

# **CSLS Conference on the Canada – U.S. Manufacturing Productivity Gap**

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*Centre for the  
Study of Living Standards  
Centre d'étude des  
niveaux de vie*

## **The Stylized Facts of the Canada-U.S. Manufacturing Productivity Gap**

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Centre for the Study of Living Standards

**Opening Session**

**January 21 9:00 AM - 9:30 AM**

## **The Stylized Facts of the Canada-U.S. Manufacturing Productivity Gap**

There has been no narrowing of the gap in labour productivity levels in manufacturing between Canada and the United States in recent years. Indeed, just the opposite has occurred, with the gap increasing significantly. This trend has obviously important implications for Canada's cost competitiveness and the relative standard of living given the importance of higher productivity for long run living standards improvements.

This development is perplexing. For a number of reasons, one might have expected Canada to have enjoyed faster manufacturing productivity growth than the United States over the last decade, with a narrowing of the productivity differential between the countries, as had been the case in the pre-1980s period. These reasons include continued potential for technological catch-up or convergence in Canadian productivity levels toward those in the United States given the lower initial Canadian levels, and structural reforms affecting manufacturing (e.g. replacement of the Manufacturing Sales Tax by the GST, reduction in trade barriers through the FTA and NAFTA, deregulation, etc.)

But Canada's productivity performance did not improve in the 1990s relative to that of the United States. This of course does not mean that the structural reforms did not necessarily have a positive impact on productivity. They may have, but other negative factors may have offset these positive influences. In any case, there still remains the question of why manufacturing productivity growth did not improve in the 1990s and that is the subject of this conference.

The paper is divided into three parts. Part one sets the context for the analysis of the Canada-U.S. manufacturing productivity gap by providing basic data on the Canadian and U.S. manufacturing sector. It compares the performance of the manufacturing sector in Canada and the United States in terms of employment, average weekly hours, total hours, output, capital stock, capital/labour ratios, productivity growth, and output and productivity growth by sector.

The second part of the paper identifies and highlights a number of stylized facts on the Canada-U.S. manufacturing productivity gap. The third part of the paper briefly outlines possible explanations for the gap, grouping them into broad categories of measurement difference, cyclical factors, institutional influences and industrial structure..

### **Basis Data on the Canadian and U.S. Manufacturing Sectors**

#### Employment

The manufacturing sector represents about the same share of total employment in Canada and the United States, and this share has been on a steady downward trend (Table 1 and Chart 1). In 1998, manufacturing accounted for 15.7 per cent of total employment

in Canada, down from 20.3 per cent in 1976. In the United States, the 1998 share was 14.2 per cent, down from 21.8 per cent in 1976.

The share of manufacturing employment fell sharply in Canada in the early 1990s, reaching a trough of 14.5 per cent in 1993 per cent because of recessionary conditions, which have a greater impact on manufacturing relative to non-manufacturing industries. Since then, the manufacturing employment share has risen, reflecting the recovery of the manufacturing sector. In contrast, the manufacturing employment share in the United States has not followed this cyclical pattern, but rather fallen every year.

Perhaps surprisingly, given the weakness of the Canadian economy in the 1990s (1989-98) relative to the U.S. economy, employment growth in absolute terms has been stronger in the Canada than in the United States. It rose at a 0.1 per cent average annual rate in Canada compared to a 0.5 per cent annual decline in the United States. Total economy employment growth was stronger in the United States (1.3 per cent versus 1.0 per cent).

#### Average Weekly Hours

Average weekly hours in the manufacturing sector have been and continue to be much higher in the United States than in Canada (Table 2 and Chart 2). In 1998, the average worker in manufacturing worked 41.8 hours (including overtime) in the United States, 12.7 per cent more than the 37.1 hours worked in Canada. At the last cyclical peak in 1989, the U.S. work week in manufacturing was 8.5 per cent longer than Canadian week. Average weekly hours in manufacturing in Canada in the 1990s exhibited a slight downward trend over the cycle. In contrast, they rose by 1 hour per week in the United States.

#### Total Hours Worked

Total hours worked are determined by employment levels and average weekly hours. The greater average weekly hours in U.S. manufacturing means that the manufacturing share of total hours worked in the United States exceeds that the employment share (Table 3 and Chart 3), making the Canadian and U.S. total hours shares in 1998 virtually identical (17.1 per cent versus 17.2 per cent).

#### Real GDP

The share of total output accounted for by manufacturing is significantly larger in the United States than in Canada. In 1998, manufacturing accounted for 18.9 per cent of constant 1992 dollar in the United States, compared to only 15.3 per cent in Canada (Table 4 and chart 4). While the manufacturing output share is sensitive to the business cycle, falling in recessions and rising in expansions, there has been no long-run secular trend in either country.

