

**Presentation on:**

**Exchange Rates  
and  
The Steel Industry**

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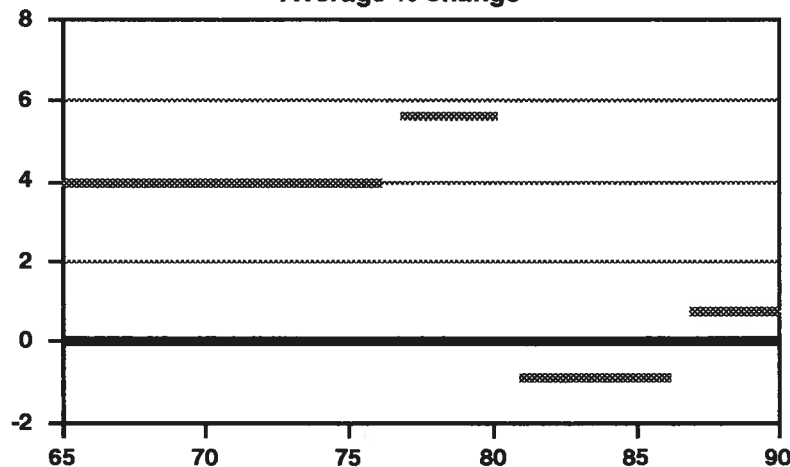
**C.A. Sonnen**

**February 24, 1992**

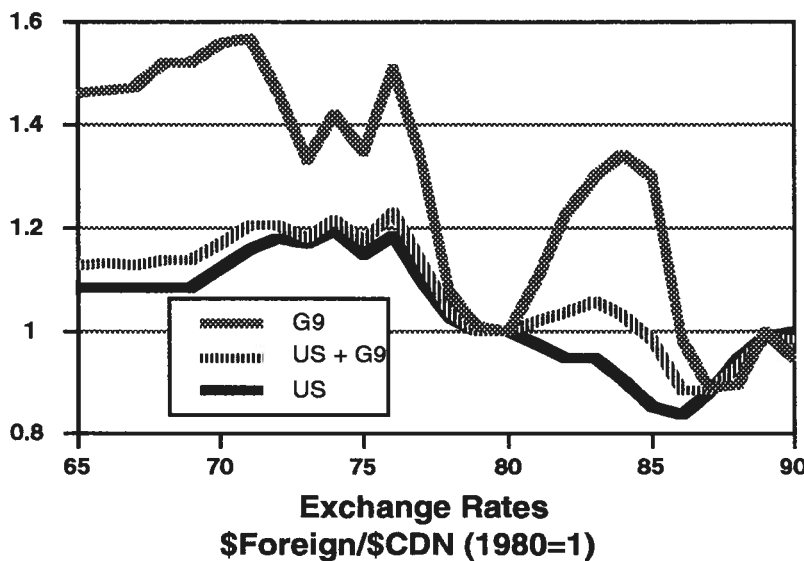
## Exchange Rate and Growth Performance of Steel Industry

- **As direct impact, exchange rate changes can make Canadian exports more, or less, attractive and foreign suppliers, more or less attractive.**
- **But there is more than one exchange rate:**

**Steel Industry Real Gross Output**  
Average % change



- **Canada/US exchange rate declines steadily 1976-86 but real output growth is at first fast, then slower over this period.**



- **Canada/US exchange rate appreciates from 1986, but growth accelerates.**

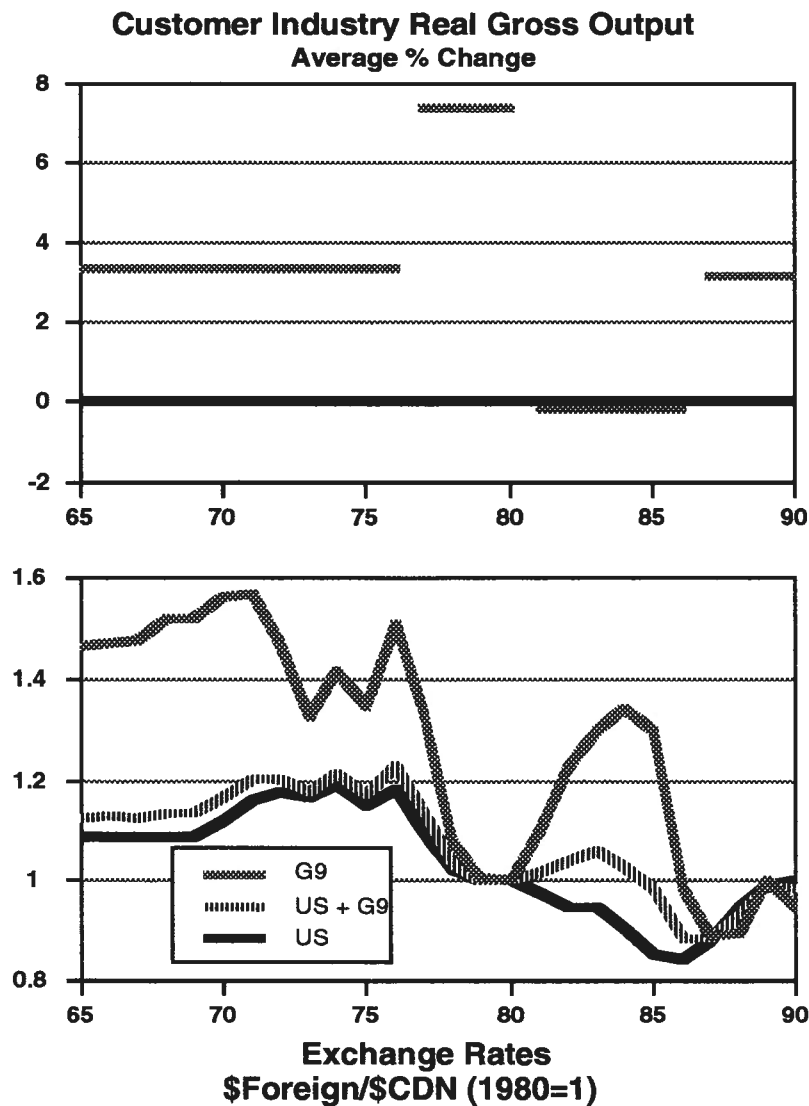
- **Arguably, tie-in of growth to trade-weighted exchange rate is stronger, but relationship here is also cloudy.**

