

Industry Snapshot

Primary Steel In Canada

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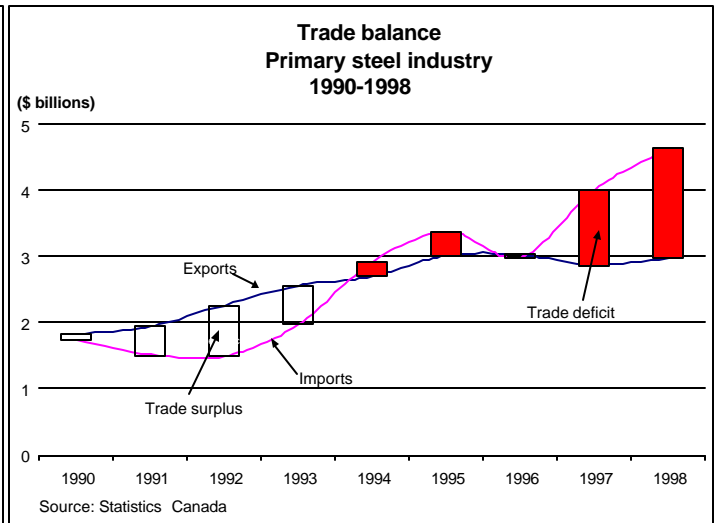
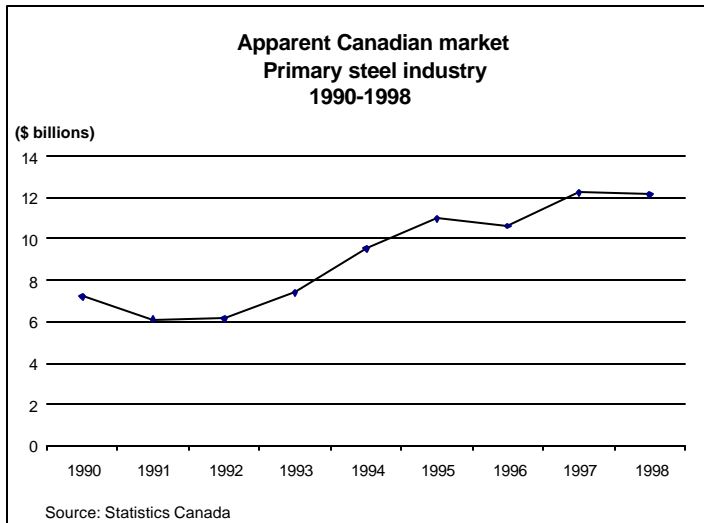
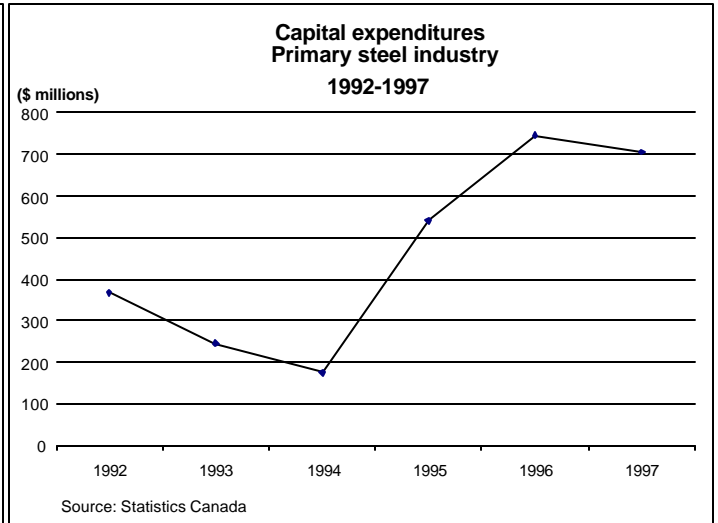
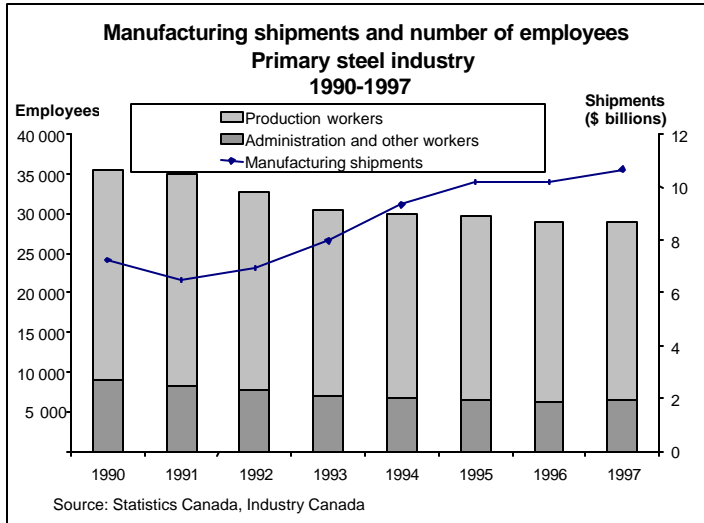
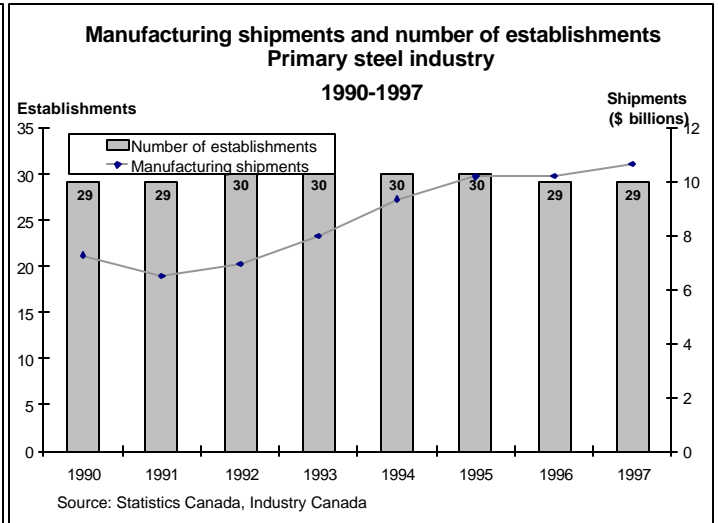
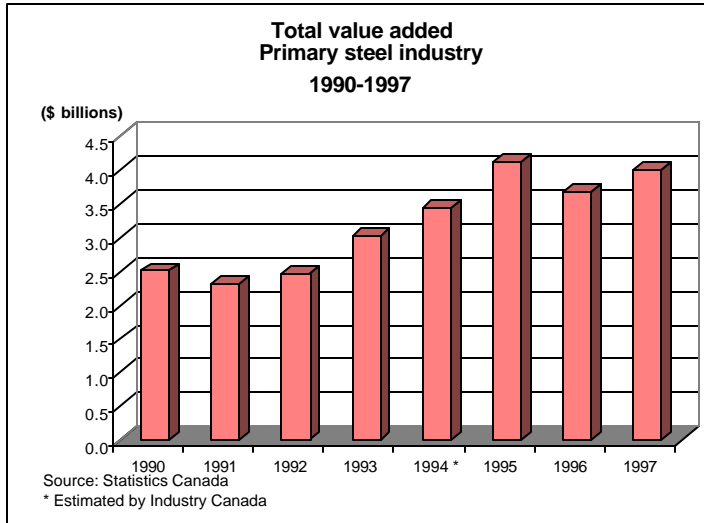
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Highlights Primary Steel

- In 1997, the primary steel industry contributed \$4.002 billion to the Canadian economy, a 9.1% increase over 1996 (\$3.669 billion).
- The value of manufacturing shipments was an estimated \$10.037 billion in 1998, a 5.8% decrease over 1997 (\$10.654 billion).
- In 1997, the sector reached its lowest level of employment, with 28 927 workers. This was down by 127 employees, or 0.4%, from 1996 (29 054 workers).
- The percentage of shipments exported remained constant between 1990 and 1998 at an average of 29.4% of industry shipments.
- From 1990 to 1998, the value of Canadian exports has shown an increasing trend. Canadian exports reached \$2.970 billion in 1998, a 3.3% increase over 1997 (\$2.877 billion).
- The United States (U.S.) remained by far the largest Canadian trading partner, with exports destined to the U.S. totaling \$2.8 billion, or 94.0%, in 1998. In fact, 27.8% of primary steel production was destined to the U.S. market.
- The 1990s have witnessed high import penetration from foreign countries into the Canadian apparent domestic market (CADM). Imports from all countries represented 24.2% of the CADM in 1990 and have increased their share to 39.7% of the CADM in 1998. Moreover, the demand for foreign primary steel products increased by 168.2%, an average annual growth rate of 13.1%, between 1990 and 1998. The value of imports was \$4643.4 million in 1998, a 15.8% increase over 1997 (\$4009.0 million).
- The United States has been the principal source of imports to the Canadian market. In 1998, 47.6% of total imports, representing \$2210.5 million, originated from the U.S. That year, imports from the U.S. accounted for 18.9% of the CADM.
- The faster growth of imports over this period has meant that Canada has been a net importer of other primary steel products since 1994, after having been a net exporter at the beginning of the decade.
- In addition, although Canada has had a trade surplus with the United States since 1990, the growing trade deficit with countries other than the U.S. has caused a widening trade deficit with all countries since the middle of the period.

The Primary Steel Industry at a Glance



1. Introduction

The objective of the *Industry Snapshots* is to provide an economic overview of certain sectors of the metals and minerals processing industry as well as a description of the factors influencing its performance. This Snapshot focuses on the **Other Primary Steel Industry** for the 1990-1998 period. Establishments in this industry fall under 1980 Statistics Canada's Standard Industrial Classification (SIC) 2919. The other primary steel industry is often referred to as the *primary steel industry* (or the steel industry) and will be referred to as such throughout this document.

Establishments in 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 steelmaking vessels. Subsequent processing steps include casting and rolling the steel into primary shapes. Non-integrated establishments may produce molten steel from scrap or pre-reduced pellets in a steelmaking 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 SIC 2921 - Steel Pipe and Tube Industry.

According to Statistics Canada's definition of the industry, establishments falling under SIC 2919 are engaged in the production of:

- Bands, iron and steel
- Bars, steel
- Billets, steel
- Blooms, steel
- Pig iron (including 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 (excluding pipe extruding)
- Structural shapes, unfabricated, steel

It should be noted that data reported by Statistics Canada for the primary steel industry may be somewhat understated due to the fact that the activities of some companies involved in the other primary steel industry 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.

In 1998, the primary steel industry (SIC 2919) represented 36.6% of the primary metal industry (SIC 29) in terms of value of shipments and accounted for 2.6% of the total Canadian manufacturing industry (Figure 1).

Table 1 shows the key statistics for this industry for 1997 and 1998.

Table 1: Key statistics (1997-1998) for the primary steel industry

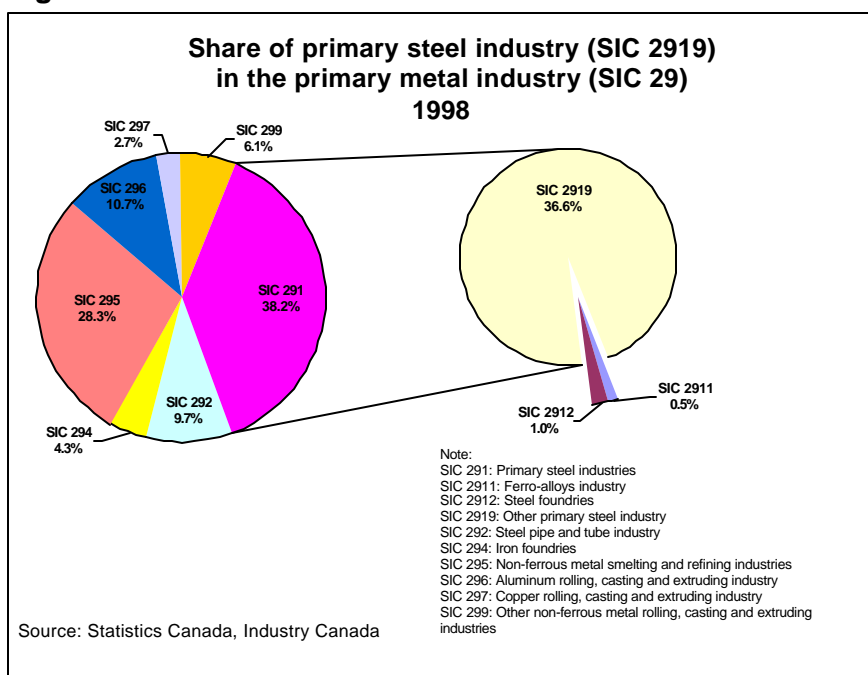
Primary steel industry – SIC 2919							
Year	Shipments	Value added*	Exports	Imports	Trade balance	Establishments*	Employees*
1998	10 037.1	4 002.3	2 970.9	4 643.4	1 672.5	29	28 927
1997	10 654.3	3 669.5	2 877.0	4 009.0	1 132.0	29	29 054
(1998/ 1997)	-5.8%	9.1%	3.3%	15.8%	-47.7%	0.0%	-0.4%

Source: Statistics Canada

Figures in \$ millions for shipments, value added, exports, imports and trade balance.

* Data for 1997 and 1996.

Figure 1



In 1997, the primary steel industry contributed \$4.002 billion to the Canadian economy, a 9.1% increase over 1996 (\$3.669 billion). Since 1990, the sector's value added has increased by 59.8% at a compounded average annual growth rate (CAAGR) of 6.9%.