Real output growth in manufacturing has been significantly higher in the United States than in Canada in the 1990s, advancing at a 2.9 per cent average annual rate over

the 1989-98 period in the former compared to 2.0 per cent in the latter. Manufacturing output has been growing at a faster pace than the overall economy, increasing manufacturing's share of total output from 18.2 per cent in 1989 to 18.9 per cent in 1998. In contrast, manufacturing output grew at the same pace as overall output in Canada in the 1990s, resulting in a stable manufacturing output share over the period. The discrepancy between manufacturing growth rates between the two countries in the 1990s (0.9 percentage points) has roughly double the discrepancy in total economy growth rates (0.5 percentage points).

### capital stock

Official capital stock estimates (Tables 5 and Chart 5), defined as the geometric end-year net capital stock in constant 1992 dollars, show that the manufacturing capital stock represents a greater share of the total capital stock in Canada than in the United States, 11.3 per cent in Canada versus 9.1 per cent in the United States in 1997. (Capital stock estimates are currently only available to 1997 for the United States.) Moreover, the manufacturing capital stock has been on a downward trend as a share of the total capital stock in both countries in the 1990s, although more so in Canada than in the United States.

In terms of growth rates, the capital stock in manufacturing has been advancing at a 1.7 per cent average annual rate over the 1989-97 period in the United States, but has been falling at a 0.5 per cent rate in Canada, a major discrepancy (Chart 6). This is much greater than the difference in the growth rates for the total economy capital stock (2.1 per cent in the United States versus 1.2 per cent in Canada).

Capital measurement represents one of the most difficult areas in economics and capital stock estimates are very sensitive to assumptions for depreciation patterns, length of service lives, and the prices used to deflate the capital stock. For this reason, capital stock estimates should be treated cautiously, particularly for purposes of international comparison.

### Capital/labour ratios

The capital/labour ratio represents the amount of capital, expressed in constant 1992 dollars, an average worker has to work with (Tables 6). It also can be expressed on an hours basis (Table 7). In 1997, the capital-labour ratio in Canadian manufacturing was 30,413 constant 1992 Canadian dollars of capital stock per worker, while in the United States it was 73,837 constant 1992 U.S. dollars per worker. Using OECD purchasing power parity estimates, the Canadian capital/labour ratio appears to be 34 per cent of the U.S. ratio (Table 6). Given the capital intensive nature of the important resources-related manufacturing industries in Canada, these numbers do not appear to make economic sense and strongly suggest that differences in the methodologies used to construct the capital stock series in the two countries make level comparisons not possible.

The growth rate of the capital/labour ratio reflects the relative growth rate of the capital stock and employment. Given the negative growth of the manufacturing capital stock in the 1990s in Canada, it is not surprising to find that the capital/labour ratio has actually fallen. In contrast, the ratio has risen at more than a 2 per cent average annual rate in the 1990s, resulting in a much greater increase in the capital intensity of production in the United States, with positive effects for labour productivity growth.

### Output per worker and per hour

Labour productivity can be measured on both an output per worker (Table 8) and an output per hour basis (Table 9 and Chart 8). The latter concept is a superior measure of labour input for productivity calculations because it reflects changes in average working time.

Table 9 provides unofficial estimates calculated by the Centre for the Study of Living Standards of output per hour trends in the total economy and manufacturing based on real GDP data from Statistics Canada and the U.S. Bureau of Economic Analysis and household survey estimates of hours worked. These estimates are similar to, but not identical with, the international series on manufacturing productivity the Bureau of Labor Statistics publishes (Table 10) due to difference in data sources.

From the 1989 cyclical peak to 1998, the most recent year for which data are available, output per hour in Canadian manufacturing advanced at a 2.2 per cent average annual pace, up marginally from 2.1 per cent in the 1980s. Manufacturing output per hour growth was almost double total economy output per hour growth of 1.3 per cent, raising relative manufacturing productivity from 82.8 per cent of total economy productivity in 1989 to 89.1 per cent in 1998 (Chart 8).

In the United States, output per hour in manufacturing rose at a 3.1 per cent average annual rate over the 1989-98 period, down from 3.4 per cent in the 1980s. Manufacturing output per hour growth was almost triple total economy output per hour growth of 1.1 per cent, raising relative manufacturing productivity from 92.0 per cent of total economy productivity in 1989 to 109.9 per cent in 1998.

BLS data on international manufacturing productivity performance show that Canada had the lowest output per hour growth rate in the 1990s in the G-7 (Table 11). At 2.1 per cent per year, we lagged behind France (2.3 per cent), Japan (3.4 per cent), Germany (3.3 per cent), the United States (3.0 per cent), Italy (2.7 per cent), and the U.K. (2.2 per cent). Canada also experienced the slowest output per hour growth rate in the 1980s (tied with Germany) at 2.3 per cent.