## Exchange Rate and Growth Performance of Steel Industry (Continued)

### Summary:

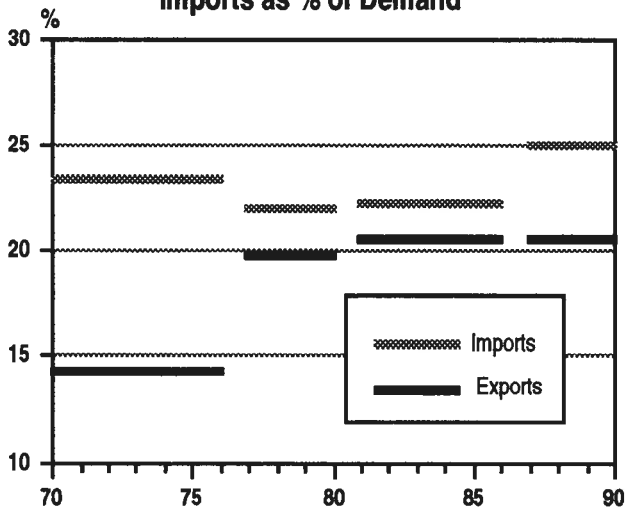
- **One-to-one relationship between exchange rate and Steel industry is hard to establish.**
- **It's possible that the North American exchange rate is more important than the Can/US rate.**

### Same story for Industry's main customers:



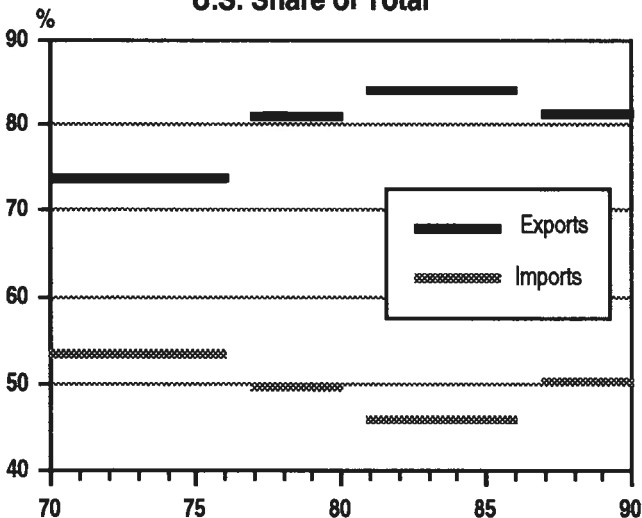
## Exchange Rates and Trade Performance

Exports as % of Output  
Imports as % of Demand



- Generalized erosion of the Canadian \$ 1976-86 yields increase in export orientation of Canadian production, and slight reduction in importance of imports in domestic market. But variations within that period are not strong.
- General appreciation since 1986 has had small effect on imports, but none on exports.

Direction of Trade  
U.S. Share of Total



- Exchange rate changes between currency areas appear to have mixed effects.
- 1976-80: depreciation of North American currency favours two-way North American trade: Canadian export share to US rises (OK) but Canadian import share from US falls (?)
- 1981-86: Appreciation of North American currency discourages two-way North American trade: Canadian export share to US still rises(?); Canadian import share from US does fall. (OK)
- Main feature is stability of two-way shares from mid-1970s

## Canadian Steel Industry Demand Attributes from Economic Accounts

### Sources of Demand (in per cent)

<b>Exports (% of output)</b>	<b>20-21</b>
<b>Import offset (% of domestic sales)</b>	<b>22-25</b>
<b>Domestic industries (% of output)</b>	<b>80</b>

