statistics Canada/CANSIM). There are two explanations for the higher than average wages. First, the steel industry is highly unionized and has been for many years - which tends to result in higher wages. Secondly, over the period from World War II to 1995, this industry has, generally, been very profitable (certainly in comparison to steel makers in many other countries over the same period) and some of this profit may have been passed onto the employees through higher wages and salaries.
- In 1993, the turnover ratio for SIC 2919 was 4.63. (The turnover ratio is the value of manufacturing shipments divided by the value of closing inventories of raw materials, goods in process and finished goods.) The corresponding figure for all manufacturing was 8.68 in 1993. The reason for the low turnover rate in the steel industry is that it needs to maintain a large inventory which includes raw materials and good in process.

Table 3: Industry Concentration, Other Primary Steel Industries, 1992*

Indicator	Four Largest Enterprises	Eight Largest Enterprises
	% of Industry Total	
Establishments	33.3	60.0
Manufacturing Shipments	74.4	90.9
Wages and Salaries	80.3	91.7
Fuel and Electricity	72.7	89.8
Materials and Supplies Used	71.9	91.6

Source: Statistics Canada/Industry Canada Business Integrated Database (BID).

Table 4: Operating Costs, Other Primary Steel Industries, 1995

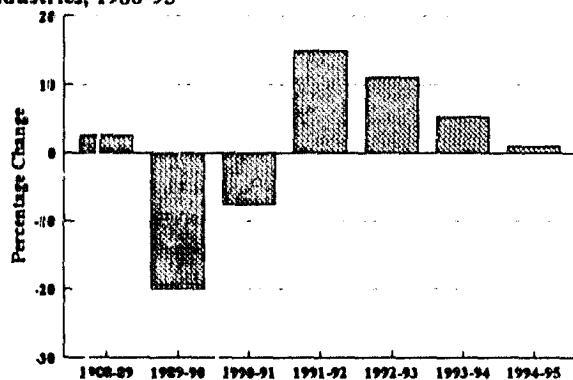
Input	% of Total Operating Costs
Materials and Supplies	70.86
Wages and Salaries	20.84
Fuel and Electricity	8.30
All Operating Costs	100.00

Source: Industry Canada estimates, based on preliminary results from Statistics Canada.

3 Industry Performance

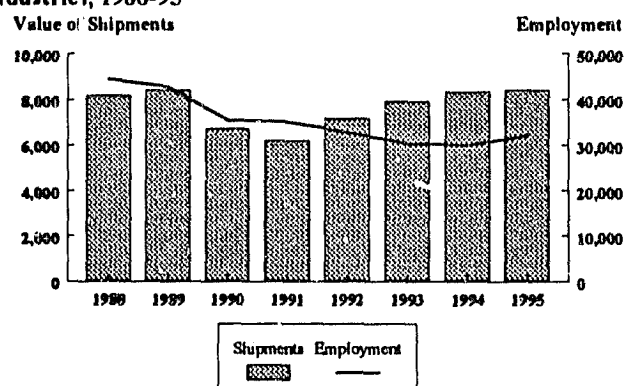
- Industry shipments suffered considerably between 1988 and 1991, dropping as much as 20% in value from year to year (Chart 1), and shipments were about 75% of their 1988 value by 1991 (Chart 2). Since 1991, however, shipments have increased in value, measured in constant 1986 dollars (Chart 2), and their value in 1995 was approximately that of 1988 (Chart 2).
- The number of establishments in SIC 2919 changed remarkably little between 1988 and 1994, varying between 29 and 31 in those years. This is not surprising as this industry is a long standing and mature one. In 1994-95, the number of establishments increased from 31 to 34. However, total employment changed much more significantly — from 44,431 in 1988 to 32,005 in 1995. Moreover, total employment dropped in every year but 1995. The decline in industry employment was partly due to the effects of the recession but was also aggravated by major labour disputes at Algoma and Stelco whose operations were shut down for about 100 days in 1990.
- Measured in constant dollars, the value of SIC 2919 shipments exported to the United States increased considerably between 1988 and 1995 (Chart 3). After dropping slightly between 1988 and 1991, exports to the United States rose by over 60% in 1992, and by more than 20% in 1993. The decline in exports to the U.S. between 1988 and 1991 were due to two reasons. In a boom market, which Canada was in, in 1988, Canada cannot supply all of its domestic demand and therefore some material that would be exported is sold domestically. Also, in the period 1984 to mid 1992, the U.S. had implemented a Voluntary Restraint Agreement (VRA) program to limit steel imports and give their steel industry time to restructure and become more competitive. While Canada did not have VRA with the U.S., Canadian steel makers agreed to keep their share of U.S. apparent domestic consumption (ADC) at about 3%. Therefore, during this period steel that would otherwise have been exported to the U.S. was exported to third markets. By 1994, Canada's share of the U.S. ADC had increased to 4% where it has remained since then. In 1995, exports to the United States were approximately 70% higher than in 1988, but Canada's imports had only increased from 3% to 4% of U.S. ADC. On June 30, 1992, shortly after the U.S. VRA program expired, U.S. steel producers launched numerous anti-dumping and countervailing duty cases against 80 countries, including Canada. From 1992 to 1995 Canada initiated seven different steel trade cases against various countries, including the U.S.. The European Union, Australia, Japan and Mexico have also taken trade cases against unfairly traded steel products. Over the same period, exports to the rest of the world first rose and then fell, slightly exceeding their 1988 value in 1995.

Chart 1: Change in Value of Shipments, Other Primary Steel Industries, 1988-95*



* Calculations are based on the value of shipments in constant 1986 dollars.
Source: For 1995, Industry Canada estimates, based on preliminary Statistics Canada results; for all other years, Statistics Canada/Industry Canada BID.

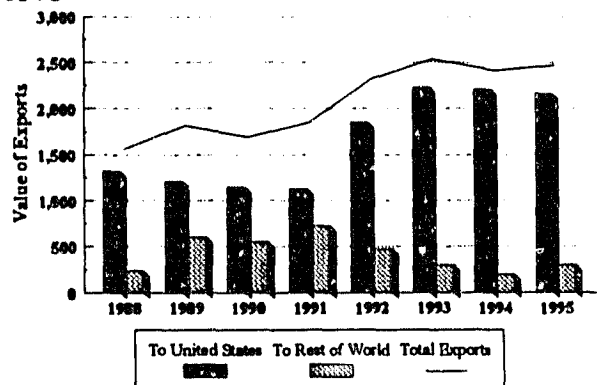
Chart 2: Shipments and Employment, Other Primary Steel Industries, 1988-95*



* Shipments are valued in millions of constant 1986 dollars.
Source: For 1995, Industry Canada estimates, based on preliminary Statistics Canada results; for all other years, Statistics Canada/Industry Canada BID.