It is of course relative productivity levels, not growth rates that determine a country's relative standard of living. International comparison of productivity levels is a complex business best left to the experts, such as Bart van Ark from the University of Groningen, who will be giving a paper at this conference on exactly this topic. For this reason, the data in Table 8 and 9 have not been used for level comparisons. However,

Table 12 and Chart 9 do provide level comparisons of the ratio of Canadian to American manufacturing productivity based on a benchmark estimate of 79.4 per cent for 1987. The estimates are updated with the relative growth productivity growth rates from the BLS series.

Over the last two decades Canada's relative level of output per hour in manufacturing has fallen from around 90 per cent to 72 per cent. This lies in contrast to the relative stability of our relative GDP per person employed level, which has been relatively stable at around 80 per cent of the U.S. level. Fortunately, it is the latter, not the former which is the key to living standards improvement, given that manufacturing represents only around 15 per cent of employment.

#### Comparison of Canada-U.S. Manufacturing Trends by Sector

Table 13 provides data on the distribution at the two-digit SIC level of real output in Canadian and U.S manufacturing in 1989 and 1997. The major differences in 1997 were in two sectors- machinery and electrical and electronic products, with these sectors being much more important in Canada.

Tables 14 and 15 provide a time series on real output trends in these two sectors. Since 1989 output in the electrical and electronic products sector in the United States has grown at the rate of 13.8 per cent per year. Its share of manufacturing output rose from 8.4 per cent in 1989 to 19.1 per cent in 1997. Output in the machinery and equipment sector has advanced at a 8.5 per cent rate, with its output share rising from 10.1 per cent to 15.7 per cent. These two sector alone accounted for all total output growth in manufacturing in the United States in the 1989-97 period. Excluding these two sectors, output in the manufacturing sectors actually fell.

Output growth in these two sectors has been much less robust in Canada. In contrast, in Canada, output growth in electrical and electronic equipment has only risen at an average annual 3.7 per cent rate in the 1989-97 period, while output growth in machinery industries was an even slower 2.5 per cent.

Almost all the massive increase in output in the machinery and electrical products industries in the United States in the 1990s has translated into productivity growth (Table 16). Employment increases in these sectors have been small. Indeed, subtracting these two industries gives the result that U.S. manufacturing productivity growth falls from 3.3 per cent per year in the 1990s to almost nil (0.2 per cent). Subtracting these two industries as no effect on manufacturing productivity in Canada. This finding reinforces the point that in most sectors (12 out of 19), Canada outperformed the United States in output per hour growth in the 1990s.

## **Stylized Factors of the Canada-U.S. Manufacturing Productivity Gap**

This section of the paper summarizes the stylized facts of the Canada-U.S. manufacturing productivity gap based on the data presented in the preceding section.

- the Canada-U.S. manufacturing labour productivity gap is growing in the 1990s, from 21 per cent below the U.S. level of output per hour in 1989 to 27 per cent in 1998.
- Our manufacturing productivity level has not just declined relative to the United States in the 1990s. It has fallen relative to all other G-7 countries.
- the growing gap reflects the failure of the Canadian manufacturers to achieve the U.S. manufacturing productivity growth rate of 3 per cent. It does not reflect any deceleration of Canadian manufacturing productivity growth which has been a stable 2 per cent.
- The growing gap is largely due to the superior productivity performance in the United States of two key industries: machinery and electrical and electronic products. Excluding these two sectors, manufacturing productivity growth in Canada outpaced that in the United States in the 1990s by a wide margin.
- Differences in the methodologies used to construct capital stock estimates between Canadian and U.S. statistical agencies make comparisons of capital productivity and total factor productivity trends much less reliable than that of labour productivity trends.

## **A Framework for Explanations of the Manufacturing Productivity Gap**

In this opening session to the conference, I would like to propose a broad framework for the analysis of the fundamental factors behind the Canada-U.S. manufacturing productivity gap. Explanations would fall under the following four general rubrics: measurement differences, cyclical differences, institutional factors and industrial structure.

Measurement differences are probably not important for labour input. They may be important for real output because of use of different prices indices to deflate nominal output, particularly high tech products. They are certainly important for capital stock measurement because of differences in depreciation patterns and length of service lives between Canada and the United States.

Cyclical factors may play a role. Strong output growth can have a positive effect on productivity growth in manufacturing through increasing returns to scale, a relationship known in the literature as the Verdoorn Law. Output growth in manufacturing in Canada in the 1990s has considerably lagged that in the United States due to weak cyclical conditions or aggregate demand growth in this country. Indeed,

according to OECD data, Canada has experienced a much larger average output gap than the United States in the 1990s.

Institutional factors may also play a role. I define institutions broadly to encompass labour market institutions such as labour unions and employment insurance; the tax regime; the innovation-support system; the education and training system; and the framework macroeconomic policies including exchange rate policy. These institutional factors can affect relative factor prices and consequently the rate of substitution of labour for capital, which affects labour productivity growth.