	% of Industry Requirements	Own X/M(*) Shares (%)
<b>Metal Fabricating</b>	<b>30-32</b>	<b>26/36</b>
<b>Auto parts</b>	<b>19</b>	<b>72/79</b>
<b>Gas/Oil Facilities</b>	<b>5</b>	<b>0</b>
<b>Non-agricultural Machinery</b>	<b>6</b>	<b>40/68</b>
<b>Non-residential Construction</b>	<b>3-5</b>	<b>0</b>
<b>Electrical Equipment</b>	<b>2</b>	<b>23/46</b>
<b>Agricultural Machinery</b>	<b>1-2</b>	<b>70/83</b>

**(\*) Exports as % of production,  
Imports as % of domestic sales**

### **Summary:**

- **direct trade exposure for steel industry is significant but so too is exposure for industry's largest customers.**
- **Also, note that there is strong evidence of material substitution; domestic demand grows 25% less rapidly than weighted-sum of output for purchasing industries.**

## Canadian Steel Industry Cost Attributes from Economic Accounts

### Sources of Costs (in per cent)

	Steel	All Manufacturing
Purchased Inputs	63	65
Labour Income	27	22
Corporate Income	9	12
Net Indirect Taxes	1	1

### Steel Industry Purchased Inputs

	% Share of Purchased Inputs	Per cent Growth Domestic Prices	
		81-86	87-90
"Self"	25.0	4.5	2.9
Iron Ore	10.6	5.7	-5.8
Coal	9.0	3.5	-3.6
Operating Supplies	7.9	3.0	0.9
Transportation	5.8	2.3	0.7
Wholesale Trade	5.2	3.1	1.6
Electric Power	4.1	5.4	4.0
Smelting	4.0	0.5	-6.7
Aluminum	3.3	1.4	-11.2
Metal Fabrication	3.2	1.6	-3.0
Cement & Clay Products	3.0	3.3	3.3

**Canadian Steel Industry Cost Attributes  
from Economic Accounts (Continued)**

**Labour Income and Productivity  
(Average annual per cent change)**

<b>Labour Income</b>	<b>81-86</b>	<b>87-90</b>
<b>Steel</b>		
<b>Labour Income per Employee</b>	<b>9.6</b>	<b>4.1</b>
<b>Labour Productivity</b>	<b>2.7</b>	<b>4.0</b>
<b>Unit Labour Costs</b>	<b>6.7</b>	<b>0.1</b>
<b>Manufacturing</b>		
<b>Labour Income per Employee</b>	<b>7.5</b>	<b>5.6</b>
<b>Labour Productivity</b>	<b>2.8</b>	<b>2.5</b>
<b>Unit Labour Costs</b>	<b>4.6</b>	<b>4.0</b>
<b>Total Business</b>		
<b>Labour Income per Employee</b>	<b>6.3</b>	<b>6.7</b>
<b>Labour Productivity</b>	<b>1.5</b>	<b>1.1</b>
<b>Unit Labour Costs</b>	<b>4.7</b>	<b>5.5</b>
<b>Steel Real Wage Rate</b>	<b>2.9</b>	<b>0.0</b>
<b>Excess over productivity</b>	<b>0.2</b>	<b>-4.0</b>
<b>Employment (PYs)</b>	<b>-4.3</b>	<b>-4.1</b>

**Labour costs in the United States were dropping rapidly in the 1980s through a major shake-out of an "inefficient" industry. If we wanted to maintain the "edge", how would we have done this? Or is "Convergence" what happened?**

**Canadian Steel Industry Cost Attributes  
from Economic Accounts (Continued)**

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**Corporate Income**  
(Average per cent over period)

	<b>81-86</b>	<b>87-90</b>
<b>Return on Capital Employed</b>		
Steel	3.5	6.8
Manufacturing	10.4	13.1
<b>Return on Gross Output</b>		
Steel	6.8	12.3
Manufacturing	9.9	12.4
<b>Share of Value Added</b>		
Steel	19.6	32.7
Manufacturing	31.7	36.3

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**Real Long-term Interest Rates**  
(Average per cent over period)

	<b>81-86</b>	<b>87-90</b>
<b>Canada</b>	7.2	6.9
<b>United States</b>	7.2	6.1

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**Investment and Capital Stock (\$81 Mns)**  
(Average per cent change over period)

	<b>81-86</b>	<b>87-90</b>
<b>Investment</b>		
Steel	2.2	-3.5
Manufacturing	1.0	6.6
<b>Capital Stock</b>		
Steel	0.5	1.3
Manufacturing	3.0	4.0

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**Average Age of Steel Capital Stock (in years)**

	<b>1981</b>	<b>1986</b>	<b>1990</b>
<b>Machinery and Equipment</b>	6.3	6.8	7.1
<b>Structures</b>	15.6	16.3	17.3