Major markets for primary steelmakers include motor vehicles and parts, steel service centres, pipes and tubes, wire and wire products, and steel fabrication. In 1998, domestic shipments to these markets amounted to 9.39 million tonnes (Mt), down from 9.81 Mt in 1997 but up from 6.83 Mt in 1990 and up from the low point over this period (1991) when domestic shipments to these markets amounted to only 6.24 Mt. In addition, exports of domestically produced steel products, primarily to the United States, amounted to 2.70 Mt in 1998 and 2.76 Mt in 1997, compared with 2.83 Mt in 1990 and 3.34 Mt in 1991.

The steel industry is cyclic and in 1991 its total shipments were at their lowest in recent memory. From a low point of 11.24 Mt in 1991, shipment levels rose every year until 1997, when they peaked at 14.50 Mt before falling to 14.06 Mt in 1998. Over the same period, total Canadian vehicle production increased from 1.68 million units in 1991 to 2.41 million in 1997 and 2.35 million in 1998. In the pipe and tube industry, shipments amounted to 2.17 Mt in 1997 and 1.82 Mt in 1998, compared with 1.47 Mt in 1990 and 1.71 Mt in 1991.

The steel industry plays a significant role as a supplier of inputs to downstream manufacturing industries. Examples include auto parts makers and assemblers; appliance makers; producers of fabricated metal products, such as metal buildings, windows and doors; the construction industry; the pipe and tube industry; and producers of wire and wire products, such as fencing, nails, nuts and bolts, screws and other fasteners.

The steel industry is constantly developing new products to meet the needs of its customers. In fact, over half of the steel products being used today did not exist a decade ago. Some of this represents new high-strength low-alloy steels for use in the auto industry. Two Canadian steelmakers belong to an international consortium of 35 steelmakers from 18 countries involved in the UltraLight Steel AutoBody (ULSAB) project. Its objective is to demonstrate to the auto industry that the use of new lightweight steels and existing manufacturing techniques can improve the automobile's environmental profile through increased fuel efficiency, while improving safety and performance and maintaining affordability. Similarly, the steel industry has formed the North American Steel Framing Alliance, a coalition of Canadian and U.S. steelmakers and related industries (steel converters, zinc producers, steel framing manufacturers, fastener manufacturers, tool and equipment manufacturers, and trade associations), to promote the use of light gauge steel framing in residential construction. In the oil country tubular goods market, steelmakers are working to develop higher strength steels for use in pipelines. This will enable their customers to build pipelines that have the same capacity but use less steel per kilometre.

Over the period 1990 to 1998, Canadian steelmakers invested \$4.4 billion in new plant and equipment. Although this investment resulted in a modest increase in steelmaking capacity for the industry, it was primarily intended to replace existing plants or to build new facilities to supply the market demand for high-quality steel products at the lowest possible price. At the same time, industry employment levels have fallen about 20% to 28 927 in 1997. Manufacturing value added per production employee has increased from about \$93 977 in 1990 to about \$178 008 in 1997. This compares with a figure of \$65 800 to \$94 800 for the same period in value added per production worker for all manufacturing industries.

Since 1994, Canada has become a net importer of primary steel, whereas prior to that time it had been a net exporter. In fact, imports surged in 1997 and 1998 in response to strong demand in Canada (and the United States), demand that could not be met by domestic supplies. The result was that in 1997 steel demand was described by one analyst as the best in 25 years and in 1998 steel demand was even higher than in 1997.

However, despite record demand levels and steel shipments by domestic producers, profitability declined from 1997 to 1998 due to increased imports of low-priced steel products. This has resulted in another round of unfair trade cases being initiated by Canadian steelmakers in 1998 and carrying over into 1999. Similar actions were begun by steelmakers in the United States and Mexico, as well as the European Union, Asia and many other countries. In part, this was a delayed reaction to the emergence of very large volumes of low priced Russian and East Bloc steel coming onto the world market since the early 1990s and the effect of the Asian crisis in

late 1997 and 1998. The result of both crises was to divert some Russian and East Bloc steel that had previously been sold in Asian markets to developed countries where Russia and East Bloc countries had already become significant players. At the same time, Asian steel producers increased their steel exports to western markets where prices were higher and demand could absorb steel otherwise consumed in Asia. The net result was that in late 1997 and 1998, prices of various imported steel products declined significantly, which in turn depressed prices charged by Canadian steelmakers.

It is not clear if the current round of anti-dumping and countervailing duty investigations resulting from injuriously traded steel products has run its course. The last such round of cases occurred between 1992 to 1994 when the industry was emerging from the last downturn, which reached its lowest point in 1991.

2. Overview of Manufacturing Process

Molten steel is produced by two primary means:

- 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 differences between the two processes are the scale of operation and the cost of facilities. The relative operating cost difference between BOF and EAF steel-making depends 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, the coke oven and blast furnace, in particular, are the major sources of pollution in an integrated steel operation.

Coke production is the process for carbonizing 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.

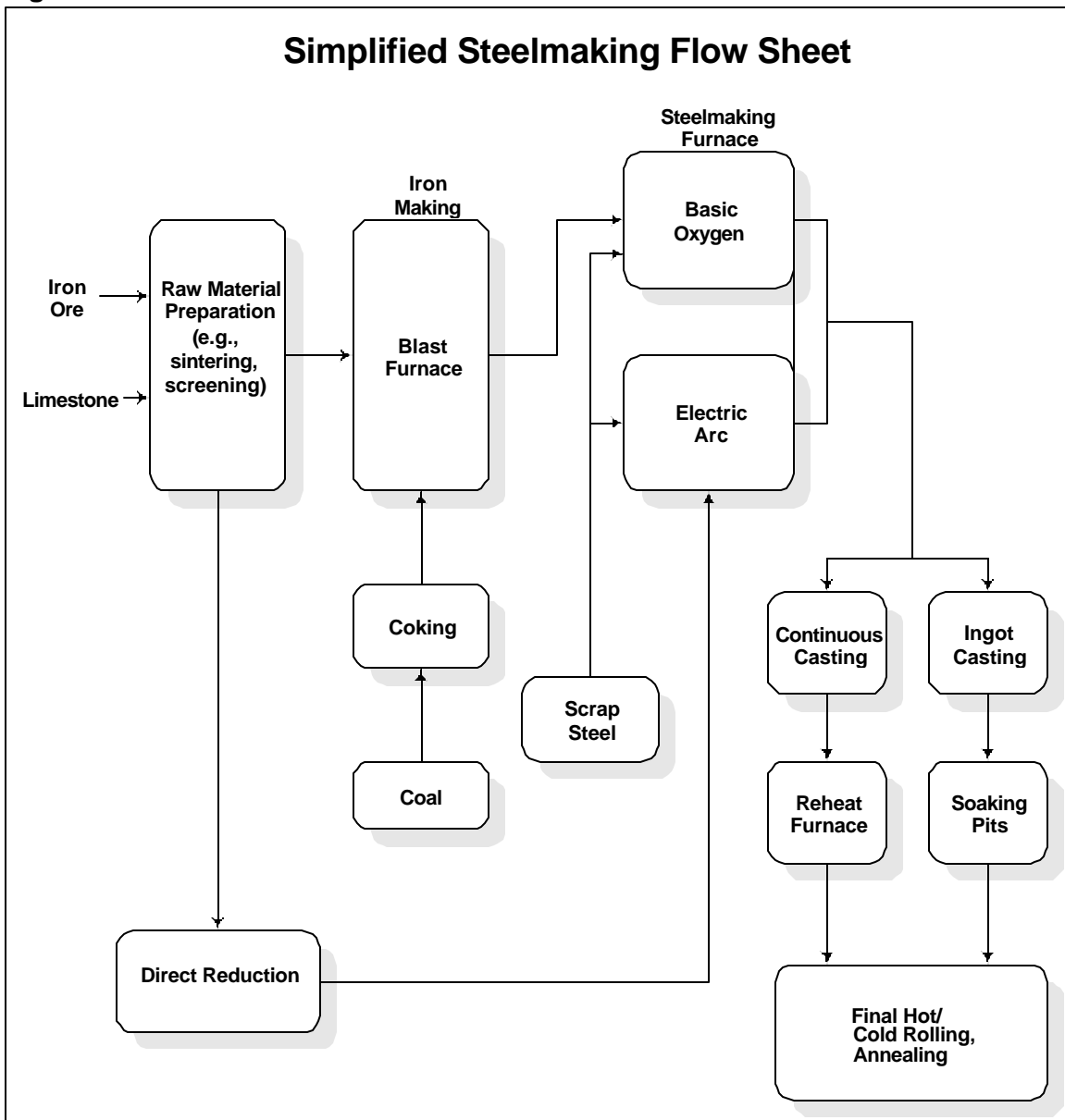
The BOF further refines the carbon steel by removing impurities. Molten steel is transferred into a ladle and then poured into ingots or into a continuous caster that produces a semi-finished product. Continuous casting requires less energy and labour than ingots, which must be reheated before the finishing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

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 tonne of steel than BOF technology. To reduce dependency on the availability of steel scrap 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 shows an overview of how primary steel is made. A more complete description as well as a visual presentation of the manufacturing process is available at the Web site of the American Iron and Steel Institute (AISI) (<http://www.steel.org/learning/flowline/index.htm>).

Figure 2



3. Industry Performance and Structure

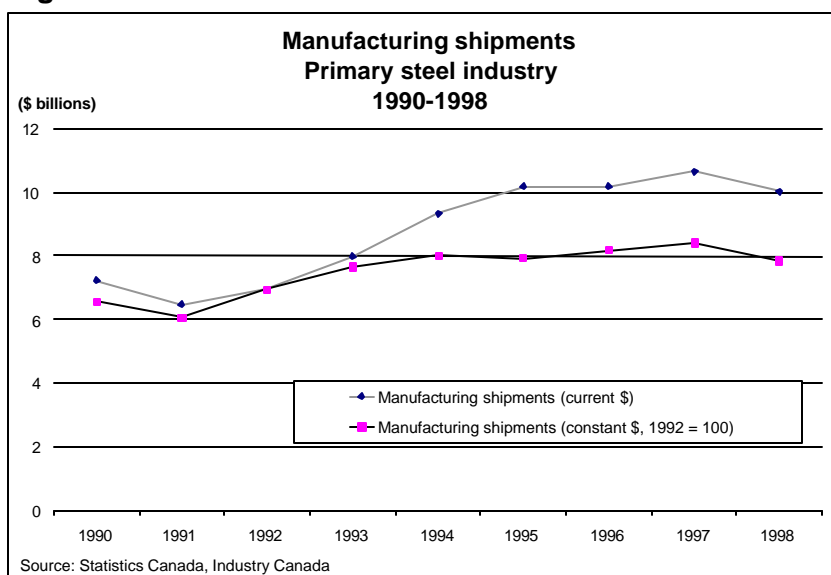
The following section gives a description of the structure of the primary steel industry and shows how it has performed since 1990.

3.1 Industry Performance

3.1.1 Production

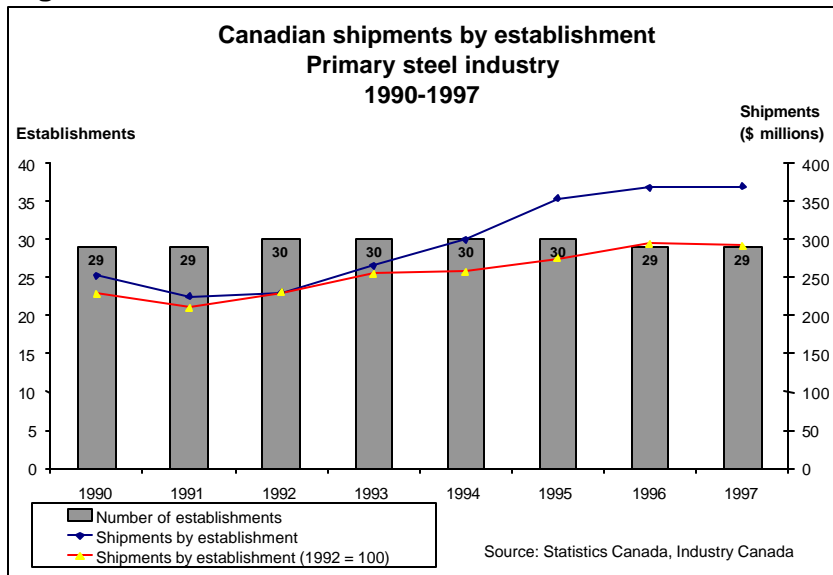
The value of manufacturing shipments was an estimated \$10.037 billion in 1998, a 5.8% decrease over 1997 (\$10.654 billion) (Figure 3). Except for the decline in 1991 due to recession, manufacturing shipments have grown continuously from 1990 at an average rate of 4.5% annually. The industry's manufacturing shipments were positively correlated to those for all manufacturing and followed the same trend, maintaining a 2.5% share of all manufacturing shipments during the 1990-1998 period. In addition, in terms of constant dollars (1992 = 100), levels of shipments followed a similar trend.

Figure 3



The number of establishments remained relatively constant over the period 1990-1997, with an average of 30 establishments (Figure 4). However, comparing the value of shipments by establishment in current and constant dollars reveals that eliminating the inflation effect eliminates most of the increase in value over this period. Therefore, constant dollar increases in shipments per establishment were very modest during this period, amounting to just \$63.7 million per establishment between 1990 and 1997.