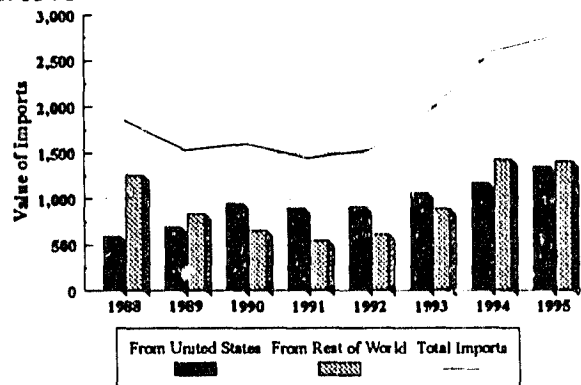
- The percentage of shipments exported has increased since 1988, from 19.2% of industry shipments in 1988 to 30.4% in 1995. Since over 80% of Canadian exports are to the U.S., this is a result of continuing market integration in North America, assisted by the FTA and the NAFTA. Imports followed a similar pattern, rising from 21.9% of the domestic market in 1988 to 32.0% in 1995. In large part this is due to an increased market share gained by the U.S. in 1990 which was never relinquished, and rising offshore imports from 1993 on due to restructuring that occurred in the Canadian industry and a strong steel market domestically.
- Measured in constant dollars, imports of the products of SIC 2919 from the United States increased steadily and significantly, more than doubling between 1988 and 1995 (Chart 4). In contrast, imports from the rest of the world decreased and then rose, slightly exceeding their 1988 value in 1995. Whereas imports from the rest of the world exceeded imports from the United States in 1988, there was little difference in the value of imports from the two sources in 1995. The interesting factor here is not what has happened to imports from the rest of the world, they tend to peak in boom years like 1988/89 and 1994/95 but what has happened to U.S. imports. Whereas they averaged 7-8% of Canadian ADC in the 1980's, in the 1990's they averaged 17-18%. Those imports increased dramatically in 1990 to replace Canadian products affected by a labour dispute and never returned to their prior levels.
- Canada was a net exporter of the products of SIC 2919 in four of the years from 1988 to 1995, a net importer in the other four years. Canada was a net exporter to the United States in every year in this period and a net importer from the rest of the world in every year but one. Moreover, the balance of trade with the rest of the world has been quite unfavourable in some years, exceeding one billion dollars for three of the years for which data were analysed. Measured in constant 1986 dollars, Canada's total balance of trade was -\$296.2 million in 1988, and -\$291.9 million in 1995. The total balance of trade has, however, had no clear trend in this period, rising and falling several times between 1988 and 1995.
- Overall, the distribution of operating costs changed little between 1988 and 1993. During this period, materials and supplies used typically accounted for about 65% of operating costs, wages and salaries for approximately 25%.

Chart 3: Value of Exports, Other Primary Steel Industries, 1988-95



* Exports are valued in millions of constant 1986 dollars.
Source: Statistics Canada/Industry Canada BID.

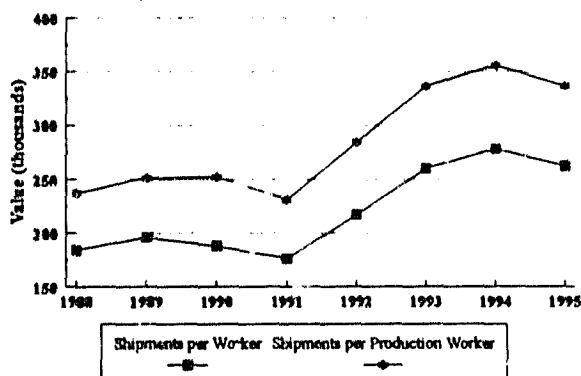
Chart 4: Value of Imports, Other Primary Steel Industries, 1988-95



* Imports are valued in millions of constant 1986 dollars.
Source: Statistics Canada/Industry Canada BID.

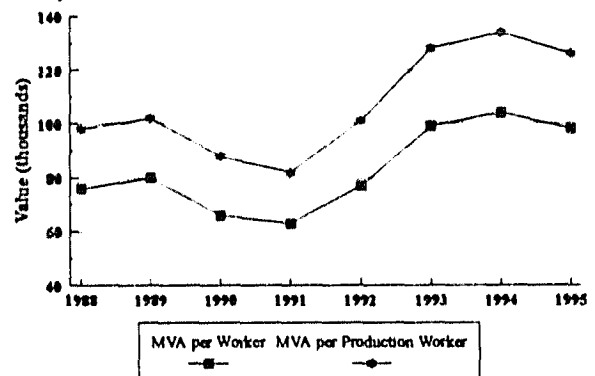
- Measured in constant (1986) dollars, wages in SIC 2919 have risen by almost \$1,700 since 1988, from \$37,848 in 1988 to \$39,557 in 1995. During the 1988-95 period, average wages in all manufacturing rose by only \$800, from \$26,861 to \$27,653. The gap between real wages in SIC 2919 and all manufacturing thus increased from approximately \$11,000 to nearly \$12,000.
- Standard efficiency indicators followed similar overall patterns between 1988 and 1995:
 - *manufacturing shipments per worker*. Measured in constant 1986 dollars, both manufacturing shipments per worker and manufacturing shipments per production worker decreased between 1988 and 1991 (Chart 5). This is due primarily to falling overall revenue (and falling selling prices) since employment levels are falling at the same time. Both indicators then rose steadily until 1994, when they declined somewhat. In 1995, both measures were significantly higher than their 1988 values. As noted earlier, the overall improvement over the period is due to the significant restructuring which the industry underwent beginning in 1990 when costs were reduced, operations reorganized and employment levels continuously reduced.
 - *manufacturing value added (MVA) per worker*. Measured in constant 1986 dollars, both MVA per worker and MVA per production worker decreased between 1988 and 1991 (Chart 6). Both measures then increased every year until 1995, when they dropped by about 5% from the 1994 peak. By 1995, both indicators were well above their 1988 values — almost 30% higher. This pattern differs from the trend in all manufacturing, where MVA per worker and per production worker increased steadily between 1988 and 1995.

Chart 5: Manufacturing Shipments per Worker, Other Primary Steel Industries, 1988-95*



* Calculations are based on the value of shipments in constant 1986 dollars.
Source: For 1995, Industry Canada estimates, based on preliminary Statistics Canada results; for all other years, Statistics Canada/Industry Canada BID

Chart 6: Manufacturing Value Added per Worker, Other Primary Steel Industries, 1988-95*



* Calculations are based on the value of shipments in constant 1986 dollars.
Source: For 1995, Industry Canada estimates, based on preliminary Statistics Canada results; for all other years, Statistics Canada/Industry Canada BID

Firms in the Industry

In the following list, names in parentheses are those of establishments that produce products in SIC 2919, according to Statistics Canada. The establishments listed are those that have fifty or more employees.