## **Canadian Steel Industry Cost Attributes from Economic Accounts (Continued)**

### **Summary of Costs and Industry Prices (Average per cent change)**

	<b>81-86</b>	<b>87-90</b>
<b>Unit Labour Costs</b>	<b>6.7</b>	<b>0.1</b>
<b>Unit Capital Costs</b>	<b>-0.4</b>	<b>18.9</b>
<b>Purchased Input Prices</b>	<b>4.1</b>	<b>0.9</b>
<b>Net Indirect Tax Rate</b>	<b>3.7</b>	<b>0.7</b>
<b>Gross Output Price</b>		
<b>Steel</b>	<b>4.7</b>	<b>2.7</b>
<b>Manufacturing</b>	<b>4.6</b>	<b>2.7</b>
<b>Total Business</b>	<b>5.0</b>	<b>3.3</b>
<b>Value Added Deflator</b>	<b>5.9</b>	<b>5.2</b>

## Exchange Rate Impacts

### Depreciation:

- In general, first-round effects of a depreciation benefits trade-sensitive sectors; key issue is price elasticity.
- Hurts consumers and domestically-oriented business; key issue is extent to which wages and domestic price formation pass the "shock" through.

### General Equilibrium Model Elasticities for FTA Analysis

	Exports	Imports
Iron and Steel	-1.4	-1.4
Steel Pipe and Tube	-1.5	-1.4
Other Metal Rolling & Casting	-1.5	-7.8
Boiler and Plate	-1.0	-1.3
Fabricated Structural Steel	-1.0	-1.3
Metal Stamping	-1.0	-1.4
Wire and Wire Products	-1.0	-1.0
Hardware and Cutlery	-1.0	-1.0
Other Metal Fabricating	-1.3	-1.4
Motor Vehicles	-1.0	-1.3
Motor Vehicle Parts	-1.0	-1.0

### Second Round Questions:

- Wage-Productivity-Unit Labour Cost mechanisms.
- Interest rate response, and if nominal rates go up, does this add to, or limit the price impact?
- Corporate profits benefit; do they invest, and if so, where?

## **Exchange Rate Scenarios**

### **I "Autonomous"**

**External-to-Canada, non-cost related, depreciation (e.g., Graham-Rudman "announcement" effect, political disorder in Canada, "expectations" of problems, shifts in terms of trade)**

### **II "Cost Push"**

**Domestic "Cost Push" or Monetized "Excess Demand" Case. (ex., widespread use of indirect taxes to generate revenues, unilateral environmental action using taxes and/or user fees, wage demands beyond productivity increases (or, productivity declines, domestic "monopoly pricing" in major producing sectors spreads, large transfers to personal sector)**

### **III "Interest Rate Induced"**

**Interest rate induced depreciation (e.g., real interest rates and spread with US drops)**

## **Exchange Rate Impacts Scenario I: "Autonomous" General Effects**

### **Direction and magnitudes widely agreed:**

- **Strong, positive net trade and current account impact**
- **Strong, positive effect on profits**
- **Building, over time, positive effects on investment**
- **Positive effect on government balances**
- **Overall, positive impact on output and employment**
- **Initial, positive effect on price level**

### **Direction disputed and/or magnitudes questionable:**

- **Initial cyclical productivity gains with long-term positive effects on productivity from investment**
- **Wage rates increase with, more than, or less than effect on CPI**
- **Unit labour costs initially down (agreed), but longer term depends on wage/productivity issue**
- **Unit capital costs up, but lasting effect uncertain**
- **Most "models" suggest no spiral of inflation**
- **Monetary policy reaction is key issue**
  - **Current account improved, but negative effect on short-term capital flows if no change in nominal interest rates**
  - **Wealth loss for Canadian denominated assets**
  - **Real interest rate drops, initially; longer-term will depend on whether "spiral" starts**
  - **For those who worry about spiral, including "expectations" effect, policy is to increase nominal interest rates**
  - **Interest rate offset will act more strongly on real side of economy than on prices; leaves Canadian price level higher than in Base Case**

## **Exchange Rate Impacts Scenario I: "Autonomous" Steel Industry Effects**

**(Assuming No Interest Rate Response)**

- **Strong positive effects on steel industry trade position. Do US VER's limit export benefits? Will not affect ROW exports of rolling mill and primary exports, which are significant**
- **Strong positive effects on customer-industry's net trade position - metal fabrications and auto parts**
- **Positive investment impact important to metal fabricators, machinery industries, and nonresidential construction**
- **Input material costs will include rise in coking coal and iron ore prices, but balance of input prices depends on "spiral" issue**
- **Industry output gains met initially through cyclical productivity gains; longer term will depend on investment. Who realizes income gains from productivity - labour, capital or customers?**
  - **If labour through wages or employment, then unit labour cost increases. Chokes off corporate income and subsequent investment.**
  - **Alternatively, corporate income up. Is this invested in Canada? Will be sensitive to monetary policy response.**
  - **Lower prices, increase demand for products, domestically and externally.**

**(Assuming Interest Rate Response)**

- **Only some short-term net trade benefits**
- **Lasting higher price level, and discouragement to investment leave no benefits longer term; as a leveraged industry, negative impact on corporate income**