Finally, industrial structure may be crucial. The source of the manufacturing productivity gap is simple to identify on an industry basis. The superior performance of the United States in terms of manufacturing productivity growth, as the data clearly shows, lies in its predominance in the leading sector of the current period- information technology. Maybe the only thing we are doing wrong in terms on manufacturing productivity growth is that we are not the United States, that is we do not have an extensive and as dynamic a high tech sector. Of course, it is easy to make this observation. It is harder to know what to do about it, if anything.

## **Conclusion**

It is the hope of the organizers that the papers presented at this conference increase our understanding of the factors behind the Canada-U.S. manufacturing. With this knowledge, policymakers will be better able to develop appropriate means to reduce the gap. The objective of this paper has been to provide context. Let the debate begin!



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Table 1: Employment, thousands, Canada - U.S. Comparison

	Canada			United States		
	Total Economy	Manufacturing	Mfg. Share (%) of Total Economy	Total Economy	Manufacturing	Mfg. Share (%) of Total Economy
1976	9,776	1,983	20.3	87,427	19,082	21.8
1977	9,978	1,951	19.6	90,444	19,801	21.9
1978	10,320	2,020	19.6	94,816	20,670	21.8
1979	10,761	2,145	19.9	98,050	21,184	21.6
1980	11,082	2,187	19.7	98,408	20,437	20.8
1981	11,398	2,204	19.3	99,303	20,333	20.5
1982	11,035	2,010	18.2	97,827	18,949	19.4
1983	11,106	1,961	17.7	98,599	18,560	18.8
1984	11,402	2,046	17.9	103,196	19,514	18.9
1985	11,742	2,063	17.6	105,876	19,384	18.3
1986	12,095	2,098	17.3	107,804	19,068	17.7
1987	12,422	2,127	17.1	110,817	19,115	17.2
1988	12,819	2,214	17.3	113,981	19,483	17.1
1989	13,086	2,236	17.1	116,725	19,521	16.7
1990	13,165	2,104	16.0	117,639	19,141	16.3
1991	12,916	1,956	15.1	116,712	18,533	15.9
1992	12,842	1,878	14.6	117,204	18,179	15.5
1993	13,015	1,893	14.5	119,247	18,175	15.2
1994	13,292	1,949	14.7	122,258	18,428	15.1
1995	13,506	2,060	15.3	125,146	18,591	14.9
1996	13,676	2,084	15.2	127,567	18,575	14.6
1997	13,941	2,153	15.4	130,567	18,758	14.4
1998	14,326	2,246	15.7	131,463	18,719	14.2
	Average annual rates of growth					
77-81	3.38	3.09	-0.28	2.36	0.67	-1.66
81-89	1.74	0.18	-1.53	2.04	-0.51	-2.50
89-97	0.79	-0.47	-1.25	1.41	-0.50	-1.88
77-97	1.69	0.49	-1.17	1.85	-0.27	-2.08
89-98	1.01	0.05	-0.95	1.33	-0.47	-1.77
77-98	1.74	0.67	-1.05	1.80	-0.27	-2.03

Sources : Canada Total Economy - Statistics Canada Labour Force Historical Review, 71F0004XCB, 1999;  
Canada Manufacturing - Statistics Canada, unpublished Labour Force Survey Data, 1999;  
United States - Bureau of Economic Analysis (based on Current Population Survey), 1999  
([http://www.bea.doc.gov/bea/uguide.htm#\\_1\\_14](http://www.bea.doc.gov/bea/uguide.htm#_1_14))