Figure 4

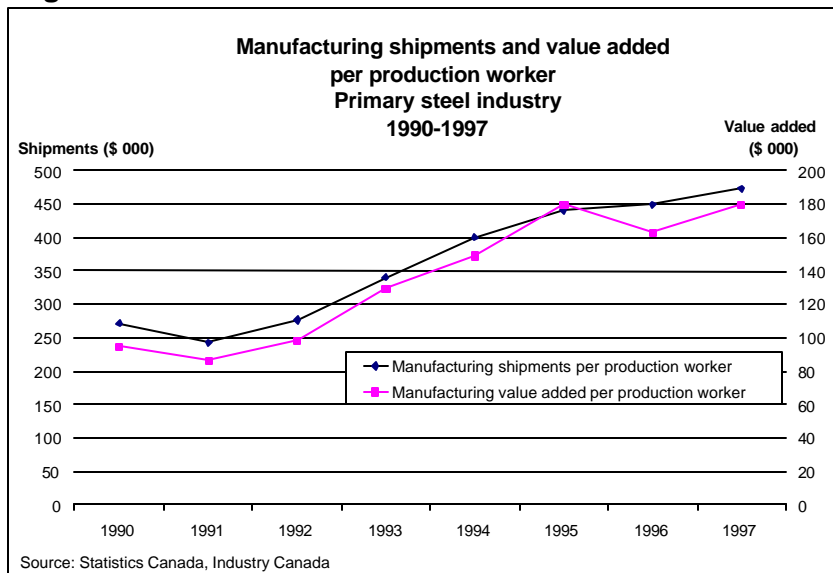


3.1.2 Productivity

Manufacturing shipments per production worker showed an upward trend, with a cumulative increase of 74.4%, between 1990 and 1997 (Figure 5). Compared with 1996, this indicator increased by 5.5% to reach \$473.9 thousand per production worker in 1997.

However, manufacturing value added (MVA) per production worker exhibited slightly more volatility than the previous indicator. Although both indicators generally followed the same trends, they were inversely correlated during the 1994-1996 periods, suggesting that during those years inputs were lower priced in relation to the final selling price so that the value added per production worker was increased. Even though this may be the explanation, adjustments in product mix from company to company and year to year make accounting for changes in the value added per worker a difficult task.

Figure 5



According to Statistics Canada, in 1995, unit labour cost in the primary steel industry was similar, at 0.95, to the primary metals industry (0.96) but higher than the total manufacturing industry (0.69). These figures indicate that labour compensation per worker over the value added per worker was higher in this sector than the average for the manufacturing industry, reflecting higher wages. However, it should be noted that unit labour costs in the primary steel industry had decreased by 8.7% over 1990 (1.04).

Hourly employees in the primary steel industry are almost all unionized, with non-unionized firms (Dofasco) offering compensation comparable to their unionized counterparts.

3.2 Structural Indicators

3.2.1 Size and geographic distribution of establishments

The primary steel industry comprised 29 establishments in 1997, with almost three quarters (72.4%) of the establishments belonging to the “large” category (over 200 employees) (Table 2).

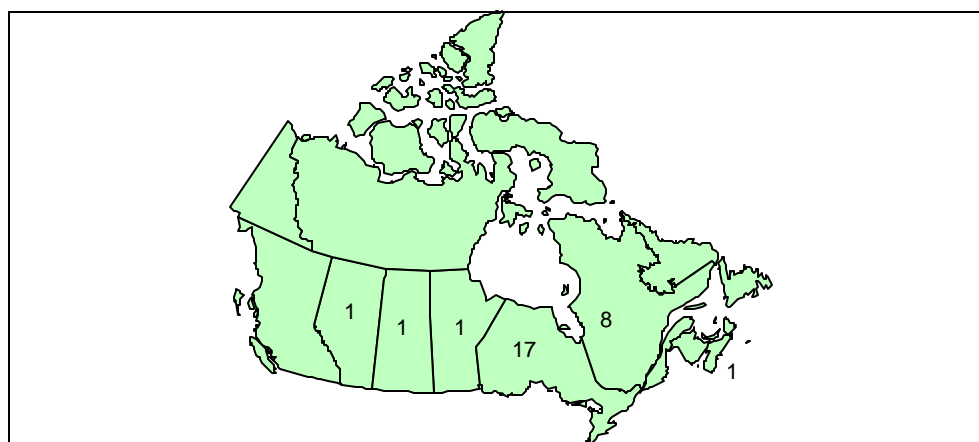
Table 2: Distribution by size of establishments, 1997

Primary steel industry – SIC 2919		
Size of establishment	No. of establishments	% of total
Small (1-49 employees)	2	6.9
Small-medium (50-99 employees)	2	6.9
Medium (100-199 employees)	4	13.8
Large (200 or more employees)	21	72.4
Total	29	100.0

Source: Statistics Canada

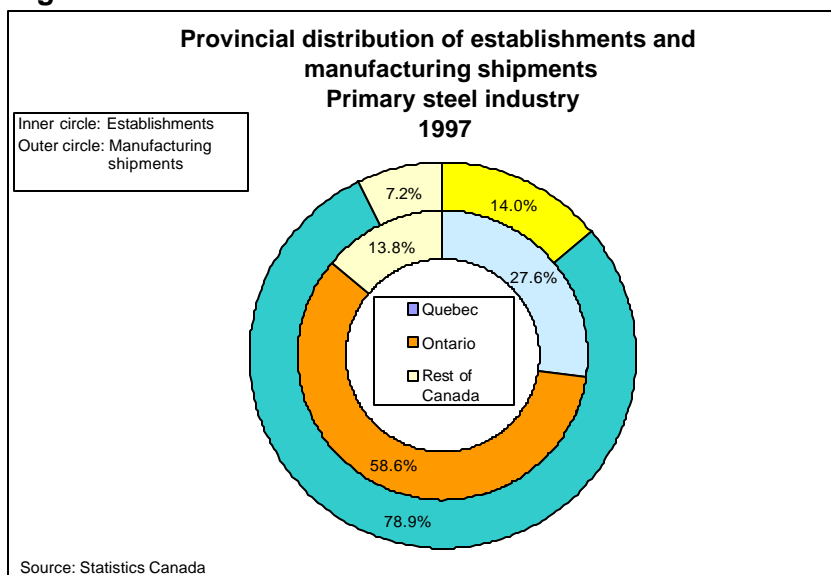
In 1997, more than half of the establishments (58.6%) were located in Ontario (17 establishments) and 27.6%, or 8 establishments, were located in Quebec (Figure 6). The remaining 13.8% of the establishments were spread among Nova Scotia, Manitoba, Saskatchewan and Alberta, with one establishment in each province.

Figure 6: Geographic distribution of establishments, 1997



Although Ontario accounted for 58.6% of all establishments in 1997, it produced 78.9% of the industry’s total manufacturing shipments (Figure 7).

Figure 7



3.2.2 Industry concentration

The primary steel industry is highly concentrated, with its four largest enterprises accounting for 72.0% of the industry’s manufacturing shipments and its eight top enterprises generating 89.4% in 1996 (Table 3). However, the level of concentration in the industry has been declining, falling 8.9 percentage points for the four largest enterprises and 5.0 percentage points for the eight largest enterprises since 1990.

Table 3: Industry concentration of the four and eight largest enterprises of the industry, 1990-1996

Primary steel industry – SIC 2919		
	Four largest enterprises	Eight largest enterprises
	% of industry total manufacturing shipments	
1990	80.9	94.4
1995	70.7	89.2
1996	72.0	89.4

Source: Statistics Canada

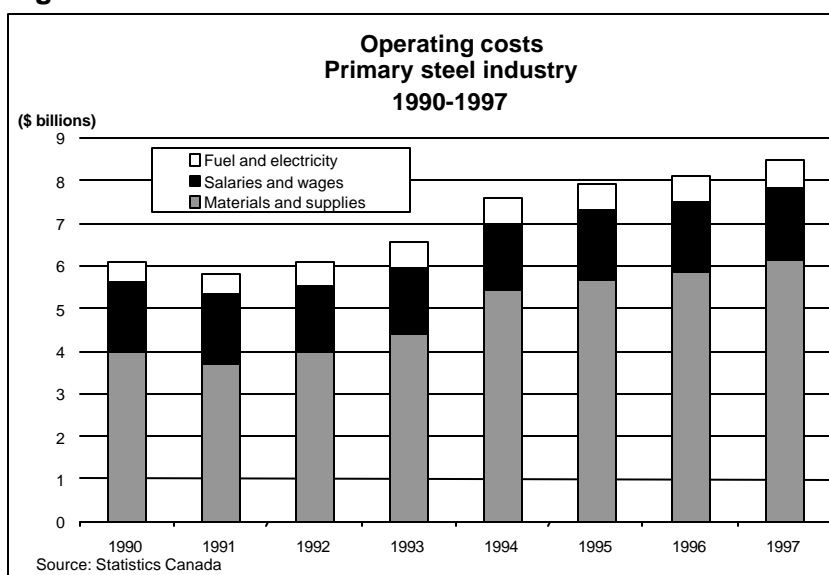
The steel industry uses raw materials sourced primarily in Canada and the United States. The iron ore comes primarily from Labrador, Quebec, Michigan and Minnesota, whereas the metallurgical coal comes mainly from Ohio, West Virginia, Pennsylvania and Virginia. Steel scrap is sourced from the regions adjacent to the steel mills (neighbouring provinces and states). Electricity originates with the local or regional utility, although this may change in the future as a result of deregulation. Natural gas is provided via the local utility.

Industry customers are, for the most part, located relatively close to the steel mills. That is perhaps why the industry is so concentrated in Ontario as this is where most of Canada’s manufacturing industry is located. In particular, all of the auto assembly plants, except one, are located there as are all of the stamping plants, most of the appliance makers, and a significant portion of the steel fabrication and construction market. Steelmakers in other markets tend to serve regional or special markets, such as the oil and gas industry in western Canada.

3.2.3 Operating costs (variable costs)

Operating costs were \$8.5 billion in 1997, an increase of 4.6% over 1996 (\$8.1 billion). Since 1990, they have grown by 39.5%, or 4.9% annually on average. Operating costs in the industry are dominated by the cost of materials and supplies. In 1997, these inputs accounted for 72.3% of total operating costs compared with 20.1% for wages and salaries and 7.5% for fuel and electricity (Figure 8). This cost distribution differed from the average for all manufacturing industries in 1997 where 78.9% of operating costs was spent on materials and supplies, 18.4% on wages and salaries, and 2.6% on fuel and electricity. The primary steel industry is particularly energy intensive and pays above-average wages to its employees. Although very large, the steel industry's expenses for materials and supplies are below average. The large energy component reflects a heavy dependence on abundant and competitively priced coal, electricity and natural gas, which are needed to produce steel and then transform it into finished products by casting and rolling.

Figure 8



3.2.4 Employment and wages

In 1997, the sector reached its lowest level of employment with 28 927 workers (Figure 9). This was down by 127 employees, or 0.4%, from 1996 (29 054 employees). Between 1990 and 1997, the industry saw its work force reduced by 18.7%, an average annual decrease of 2.9% per year. Despite an increase of 1.3% in 1997 (6443 salaried employees) compared with 1996 (6359 employees), the industry's downsizing in the 1990s fell more heavily on salaried workers (administrative and other workers category). In the 1990s, this group underwent a work force reduction of 27.8%, an average annual decrease of 4.5%. Hourly staff (production workers) experienced a cut of 15.6% during the same period, an average decrease of 2.4%.

The majority of the industry's work force is made up of production workers. Over this period, they accounted for an average of 77.0% of the industry's work force. Administrative and other workers accounted for an average of 23.0%.

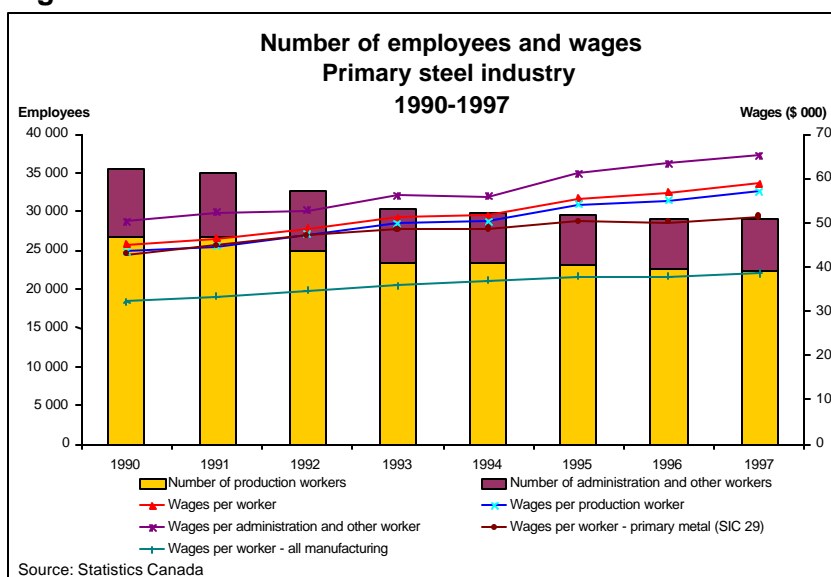
Incomes in the primary steel industry were \$13 700, or 30.5%, higher in 1997 (\$58 900) than in 1990 (\$45 200). Moreover, measured in constant dollars (1992 = 100), incomes were \$6300, or

13.1%, higher in 1997 (\$54 700) than in 1990 (\$48 400). Therefore, growth in earnings was more than sufficient to compensate for inflation, thus keeping employees' purchasing power stable over the period.