Algoma Steel Inc. (Algoma Steelworks Div.)
All New Manufacturing Inc.
Brockhouse, A Div of Samuel Manu-Tech Inc.
Canadian Drawn Steel Company Inc.
Co-Steel Inc. (Co-Steel Lasco)
Cold Metal Products Company Ltd.
Dofasco Inc.
Domfer Metal Powders Ltd.
Fonderies Canadienne D'Acier Ltee
Gerdau Courtice Steel Inc.
Gerdau MRM Steel Inc.
Ipsco Inc.
Ivaco Inc. (Ivaco Rolling Mills Melt Shop, Ivaco Rolling Mills Rod Shop, SNW Ontario Division))
Le Group Canam Manac Inc. (Mandak Metal Processing Division) - one time owner of Manitoba Rolling Mills
Les Forges de Sorel Inc. (Sorel Forge)
Les Industries Gryf Inc.
Les Poudres Metalliques Du Quebec Ltée (Quebec Metal Powder)
Production Machines Services Ltd.
Sammi Atlas (Acier Atlas Steel Div., Atlas Specialty Steel Div.)
Savik Super-Chrome Inc.
Sidbec-Dosco (ISPAT Inc.) Incorporated
Sixpro Inc.
Slater Industries Inc. (Hamilton Specialty Bar Div.)
Stelco Inc. (Hilton Works, Lake Erie Works)
Stelco McMaster Ltée (MacMaster Works Div., Tracy McCormick)
Stelwire Ltd. (Burlington Works)
Sydney Steel Corporation
West Coast Engineering (Sales) Ltd.
Western Steel Limited (an Ipsco subsidiary closed in 1995)

Industry Associations

Canadian Institute of Steel Construction

The Canadian Institute of Steel Construction (CISC) is the national industry organization representing the structural steel, open web steel joist and steel plate work fabricating industries. Formed in 1930, CISC was granted a Federal Charter as a non-profit industry association in 1942. CISC operates as a technical, marketing and government relations organization. CISC Members produce fabricated structural steel for buildings, bridges, tanks, plate work and other similar steel structures. In addition, many Member companies are also engaged in related activities, such as heavy machinery manufacturing, production of castings and wholesaling of steel.

Hugh Krentz, President
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Fax: (416) 491-6461
WWW: <http://www.buildingweb.com/cisc/index.html>

Canadian Steel Producers Association (CSPA)

Formed in 1986, the Association has as its mission to enhance the long term competitiveness of steel and the Canadian steel industry. It is headed by a Board of Directors composed of the CEO's of member companies and has a full time President located in Ottawa.

Among other activities, the CSPA provides information about Canada's steel industry to a wide variety of audiences, including all levels of government, the media, associated industries, analysts and educators. The Association also takes positions reflecting a consensus of its member companies on government activities that affect the industry. These include such topics as continental and global trade issues.

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Steel Service Centre Institute (SSCI)

The Steel Service Centre Institute was originally founded in 1907 as the American Iron, Steel and Heavy Hardware Association but adopted its current name and role in 1959. The SSCI's mission is to provide information, education, government relations, market development, networking opportunities and a forum to enhance the quality of products and services in meeting their customers', suppliers' and employees' expectations. Membership includes over 400 service centers and nearly 200 steel producers. SSCI is a North American organization which includes Canadian and

U.S. member companies.

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The Canadian Foundry Association (CFA)

Incorporated in 1975, the CFA is a national industry trade association representing Canadian metal casters, suppliers, and associates. The mission of the CFA is to assist and represent the membership in dealing with government on industry specific issues. The Association will communicate information to the industry, which will assist its members in strengthening their own competitive position, thus ensuring a strong Canadian foundry industry.

Membership is comprised of major metal casters operating over 40 plants throughout Canada, representing a large percentage of the total Canadian foundry industry production and sales. Members have been leaders in adoption of new technologies and management practices in order to continually improve efficiency, product quality, quality of work life, and protection of the environment. Major suppliers to the foundry industry are represented through an Associate Membership Group.

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Major Industry Products

The following list itemizes and describes the Harmonized System (HS) export codes assigned by Statistics Canada to SIC 2919 for 1996. The HS code is an international system of Commodity Classification which is employed to keep track of imports and exports passing through customs.

HS Code	Description
2517.20.00	Macadam of slag, dross or similar industrial waste etc.
7201.10.00	Pig iron, non-alloy, containing by weight 0.5% of phosphorus in primary forms
7201.20.00	Pig iron, non-alloy, containing by weight >0.5% of phosphorus in primary forms
7201.30.00	Pig iron, alloy in primary forms
7201.40.00	Spiegeleisen in primary forms
7203.10.00	Ferrous products obtained by direct reduction of iron ore, not elsewhere specified
7203.90.00	Spongy ferrous products, or iron having a minimum purity by weight of 99.94%
7205.10.00	Granules of pig iron or spiegeleisen
7205.21.00	Powders, alloy steel
7205.29.00	Powders, iron or steel, other than alloy
7206.10.00	Ingots, iron or non-alloy steel, of a purity of less than 99.94% iron
7206.90.00	Primary forms, iron or non-alloy steel, not elsewhere specified, of a purity less than 99.94% iron
7207.11.00	Semi-fin prod, I/nas, rect/sq cross-sect cntg by wght <.25% c, width l/t 2X thk
7207.12.00	Semi-fin prod, iron or n-al steel, rect/ sq cross sect, cntg by wght <.25% carb
7207.19.00	Semi-fin prod, iron or non-alloy steel, cntg by wght <.25% carbon, not elsewhere specified
7207.20.00	Semi-fin prod, iron or non-alloy steel, containing by weight .25% or more carbon
7208.11.00	Flat rolled prod, I/nas, in coil, hr, 600mm wide, >10mm thk, myp 355 mpa
7208.12.00	Flat rolled prod, I/nas, in coil, hr, 600mm wide, 4.75mm thk 10mm, 355 mpa
7208.13.00	Flat rolled prod, I/nas, in coil, hr, 600mm wide, 3mm thk <4.75mm, 355 mpa
7208.14.00	Flat rolled prod, I/nas, in coil, hr, 600mm wide, <3mm thk, myp 275 mpa
7208.21.00	Flat rolled prod, I/nas, in coil, hr, 600mm wide, >10mm thk, not elsewhere specified
7208.22.00	Flat rolled prod, I/nas, in coil, hr, 600mm wide, 4.75mm thk 10mm, not elsewhere specified
7208.23.00	Flat rolled prod, I/nas, in coil, hr, 600mm wide, 3mm thk <4.75mm, not elsewhere specified
7208.24.00	Flat rolled prod, I/nas, in coil, hr, 600mm wide, less than 3mm thk, not elsewhere specified
7208.31.00	Flat rolled prod, I/nas, nic, hr, 600mm width, 1,250mm 4mm thk, 355 mpa
7208.32.00	Flat rolled prod, I/nas, nic, hr 600mm wide, >10mm thk, myp 355 mpa
7208.33.00	Flat rolled prod, I/nas, nic, hr 600mm wide, 4.75mm thk 10mm, myp 355 mpa
7208.34.00	Flat rolled prod, I/nas, nic, hr 600mm wide, 3mm thk <4.75mm, myp 355 mpa
7208.35.00	Flat rolled prod, I/nas, nic, hr 600mm wide, less than 3mm thk, myp 355 mpa
7208.41.00	Flat rolled prod, I/nas, nic, hr, 600mm width 1,250mm, 4mm thk, not elsewhere specified
7208.42.00	Flat rolled prod, I/nas, not in coil, hr 600mm wide, >10mm thk, not elsewhere specified
7208.43.00	Flat rolled prod, I/nas, not in coil, hr 600mm wide, 4.75mm thk 10mm, not elsewhere specified
7208.44.00	Flat rolled prod, I/nas, not in coil, hr 600mm wide, 3mm thk <4.75mm, not elsewhere specified
7208.45.00	Flat rolled prod, I/nas, not in coil, hr 600mm wide, <3mm thk, not elsewhere specified