## **Exchange Rate Impacts Scenario II-"Cost Push" General Effects**

### **Direction and magnitudes widely agreed**

- **Negative, net trade and current account impact**
- **Trade-sensitive sectors hurt**
- **Positive effect on household incomes and related demands (if wage-based)**
- **Generalized benefits to services and consumer-oriented manufacturing output and investment**
- **Most "models" suggest initial net positive effect on output and investment, eroding over time**

### **Direction disputed and/or magnitudes questionable**

- **Inflationary, but depends on source of domestic cost increase and Base Case state of economy**
- **Initial cyclical productivity gains possible depending on Base Case state; longer term shift towards services suggests negative effect on overall productivity**
- **Potential for inflationary "spiral" from wages and/or domestic pricing is strong**
- **Monetary policy reaction is again key issue**
  - **Most "models" agree that even non-accommodating monetary policy yields initial overall output gains; question is how "accommodating"?**
  - **Current account deteriorates with strong potential for continuing depreciation followed by monetary and/or fiscal reaction.**

## **Exchange Rate Impacts: Scenario II-"Cost Push" Steel Industry Effects**

- **Negative effects on steel industry trade position**
- **Negative effects on customer-industry trade position**
- **Initial positive effects on demand from metal fabricating and nonresidential construction**
- **Longer term impacts on demand from these sectors uncertain**
- **Initial and longer-term impacts on other customer industries uncertain**
- **Input material costs will include rise in coking coal and iron ore prices, and also from labour-intensive sectors (operating supplies, transportation services, wholesale trade) and likely, electric power**
- **Impact on prices from goods-producing suppliers likely strongly positive as many are "price takers" and depreciation has direct effect**
  
- **Summing up**
  - **Some initial net positive effect on aggregate demand**
  - **Strong potential for longer term negative effect**
  - **Strong increase in input costs**
  - **Capacity to hold industry profit margins not strong as industry faced with international competition**
  - **Some potential for real wage gains beyond productivity warrant, but long term, erosion of productivity and wages**
  - **Highly sensitive to use of monetary policy to stem aggregate inflationary pressures**

**Exchange Rate Impacts**  
**Scenario III: "Interest Rate Induced"**  
**General Effects**

**Direction and magnitudes widely agreed**

- **Strong positive net trade and current account impact**
  - **Strong, positive effect on profits**
  - **Building, over time, positive effects on investment**
  - **Strong positive effect on government balances**
  - **Overall, positive impact on output and employment**
- Strong consensus on this among "models"**

**Direction disputed and/or magnitudes questionable**

- **Initial, inflationary effect on price level; long-term effects depend on uncertainties below**
- **Initial cyclical productivity gains (depending on Base Case state) with long-term positive effects on productivity from investment**
- **Wage rates increase with, more than, or less than effect on CPI**
- **Unit labour costs initially down (agreed), but longer term depends on wage/productivity issue**
- **Unit capital costs down, with strong chance of lasting effect**
- **Most "models" suggest no spiral of inflation, but room for argument here**
- **Monetary/fiscal policy reaction is key**
  - **Current account improved, but strong potential for negative effect on short-term capital flows**
  - **Wealth loss for Canadian denominated assets; long term productivity gains could recoup these**
  - **Moves economy to potential faster; once there, what happens is key**
    - △ **government balances are stronger; will they react to "excess demand" signals?**
    - △ **if "spiral" has started, do monetary authorities slam on brakes? Current policy aimed at ensuring "spiral" never gets started.**

## **Exchange Rate Impacts Scenario III: "Interest Rate Induced" Steel Industry Effects**

- **Very favourable world for trade-sensitive and "durables" producers generally**
- **Strong positive effects on steel industry trade position. Again, do US VER's limit export benefits?**
- **Strong positive effects on customer-industry's net trade position-metal fabricators and auto parts**
- **Strong, positive investment impact important to metal fabricators, machinery industries, and nonresidential construction**
- **Input material costs will include rise in coking coal and iron ore prices, but balance of input prices depends on "spiral" issue; most models suggest little chance of this**
- **Industry output gains met initially through cyclical productivity gains; longer term will depend on investment, which is fostered by drop in real interest rates. Who realizes income gains from productivity-labour, capital or customers?**
  - **If labour through wages or employment, then unit labour cost increases. Chokes off corporate income and subsequent investment, but interest rates help here**
  - **Alternatively, corporate income up. Is this invested in Canada? Will be sensitive to monetary policy response.**
- **If "spiral" with no fiscal/monetary reaction, shifts economy and industry into Scenario II.**

## **Industry-Specific Problems**

- **Convergence of competitors to Canadian efficiency - is this finished, or will they pass us? Recent vintage, capital stock and productivity measures not encouraging.**
- **VER's, minimills, access to "scrap" and implications for reward to scale economies**
- **environmental action, including that focused on key auto customer industry**
- **materials substitution, and integration into steel operations**
- **recognize that secular slowing of population and labour force is occurring; will influence demands from metal fabricators and nonresidential construction; important for an industry that is aimed mainly at domestic market; points toward capital-labour substitution; reward to labour is relatively high (50 per cent above national average) and this spread has grown over last 20 years (35 per cent in 1971)**