Incomes for the primary steel industry were, on average, 8.0% higher than the average income in the primary metals industry during the period. Indeed, the gap has been widening since 1994 and in 1997 average wages in the primary steel industry were 14.7% higher than in the primary metals industry. Over the period 1990 to 1997, incomes in the primary steel industry were an average of 44.2% higher than the average for all manufacturing industries and 52.6% higher in 1997.

Wages for manufacturing and non-manufacturing (i.e., administrative) workers in the steel industry increased at a similar rate. Manufacturing employees saw their salaries increase by 31.4% between 1990 (\$43 400) and 1997 (\$57 100), an average annual increase of 4.0%, and non-manufacturing employees saw their salaries improve by 29.7%, from \$50 300 to \$65 200, over the same period, an average annual increase of 3.8%.

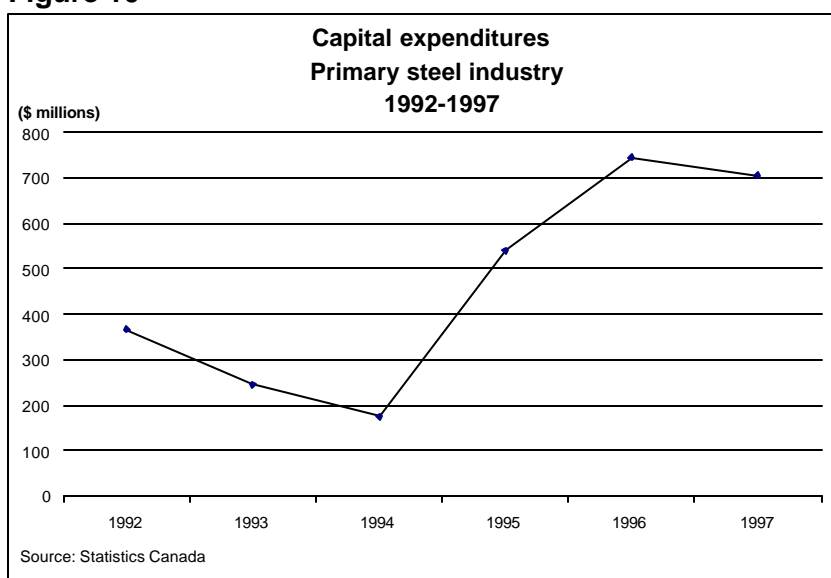
Figure 9



3.2.5 Capital expenditures

In 1997, the sector's capital expenditures totaled \$705.8 million, a decrease of 5.4% from 1996 (\$746.2 million), the peak of the period. In 1996, capital expenditures represented 6.6% of the value of the sector's manufacturing shipments. Despite a reduction in capital expenditures between 1992 and 1994 (when the industry invested only 1.9% of its revenues), the level of capital expenditures almost doubled between 1992 and 1997, with a cumulative growth of 92.5%. The cutback in capital expenditures in the early 1990s was a direct response to the sharp downturn in the industry from late 1990 until about mid-1993 when volumes fell, prices dropped and several firms found themselves facing severe financial difficulties. During this period, a number of firms basically halted all capital expenditures and even cut their repair expenditures to the bone to conserve cash and weather the downturn. Therefore, with the exception of 1993, the sector has invested more during the period in machinery and equipment expenditures than in construction expenditures.

Figure 10

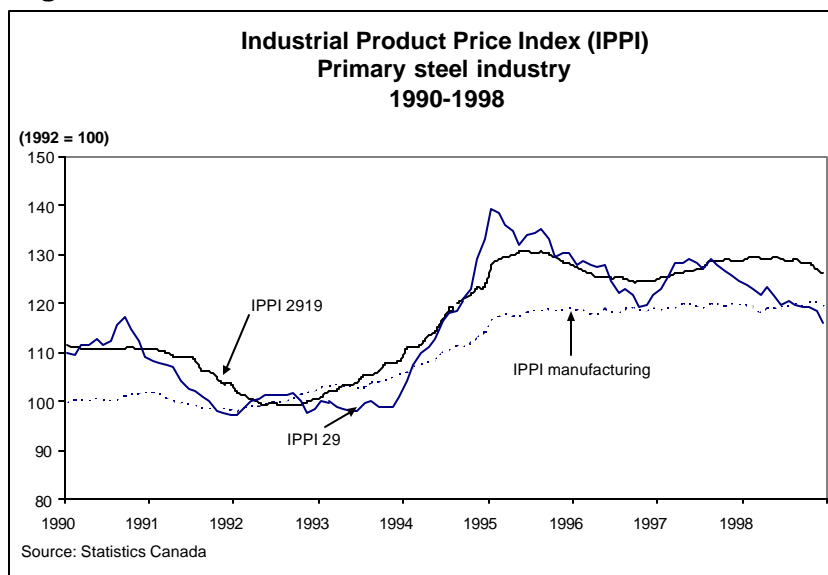


3.2.6 Prices

Between 1990 and 1998, primary steel product prices, reflected by the Industrial Product Price Index (IPPI), increased, but with less volatility than for the primary metals industry as a whole (Figure 11). In part, due to the recession of the early nineties, the IPPI for steel products decreased by around 10.9% between 1990 and 1992. In 1994, prices exceeded the level of 1990 and reached their peak in 1995. In 1996, the price index declined moderately, influenced perhaps by the drop in prices of primary materials, but the steel price index did not decline in 1997 or 1998 in contrast to primary metals (SIC 29), which declined dramatically. Therefore, the effect of the Asian crisis on steelmakers, while real and affecting prices and imports of steel into Canada, is not seen at the aggregate level for all primary steel products. Greater price volatility may be more evident if one looks at prices for individual products, such as hot rolled coils, cold rolled coils, rebar, galvanized sheet and the like. Unlike other primary metals, such as copper, lead, zinc and aluminum, for which there are global prices established on the London Metal Exchange, there are no global prices for steel products. Instead, prices are set by each producer, acting independently, and there are similar prices for similar products in markets such as North America, the European Union, Japan and Asia due to local conditions affecting supply and demand and the openness of those markets to imports. Overall though, the IPPI for the primary steel industry was significantly correlated with the IPPI for primary metals industries during the 9-year period.¹

¹ Industry Canada estimated a correlation coefficient of 93.4% between prices of the primary steel industry and prices of the primary metals industry.

Figure 11



4. International Trade

Canada has negotiated a number of trade deals over the last few years that have improved access to key markets for Canadian products. Implementation of the Canada-U.S. Free Trade Agreement (FTA) in 1988, the North American Free Trade Agreement (NAFTA) in 1994 and various World Trade Organization (WTO) agreements have provided a rules-based framework to facilitate trade and investment. In addition, Canada has been pursuing complementary market access improvements for Canadian exporters through initiatives such as the Canada-Chile FTA and Canada-Israel FTA and current negotiations with countries of the European Free Trade Area (Norway, Switzerland, Liechtenstein and Iceland). Canada is also involved in the Free Trade Area of the Americas (FTAA) process, which aims to start reducing barriers to trade among the 34 democratic countries of the Western Hemisphere by 2005. Canada is also weighing the possibility of entering into bilateral negotiations with Costa Rica, with a view to gaining quicker preferential access to this fast-growing market. In the WTO, Canada is still looking forward to further liberalization of trade through various negotiating processes, including the accession of new members to the WTO. Accession talks permit Canada, and the other members of the WTO, to set the market access terms countries must meet before becoming WTO members. Canada, and most other WTO members, has completed bilateral accession talks with China and the final multilateral talks are scheduled to begin shortly. Other key countries still waiting to accede to the WTO include Taiwan, Russia, the Ukraine, Vietnam and Saudi Arabia.

The Canadian primary steel industry has demonstrated a significant openness on the international market since 1990. The volume of trade has increased from \$3.56 billion in 1990 to \$7.61 billion in 1998, increasing 113.8%. In large part, this was due to the impact of the FTA and the NAFTA. Given these agreements and Canada's general trade policies, there are no quotas, import restrictions or non-tariff barriers to steel imports into the Canadian market save those sanctioned by the WTO, such as trade remedies for unfairly traded goods.

Over this period, steel tariffs on Canada/U.S. trade were being eliminated and disappeared completely on January 1, 1998. Tariffs with Mexico were being reduced and will be eliminated

on January 1, 2003. Finally, in the Uruguay Round of trade negotiations concluded in 1994 and implemented January 1, 1995, the Quad countries (United States, European Union, Japan and Canada), plus one or two other countries, agreed to eliminate all steel tariffs on certain steel products covered by the zero for zero offer. For those products, tariffs on imports will be eliminated over 10 years (i.e., by January 1, 2004), whereas for the remaining steel products not covered by the zero for zero offer, Canadian tariffs declined by about 33% over a 5-year period ending January 1, 1999. A list of steel products and their tariff rates can be found in Chapter 72 of the Canadian Customs Tariff, available through the Canada Customs and Revenue Agency's Web site at:

http://www.ccr-aadrc.gc.ca/customs/general/publications/customs_tariff_toc2000-e.html

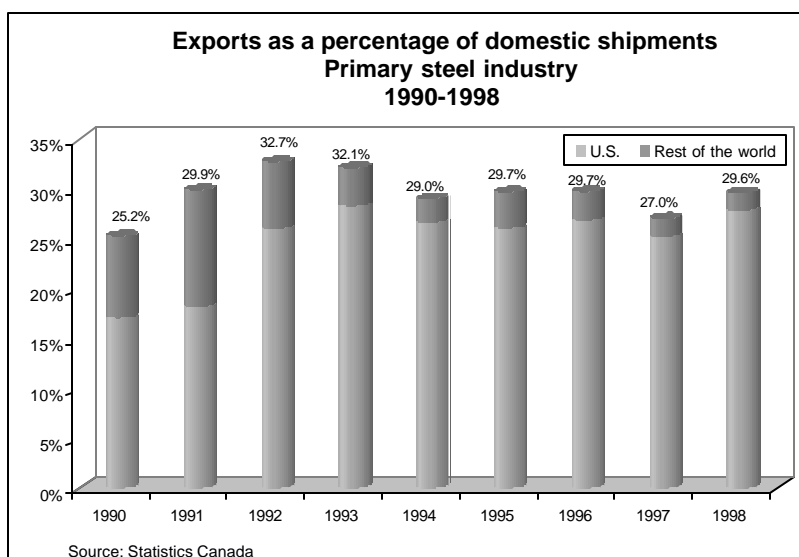
4.1 Exports

The percentage of shipments exported remained relatively constant between 1990 and 1998 at about 29.4% of industry shipments (Figure 12).

The value of Canadian exports has shown an increasing trend from 1990 to 1998. Canadian exports reached \$2.970 billion in 1998, a 3.3% increase over 1997 (\$2.877 billion). The United States remained by far the largest Canadian trade partner, with exports destined to the U.S. totaling \$2.8 billion, or 94.0%, in 1998. In fact, 27.8% of primary steel production was destined to the U.S. market. This increasing orientation to the U.S. in the nineties (in 1990, 17.1% of such steel production went to the U.S.) can be largely attributed to the North American Free Trade Agreement and to favourable Canada/U.S. exchange rates.

In 1998, the top ten countries of destination for exports were, in decreasing order, United States (94.0%), Belgium (0.8%), Mexico (0.7%), Netherlands (0.7%), United Kingdom (0.7%), Spain (0.3%), India (0.3%), Taiwan (0.3%), Bangladesh (0.3%) and Brazil (0.2%).

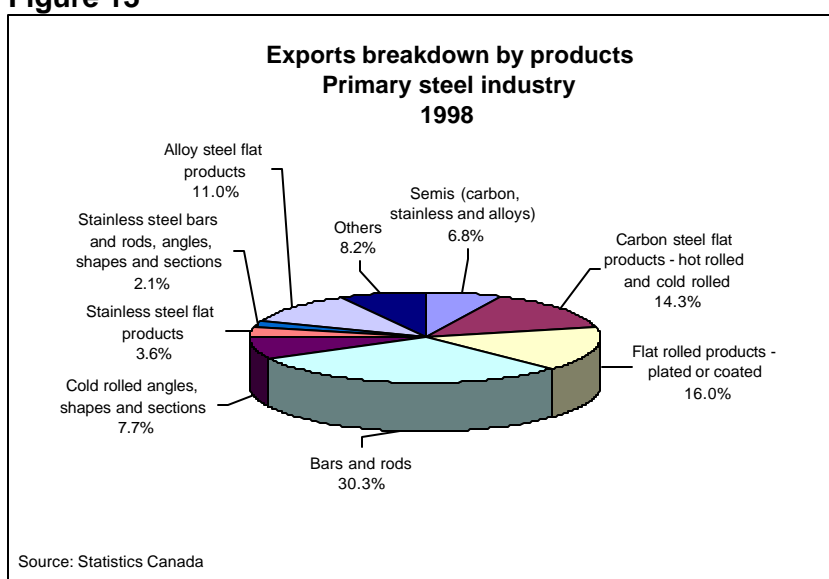
Figure 12



In 1998, exports of carbon and alloy steel bars and rods made up the largest product grouping, at 30.3%, of total primary steel products exported, followed by plated or coated flat rolled products (16.0%) and hot rolled and cold rolled carbon steel flat products (14.3%) (Figure 13). Hot rolled and cold rolled carbon steel flat products demonstrated the highest growth between

1994 and 1998 with a CAAGR of 55.3%, followed by stainless steel bars and rods, angles, shapes and sections (31.7%) and alloy steel flat products (20.6%).