HS Code	Description
7208.90.00	Flat rolled prod, I/nas, not further worked than hot rolled, not elsewhere specified
7209.11.00	Flat rolled prod, I/nas, in coil, cr, 600mm wide, 3mm thk, myp 355 mpa
7209.12.00	Flat rolled prod, I/nas, in coil, cr, 600mm wide, 1mm <thk <3mm, myp 275 mpa
7209.13.00	Flat rolled prod, I/nas, in coil, cr, 600mm wide, 0.5mm thk 1mm, myp 275 mpa
7209.14.00	Flat rolled prod, I/nas, in coil, cr, 600mm wide, <0.5mm thk, myp 275 mpa
7209.21.00	Flat rolled prod, I/nas, in coil, cr, 600mm wide, 3mm or more thk, not elsewhere specified
7209.22.00	Flat rolled prod, I/nas, in coil, cr, 600mm wide, 1mm <thk <3mm, not elsewhere specified
7209.23.00	Flat rolled prod, I/nas, in coil, cr, 600mm wide, 0.5mm thk 1mm, not elsewhere specified
7209.24.00	Flat rolled prod, I/nas, in coil, cr, 600mm wide, less than 0.5mm thk, not elsewhere specified
7209/31.00	Flat rolled prod, I/nas, not in coil, cr 600mm wide, 3mm thk, myp 355 mpa
7209.32.00	Flat rolled prod, I/nas, not in coil, cr 600mm wide, 1mm <thk <3mm, myp 355 mpa
7209.33.00	Flat rolled prod, I/nas, not in coil, cr 600mm w, 0.5mm thk 1mm, myp 355 mpa
7209.34.00	Flat rolled prod, I/nas, not in coil, cr 600mm wide, <0.5mm thk, myp 355 mpa
7209.41.00	Flat rolled prod, I/nas, not in coil, cr 600mm wide, 3mm or more thk, not elsewhere specified
7209.42.00	Flat rolled prod, I/nas, not in coil, cr 600mm wide, 1mm <thk <3mm, not elsewhere specified
7209.43.00	Flat rolled prod, I/nas, not in coil, cr 600mm wide, 0.5mm thk 1mm, not elsewhere specified
7209.44.00	Flat rolled prod, I/nas, not in coil, cr 600mm wide, less than 0.5mm thk, not elsewhere specified
7209.90.00	Flat rolled prod, I/nas, not in coil, cr 600mm wide, not elsewhere specified
7210.11.00	Flat rolled prod, I/nas, plated or coated with tin, 600mm wide, 0.5mm thk
7210.12.00	Flat rolled prod, I/nas, plated or coated with tin, 600mm wide, <0.5mm thk
7210.20.00	Flat rolled prod, plated or coated with lead, 600mm wide, including terne-plate
7210.31.00	Flat rolled prod, steel, electro pltd/ ctd w zinc, <3mm thk myp275, 3mm myp355
7210.39.00	Flat rolled prod, I/nas, electro pltd or ctd w zinc, 600mm wide, not elsewhere specified
7210.41.00	Flat rolled prod, I/nas, pltd or ctd w zinc, corrugated, 600m wide, not elsewhere specified
7210.49.00	Flat rolled prod, I/nas, plated or coated with zinc, 600mm wide, not elsewhere specified
7210.50.00	Flat rolled prod, I/nas, pltd or ctd w chrom oxides/chrom w chrom oxides, 600mm
7210.60.00	Flat rolled prod, I/nas, plated or coated with aluminium, 600mm wide
7210.70.00	Flat rolled prod, I/nas, painted, varnished or plast coated, 600mm wide
7210.90.00	Flat rolled prod, I/nas, clad, plated or coated, 600mm wide, not elsewhere specified
7211.11.00	Flat rolled prod, I/nas, hr, rolled on 4 face, 150mm <w<600mm, 4mm thk, myp 355mpa
7211.12.00	Flat rolled prod, I/nas, hr, <600mm wide 4.75mm thk, myp 355 mpa
7211.19.00	Flat rolled prod, I/nas, hr, <600mm wide <3mm thk myp 275, 3mm thk myp 355, not el ewhere specified
7211.21.00	Flat rolled prod, I/nas, hr, rolled on 4 faces, 150mm <w <600mm, 4mm thk, not elsewhere specified
7211.22.00	Flat rolled prod, I/nas, hr, <600mm wide, 4.75mm thk, not elsewhere specified
7211.29.00	Flat rolled prod, I/nas, hr, <600mm wide not elsewhere specified
7211.41.00	Flat rolled prod, I/nas, cr, <600mm wide cntg by wght less than 0.25% carbon
7211.49.00	Flat rolled prod, I/nas, cold rolled or cold reduced, <600mm wide