**Exchange rate will not fix these "structural" things. Real issue is can exchange rate and interest rate nexus be used to fix short term, while ensuring that partnerships in industry, and across industries, are arranged to tackle structural issues and avoid potential for long-term (Scenario II) "abuses".**

**If US and other competitors are willing to go through another decade of major pain and there is potential from this for repeat of US productivity and unit cost gains, then this is a major problem.**

**Iron and Steel Industry  
Major Indicators**

February 22, 1992

Sources: Statistics Canada and Informetrica Limited  
Data through 1988 complete actuals  
Data post-1988 includes Informetrica estimates



IRON AND STEEL INDUSTRY  
MAJOR INDICATORS

	70-73	74-80	81-90	81-86	87-90
Average Annual Rates of Growth					
SUMMARY MEASURES OF SUPPLY AND DEMAND (\$Mn 81)					
Gross output	6.23	1.89	-0.08	-1.69	2.38
Final demand	0.03	-18.81	15.40	-6.50	58.23
Gross exports	8.87	9.59	-0.99	-4.11	3.89
Gross imports	6.25	-0.61	2.18	-1.29	7.61
Intermediate industry require's	5.61	0.85	0.52	-1.77	4.05
Inventories (a)	11.89	264.89	-135.44	-167.43	-87.45
Net exports (a)	-825	-491	-359	-230	-553
Export share in output (%) (a)	13.74	17.70	20.50	20.52	20.46
Import share in domestic sales(a)	22.68	22.89	23.23	22.07	24.97
CONTRIBUTION TO OUTPUT GROWTH (%)					
Domestic sales (a)	6.51	0.77	1.18	-1.14	4.66
Inventory change (a)	0.18	-0.26	0.41	1.24	-0.83
Exports (a)	1.22	1.78	-0.19	-0.87	0.84
Imports (a)	-1.57	-0.09	-0.65	0.05	-1.71
INDICATIONS OF DEMAND (Mn\$81)					
Final Demand					
Exports, iron and steel alloys	-	4.88	-3.08	-2.64	-3.73
Exports, steel - rolling mill	-	11.37	2.81	0.58	6.24
Exports, iron and steel primary	-	2.12	0.16	-4.85	8.17
Imports, iron and steel rolling	-	-6.67	6.71	6.26	7.39
Imports, iron and steel, other	-	1.71	1.81	-1.09	6.31
Intermediate Industry Requirements (Gross Output of following industries)					
Metal fabricating	4.58	1.42	1.09	0.51	1.97
Gas and oil facility	4.73	12.25	-1.55	-4.74	3.45
Transp. equip. - parts and equip	10.98	-3.22	11.58	14.86	6.84
Machinery - non-agr.	3.82	4.99	0.35	-1.25	2.79
Construction - non-res bldg.	0.72	4.33	3.06	1.55	5.36
Elect. equipment - other	4.21	2.13	0.63	-0.76	2.76
Machinery - agriculture	7.89	5.54	-8.18	-11.84	-2.40
INDICATIONS OF INDUSTRY ACTIVITY					
Gross domestic product (Mn\$81)	5.72	-2.06	-1.09	-1.67	-0.21
Gross domestic product (\$C)	11.23	10.82	4.44	4.10	4.95
Gross domestic price (1981=1)	5.21	13.15	5.59	5.87	5.16

(a) Average

IRON AND STEEL INDUSTRY  
MAJOR INDICATORS

	70-73	74-80	81-90	81-86	87-90
Average Annual Rates of Growth					
<b>INDICATIONS OF INDUSTRY ACTIVITY</b>					
Investment (Mn\$81)	18.35	0.33	-0.13	2.17	-3.47
Machinery and equipment	18.98	-0.44	-0.74	2.24	-5.05
Structures	13.29	6.09	2.91	1.70	4.75
Investment effort (Inv/GDP %) (a)	25.69	28.70	25.73	25.74	25.72
Capital stock (Mn\$81)	6.04	4.07	0.82	0.47	1.33
Machinery and equipment	6.72	4.09	0.68	0.36	1.16
Structures	3.74	3.99	1.29	0.87	1.94
Capital to output ratio (a)	3.42	4.38	5.87	6.12	5.51
Employment (Thousands, estab. basis)	3.23	1.40	-4.20	-4.29	-4.07
Labour productivity (Mn\$81/person)	2.42	-3.41	3.25	2.74	4.03
Capital to labour ratio (a)	158.60	193.31	260.27	245.96	281.74
Total factor productivity	1.68	-4.19	1.76	1.30	2.45
<b>INDICATIONS OF COSTS</b>					
Gross output (\$C)	11.63	15.21	3.82	2.97	5.11
Gross output price (1981=1)	5.08	13.07	3.90	4.74	2.66
<b>Share of gross output (%)</b>					
Purchased inputs (a)	-	-	62.97	64.43	60.79
Wages & suppl. labour (a)	29.22	26.10	26.40	27.15	25.27
Unincorporated income (a)	0.00	0.00	0.01	0.00	0.02
Surplus (a)	13.53	9.50	8.97	6.75	12.30
Net indirect taxes (a)	-	-	1.65	1.66	1.62
<b>Prices of purchased inputs (1981=1)</b>					
Mining - iron	-	-	0.93	5.69	-5.81
Mining - coal	-	-	0.63	3.52	-3.55
Wholesale trade	-	-	3.88	4.39	3.12
Electric power	-	-	6.35	6.96	5.43
Primary metal - smelting	-	-	-1.57	-2.90	0.46
Primary metal - aluminum	-	-	1.55	1.66	1.40
Metal fabric. - total	-	-	2.86	3.69	1.61
Non-met. - cem and clay prod.	-	-	4.87	5.93	3.30
<b>Labour Inputs</b>					
Wages per person-year (\$C)	8.79	10.56	6.83	8.96	3.72
Supp. lab. income per person-yea	10.18	14.42	10.24	13.10	6.07
Wage bill/GDP (\$C) (a)	68.36	73.31	75.15	80.36	67.34
Unit labour costs (1981=1)	6.36	14.95	3.97	6.65	0.08
<b>Capital Costs</b>					
Investment deflators (1981=1)	4.36	12.83	3.97	5.55	1.64
Surplus/GDP \$C (%) (a)	31.63	26.68	24.82	19.63	32.61
Surplus/Capital Stock \$C (%) (a)	8.75	5.76	4.83	3.55	6.76
Unincorporated income/GDP (\$C(a)	0.01	0.01	0.02	0.01	0.05
Unit capital cost (1981=1)	3.07	8.91	9.35	3.40	18.93
<b>Taxes</b>					
Net indirect taxes (\$C)	-	-	6.16	6.36	5.86