Figure 13

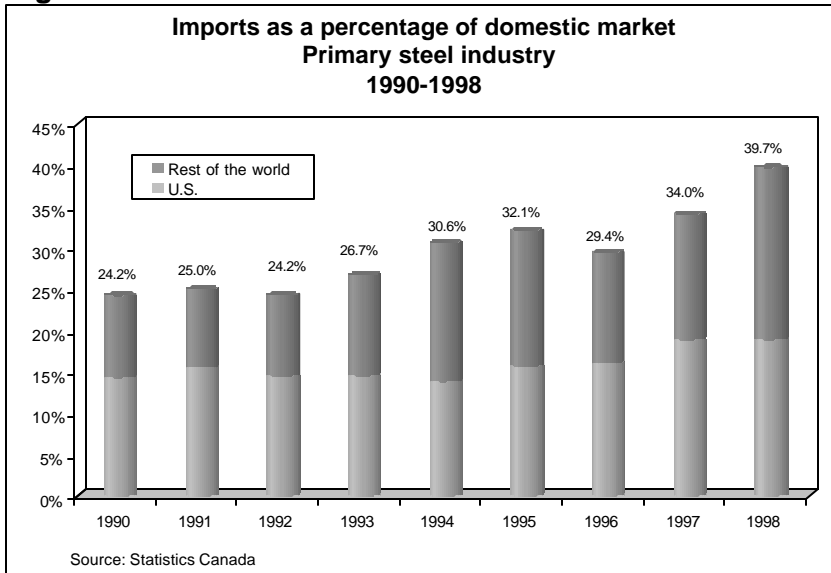


4.2 Imports

Another indication of the openness of the primary steel market has been the high import penetration of foreign countries as a percentage of the Canadian apparent domestic market (CADM) (Figure 14). Imports from all countries represented 24.2% of the CADM in 1990 and have increased their share to 39.7% of the CADM in 1998. Moreover, the demand for foreign primary steel products increased by 168.2%, an average annual growth rate of 13.1%, between 1990 and 1998. The value of imports was \$4643.4 million in 1998, a 15.8% increase over 1997 (\$4009.0 million).

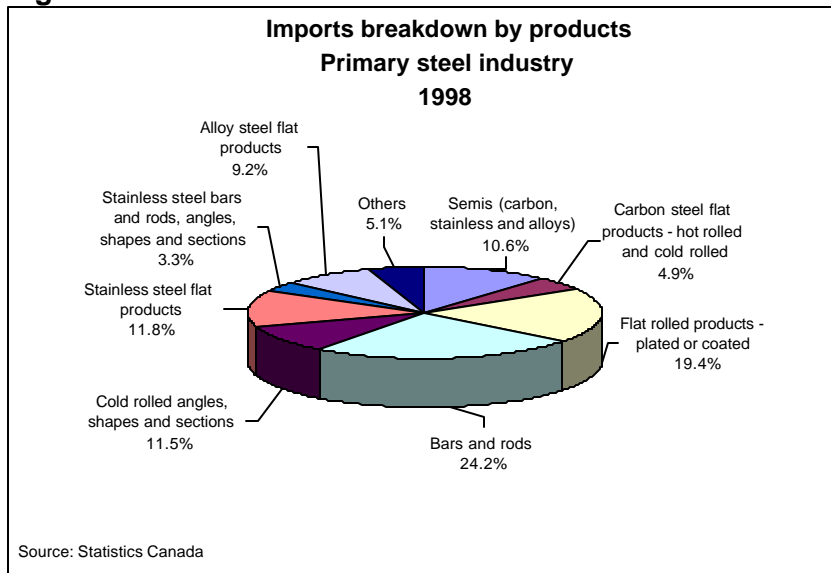
Again, the United States has been the principal source of imports to the Canadian market. In 1998, 47.6% of total imports, representing \$2210.5 million, originated from the U.S. Moreover, the U.S. accounted for 18.9% of the CADM that year as opposed to 14.3% in 1990. Following the United States, the top countries exporting other primary steel to Canada in 1998 were Japan (7.2%), Russia (6.6%), Germany (5.5%), France (3.5%), South Korea (3.3%), Brazil (3.2%), United Kingdom (2.7%), Sweden (1.8%) and Mexico (1.8%).

Figure 14



At the commodity level, carbon and alloy steel bars and rods again made up the largest product grouping, accounting for 24.2% of total primary steel products imported into Canada, followed by plated or coated flat rolled products (19.4%) and stainless steel flat products (11.8%) (Figure 15). However, the demand for imported alloy steel flat products has shown the highest increase since 1994 with a CAAGR of 36.6% over 1998, followed by carbon steel angles, shapes and sections (24.8%) and miscellaneous products (23.4%).

Figure 15



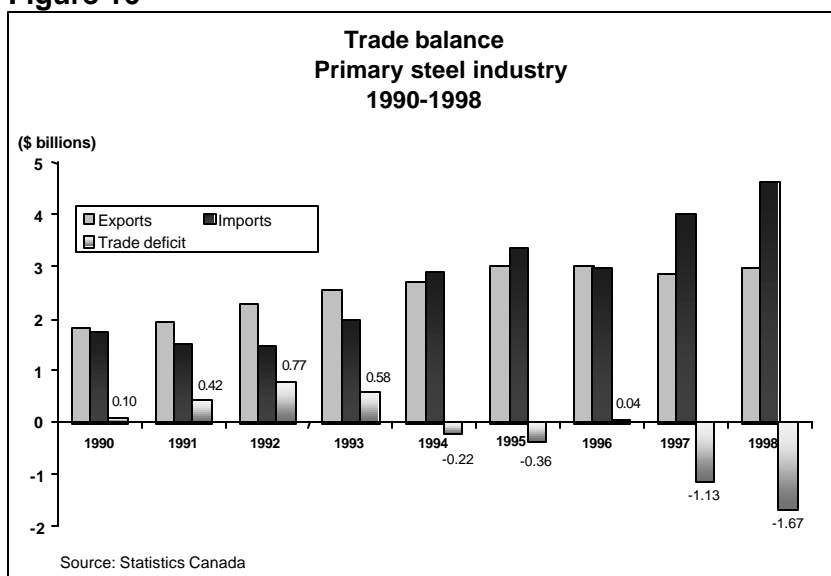
4.3 Trade Balance

The faster growth of imports over this period has meant that Canada has been a net importer of primary steel products since 1994, after having been a net exporter at the beginning of the decade (Figure 16). In addition, although Canada has had a trade surplus with the United

States since 1990, the growing trade deficit with countries other than the U.S. has led to a widening trade deficit with all countries since the middle of the period.

Therefore, although Canada's trade of primary steel products had a surplus of \$583.0 million with the U.S. in 1998, a 26.5% increase over 1997 (\$461.0 million), it had a deficit of \$2255.5 million with all other countries, a 41.6% increase over 1997 (\$1593.0 million). This resulted in Canada having a net trade deficit of \$1672.5 million in 1998 compared with a net trade surplus of \$95.7 million in 1990.

Figure 16



Over this period, the emergence of the former USSR and Central and Eastern Europe Countries (CEEC) as major steel exporters has dramatically affected world trade in steel products. The disappearance of the former Comecon system of trade and the need to earn hard currency to pay wages, purchase material inputs and pay taxes, coupled with the collapse of domestic demand, has meant that these countries have reoriented their production to western markets. The overbuilt steel industries in most of these countries and their huge work forces, combined with the lack of financial resources available to their governments to provide adjustment measures to downsize and retrain workers, means that the steel industry in these countries must export to survive. Unfortunately, too often this trade has been achieved via middlemen whose actions have severely disrupted the markets into which this steel has been sold. The result is that in importing nations around the world domestic steelmakers have filed unfair trade complaints with their national governments and significant margins of dumping or subsidy have been found along with findings of material injury to the domestic industry. Consequently, in country after country and product by product, steel from these nations is being shut out of world markets. This process shows no sign of abating.

The Asian crisis is a fairly recent development affecting world steel trade and has triggered a similar response in importing markets. This issue is being resolved more expeditiously as domestic demand for steel is returning in these Asian countries as their economies begin to grow again.

Globally, steel production and trade is expanding. Increased steel production is primarily occurring in less developed markets in Asia and Latin America. The steel market in western

industrialized nations is fairly mature and growth in demand is modest. However, western markets remain very attractive to steelmakers in other nations as demand in developed countries is usually steady and steel prices are often higher than in the exporting nations.

5. Challenges and Opportunities

5.1 Future Trends and Market Opportunities

The steel market of the late 1990s is one where import penetration has reached an all time high of some 40% of the apparent domestic market. In part, this is a result of more open markets due to the effects of the FTA and the NAFTA and the ongoing reduction of import tariffs. The U.S. share of the Canadian market has doubled since the FTA came into place, whereas the Canadian share of the U.S. market has remained relatively constant at about 4%. Very strong steel demand in 1997 and 1998 has led to strong import growth, something that has abated somewhat in 1999.

However, the emergence of steel exports from the former USSR and CEEC has grown from about 21 000 tonnes in 1992 to about 1.1 million tonnes in 1998 (for all kinds of steel, not just that covered by SIC 2919). The presence of these countries on the Canadian, and indeed world markets, is not going to disappear. These steel imports are generally low-priced, commodity grades of steel. Although the quality and delivery of such steel has, in the past, left something to be desired, these are improving. Moreover, such producers are now offering higher priced and more value added steel products for which they are finding a market.

Coupled with the continuing expansion of global steel production in developing countries and the high percentage of global steel production that is traded internationally, Canadian steelmakers are likely to face even more import competition in the future. This will be particularly true for low-priced, low value added commodity products where imports will first occur. Therefore, offering higher value added products and emphasizing service, delivery and competitive prices as well as engineering and research and development (R&D) capability will be important tools for domestic producers to keep one step ahead of the import competition.

5.2 Research and Development

Steel industry expenditures for R&D, as reported by Statistics Canada, for the primary steel industry are miniscule. On average, industry in-house R&D expenditures totalled about \$10 million per year from 1993 to 1997, or about 0.10% of manufacturing shipments.

However, in addition to such expenditures, individual steel companies work collaboratively with government labs (particularly the Canadian Centre for Mineral and Energy Technology (CANMET) at Natural Resources Canada and the Industrial Materials Institute (IMI) at the National Research Council) and universities to foster basic research. Also, the Canadian Steel Industry Research Association (CSIRA) – a sub-committee of the Canadian Steel Producers Association (CSPA) – sponsors collaborative research working with government, universities and other organizations. Moreover, both CSIRA and at least one steelmaker sponsor university chairs in research in Canada.

Canadian steelmakers also participate in wider collaborative research within the steel industry and with other industries to develop new steels and new ways of using steel in existing applications. The following are examples of this research: various projects that Canadian steelmakers have undertaken with U.S. and Mexican steelmakers under the sponsorship of the

American Iron and Steel Institute (AISI), including their research solicitations and their Technology Roadmap (located at <http://www.steel.org/mt/>); the UltraLight Steel AutoBody (ULSAB) consortia of some 35 steelmakers in 18 countries to develop new lightweight steels for use in the auto industry to help it reach its CAFE requirements; the North American Steel Framing Alliance designed to promote the use of steel studs more widely in the residential construction market; and the Canadian Lightweight Materials Research Initiative (CLiMRI), an industry/government partnership aimed at developing materials and manufacturing processes for fuel-efficient vehicles. During the 1990s, the steel industry also supported fundamental research into the next stage of steelmaking – thin strip casting – via Projet Bessemer. In this regard, it was examining possible future steelmaking technologies at the same time as steelmakers in the United States, Europe, Japan and other countries. To date, no one has been able to develop such a process that is commercially viable.

5.3 Standards and Regulations

Steel industry products are manufactured to various standards, depending on the product and its application. Examples include ASTM (American Society for Testing and Materials) – used for most steel products produced in North America; API (American Petroleum Institute) – a standard applied worldwide to pipes and tubes used in the oil and gas industry; and CSA (Canadian Standards Association) – for some products used in Canada, e.g., rebar used on the Hibernia drilling platform.

In addition, steelmakers, like other firms, have been getting certified to ISO (International Organization for Standardization) standards as this relates to their manufacturing processes and procedures. The big three automakers in North America (Ford, General Motors and Daimler Chrysler) have their own standard (QS9000) to which their suppliers must be certified.

Among the regulations that the industry must meet and that are becoming more important to governments and customers, in addition to the general public, are environmental standards. In this regard, the industry reports to provincial and federal environment departments on their emissions and discharges. Among the issues covered by regulation and legislation are toxic substances, benzene emissions, solid waste disposal and other releases to the air and water. In this regard, the CSPA has published a Statement of Commitment and the Action on the Environment as well as its latest environmental report (covering 1998). Separately, at least two firms have entered into environmental management agreements with federal and/or provincial authorities committing themselves to meet, if not exceed, the requirements of provincial and federal laws as they relate to the steel industry and its releases.

5.4 Human Resources Issues

On the issue of human resources, work force adjustment and training, the Canadian steel industry has been a leader in developing a comprehensive and nationwide approach to these issues.

In cooperation with the federal Department of Human Resource Development, the steel industry and its workers formed the Canadian Steel Trade and Employment Congress (CSTEC) in the mid- to late 1980s. Initially focused on work force adjustment issues due to ongoing reductions in the labour force in the industry in Canada, CSTEC worked to deliver adjustment and training programs, usually offered by the former Department of Employment and Immigration, through trained steelworkers who met with affected employees at the worksite. The work force adjustment program has been very successful, providing adjustment and placement services to

almost 14 000 permanently laid off workers to enhance their current employability and their future ability to adapt to changing labour market conditions.