Table 2: Average Working Hours per Week per Worker,  
Canada - U.S. Comparison

	Canada			United States			Total Economy Can/US Ratio	Manufac- turing Can/US Ratio
	Total Economy	Manufac- turing	Ratio Mfg. / Total Economy	Total Economy	Manufac- turing	Ratio Mfg. / Total Economy		
1976	35.0	35.9	1.024	36.1	40.1	1.110	0.970	0.894
1977	35.0	36.3	1.036	36.0	40.3	1.121	0.973	0.899
1978	35.4	36.7	1.038	35.8	40.4	1.129	0.987	0.908
1979	35.3	36.6	1.035	35.7	40.2	1.127	0.991	0.911
1980	34.7	36.1	1.038	35.3	39.7	1.125	0.985	0.909
1981	34.2	35.5	1.038	35.3	39.9	1.130	0.970	0.891
1982	34.0	35.7	1.049	34.8	39.0	1.120	0.978	0.916
1983	34.1	36.3	1.064	35.0	40.1	1.146	0.974	0.904
1984	34.1	36.2	1.061	35.2	40.7	1.157	0.971	0.891
1985	34.3	36.5	1.062	34.9	40.5	1.160	0.983	0.900
1986	34.3	36.4	1.061	34.8	40.7	1.171	0.986	0.894
1987	34.1	36.3	1.062	34.8	41.0	1.179	0.982	0.884
1988	34.7	37.3	1.075	34.6	41.0	1.184	1.002	0.910
1989	35.1	37.7	1.072	34.5	40.9	1.186	1.018	0.920
1990	34.6	36.9	1.068	34.4	40.8	1.184	1.005	0.906
1991	33.9	36.4	1.073	34.3	40.7	1.187	0.991	0.895
1992	33.4	36.1	1.081	34.4	41.1	1.195	0.971	0.878
1993	33.8	37.2	1.101	34.5	41.5	1.202	0.981	0.898
1994	34.3	37.5	1.094	34.6	41.9	1.211	0.990	0.894
1995	34.1	37.2	1.092	34.4	41.6	1.208	0.989	0.894
1996	34.3	37.4	1.091	34.4	41.6	1.207	0.995	0.900
1997	34.3	37.5	1.094	34.6	42.0	1.213	0.990	0.894
1998	34.0	37.1	1.092	34.6	41.8	1.207	0.982	0.889
	Average annual rates of growth							
77-81	-0.58	-0.52	0.06	-0.50	-0.29	0.21	-0.08	-0.23
81-89	0.34	0.74	0.40	-0.27	0.33	0.60	0.61	0.40
89-97	-0.31	-0.05	0.26	0.03	0.31	0.28	-0.34	-0.36
77-97	-0.11	0.17	0.28	-0.19	0.20	0.39	0.09	-0.03
89-98	-0.38	-0.16	0.21	0.02	0.22	0.20	-0.40	-0.38
77-98	-0.14	0.11	0.25	-0.19	0.17	0.35	0.04	-0.06

Sources : Canada Total Economy - Statistics Canada Labour Force Historical Review, 71F0004XCB, 1999;  
Canada Manufacturing - Statistics Canada, unpublished Labour Force Survey Data, 1999;  
United States - Bureau of Labor Statistics, 1999 (<http://www.bls.gov/cesb1b6.htm>).  
(based on Current Population Survey)

Table 3: Total Annual Working Hours, millions, Canada - U.S. Comparison

	Canada			United States		
	Total Economy	Manufacturing	Mfg. Share (%) of Total Economy	Total Economy	Manufacturing	Mfg. Share (%) of Total Economy
1976	17,812.6	3,700.0	20.8	164,232	39,806	24.2
1977	18,165.0	3,678.3	20.2	169,233	41,521	24.5
1978	18,977.0	3,855.7	20.3	176,592	43,450	24.6
1979	19,778.9	4,081.2	20.6	181,808	44,265	24.3
1980	20,020.3	4,102.6	20.5	180,510	42,164	23.4
1981	20,270.1	4,067.6	20.1	182,108	42,143	23.1
1982	19,535.4	3,732.8	19.1	177,113	38,429	21.7
1983	19,687.6	3,698.1	18.8	179,407	38,717	21.6
1984	20,241.9	3,852.5	19.0	188,622	41,266	21.9
1985	20,951.9	3,910.5	18.7	192,236	40,840	21.2
1986	21,562.8	3,970.1	18.4	194,942	40,364	20.7
1987	22,056.9	4,010.5	18.2	200,438	40,770	20.3
1988	23,129.9	4,294.9	18.6	205,223	41,521	20.2
1989	23,909.9	4,377.5	18.3	209,556	41,551	19.8
1990	23,688.6	4,042.3	17.1	210,688	40,585	19.3
1991	22,786.4	3,703.1	16.3	207,864	39,191	18.9
1992	22,289.7	3,522.6	15.8	209,502	38,844	18.5
1993	22,903.3	3,666.5	16.0	213,981	39,190	18.3
1994	23,698.8	3,800.8	16.0	220,179	40,183	18.3
1995	23,921.2	3,984.8	16.7	224,078	40,224	18.0
1996	24,374.1	4,050.3	16.6	228,413	40,141	17.6
1997	24,843.9	4,200.1	16.9	235,029	40,943	17.4
1998	25,299.9	4,333.3	17.1	236,528	40,639	17.2
	Average annual rates of growth					
77-81	2.78	2.55	-0.23	1.85	0.37	-1.45
81-89	2.09	0.92	-1.14	1.77	-0.18	-1.91
89-97	0.48	-0.52	-0.99	1.44	-0.18	-1.61
77-97	1.58	0.67	-0.90	1.66	-0.07	-1.70
89-98	0.63	-0.11	-0.74	1.35	-0.25	-1.58
77-98	1.59	0.78	-0.79	1.61	-0.10	-1.68

Sources : Canada Total Economy - Statistics Canada Labour Force Historical Review, 71F0004XCB, 1999;

Canada Manufacturing - Statistics Canada, unpublished Labour Force Survey Data, 1999;

United States - Bureau of Labor Statistics, 1999 (<http://www.bls.gov/cesb1b6.htm>).