HS Code	Description
7211.90.00	Flat rolled prod, I/nas, <600mm wide, not clad, plated or coated, not elsewhere specified
7212.10.00	Flat rolled prod, I/nas, <600mm wide, plated or coated with tin, not elsewhere specified
7212.21.00	Flat rolled prod, steel, <600mm wide, <3mm thk myp 275mpa or 3mm thk myp 355
7212.29.00	Flat rolled prod, I/nas, <600mm wide, clad, plated or coated, not elsewhere specified
7212.30.00	Flat rolled prod, I/nas, <600mm wide, o/w plated or coated with zinc
7212.40.00	Flat rolled prod, I/nas, <600mm wide, painted, varnished or coated with plast.
7212.50.00	Flat rolled prod, I/nas, <600mm wide, plated or coated, not elsewhere specified
7212.60.00	Flat rolled prod, I/nas, <600mm wide, clad
7213.10.00	Bars & rods, I/nas, hr. in irreg wound coils, cntg indent, ribs, etc prod d rp
7213.20.00	Bars & rods, I/nas, hr, in irreg wound coils, of free cutting steel
7213.31.00	Bars/rods, I/nas, hr, in irreg wnd coils of circ c sect, <14mm dia, cntg <0.25%C
7213.39.00	Bars & rods, I/nas, hr, containing by weight less than 0.25% carbon, not elsewhere specified
7213.41.00	Bars & rods, I/nas, hr, of circ cross sect <14mm dia, cntg by wt .25% C<.6%
7213.49.00	Bars & rods, I/nas, hr, containing by wght 0.25% carbon <0.6% carbon
7213.50.00	Bars & rods, iron or non-alloy steel, hr containing by wght 0.6% or more carbon
7214.10.00	Bars & rods, iron or non-alloy steel forged
7214.20.00	Bars & rods, I/nas, hr, hd or he, cntg indent, ribs, etc, prod dur rp/tar, not elsewhere specified
7214.30.00	Bars & rods, I/nas, hot rolled drawn or extruded of free cutting steel, not elsewhere specified
7214.40.00	Bars & rods, I/nas, hot rolled, drawn or extruded, cntg by wght <0.25%C, not elsewhere specified
7214.50.00	Bars & rods, I/nas, hr, hd or he, cntg by wght 0.25% carbon <0.6% not elsewhere specified
7214.60.00	Bars & rods, I/nas, hr, hd or he, cntg by wght 0.6% or more carbon, not elsewhere specified
7215.10.00	Bars & rods, I/nas, nfw than cold formed or finished of free cutting steel
7215.20.00	Bars & rods, I/nas, nfw than cold formed or finished, cntg by wght <0.25% carbon
7215.30.00	Bars & rods, I/nas, nfw than cold formed or finished, cntg by wght 0.25% C<0.6%
7215.40.00	Bars & rods, I/nas, nfw than cold formed or finished, cntg by wght 0.6% carbon
7216.10.00	Sections, U, I or H, I/nas, nfw than hot rolled/drawn or extruded, height <80mm
7216.21.00	Sections, L, I/nas, nfw than hot rolled, drawn or extruded, of a height <80mm
7216.22.00	Sections, T, I/nas, nfw than hot rolled, drawn or extruded, of a height <80mm
7216.31.00	Sections, U, I/nas, nfw than hot rolled, drawn or extruded, hght 80mm or more
7216.32.00	Sections, I, I/nas. mfw than hot rolled, drawn or extruded, hght 80mm or more
7216.33.00	Sections, H, I/nas, nfw than hot rolled, drawn or extruded, hght 80mm or more
7216.40.00	Sections, L or T, I/nas, nfw than hot rolled, drawn or extruded, hght 80mm
7216.50.00	Angles, shapes and sect, I/nas, nfw than hot rolled/drawn/extruded, hght 80mm
7216.60.00	Angles, shapes and sections, I/nas, nfw than cold formed or cold finished
7216.90.00	Angles, shapes and sections, iron or non-alloy steel, not elsewhere specified
7218.10.00	Ingots and other primary forms, stainless steel
7218.90.00	Semi-finished products, stainless steel
7219.11.00	Flat rolled prod, stainless steel, hr, in coil, 600mm wide, exceeding 10mm thk
7219.12.00	Flat rolled prod, stainless steel, hr, in coil, 600mm wide, 4.75mm thk 10mm

HS Code	Description
7219.13.00	Flat rolled prod, stainless steel, hr in coil, 600mm wide, 3mm thick <4.75mm
7219.14.00	Flat rolled prod, stainless steel, hr in coil, 600mm wide, less than 3mm thk
7219.21.00	Flat rolled prod, stainless steel, hr, nic, 600mm wide, exceeding 10mm thick
7219.22.00	Flat rolled prod, stainless steel, hr, nic, >600mm wide, 4.75mm thick 10mm
7219.23.00	Flat rolled prod, stainless steel, hr, nic, >600mm wide, 3mm thick <4.75mm
7219.24.00	Flat rolled prod, stainless steel, hr, nic, >600mm wide, less than 3mm thick
7219.31.00	Flat rolled prod, stainless steel, cr, >600mm wide, 4.75mm or more thick
7219.32.00	Flat rolled prod, stainless steel, cr, >600mm wide, 3mm thick <4.75mm
7219.33.00	Flat rolled prod, stainless steel, cr, 600mm wide, 1mm <thick <3mm
7219.34.00	Flat rolled prod, stainless steel, cr, >600mm wide, 0.5mm thick <1mm
7219.35.00	Flat rolled prod, stainless steel, cr, >600mm wide, less than 0.5mm thick
7219.90.00	Flat rolled prod, stainless steel, 600mm or more wide, not elsewhere specified
7220.11.00	Flat rolled prod, stainless steel, hr <600mm wide, exceeding 4.75mm thick
7220.12.00	Flat rolled prod, stainless steel, hr <600mm wide, less than 4.75mm thick
7220.20.00	Flat rolled prod, stainless steel, <600mm wide, cold rolled or reduced
7220.90.00	Flat rolled prod, stainless steel, cr <600mm wide, not elsewhere specified
7221.00.00	Bars & rods, stainless steel, hot rolled in irregularly wound coils
7222.10.00	Bars & rods, stainless steel, nfw than hot rolled, hot drawn or extruded
7222.20.00	Bars & rods, stainless steel, nfw than cold formed or cold finished
7222.30.00	Bars & rods, stainless steel, not elsewhere specified
7222.40.00	Angles, shapes and sections, stainless steel
7224.10.00	Ingots & other primary forms of alloy steel, o/t stainless
7224.90.00	Semi-finished products of alloy steel o/t stainless
7225.10.00	Flat rolled products of siliconelctrical steel, 600mm wide
7225.20.00	Flat rolled products of high speed steel 600mm wide
7225.30.00	Flat rolled prod, as, o/t stainless, in coils, nfw than hr 600mm wide, not elsewhere specified
7225.40.00	Flat rolled prod, as, o/t stainless, nic nfw than hr, 600mm wide, not elsewhere specified
7225.50.00	Flat rolled prod, as, o/t stainless, nfw than cold rolled 600mm wide, not elsewhere specified
7225.90.00	Flat rolled prod, as, o/t stainless, 600mm wide, not elsewhere specified
7226.10.00	Flat rolled prod, of silicon electrical steel, <600mm wide
7226.20.00	Flat rolled prod, of high speed steel, <600mm wide
7226.91.00	Flat rolled prod, as, o/t stainless, nfw than hot rolled, <600mm wide, not elsewhere specified
7226.92.00	Flat rolled prod, as, o/t stainless, nfw than cold rolled, <600mm wide
7226.99.00	Flat rolled prod, as, o/t stainless, <600mm wide, not elsewhere specified
7227.10.00	Bars & rods, of high speed steel, hr, in irregularly wound coils
7227.20.00	Bars & rods, of silico-manganese steel, hr, in irregularly wound coils
7227.90.00	Bars & rods, alloy steel, o/t stainless hr, in irregularly wound coils, not elsewhere specified
7228.10.00	Bars and rods of high speed steel, not elsewhere specified
7228.20.00	Bars and rods of silico-manganese steel not elsewhere specified