(a) Average

IRON AND STEEL INDUSTRY  
MAJOR INDICATORS

	70-73	74-80	81-90	81-86	87-90	
Average Annual Rates of Growth						
<b>FINAL DEMAND PRICES</b>						
Domestic market price index	-	-	3.19	4.45	1.32	
Exports, iron and steel - alloy	-	15.34	2.63	4.14	0.39	
Exports, steel - rolling mill p	-	12.67	0.38	2.88	-3.26	
Exports, iron and steel - prima	-	17.26	4.01	5.90	1.23	
Imports, iron, steel - rolling	-	15.50	2.18	1.39	3.38	
Imports, iron and steel, other	-	14.49	1.23	2.13	-0.11	
<b>Imports as Share of Sales (\$K)</b>						
Primary, US	(a)	5.43	5.15	5.50	4.57	6.90
Primary, ROW	(a)	6.70	5.33	6.39	6.48	6.25
Rolling Mill Prod, US	(a)	5.89	4.90	5.02	4.64	5.59
Rolling Mill Prod, ROW	(a)	3.34	4.02	5.31	4.63	6.33
<b>Exports as Share of Gross Output (\$K) 1/</b>						
Alloys, US	(a)	7.69	10.47	10.04	10.60	9.19
Alloys, ROW	(a)	1.38	1.66	1.00	0.91	1.13
Rolling Mill Prod, US	(a)	4.68	5.56	10.78	9.84	12.19
Rolling Mill Prod, ROW	(a)	2.62	2.18	2.64	2.35	3.06
Primary, US	(a)	2.01	1.24	1.61	1.91	1.15
Primary, ROW	(a)	1.23	0.96	0.96	0.96	0.97

(a) Average

1/ Includes exports from Metal Fabricating and other Industries

IRON AND STEEL INDUSTRY  
MAJOR INDICATORS

	70-73	74-80	81-90	81-86	87-90
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				Average	
SUMMARY MEASURES OF SUPPLY AND DEMAND (\$Mn 81)					
Gross output	7099.55	8265.36	8238.50	7872.71	8787.19
Final demand	-689.15	-156.03	-423.14	-344.01	-541.82
Final domestic demand	124.14	70.11	71.21	52.99	98.55
Gross exports	974.16	1475.02	1686.70	1614.36	1795.22
Gross imports	-1799.34	-1966.05	-2045.61	-1843.93	-2348.13
Intermediate industry requiremen	7788.70	8421.38	8661.64	8216.73	9329.00
Inventories	11.89	264.89	-135.44	-167.43	-87.45
Net exports	-825	-491	-359	-230	-553
Export share in output (%)	13.74	17.70	20.50	20.52	20.46
Import share in domestic sales (%)	22.68	22.89	23.23	22.07	24.97
CONTRIBUTION TO OUTPUT GROWTH (%)					
Domestic sales	6.51	0.77	1.18	-1.14	4.66
Inventory change	0.18	-0.26	0.41	1.24	-0.83
Exports	1.22	1.78	-0.19	-0.87	0.84
Imports	-1.57	-0.09	-0.65	0.05	-1.71
INDICATIONS OF DEMAND (Mn\$81)					
Final Demand					
Exports, iron and steel alloys	-	1029.39	919.05	934.19	896.35
Exports, steel - rolling mill	-	660.00	1101.68	960.07	1314.11
Exports, iron and steel primary	-	182.67	221.12	229.27	208.90
Imports, iron and steel rolling	-	899.00	1049.10	928.27	1230.36
Imports, iron and steel, other	-	756.88	908.80	772.19	1113.71
Intermediate Industry Requirements (Gross Output of following industries)					
Metal fabricating	10164.24	12096.17	12681.19	11693.30	14163.02
Gas and oil facility	2991.23	3897.26	6222.90	6939.32	5148.27
Transp. equip. - parts and equip	4722.17	5924.89	10187.03	8470.48	12761.86
Machinery - non-agr.	4276.01	5493.60	5917.38	5471.55	6586.13
Construction - non-res bldg.	8722.04	10126.04	13298.87	11697.46	15700.98
Elect. equipment - other	2363.76	2756.12	2896.37	2738.00	3133.94
Machinery - agriculture	754.43	1401.67	879.83	936.95	794.14
INDICATIONS OF INDUSTRY ACTIVITY					
Gross domestic product (Mn\$81)	3066.55	3201.27	2708.89	2586.90	2891.86
Gross domestic product (\$C)	1065.95	1962.21	3458.93	2983.12	4172.65
Gross domestic price (1981=1)	0.35	0.62	1.27	1.16	1.44