Note: Total annual hours = total hours per week \* 52

Table 4: Real GDP in millions of constant 1992 dollars,  
Canada - U.S. Comparison.

	Canada			United States		
	Total Economy	Manufacturing	Mfg. Share (%) of Total Economy	Total Economy	Manufacturing	Mfg. Share (%) of Total Economy
1976	470,291	75,917	16.1	n/a	n/a	
1977	486,562	78,421	16.1	4,273,573	796,538	18.6
1978	506,413	82,774	16.3	4,502,994	836,549	18.6
1979	527,703	86,109	16.3	4,630,631	864,841	18.7
1980	535,007	82,165	15.4	4,614,957	822,674	17.8
1981	551,305	84,136	15.3	4,720,676	858,601	18.2
1982	535,113	74,743	14.0	4,620,265	810,101	17.5
1983	549,843	78,638	14.3	4,803,664	856,726	17.8
1984	581,038	89,152	15.3	5,140,115	948,217	18.4
1985	612,416	93,799	15.3	5,323,514	976,446	18.3
1986	628,575	94,829	15.1	5,487,743	967,675	17.6
1987	654,360	99,215	15.2	5,649,474	1,041,675	18.4
1988	686,176	105,126	15.3	5,865,220	1,111,013	18.9
1989	703,577	106,612	15.2	6,061,982	1,105,992	18.2
1990	705,464	102,570	14.5	6,136,291	1,089,974	17.8
1991	692,247	94,999	13.7	6,079,404	1,050,216	17.3
1992	698,544	96,181	13.8	6,244,445	1,063,628	17.0
1993	714,583	101,101	14.1	6,389,566	1,100,823	17.2
1994	748,350	108,859	14.5	6,610,744	1,193,167	18.0
1995	769,082	114,281	14.9	6,761,735	1,271,556	18.8
1996	782,130	115,658	14.8	6,994,777	1,293,847	18.5
1997	813,031	123,155	15.1	7,269,782	1,369,889	18.8
1998	838,265	127,898	15.3	7,551,900	1,426,054	18.9
	Average annual rates of growth					
77-81	3.17	1.77	-1.36	2.52	1.89	-0.61
81-89	3.10	3.00	-0.09	3.18	3.22	0.04
89-97	1.82	1.82	0.00	2.30	2.71	0.40
77-97	2.60	2.28	-0.31	2.69	2.75	0.05
89-98	1.97	2.04	0.08	2.47	2.86	0.38
77-98	2.62	2.36	-0.26	2.75	2.81	0.06

Sources : Canada - Statistics Canada, GDP Data, CANSIM series D15721, I53036, 1999;

United States - Bureau of Economic Analysis, 1999 ([http://www.bea.doc.gov/bea/uguide.htm#\\_1\\_14](http://www.bea.doc.gov/bea/uguide.htm#_1_14))

Table 5: Geometric End-Year Net Capital Stock in millions of constant 1992 dollars, Canada - U.S. Comparison.

	Canada				United States			
	Total Economy	Manufacturing	Manufacturing Index, 1976=1.0	Mfg. Share (%) of Total Economy	Total Economy	Manufacturing	Manufacturing Index, 1976=1.0	Mfg. Share (%) of Total Economy
1976	374,823	48,660	1.000	13.0	8,795,671	921,590	1.000	10.5
1977	385,574	49,525	1.018	12.8	9,096,366	951,535	1.032	10.5
1978	395,504	49,512	1.017	12.5	9,450,997	985,397	1.069	10.4
1979	409,863	50,171	1.031	12.2	9,815,068	1,019,385	1.106	10.4
1980	429,104	52,935	1.088	12.3	10,103,627	1,055,520	1.145	10.4
1981	454,193	57,967	1.191	12.8	10,385,445	1,092,541	1.185	10.5
1982	466,469	59,567	1.224	12.8	10,590,403	1,111,114	1.206	10.5
1983	470,641	57,589	1.183	12.2	10,829,071	1,114,652	1.209	10.3
1984	474,712	55,384	1.138	11.7	11,166,173	1,134,868	1.231	10.2
1985	481,757	55,609	1.143	11.5	11,522,153	1,162,412	1.261	10.1
1986	486,441	57,604	1.184	11.8	11,865,997	1,174,794	1.275	9.9
1987	493,605	59,615	1.225	12.1	12,189,616	1,183,765	1.284	9.7
1988	508,187	63,046	1.296	12.4	12,509,188	1,190,840	1.292	9.5
1989	524,377	68,125	1.400	13.0	12,812,580	1,213,078	1.316	9.5
1990	536,879	71,044	1.460	13.2	13,089,004	1,236,200	1.341	9.4
1991	545,813	71,550	1.470	13.1	13,280,478	1,251,235	1.358	9.4
1992	548,252	68,460	1.407	12.5	13,484,088	1,263,491	1.371	9.4
1993	548,452	65,006	1.336	11.9	13,745,679	1,272,841	1.381	9.3
1994	554,689	63,783	1.311	11.5	14,043,678	1,291,035	1.401	9.2
1995	559,789	63,873	1.313	11.4	14,382,128	1,321,991	1.434	9.2
1996	566,059	64,588	1.327	11.4	14,765,076	1,355,347	1.471	9.2
1997	577,097	65,492	1.346	11.3	15,174,993	1,385,039	1.503	9.1
1998	586,791	65,859	1.353	11.2	n/a	n/a		
	Average annual rates of growth							
77-81	4.18	4.01	4.01	-0.16	3.37	3.51	3.51	0.14
81-89	1.81	2.04	2.04	0.22	2.66	1.32	1.32	-1.31
89-97	1.20	-0.49	-0.49	-1.68	2.14	1.67	1.67	-0.46
77-97	2.04	1.41	1.41	-0.62	2.59	1.89	1.89	-0.68
89-98	1.26	-0.38	-0.38	-1.61	n/a	n/a	n/a	n/a
77-98	2.02	1.37	1.37	-0.64	n/a	n/a	n/a	n/a