HS Code	Description
7228.30.00	Bars & rods, alloy steel, o/t stainless nfw than hot rolled/drawn/extruded, not elsewhere specified
7228.40.00	Bars & rods, as, o/t stainless, not further worked than forged
7228.50.00	Bars & rods, as, o/t stainless, not further worked than cold formed/finished
7228.60.00	Bars & rods, as, o/t stainless, not elsewhere specified
7228.70.00	Angles, shapes and sections, as, o/t stainless, not elsewhere specified
7228.80.00	Bars & rods, hollow drill, alloy or nonalloy steel
7302.10.30	Rails, for railway, new of iron or nas, heat-treated
7302.10.90	Rails, iron or steel, not elsewhere specified
7326.11.00	Balls, grinding and similar articles of I or s, forged or stamped, not f/worked

Glossary

Many of the following definitions of terms are adapted from Statistics Canada's Census of Manufactures.

Capital Expenditure and Capital Stock

Capital expenditure refers to expenditure on the two components of capital:

- construction
- machinery and equipment

Gross capital stock is the sum over time of annual capital expenditures minus the value of annual discards of worn-out fixed assets.

Net capital stock refers to gross capital stock minus accumulated depreciation. Straight-line depreciation is one of many methods of calculating depreciation. This method assumes that an asset's value decreases linearly over its life; assets are therefore depreciated by equal amounts each year over their life until their net value is zero.

Company

A company is a legal entity. For Census purposes, four types of organization are distinguished: individual ownerships, partnerships, incorporated companies and co-operatives.

Although the company is recognized in Census tabulations when distributing establishments according to their type of legal organization, basis Census tabulations classify each establishment of a company to its own industry, not to the industry most characteristic of the company as a whole. For example, if Company ABC operates establishments manufacturing small electrical appliances and others manufacturing synthetic plastic resins, the output of the two kinds of establishments is included in totals for their respective industries.

Enterprise

An enterprise is a company or family of companies controlled or managed by the same interests as a result of common ownership. In Statistics Canada's Census of Manufactures, enterprises are simply tabulating units; the Census gathers no information from enterprises or about enterprises as such.

Establishment

An establishment is the smallest separate operating entity capable of reporting the following statistics:

- materials and supplies used
- goods purchased for resale
- fuel and power consumed
- number of employees and their wages and salaries
- person-hours worked and paid
- inventories
- shipments or sales

In practice, a manufacturing establishment is usually equivalent to a factory, plant or mill.

Harmonized System (HS)

The HS code is an international system of Commodity Classification which is employed to keep track of imports and exports passing through customs.

Industry

An industry is a group of operating units, such as companies or establishments, that are engaged in the same or a similar kind of economic activity.

Standard Industrial Classification (SIC)

The Standard Industrial Classification (SIC) is a coding system that defines industries in terms of specific groupings of activities. Every industry is assigned a code, and there are two-, three-, and four-digit codes. Two-digit codes represent the broadest industry definition and the broadest range of activities, four-digit codes the most detailed industry definition and the most detailed range of activities. For example, SIC 29 represents the Primary Metal Industries (which include both primary and semi-fabricated metals), SIC 2919 Other Primary Steel Industries. If at least 50% of an establishment's value added derives from activities associated with a particular SIC code, the establishment is classified in that industry.

Value Added

Value added refers to the value a producing unit adds to the goods and services it purchased from suppliers. Value added is thus a measure of net output — the value of gross output minus the value of purchased inputs used to create the product.

Glossary¹ of Steel Terms

Alloy steels

Alloy steels have enhanced properties due to the presence of 1 or more special elements, or to the presence of larger proportion of elements such as manganese and silicon than are present in carbon steels.

Apparent consumption

Total shipments minus exports plus imports of steel.

Bar

A finished steel product, commonly in flat, square, round or hexagonal shapes. Rolled from billets, bars are produced in two major types, merchant and special.

Basic oxygen steelmaking

The process whereby hot metal and steel scrap are charged into a basic oxygen furnace (BOF). High purity oxygen is then blown into the metal bath, combining with carbon and other elements to reduce the impurities in the molten charge and convert it into steel.

Billet

A piece of semi-finished iron or steel that is nearly square and is longer than a bloom. Bars and rod are made from billets.

Blast furnace

A large cylindrical structure into which iron ore is combined with coke and limestone to produce molten iron.

Bloom

A semi-finished product, large and mostly square in cross-section. Blooms are shaped into girders, beams, and other structural shapes.

Carbon steels

The largest percentage of steel production. Common grades have a carbon content ranging from 0.06% to 1.0%.

Coal

The primary fuel of integrated iron and steel producers.

Coke

A form of carbonized coal burned in blast furnaces to reduce iron ore pellets or other iron-bearing materials to molten iron.

Coke ovens

Ovens where coke is produced. Coal is usually dropped into the ovens through openings in the roof, and heated by gas burning in flues in the walls between ovens within the coke oven battery. After heating about 18 hours, the end doors

¹ This glossary is taken from the Canadian Steel Producers Association's 1994 information binder and from the Environment Canada report, *Emissions from the Canadian Iron and Steel Industry in 1992*.

are removed and a ram pushes the coke into a quenching car for cooling before delivery to the blast furnace.

Coil

A finished steel product such as sheet or strip which has been wound or coiled after rolling.