Since then, CSTECH has broadened its training effort and has now developed skills training, initially focusing on basic literacy and numeracy skills and later on various issues relating to steelmaking, that is offered across Canada by various community colleges and CEGEPs. These courses, which are modular and combine class and work input, result in credits that are portable from institution to institution. This training has been so successful that CSTECH has offered this material to steelmakers in other countries. For a listing of the courses being offered by CSTECH, visit their Web site at <http://www.cstec.ca/> and select "List of Courses."

With a work force whose average age is in its late forties, the steel industry (like many other industries) is facing a significant issue in impending large-scale retirements and the need to hire new workers over the next 5 to 10 years. In this regard, CSTECH, the CSPA and individual steelmakers are beginning to plan how they will manage this transition. Both CSTECH and the CSPA are now promoting the availability of careers in the steel industry and developing educational and promotional materials to communicate this message in print, using CDs and over the Internet. Although it is an industry that offers wages and benefits substantially above the average in manufacturing, the steel industry competes with other industries that have higher public profiles or are seen as offering more opportunities. Its task is to create an awareness of the career opportunities that are available in the steel industry so that the industry will be successful in recruiting the new workers that it will need.

Annex A

Selected Industry Statistics

Table A1 : Main statistics
SIC 2919: Primary steel industry

	1990	1991	1992	1993	1994	1995	1996	1997	1998	Rate of change (%)	Compound average annual growth rate (%)	Cumulative growth rate (%)
										1997-98	1990-98	1990-98
Establishments	29	29	30	30	30	30	29	29	n/a	0.0	0.0	0.0
Canadian shipments (\$ million)	7 240.1	6 486.6	6 930.8	7 980.5	9 319.7	10 182.4	10 196.1	10 654.3	10 037.1	-5.8	4.2	38.6
Canadian shipments (\$ million, 1992 = 100)	6 561.0	6 049.3	6 930.8	7 656.6	8 021.1	7 912.9	8 171.2	8 407.0	7 847.6	-6.7	2.3	19.6
Shipments as a share of primary metal industry shipments (%)	37.6	36.3	38.4	40.1	39.8	39.4	39.3	38.2	36.6	-	-	-
Shipments as a share of all manufacturing shipments (%)	2.4	2.3	2.4	2.6	2.6	2.6	2.5	2.4	2.2	-	-	-
Manufacturing value added (\$ million)	2 532.8	2 317.1	2 465.6	3 041.4	3 477.7	4 165.2	3 702.6	4 045.8	n/a	9.3	6.9	59.7
Total value added (\$ million)	2 504.3	2 310.6	2 453.3	3 033.2	3 450.3	4 131.7	3 669.5	4 002.3	n/a	9.1	6.9	59.8
Capital expenditures (\$ million)	n/a	n/a	366.7	246.0	174.3	539.9	746.2	705.8	n/a	-5.4	8.5	92.5
Canadian apparent domestic market (\$ million)	7 144.3	6 065.4	6 160.0	7 398.3	9 537.9	10 544.6	10 157.4	11 786.3	11 709.6	-0.7	10.4	63.9
IPPI (1992 = 100) - primary steel industry	110.4	107.2	100.0	104.2	116.2	128.7	124.8	126.7	127.9	0.9	1.9	15.9
IPPI (1992 = 100) - primary metal industry	112.3	102.7	100.0	99.2	117.0	133.9	124.3	126.9	120.5	-5.1	0.9	-5.1
IPPI (1992 = 100) - all manufacturing	100.6	99.5	100.0	103.6	109.9	118.1	118.6	119.5	119.4	-0.1	2.2	-0.1

Source: Statistics Canada

Note: 1) IPPI = Industrial Product Price Index.

2) Where there are no 1998 data, the value of the rate of change refers to the 1996-97 and 1990-97 time periods.

Industry Snapshot: Primary Steel in Canada

**Table A2: Employment
SIC 2919: Primary steel industry**

	1990	1991	1992	1993	1994	1995	1996	1997	Rate of change (%)	Compound average annual growth rate (%)	Cumulative growth rate (%)
									1996-97	1990-97	1990-97
Total workers	35 572.0	35 084.0	32 738.0	30 430.0	29 928.0	29 694.0	29 054.0	28 927.0	-2.9	-0.4	-18.7
Production workers	26 648.0	26 756.0	25 060.0	23 488.0	23 314.0	23 161.0	22 695.0	22 484.0	-2.4	-0.9	-15.6
Administration and other workers	8 924.0	8 328.0	7 678.0	6 942.0	6 614.0	6 533.0	6 359.0	6 443.0	-4.5	1.3	-27.8
Production workers as a share of total workers (%)	74.9	76.3	76.5	77.2	77.9	78.0	78.1	77.7	-	-	-
Administrative and other workers as a share of total workers (%)	25.1	23.7	23.5	22.8	22.1	22.0	21.9	22.3	-	-	-
Average annual salaries and wages per worker (\$ 000)	45.2	46.5	48.6	51.2	51.6	55.5	56.9	58.9	3.9	3.6	30.5
Average annual salaries and wages per production worker (\$ 000)	43.4	44.6	47.3	49.8	50.3	54.0	55.0	57.1	4.0	3.7	31.4
Average annual salaries and wages per administration and other worker (\$ 000)	50.3	52.4	52.8	56.1	56.0	61.1	63.4	65.2	3.8	2.9	29.7

Source: Statistics Canada

Industry Snapshot: Primary Steel in Canada

Table A3: Trade statistics and performance indicators
SIC 2919: Primary steel industry

	1990	1991	1992	1993	1994	1995	1996	1997	1998	Rate of change (%)	Compound average annual growth rate (%)	Cumulative growth rate (%)
										1997-98	1990-98	1990-98
Statistics	(\$ millions)											
Total exports	1 827.1	1 937.1	2 264.4	2 559.2	2 701.2	3 019.3	3 026.7	2 877.0	2 970.9	3.3	6.3	62.6
Total imports	1 731.3	1 515.8	1 493.6	1 977.0	2 919.3	3 381.6	2 988.0	4 009.0	4 643.4	15.8	13.1	168.2
Trade balance with all countries	95.7	421.3	770.8	582.2	-218.1	-362.2	38.7	-1 132.0	-1 672.5	47.7	-	-1 846.9
Exports to U.S.	1 235.1	1 176.9	1 800.6	2 254.8	2 477.4	2 650.7	2 734.6	2 684.0	2 793.5	4.1	10.7	126.2
Imports from U.S.	1 022.6	941.9	891.6	1 073.5	1 318.0	1 652.1	1 629.6	2 223.0	2 210.5	-0.6	10.1	116.2
Trade balance with U.S.	212.5	235.0	908.9	1 181.3	1 159.4	998.6	1 105.0	461.0	583.0	26.5	13.4	174.4
Exports to the rest of the world	592.0	760.2	463.8	304.4	223.8	368.7	292.0	193.0	177.4	-8.1	-14.0	-70.0
Imports from the rest of the world	708.7	573.9	602.0	903.5	1 601.3	1 729.5	1 358.4	1 786.0	2 432.9	36.2	16.7	243.3
Trade balance with the rest of the world	-116.7	186.2	-138.1	-599.2	-1 377.5	-1 360.8	-1 066.3	-1 593.0	-2 255.5	41.6	44.8	1 832.6
Canadian apparent market	7 144.3	6 065.4	6 160.0	7 398.3	9 537.9	10 544.6	10 157.4	11 786.3	11 709.6	-0.7	6.4	63.9
Performance	(%)											
Exports to all countries as a share of domestic shipments	25.2	29.9	32.7	32.1	29.0	29.7	29.7	27.0	29.6	-	-	-
Exports to U.S. as a share of domestic shipments	17.1	18.1	26.0	28.3	26.6	26.0	26.8	25.2	27.8	-	-	-
Exports to the rest of the world as a share of domestic shipments	8.2	11.7	6.7	3.8	2.4	3.6	2.9	1.8	1.8	-	-	-
Imports from all countries as a share of domestic market	24.2	25.0	24.2	26.7	30.6	32.1	29.4	34.0	39.7	-	-	-
Imports from U.S. as a share of domestic market	14.3	15.5	14.5	14.5	13.8	15.7	16.0	18.9	18.9	-	-	-
Imports from the rest of the world as a share of domestic market	9.9	9.5	9.8	12.2	16.8	16.4	13.4	15.2	20.8	-	-	-
Exports to U.S. as a share of total exports	67.6	60.8	79.5	88.1	91.7	87.8	90.4	93.3	94.0	-	-	-
Exports to the rest of the world as a share of total exports	32.4	39.2	20.5	11.9	8.3	12.2	9.6	6.7	6.0	-	-	-
Imports from U.S. as a share of total imports	59.1	62.1	59.7	54.3	45.1	48.9	54.5	55.5	47.6	-	-	-
Imports from the rest of the world as a share of total imports	40.9	37.9	40.3	45.7	54.9	51.1	45.5	44.5	52.4	-	-	-

Source: Statistics Canada

Note: Canadian apparent market = shipments + imports - exports

Industry Snapshot: Primary Steel in Canada

**Table A4: Performance indicators
SIC 2919: Primary steel industry**

	1990	1991	1992	1993	1994	1995	1996	1997	Rate of change (%)	Compound average annual growth rate (%)	Cumulative growth rate (%)
									1996-97	1990-97	1990-97
Manufacturing shipments per production worker (\$ 000)	271.7	242.4	276.6	339.8	399.7	439.6	449.3	473.9	5.5	8.3	74.4
Manufacturing value added per production worker (\$ 000)	95.0	86.6	98.4	129.5	149.2	179.8	163.1	179.9	10.3	9.5	89.3
Unit labour cost	1.0	1.2	1.1	0.9	0.9	1.0	n/a	n/a	4.4	-1.8	-8.7
Manufacturing shipments by establishment (\$ million)	249.7	223.7	231.0	266.0	310.7	339.4	351.6	367.4	4.5	5.7	47.2
Wages and salaries/total operating costs (%)	26.5	28.0	26.2	23.7	20.7	20.8	20.4	20.1	-	-	-
Materials and supplies/total operating costs (%)	66.0	63.6	65.1	67.2	71.3	71.6	72.4	72.3	-	-	-
Fuel and electricity/total operating costs (%)	7.5	8.5	8.7	9.1	8.0	7.7	7.3	7.5	-	-	-

Source: Statistics Canada

Annex B

List of Concordances of Harmonized System (HS) Codes for Standard Industrial Classification (SIC) 2919

The Harmonized System of codes is an international system of commodity classification that is employed to keep track of exports and imports passing through customs. The Standard Industrial Classification is a coding system used by Statistics Canada to define industries in terms of specific activities. The following is a list of the HS codes attributed to SIC 2919.

HS	Description
251720	Macadam of slag, dross or similar industrial waste
310320	Basic slag applies to imports only for this SIC code/not an applicable export code for SIC codes 27, 29, 30 or 35
720110	Non-alloy pig iron - 0.5% or less of phosphorous
720120	Non-alloy pig iron - 0.5-10% of phosphorous
720150	Alloy pig iron; spiegeleisen
720310	Ferrous products - obtained by direct reduction of iron ore
720390	Ferrous products - obtained by direct reduction of spongy ferrous products not elsewhere specified
720510	Granules - of pig iron, spiegeleisen, iron or steel
720521	Powders - of alloy steel
720529	Powders - of pig iron, spiegeleisen, iron or steel (other than alloy steel)
720610	Ingots - iron or non-alloy steel - of a purity of less than 99.94% iron
720690	Primary forms (other than ingots) - iron or non-alloy steel not elsewhere specified - of a purity less than 99.94% iron
720711	Semi-finished products - iron/non-alloy steel (<0.25% carbon) - rectangular width/thickness ratio <2
720712	Semi-finished products - iron/non-alloy steel (<0.25% carbon) - rectangular (but not square) not elsewhere specified
720719	Semi-finished products - iron/non-alloy steel (<0.25% carbon) - other not elsewhere specified
720720	Semi-finished products - iron/non-alloy steel (0.25% or more carbon)
720810	Flat hot-rolled products - iron/non-alloy steel (width >600 mm) - in coils, patterns in relief
720825	Flat hot-rolled products - iron/non-alloy steel (width >600 mm) - in coils, pickled, >4.74mm thick
720826	Flat hot-rolled products - iron/non-alloy steel (width >600 mm) - in coils, pickled, 3-4.74 mm thick
720827	Flat hot-rolled products - iron/non-alloy steel (width >600 mm) - in coils, pickled, <3 mm thick
720836	Flat hot-rolled products - iron/non-alloy steel (width >600 mm) - in coils, other not elsewhere specified, >10 mm thick
720837	Flat hot-rolled products - iron/non-alloy steel (width >600 mm) - in coils, other not elsewhere specified 4.75-10 mm thick
720838	Flat hot-rolled products - iron/non-alloy steel (width >600 mm) - in coils, other not elsewhere specified, 3-4.75 mm thick
720839	Flat hot-rolled products - iron/non-alloy steel (width >600mm) - in coils, other not elsewhere specified, <3 mm thick
720840	Flat hot-rolled products - iron/non-alloy steel (width >600 mm) - not in coils, patterns in relief
720851	Flat hot-rolled products - iron/non-alloy steel (width >600 mm) - not in coils, >10 mm thick
720852	Flat hot-rolled products - iron/non-alloy steel (width >600 mm) - not in coils, 4.75-10 mm thick