Sources : Canada - Statistics Canada, Capital Stock Data, CANSIM Series D993325, D993721, 1999; United States - Bureau of Economic Analysis, 1999 (<http://www.bea.doc.gov/bea/dn2/wealth.exe>);

Table 6: Capital Stock per Worker, in constant 1992 dollars  
Canada - U.S. Comparison

	Canada			United States			GDP PPP, CAD\$ per US\$	Total Economy Can/US, PPP adj.	Mfg. Can/US, PPP adjusted
	Total Economy	Manufac- turing	Ratio Mfg. / Total Economy	Total Economy	Manufac- turing	Ratio Mfg. / Total Economy			
1976	38,341	24,538	0.640	100,606	48,296	0.480	1.27	0.300	0.400
1977	38,642	25,383	0.657	100,575	48,055	0.478	1.27	0.303	0.416
1978	38,323	24,506	0.639	99,677	47,673	0.478	1.25	0.308	0.411
1979	38,089	23,390	0.614	100,103	48,120	0.481	1.26	0.302	0.386
1980	38,720	24,201	0.625	102,671	51,648	0.503	1.27	0.297	0.369
1981	39,848	26,307	0.660	104,583	53,732	0.514	1.28	0.298	0.382
1982	42,271	29,640	0.701	108,256	58,637	0.542	1.31	0.298	0.386
1983	42,378	29,371	0.693	109,829	60,057	0.547	1.32	0.292	0.371
1984	41,633	27,075	0.650	108,204	58,157	0.537	1.3	0.296	0.358
1985	41,029	26,957	0.657	108,827	59,968	0.551	1.29	0.292	0.348
1986	40,220	27,458	0.683	110,070	61,611	0.560	1.29	0.283	0.345
1987	39,735	28,029	0.705	109,998	61,929	0.563	1.3	0.278	0.348
1988	39,644	28,475	0.718	109,748	61,122	0.557	1.31	0.276	0.356
1989	40,071	30,470	0.760	109,767	62,142	0.566	1.32	0.277	0.371
1990	40,780	33,766	0.828	111,264	64,584	0.580	1.3	0.282	0.402
1991	42,259	36,578	0.866	113,788	67,514	0.593	1.29	0.288	0.420
1992	42,692	36,460	0.854	115,048	69,503	0.604	1.28	0.290	0.410
1993	42,141	34,339	0.815	115,271	70,033	0.608	1.26	0.290	0.389
1994	41,732	32,724	0.784	114,869	70,058	0.610	1.25	0.291	0.374
1995	41,449	31,000	0.748	114,923	71,109	0.619	1.24	0.291	0.352
1996	41,390	31,000	0.749	115,744	72,966	0.630	1.22	0.293	0.348
1997	41,397	30,413	0.735	116,224	73,837	0.635	1.21	0.294	0.340
1998	40,959	29,322	0.716	n/a	n/a	n/a	n/a	n/a	n/a
	Average annual rates of growth								
77-81	0.77	0.90	0.12	0.98	2.83	1.83		-0.40	-2.07
81-89	0.07	1.85	1.78	0.61	1.83	1.22		-0.92	-0.37
89-97	0.41	-0.02	-0.43	0.72	2.18	1.45		0.78	-1.09
77-97	0.34	0.91	0.56	0.73	2.17	1.43		-0.14	-1.00
89-98	0.24	-0.43	-0.67	n/a	n/a	n/a		n/a	n/a
77-98	0.28	0.69	0.41	n/a	n/a	n/a		n/a	n/a

Sources : Canada Total Economy - Statistics Canada Labour Force Historical Review, 71F0004XCB, 1999;

Canada Manufacturing - Statistics Canada, unpublished Labour Force Survey Data, 1999;

United States - Bureau of Labor Statistics, 1999 (<http://www.bls.gov/cesb1b6.htm>).