Cold rolling

The passing of sheet or strip that has previously been hot rolled and pickled through cold rolls, i.e. below the softening temperature of the metal. Cold Rolling makes a product that is thinner, smoother, and stronger than can be made by hot rolling alone.

Continuous casting

A process for solidifying steel in the form of a continuous strand rather than individual ingots. Molten steel is poured into open-bottomed, water-cooled molds. As the molten steel passes through the mold, the outer shell solidifies.

Crude steel

Steel in the first solid state after melting, suitable for further processing or for sale. Synonymous to *raw steel*.

Direct reduction

A family of processes for making iron from ore without exceeding the melting temperature. No blast furnace is needed.

Electrical steels

Specially manufactured cold rolled sheet and strip containing silicon, processed to develop definite magnetic characteristics for use by the electrical industry.

Electric arc furnace

An electric furnace used to melt steel scrap or direct reduced iron.

Flat products

A term referring to a class of products including sheet, strip, and plate that are made from slabs.

Galvanized steel

The product produced when hot or cold rolled sheet or strip is coated with zinc either by the hot-dipping or electrolytic deposition process. Zinc coating applied by the hot dip method is normally heavy enough to resist corrosion without additional protective coating. Materials electrolytically galvanized are not used for corrosion resistant applications without subsequent chemical treatment and painting except in mild corrosive conditions, due to the thin coating of zinc. Galvanize is a pure zinc coating. A special heat-treating process converts the pure zinc coating to a zinc/iron alloy coating, and the product is known as Galvanneal.

Hot metal

Molten iron produced in the blast furnace.

Hot rolling

Rolling semi-finished steel after it has been re-heated.

Integrated steelmaker

A producer that converts iron ore into semi-finished or finished steel products. Traditionally, this required coke ovens, blast furnaces, steelmaking furnaces, and rolling mills. A growing number of integrated mills use the direct reduction

process to produce sponge iron without coke ovens and blast furnaces.

Iron ore

The primary raw material in the manufacture of steel.

Ladle metallurgy

The process whereby conditions (temperature, pressure and chemistry) are controlled within the ladle of the steelmaking furnace to improve productivity in preceding and subsequent steps and the quality of the final product.

Limestone

Used by the steel industry to remove impurities from the iron made in blast furnaces. Magnesium-containing limestone, called *dolomite*, is also sometimes used in the purifying process.

Line pipe

Used for transportation of gas, oil or water generally in a pipeline or utility distribution system.

Mechanical tubing

Welded or seamless tubing produced in a large number of shapes to closer tolerances than other pipe.

Minimill

A small non-integrated or semi-integrated steel plant, generally based on electric arc furnace steelmaking. Minimills produce rods, bars, small structural shapes and flat rolled products.

Net ton

See ton

Oil country tubular goods (OCTG)

Pipe used in wells in oil and gas industries, consisting of casing, tubing, and drill pipe. Casing is the structural retainer for the walls; tubing is used within casing oil wells to convey oil to ground level; drill pipe is used to transmit power to a rotary drilling tool below ground level.

Open-hearth process

A process for making steel from molten iron and scrap. The open-hearth process has been replaced by the basic oxygen process in most modern facilities.

Pellets

An enriched form of iron ore shaped into small balls.

Pig iron

High carbon iron made by the reduction of iron ore in the blast furnace.

Plate

A flat rolled product rolled from slabs or ingots, of greater thickness than sheet or strip.

Rolling mill

Equipment that reduces and transforms the shape of semi-finished or intermediate steel products by passing the material through a gap between rolls that is smaller than the entering materials.

Semi-finished products

Products such as slabs, billets, and blooms which must be rolled or otherwise processed to create usable steel shapes.

Sheet

A flat rolled product over 12 inches in width and of less thickness than plate.

Sheet piling

Rolled sections with interlocking joints (continuous throughout the entire length of the piece) on each edge to permit being driven edge-to-edge to form continuous walls for retaining earth or water.

Sintering

A process which combines ores too fine for efficient blast furnace use with flux stone. The mixture is heated to form clumps, which allow better draft in the blast furnace.

Slab

A wide semi-finished product made from an ingot or by continuous casting. Flat rolled steel products are made from slabs.

Sponge iron

The product of the direct reduction process. Also known as *direct reduced iron (DRI)*.

Stainless steels

Stainless steels offer a superior corrosion resistance due to the addition of chromium and/or nickel to the molten steel.

Standard pipe

Used for low-pressure conveyance of air, steam, gas, water, oil or other fluids and for mechanical applications. Used primarily in machinery, buildings, sprinkler systems, irrigation systems, and water wells rather than in pipelines or distribution systems.

Strip

A flat rolled product customarily narrower in width than sheet, and often produced to more closely controlled thicknesses.

Structural shapes

Rolled flange sections, sections welded form plates, and special sections with at least one dimension of their cross-section 3 inches or greater. Included are angles, beams, channels, tees and zeeks.

Structural pipe and tubing

Welded or seamless pipe and tubing generally used for structural or load-bearing purposes above-ground by the construction industry, as well as for structural members in ships, trucks, and farm equipment.

Tin coated steel

Cold rolled sheet, strip, or plate coated with tin or chromium.

Ton

- a) A unit of weight in the U.S. Customary System, an avoirdupois unit equal to 2,240 pounds. Also known as *long ton*.
- b) A unit of weight in the U.S. Customary System, an avoirdupois unit equal to 2,000 pounds. Also known as *short*

ton. Also known as *net ton*.

Tonne

A metric ton, equivalent to 1,000 kilograms.

Wire: drawn and/or rolled

The broad range of products produced by cold reducing hot rolled steel through a die, series of dies, or through rolls to improve surface finish, dimensional accuracy, and physical properties.

For More Information . . .

This document has presented only some of the data available on Canada's other primary steel industries. More information may be obtained from the following sources.