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720853	Flat hot-rolled products - iron/non-alloy steel (width >600 mm) - not in coils, 3-4.75 mm thick
720854	Flat hot-rolled products - iron/non-alloy steel (width >600 mm) - not in coils, <3 mm thick
720890	Flat hot-rolled products - iron/non-alloy steel (width >600 mm) - other not elsewhere specified
720915	Flat cold-rolled products - iron/non-alloy steel (width >600 mm) - in coils, >3 mm thick
720916	Flat cold-rolled products - iron/non-alloy steel (width >600 mm) - in coils, 1-3 mm thick
720917	Flat cold-rolled products - iron/non-alloy steel (width >600 mm) - in coils, 0.5-1 mm thick
720918	Flat cold-rolled products - iron/non-alloy steel (width >600 mm) - in coils, <0.5 mm thick
720925	Flat cold-rolled products - iron/non-alloy steel (width >600 mm) - not in coils, >3 mm thick
720926	Flat cold-rolled products - iron/non-alloy steel (width >600 mm) - not in coils, 1-3 mm thick
720927	Flat cold-rolled products - iron/non-alloy steel (width >600 mm) - not in coils, 0.5-1 mm thick
720928	Flat cold-rolled products - iron/non-alloy steel (width >600 mm) - not in coils, <0.5 mm thick
720990	Flat cold-rolled products - iron/non-alloy steel (width >600 mm) - perforated and unclad not elsewhere specified
721011	Flat rolled products - iron/non-alloy steel (width >600 mm) - plated/coated with tin - >0.4 mm thick
721012	Flat rolled products - iron/non-alloy steel (width >600 mm) - plated/coated with tin - <0.5 mm thick
721020	Flat rolled products - iron/non-alloy steel (width >600 mm) - plated/coated with lead (terne-plate)
721030	Flat rolled products - iron/non-alloy steel (width >600 mm) - electrolytically zinc plated or coated
721041	Corrugated flat rolled products - iron/non-alloy steel (width >600 mm) - plated/coated with zinc
721049	Other flat rolled products not elsewhere specified - iron/non-alloy steel (width >600 mm) - plated/coated with zinc
721050	Flat rolled products - iron/non-alloy steel (width >600 mm) - plated/coated with chromium or oxides
721061	Flat rolled products - iron/non-alloy steel (width >600 mm) - plated/coated with aluminium-zinc alloy
721069	Flat rolled products - iron/non-alloy steel (width >600 mm) - plated/coated with aluminium not elsewhere specified
721070	Flat rolled products - iron/non-alloy steel (width >600 mm) - painted/varnished/coated with plastics
721090	Flat rolled products - iron/non-alloy steel (width >600 mm) - clad/coated/plated with other not elsewhere specified
721113	Flat hot-rolled on four faces products - iron/non-alloy steel (width <600 mm) - >4 mm thick
721114	Flat hot-rolled products - iron/non-alloy steel (width <600 mm) - >4.75 mm thick, other not elsewhere specified
721119	Flat hot-rolled products - iron/non-alloy steel (width <600 mm) - <4.75 mm thick
721123	Flat cold-rolled products - iron/non-alloy steel (width <600 mm) - <0.25% of carbon
721129	Flat rolled products - iron/non-alloy steel (width <600 mm) - other not elsewhere specified
721190	Flat rolled products - iron/non-alloy steel (width <600 mm) - perforated and unclad not elsewhere specified
721210	Flat rolled products - iron/non-alloy steel (width <600 mm) - plated or coated with tin
721220	Flat rolled products - iron/non-alloy steel (width <600 mm) - electrolytically zinc plated or coated
721230	Flat rolled products - iron/non-alloy steel (width <600 mm) - otherwise plated or coated with zinc
721240	Flat rolled products - iron/non-alloy steel (width <600 mm) - painted/varnished/coated with plastics

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721250	Flat rolled products - iron/non-alloy steel (width <600 mm) - otherwise plated or coated not elsewhere specified
721260	Flat rolled products - iron/non-alloy steel (width <600 mm) - otherwise clad not elsewhere specified
721310	Bars and rods - iron/non-alloy steel - hot-rolled irregular coils - indented, ribbed or deformed not elsewhere specified
721320	Bars and rods - iron/non-alloy steel - hot-rolled irregular coils - of free cutting steel
721391	Bars and rods - iron/non-alloy steel - hot-rolled irregular coils - diameter <14 mm
721399	Bars and rods - iron/non-alloy steel - hot-rolled irregular coils - diameter >14 mm
721410	Forged bars and rods - iron/non-alloy steel - hot rolled
721420	Bars and rods - iron/non-alloy steel - hot-rolled/drawn/extruded - indented, ribbed or deformed not elsewhere specified
721430	Bars and rods - iron/non-alloy steel - hot-rolled/drawn/extruded - of free cutting steel
721491	Bars and rods - iron/non-alloy steel - hot-rolled/drawn/extruded - rectangular (but not square) not elsewhere specified
721499	Bars and rods - iron/non-alloy steel - hot-rolled/drawn/extruded - other shapes not elsewhere specified
721510	Bars and rods - iron/non-alloy steel - cold formed or finished - of free cutting steel
721550	Bars and rods - iron/non-alloy steel - cold formed or finished - other than of free cutting steel
721590	Bars and rods - iron/non-alloy steel - other not elsewhere specified applies to imports only for this SIC code/falls in exports under SIC code 3041
721610	Sections, U, I or H - iron/non-alloy steel - hot-rolled/drawn/extruded - height <80 mm
721621	Section, L - iron/non-alloy steel - hot-rolled/drawn/extruded - height <80 mm
721622	Section, T - iron/non-alloy steel - hot-rolled/drawn/extruded - height <80 mm
721631	Section, U - iron/non-alloy steel - hot-rolled/drawn/extruded - height 80 mm or more
721632	Section, I - iron/non-alloy steel - hot-rolled/drawn/extruded - height 80 mm or more
721633	Section, H - iron/non-alloy steel - hot-rolled/drawn/extruded - height 80 mm or more
721640	Sections, L or T - iron/non-alloy steel - hot-rolled/drawn/extruded - height 80 mm or more
721650	Angles, shapes and sections - iron/non-alloy steel - hot-rolled/drawn/extruded - other not elsewhere specified
721661	Angles, shapes and sections from flat-rolled products - iron/non-alloy steel - cold-formed/finished
721669	Angles, shapes and sections from other not elsewhere specified - iron/non-alloy steel - cold-formed/finished
721691	Angles, shapes and sections - iron/non-alloy steel - cold formed/finished from flat rolled products
721699	Angles, shapes and sections - iron/non-alloy steel - cold-formed or cold-finished not elsewhere specified
721810	Ingots and other primary forms - stainless steel
721891	Semi-finished products - stainless steel - rectangular (but not square) cross section
721899	Semi-finished products - stainless steel - other not elsewhere specified
721911	Flat-rolled products of stainless steel hot-rolled in coils - width >600 mm, >10 mm thick
721912	Flat-rolled products of stainless steel hot-rolled in coils - width >600 mm, 4.75-10 mm thick
721913	Flat-rolled products of stainless steel hot-rolled in coils - width >600 mm, 3-4.75 mm thick
721914	Flat-rolled products of stainless steel hot-rolled in coils - width >600 mm, <3 mm thick
721921	Flat-rolled products of stainless steel hot-rolled not in coils - width >600 mm, >10 mm thick
721922	Flat-rolled products of stainless steel hot-rolled not in coils - width >600 mm, 4.75-10 mm thick
721923	Flat-rolled products of stainless steel hot-rolled not in coils - width >600 mm, 3-4.75 mm thick
721924	Flat-rolled products of stainless steel hot-rolled not in coils - width >600 mm, <3 mm thick
721931	Flat-rolled products of stainless steel cold-rolled - width >600 mm, >4.75 mm thick
721932	Flat-rolled products of stainless steel cold-rolled - width >600 mm, 3-4.75 mm thick

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721933	Flat-rolled products of stainless steel cold-rolled - width >600 mm, 1-3 mm thick
721934	Flat-rolled products of stainless steel cold-rolled - width >600 mm, 0.5-1 mm thick
721935	Flat-rolled products of stainless steel cold-rolled - width >600 mm, <0.5 mm thick
721990	Flat-rolled products of stainless steel - other not elsewhere specified - width >600 mm
722011	Flat-rolled products of stainless steel hot-rolled - width <600 mm, thickness 4.75 mm or more
722012	Flat-rolled products of stainless steel hot-rolled - width <600 mm, thickness <4.75 mm
722020	Flat-rolled products of stainless steel cold-rolled (cold-reduced) - width <600 mm
722090	Flat-rolled products of stainless steel - other not elsewhere specified - width <600 mm
722100	Bars and rods of stainless steel - hot-rolled - in irregularly wound coils
722211	Bars and rods of stainless steel - only hot-rolled, hot-drawn or extruded - circular cross section
722219	Bars and rods of stainless steel - only hot-rolled, hot-drawn or extruded - other not elsewhere specified
722220	Bars and rods of stainless steel - only cold formed or cold finished
722230	Bars and rods of stainless steel - other not elsewhere specified
722240	Angles, shapes and sections of stainless steel
722410	Ingots and other primary forms - alloy steel (other than stainless)
722490	Semi-finished products - alloy steel (other than stainless)
722511	Flat-rolled products of silicon-electrical steel - width 600 mm or more - grain oriented
722519	Flat-rolled products of silicon-electrical steel - width 600 mm or more - other than grain oriented
722520	Flat-rolled products of high speed steel - width 600 mm or more
722530	Flat-rolled products of other alloy steel - width 600 mm or more - only hot-rolled - in coils
722540	Flat-rolled products of other alloy steel - width 600 mm or more - only hot-rolled - not in coils
722550	Flat-rolled products of other alloy steel - width 600 mm or more - only cold-rolled (cold-reduced)
722591	Flat-rolled products of other alloy steel - width 600 mm or more - electrolytically zinc plated
722592	Flat-rolled products of other alloy steel - width 600 mm or more - zinc coated or plated not elsewhere specified
722599	Flat-rolled products of other alloy steel - width 600 mm or more - other not elsewhere specified
722611	Flat-rolled products of silicon-electrical steel - width <600 mm - grain oriented
722619	Flat-rolled products of silicon-electrical steel - width <600 mm - other than grain oriented
722620	Flat-rolled products of high speed steel - width <600 mm
722691	Flat-rolled products of other alloy steel - width <600 mm - only hot-rolled
722692	Flat-rolled products of other alloy steel - width <600 mm - only cold-rolled (cold-reduced)
722693	Flat-rolled products of other alloy steel - width <600 mm - electrolytically zinc plated
722694	Flat-rolled products of other alloy steel - width <600 mm - zinc plated or coated not elsewhere specified
722699	Flat-rolled products of other alloy steel - width <600 mm - other not elsewhere specified
722710	Bars and rods of high speed steel - hot-rolled in irregularly wound coils
722720	Bars and rods of silico-manganese steel - hot-rolled in irregularly wound coils
722790	Bars and rods of other alloy steel not elsewhere specified (excluding stainless) - hot-rolled in irregularly wound coils
722810	Bars and rods - of high speed steel
722820	Bars and rods - of silico-manganese steel
722830	Bars and rods - alloy non-stainless steel - not further worked than hot-rolled, drawn or extruded
722840	Bars and rods - alloy non-stainless steel - not further worked than forged
722850	Bars and rods - alloy non-stainless steel - not further worked than cold formed or finished
722860	Bars and rods - alloy non-stainless steel - other not elsewhere specified
722870	Angles, shapes and sections - alloy non-stainless steel
722880	Hollow drill bars and rods - alloy or non-alloy steel

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730210	Rails - iron or steel
732611	Forged or stamped grinding balls and similar articles for mills - iron or steel

Annex C

List of Industry Associations

- American Iron and Steel Institute (AISI)
<http://www.steel.org/>
- American Petroleum Institute (API)
<http://www.api.org/>
- American Society for Testing and Materials (ASTM)
<http://www.astm.org/>
- Association of Iron and Steel Engineers (AISE)
<http://www.aise.org/>
- Bureau of International Recycling (BIR)
<http://www.bir.org/>
- Canadian Association of Recycling Industries (CARI)
<http://www.cari-acir.org/>
- Canadian Institute of Steel Construction (CISC)
<http://www.buildingweb.com/cisc/index.html>
- Canadian Sheet Steel Building Institute (CSSBI)
<http://www.cssbi.ca/>
- Canadian Steel Producers Association (CSPA)
<http://www.canadiansteel.ca/>
- International Iron and Steel Institute (IISI)
<http://www.worldsteel.org/>
- Steel Manufacturers Association (SMA)
<http://www.steelnet.org/>
- Steel Recycling Institute (SRI)
<http://www.recycle-steel.org/>
- Steel Service Center Institute (SSCI)
<http://www.ssci.org/welcome.adp>

Annex D

List of Relevant Web Sites

General Information

- Canadian Representatives Abroad
<http://www.dfait-maeci.gc.ca/english/missions/rep-can1e.htm>
- Export Development Corporation
<http://www.edc.ca/>
- Exportsource
<http://exportsource.gc.ca/>
- Guide to Canadian Industries: Other Primary Steel Industries
<http://strategis.ic.gc.ca/SSG/gi29191e.html>
- Industry Snapshot: Primary Steel in Canada
<http://strategis.ic.gc.ca/SSG/mm01308e.html>
- Metals and Minerals Sector, Department of Natural Resources
<http://www.nrcan.gc.ca/mms/ms-e.htm>
- Primary Iron & Steel Production at Industry Canada on *Strategis*
<http://strategis.ic.gc.ca/SSG/mm01460e.html>
- Primary Steel Sector Competitiveness Framework (SCF)
<http://strategis.ic.gc.ca/SSG/mm01070e.html>