IRON AND STEEL INDUSTRY  
MAJOR INDICATORS

	70-73	74-80	81-90	81-86	87-90
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				Average	
INDICATIONS OF INDUSTRY ACTIVITY					
Investment (Mn\$81)	786.77	913.94	691.54	661.55	736.53
Machinery and equipment	691.45	782.56	594.07	568.12	633.00
Structures	95.33	131.39	97.47	93.43	103.53
Investment effort (Inv/GDP in %)	25.69	28.70	25.73	25.74	25.72
Capital stock (Mn\$81)	10463.28	13886.87	15617.36	15443.20	15878.61
Machinery and equipment	8139.85	10921.81	12251.16	12184.63	12350.96
Structures	2323.42	2965.06	3366.20	3258.57	3527.65
Capital to output ratio	3.42	4.38	5.87	6.12	5.51
Employment (Thousands, estab. bas)	65.92	71.88	60.55	63.07	56.77
Labour productivity (Mn\$81/person)	46.46	44.56	45.14	41.19	51.06
Capital to labour ratio	158.60	193.31	260.27	245.96	281.74
Total factor productivity	1.24	1.12	1.04	0.96	1.15
INDICATIONS OF COSTS					
Gross output (\$C)	2490.68	5551.41	9721.49	8764.35	11157.19
Gross output price (1981=1)	0.35	0.67	1.18	1.11	1.27
Share of gross output (%)					
Purchased inputs	-	-	62.97	64.43	60.79
Wages & suppl. labour	29.22	26.10	26.40	27.15	25.27
Unincorporated income	0.00	0.00	0.01	0.00	0.02
Surplus	13.53	9.50	8.97	6.75	12.30
Net indirect taxes	-	-	1.65	1.66	1.62
Prices of purchased inputs (1981=1)					
Mining - iron	-	-	1.07	1.11	1.03
Mining - coal	-	-	1.01	1.07	0.92
Wholesale trade	-	-	1.18	1.13	1.26
Electric power	-	-	1.32	1.22	1.48
Primary metal - smelting	-	-	1.01	0.95	1.08
Primary metal - aluminum	-	-	1.11	1.04	1.20
Metal fabric. - total	-	-	1.16	1.10	1.24
Non-met. - cem and clay prod.	-	-	1.24	1.15	1.36
Labour Inputs					
Wages per person-year (\$C)	9.83	17.25	35.61	31.98	41.06
Supp. lab. income per person-yea	1.19	2.63	6.89	5.86	8.43
Wage bill/GDP (\$C)	68.36	73.31	75.15	80.36	67.34
Unit labour costs (1981=1)	0.33	0.63	1.32	1.30	1.36
Capital Costs					
Investment deflators (1981=1)	0.36	0.65	1.19	1.13	1.27
Surplus/GDP \$C (%)	31.63	26.68	24.82	19.63	32.61
Surplus/Capital Stock \$C (%)	8.75	5.76	4.83	3.55	6.76
Unincorporated income/GDP (\$C)	0.01	0.01	0.02	0.01	0.05
Unit capital cost (1981=1)	0.38	0.58	1.14	0.79	1.66
Taxes					
Net indirect taxes (\$C)	-	-	158.21	143.17	180.77

IRON AND STEEL INDUSTRY  
MAJOR INDICATORS

	70-73	74-80	81-90	81-86	87-90
Average					
<b>FINAL DEMAND PRICES</b>					
Domestic market price index	-	-	1.14	1.10	1.20
Exports, iron and steel - alloy	-	0.58	1.01	0.99	1.03
Exports, steel - rolling mill p	-	0.70	1.05	1.05	1.05
Exports, iron and steel - prima	-	0.77	1.18	1.12	1.28
Imports, iron, steel - rolling	-	0.70	1.07	1.02	1.14
Imports, iron and steel, other	-	0.67	1.00	0.97	1.04