World Wide Web:

- Canadian Business Map — for information on Canada's information resources (federal, provincial, municipal and international)
 - <http://commercecan.ic.gc.ca/>
- Canadian Industry Statistics — for domestic data by SIC:
 - http://strategis.ic.gc.ca/sc_ecnmy/sio/homepage.html
- Export Source — for trade information resources from across government:
 - <http://exportsource.gc.ca/>
- Industry associations — for information on the activities of Canadian industry associations:
 - <http://www.canadiansteel.ca> (Canadian Steel Producers Association (CSPA))
 - <http://www.buildingweb.com/cisc/index.html> (Canadian Institute of Steel Construction (CISC))
 - <http://home.istar.ca/~metassn/> (Canadian Foundry Association (CFA))
 - <http://www.ssci.org/> (Steel Service Centre Institute (SSCI))
 - <http://www.cstec.ca> (Canadian Steel Trade and Employment Congress (CSTEC))
 - http://www.apc.org/~uswa/uswa_eng.htm (United Steelworkers of America in Canada (USWA))
- Industry Canada — for Industry Canada's home page:
 - <http://strategis.ic.gc.ca/>
- Metals and Minerals Processing Branch home page — for a wealth of reference materials on the metals and minerals industries:
 - <http://strategis.ic.gc.ca/metals>
- Natural Resources Canada — for information on minerals and mining in Canada:
 - <http://www.nrcan.gc.ca/ms/efab/mmsd> (links to data from NRCan's Minerals and Mining Statistics Division (MMSD))
- SIC 29 — for detailed data on SIC 29:
 - http://strategis.ic.gc.ca/sc_ecnmy/sio/engdoc/sice929.html (links to pages on SIC 29)
- SIC 2919 — for detailed data on SIC 2919:
 - http://strategis.ic.gc.ca:80/sc_ecnmy/sio/engdoc/sice127.html (links to pages on SIC 2919, including information on principal activities and products, industry structure, international trade, industry performance, industry size, country of ownership and profit-based tertiles)
 - http://strategis.ic.gc.ca:80/sc_ecnmy/sio/si_app_eng/si29197e.html (benchmarking tool for comparing the structure of individual establishments with the average establishment in SIC 2919)
 - http://strategis.ic.gc.ca:80/sc_ecnmy/sio/ef_app_eng/si29198e.html (benchmarking tool for comparing the performance of individual establishments with the average establishment in SIC 2919)
- Trade Data Online — for data on imports and exports by Harmonized System (HS) or SIC code:
 - http://strategis.ic.gc.ca/sc_mrkti/tdst/engdoc/tr_homep.html

Appendix - Canadian Industry Statistics

SIC-E 2919 - Other Primary Steel Industries

Table 1: Structural Indicators
SIC 2919 Other Primary Steel Industries

Selected Indicators/Years	1988	1989	1990	1991	1992	1993	1994	1995
Number of Establishments	29	31	29	29	30	30	31	34
Total Revenue (\$)	8,856.76	9266	7288.4	6526.74	6957.18	8011.7	9358.93	10316.85
Manufacturing Shipments (\$)	8798.82	9204	7240.08	6486.65	6930.84	7980.52	9319.73	10273.57
Constant 1986 \$ Manufacturing Shipments	8177.34	8390.15	6703.78	6189.55	7115.86	7901.5	8313.76	8393.44
Manufacturing Shipments as a % of All Manufacturing Shipments	2.96	2.98	2.42	2.32	2.42	2.58	2.64	2.63
Apparent Domestic Market (Shipments + Imports - Exports) (\$)	9117.62	8889.3	7144.28	6065.38	6160.03	7398.27	9537.87	10630.80
Manufacturing Value Added (\$)	3637.99	3751.34	2532.81	2317.09	2465.63	3041.39	3496.46	3854.31
Total Employment	44431	42746	35572	35084	32738	30450	29947	32005
Total Salaries and Wages (\$)	1826.25	1858.14	1606.26	1630.52	1591.29	1559.07	1573.8	1690.16
Production Workers as a % of the Total No. of Workers	77.65	78.18	74.91	76.26	76.55	77.19	77.94	78.01
Other Workers as a % of the Total No. of Workers	22.35	21.82	25.09	23.74	23.45	22.81	22.06	21.87
Industrial Product Price Index	107.6	109.7	108	104.8	97.4	101	112.1	122.4

Note(1): (\$) figures are in millions of current dollars.

Note(2): Figures for 1995 are Industry Canada estimates.

Source: Statistics Canada/Industry Canada Business Integrated Database.

Table 2: Operational Costs, 1994
SIC 2919 Other Primary Steel Industries

Operational Costs	\$Value	% of Total
Fuel and Electricity	673.69	8.3
Materials and Supplies	5748.02	70.86
Wages and Salaries	1690.16	20.84
Total Operational Costs	8111.87	100

Source: Statistics Canada/Industry Canada Business Integrated Database.

Table 3: Value of Trade, Canada with the U.S. and the Rest of the World
SIC 2919 Other Primary Steel Industries

Selected Indicators/Years	1988	1989	1990	1991	1992	1993	1994	1995	1996
Imports from U.S. (\$)	644.5	764	1022.6	941.9	891.6	1073.5	1306.9	1644.1	1629.6
Exports to U.S. (\$)	1420.3	1329.2	1235.1	1176.9	1800.6	2254.8	2477.4	2650.7	2734.6
Trade Balance with U.S. (\$)	775.8	565.2	212.5	235	909	1181.3	1170.5	1006.6	1105.0
Imports from Rest of World (\$)	1350.3	917.4	708.7	573.9	602	903.5	1600.9	1724.5	1356.8
Exports to Rest of World (\$)	255.7	666.9	592.0	760.2	463.8	304.4	223.8	368.7	292.0
Trade Balance with Rest of World (\$)	-1094.6	-250.5	-116.7	186.3	-138.2	-599.1	-1377.1	-1355.8	-1064.8
Trade Balance with All Countries (\$)	318.8	314.7	95.8	421.3	770.8	582.2	-206.6	-349.2	40.2
Exports as a % of Domestic Shipments	18.4	22.5	25.6	29.9	32.7	32.1	29.0	29.4	n/a
Imports as a % of Domestic Market	21.9	18.9	24.2	25	24.3	26.7	30.6	31.8	n/a

Note(1): (\$) figures are in millions of current dollars.

Note(2): Figures for 1995 are Industry Canada estimates.

Source: Statistics Canada/Industry Canada Business Integrated Database.

Table 4: Performance Indicators
SIC 2919 Other Primary Steel Industries

Selected Indicators/Years	1988	1989	1990	1991	1992	1993	1994	1995
Manufacturing Shipments per Worker (\$000's)	198	215.3	203.5	184.9	211.7	262.3	311.2	321
Manufacturing Shipments per Production Worker (\$000's)	255	275.4	271.7	242.4	276.6	339.8	399.3	411.5
Manufacturing Value Added per Production Worker (\$000's)	105.5	112.2	95	86.6	98.4	129.5	149.8	154.4
Total Wages/Total Operational Costs (%)	25.3	24.7	26.8	28.2	26.3	23.9	21.3	20.8
Energy Costs/Total Operational Costs (%)	6.8	6.4	7.6	8.5	8.7	9.1	8.3	8.3
Material Costs/Total Operational Costs (%)	67.9	68.9	65.6	63.3	64.9	67	70.5	70.9

Note(1): (\$) figures are in millions of current dollars.

Note(2): Figures for 1995 are Industry Canada estimates.

Source: Statistics Canada/Industry Canada Business Integrated Database.