Technology and R&D Information

- Canadian Lightweight Materials Research Initiative (CLIMRI)
http://www.nrcan.gc.ca/mms/canmet-Mtb/Mtl/ENG/test/climri/default_e.htm
- Glossary of Terms and Concepts Relating to Steelmaking
<http://www.steel.org/learning/glossary/glossary.htm>
- North American Steel Framing Alliance, information on the use of light-gauge steel framing in residential construction
<http://www.steel framing alliance.com/>
- Partnership for a New Generation of Vehicles (PNGV), a pre-competitive research effort involving several agencies and departments of the U.S. government and General Motors, Ford and DaimlerChrysler
<http://www.ta.doc.gov/pngv/cover/pngvcover.htm>
- STEELYNX, more than 6000 links to steelmaking and steel-related technologies
<http://www.mlc.lib.mi.us/~stewarca/steelynx.html>
- TechRoute, for technology-related information relevant to the metals and minerals sector, including patents and trademarks, sources of expertise and technology, and research opportunities
<http://strategis.ic.gc.ca/SSG/mm01378e.html>

- UltraLight Steel AutoBody (ULSAB), an International consortia of steelmakers conducting R&D into lightweight auto structures
<http://www.ulsab.org/index.html>
- U.S. Council for Automotive Research (USCAR), an umbrella organization involving General Motors, Ford and DaimlerChrysler pursuing cooperative, pre-competitive research
<http://www.uscar.org/>

Trade Information

- Findings issued by the Canadian International Trade Tribunal in anti-dumping and countervailing duty investigations in (1) initial investigations and (2) the 5-year sunset reviews
http://www.citt.gc.ca/dumping/Inquiere/Findings/indx98_e.htm
http://www.citt.gc.ca/dumping/Reviews/Orders/indx98_e.htm
- Information on Canadian primary iron and steel producers relating to imports, exports, employment, shipments, market outlook, etc.
<http://strategis.ic.gc.ca/SSG/mm01460e.html>
- Statements of reasons issued in anti-dumping and countervailing duty investigations by the Canada Customs and Revenue Agency
<http://www.ccradrc.gc.ca/customs/business/sima/sor-list-e.html>
- Steel import permit reports from the Import and Export Controls Bureau, Department of Foreign Affairs and International Trade
<http://www.dfait-maeci.gc.ca/~eicb/steel/steel-e.htm>

Environmental Information

- Accelerated Reduction/Elimination of Toxics (ARET), Department of the Environment
<http://www2.ec.gc.ca/aret/>
- Canadian Industry Program for Energy Conservation (CIPEC), Department of Natural Resources
http://buildings.nrcan.gc.ca/ieei/home_e.htm
- CSPA's Statement of Commitment and Action on the Environment, and the Industry's 1998 Progress Report on the Environment
<http://www.canadiansteel.ca/environment/environment01.html>
- Intergovernmental On-line Information Kiosk, provides links to universities and colleges; municipal, provincial and territorial, and federal governments in Canada; and foreign governments and international organizations
<http://www.intergov.gc.ca/>
- Voluntary Challenge & Registry Inc., a not-for-profit corporation encouraging private and public sector organizations to voluntarily limit their net greenhouse gas emissions
http://www.vcr-mvr.ca/home_e.cfm

Labour and Employment Information

- Canadian Auto Workers (CAW)
<http://www.caw.ca/>
- Canadian Steel Trade and Employment Congress (CSTEC)
<http://www.cstec.ca/>

- International Metalworkers Federation (IMF)
<http://www.imfmetal.org/imf/main/main.cfm>
- United Steelworkers of America (USWA): Canada
<http://www.uswa.ca/>

Steel and Steel-related Business-to-Business E-commerce Sites

- BuyStainlessOnline.com
<http://www.buystainlessonline.com/>
- e-STEEL
<http://www.esteel.com/>
- Ford Supplier Network auto-xchange
<https://fsn.ford.com/index.html>
- GM SupplyPower
<http://www.gmsupplypower.com/supplypower/index.html>
- iSteelAsia.com
http://www.isteelasia.com/front_eng.asp
- LiveSteel
<http://www.livesteel.com/>
- Metal Suppliers Online
<http://www.metalsuppliersonline.com/>
- MetalSite
<http://www.metalsite.net/>
- Steel Spider
<http://www.steelspider.com/Welcome.asp>
- SteelBroker.com
<http://www.steelbroker.com/>
- SteelTrade.Com
<http://www.tradesteel.com/>
- The Steel Exchange Online (Canadian site)
<http://www.thesteelexchangeonline.com/>

Annex E

List of Companies

Industry Canada's Web site *Strategis* includes an on-line directory of Canadian companies in all industrial and service sectors. Known as the "Canadian Company Capabilities" (CCC), this directory enables Canadian companies the opportunity to connect with customers and suppliers around the world, 24 hours a day, 7 days a week.

Companies can register electronically by going to *Strategis* at <http://strategis.ic.gc.ca/cdncc> and selecting the Register button. Companies that are not on the Internet can call the *Strategis* Help Desk toll-free at 1-800-328-6189 to receive a registration form.

The following is a list of companies involved in the primary steel industry (SIC 2919 – other primary steel industry)

Algoma Steel Inc.
P.O. Box 1400
105 West Street
Sault Ste. Marie, Ontario
P6A 5P2
Tel.: (705) 945-2351
Fax: (705) 945-2203
Web site: <http://www.algoma.com>

Co-Steel Lasco
A Division of Co-Steel Inc.
Hopkins Street South
Whitby, Ontario
L1N 5T1
Tel.: (905) 668-8811
Fax: (905) 668-4536
Web site: <http://www.costeel.com/lasco.html>

Atlas Specialty Steels
A Division of Atlas Steels Inc.
P.O. Box 1000
One Centre Street
Welland, Ontario
L3B 5R7
Tel.: (905) 735-5661
Fax: (905) 735-7282
E-mail: markets@atlassteels.com
Web site: <http://www.atlassteels.com>

Dofasco Inc.
P.O. Box 2460
1330 Burlington Street East
Hamilton, Ontario
L8N 3J5
Tel.: (905) 544-3761
Toll-free: 1-800-363-2726
Fax: (905) 545-3236
Web site: <http://www.dofasco.ca>

Atlas Stainless Steels
A Division of Atlas Steels Inc.
1640, route Marie-Victorin
Tracy, Québec
J3R 5R5
Tel.: (514) 746-5000
Fax: (514) 746-2502

Gerdau Courtice Steel Inc.
160 Orion Place
Cambridge, Ontario
N1T 1R9
Tel.: (519) 740-2488
Fax: (519) 740-2601
Web site: <http://www.courticesteel.com>

Gerdau MRM Steel Inc.
P.O. Box 2500
27 Main Street
Selkirk, Manitoba
R1A 2B4
Tel.: (204) 482-3241
Fax: (204) 785-2193

QIT-Fer et Titane Inc.
1625, route Marie-Victorin
Tracy, Québec
J3R 1M6
Tel.: (450) 746-3000
Fax: (450) 746-1101

IPSCO Inc.
P.O. Box 1670
Armour Road
Regina, Saskatchewan
S4P 3C7
Tel.: (306) 924-7700
Fax: (306) 924-7500
Web site: <http://www.ipsco.com>

Slater Steels
Hamilton Specialty Bar Division
A Division of Slater Steel Inc.
P.O. Box 2943
319 Sherman Avenue North
Hamilton, Ontario
L8N 3R5
Tel.: (905) 549-4774
Fax: (905) 549-3785
Web site: <http://www.slater.com>

Ispat Sidbec Inc.
4000, rue route des Acières
Contrecoeur, Québec
J0L 1C0
Toll-free: 1-800-361-2605
Fax: (450) 587-8777
E-mail: sidbec@ispatnet.com
Web site:
[http://www.ispatinland.com/subsidiaries/isp
at15.htm](http://www.ispatinland.com/subsidiaries/isp
at15.htm)

Stelco Inc.
P.O. Box 2030
100 King Street West
Hamilton, Ontario
L8N 3T1
Tel.: (905) 528-2511
Fax: (905) 577-4493
Web site: <http://www.stelco.com/>

Ivaco Inc.
Place Mercantile
770, rue Sherbrooke ouest
Montréal, Québec
H3A 1G1
Tel.: (514) 288-4545
Fax: (514) 288-7814
Web site: <http://www.ivaco.com>

Sydney Steel Corporation
P.O. Box 1450
1 Inglis Street
Sydney, Nova Scotia
B1P 6K5
Tel.: (902) 564-7900
Fax: (902) 564-7903

Annex F

The North American Industry Classification System (NAICS)

The North American Industry Classification System (NAICS) is an industry classification system developed by the statistical agencies of Canada, Mexico and the United States.

Created against the background of the North American Free Trade Agreement, it is designed to provide common definitions of the industrial structure of the three countries and a common statistical framework to facilitate the analysis of the three economies. NAICS is based on supply-side or production-oriented principles to ensure that industrial data, classified to NAICS, is suitable for the analysis of production-related issues such as industrial performance.

NAICS is a comprehensive system encompassing all economic activities. It has a hierarchical structure. At the highest level, it divides the economy into 20 sectors. At lower levels, it further distinguishes the different economic activities in which businesses are engaged.

NAICS is designed for the compilation of production statistics and, therefore, for the classification of data relating to establishments (and locations). It takes into account the specialization of activities generally found at the level of the producing units of businesses. The criteria used to group establishments into industries in NAICS are similarity of input structures, labour skills or production processes used.

Definitions

NAICS is principally a classification system for establishments and for the compilation of production statistics. At the lowest level of the operating structure of businesses are producing units, such as the mill, plant, factory, farm, mine, warehouse, store, airline terminal and movie theatre. The establishment, as a statistical unit, is defined as the most homogeneous unit of production for which the business maintains accounting records from which it is possible to assemble all the data elements required to compile the full structure of the gross value of production (total sales or shipments, and inventories), the cost of materials and services, and labour and capital used in production. Provided that the necessary accounts are available, the statistical structure replicates the operating structure of the business. In delineating the establishment, however, producing units may be grouped.

Based on the new classification by NAICS industries, SIC 2919, under which the other primary steel industry falls, will be replaced by the following NAICS:

331110 Iron and Steel Mills and Ferro-Alloy Manufacturing
Note: Steel mills with blast furnaces (including electric-arc furnaces)

Glossary

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

Capital Expenditure

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

- construction
- machinery and equipment

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 a company operates establishments manufacturing small electrical appliances and other establishments manufacturing synthetic plastic resins, the output of the two kinds of establishments is included in their respective industries.

Constant (Real) Value

(Current dollar value/Industrial Price Index) x 100

Cost of Fuel and Electricity

Consumption of purchased fuel and electricity only at laid-down cost, including transportation and handling charges, excise duties, etc.

Cost of Materials and Supplies

Consumption of purchased items only at laid-down cost, including transportation and handling charges, excise duties, etc. Includes transfers between units of the same company, but does not include the cost of services except for contract manufacturing services.

Domestic Exports

Includes goods grown, extracted or manufactured in Canada, including goods of foreign origin that have been materially transformed in Canada.

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 that produces as homogeneous a set of goods and services as possible and for which records exist that permit the calculation of census value added and are 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.

Gross Domestic Product (GDP)

The market value of an economy's domestically produced goods and services over a specified period of time.

Harmonized System (HS)

The Harmonized System of codes is an international system of commodity classification that is employed to keep track of imports and exports passing through customs.

Imports

Includes all goods that have crossed Canada's territorial boundary, whether for immediate consumption in Canada or stored in bonded custom's warehouses.

Industrial Product Price Index (IPPI)

Measures price change for domestically produced products, whether sold in Canada or abroad. Represents selling prices at the boundary of the establishment, wherein the cost of taxes collected at that point and transportation provided by public carriers beyond that point are excluded.

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.

Production Workers

Employees engaged in any of the following activities: processing and assembling, storing, handling, packing, warehousing, inspecting, maintenance, repair, janitorial or watchman services, and working foremen doing work similar to that of employees they supervise. Outside pieceworkers' remuneration is included in the cost of materials. The number of employees is reported as an average.

Raw Materials, Supplies, Components and Fuel

Includes all items bought for processing and assembling that have not been charged out to processing.

Salaries and Wages

Salaries and wages refer to gross earnings of employees before deductions for income tax and the employee portion of employee benefits. They include payment for regular work, overtime and paid leave as well as bonuses and commissions paid to regular employees.

Standard Industrial Classification (SIC)

The Standard Industrial Classification is a coding system that defines industries in terms of specific groupings of activities. Every industry is assigned a two-, three- or four-digit code. Two-digit codes represent the broadest industry definition and the broadest range of activities; four-digit codes represent the most detailed industry definition and the most detailed range of activities. For example, SIC 29 represents the Primary Metal Industry (which includes both primary and semi-fabricated metals); SIC 2961 represents the Aluminum Rolling, Casting and Extruding Industry. 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.

Unit Labour Cost

Ratio of labour compensation to real GDP.

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, i.e., the value of gross output minus the value of purchased inputs used to create the product. Value added avoids double counting because products purchased from other establishments are deducted as input costs.