GDP PPP - OECD Health Data 98 CDROM, "A Comparative Analysis of 29 Countries".

Table 7: Capital Stock per Working Hour, in constant 1992 dollars  
Canada - U.S. Comparison

	Canada		United States		GDP PPP, CAD\$ per US\$	Total Economy Can/US, PPP adj.	Mfg. Can/US, PPP adjusted
	Total Economy	Manufac- turing	Total Economy	Manufac- turing			
1976	404.7	252.9	1,029.9	445.2	1.27	0.309	0.447
1977	408.2	258.9	1,033.7	440.7	1.27	0.311	0.463
1978	400.8	246.9	1,029.2	436.1	1.25	0.312	0.453
1979	398.5	236.4	1,038.2	442.9	1.26	0.305	0.424
1980	412.2	248.1	1,076.4	481.4	1.27	0.302	0.406
1981	430.9	274.1	1,096.7	498.6	1.28	0.307	0.429
1982	459.2	306.9	1,149.9	556.0	1.31	0.305	0.421
1983	459.7	299.5	1,160.8	553.6	1.32	0.300	0.410
1984	451.0	276.5	1,138.4	528.9	1.3	0.305	0.402
1985	442.2	273.5	1,152.6	547.4	1.29	0.297	0.387
1986	433.8	279.0	1,170.6	559.7	1.29	0.287	0.386
1987	430.4	285.9	1,169.5	558.4	1.3	0.283	0.394
1988	422.5	282.3	1,172.2	551.5	1.31	0.275	0.391
1989	421.8	299.3	1,175.8	561.4	1.32	0.272	0.404
1990	435.8	338.0	1,194.7	585.8	1.3	0.281	0.444
1991	460.6	371.6	1,228.7	614.0	1.29	0.291	0.469
1992	473.0	373.7	1,237.7	625.5	1.28	0.299	0.467
1993	460.5	341.0	1,235.3	624.6	1.26	0.296	0.433
1994	450.1	322.7	1,226.6	617.9	1.25	0.294	0.418
1995	450.0	308.3	1,234.3	632.0	1.24	0.294	0.393
1996	446.6	306.7	1,243.1	649.3	1.22	0.294	0.387
1997	446.7	299.9	1,241.7	650.5	1.21	0.297	0.381
1998	446.0	292.3	n/a	n/a	n/a	n/a	n/a
	Average annual rates of growth						
77-81	1.36	1.43	1.49	3.13		-0.32	-1.84
81-89	-0.27	1.11	0.87	1.50		-1.51	-0.77
89-97	0.72	0.02	0.68	1.86		1.13	-0.73
77-97	0.45	0.74	0.92	1.97		-0.22	-0.97
89-98	0.62	-0.26	n/a	n/a		n/a	n/a
77-98	0.42	0.58	n/a	n/a		n/a	n/a

Sources : Canada Total Economy - Statistics Canada Labour Force Historical Review, 71F0004XCB, 1999;  
Canada Manufacturing - Statistics Canada, unpublished Labour Force Survey Data, 1999;  
United States - Bureau of Labor Statistics, 1999 (<http://www.bls.gov/cesb1b6.htm>).  
GDP PPP - OECD Health Data 98 CDROM, "A Comparative Analysis of 29 Countries".



Table 8: Real GDP per Worker, in constant 1992 dollars,  
Canada - U.S. Comparison.

	Canada			United States		
	Total Economy	Manufacturing	Ratio Mfg. / Total Economy	Total Economy	Manufacturing	Ratio Mfg. / Total Economy
1976	48,106	38,282	79.6	n/a	n/a	
1977	48,763	40,193	82.4	47,251	40,227	85.1
1978	49,070	40,969	83.5	47,492	40,472	85.2
1979	49,040	40,144	81.9	47,227	40,825	86.4
1980	48,276	37,565	77.8	46,896	40,254	85.8
1981	48,369	38,183	78.9	47,538	42,227	88.8
1982	48,492	37,191	76.7	47,229	42,752	90.5
1983	49,510	40,107	81.0	48,719	46,160	94.7
1984	50,958	43,582	85.5	49,809	48,592	97.6
1985	52,156	45,469	87.2	50,281	50,374	100.2
1986	51,972	45,202	87.0	50,905	50,749	99.7
1987	52,676	46,648	88.6	50,980	54,495	106.9
1988	53,529	47,480	88.7	51,458	57,025	110.8
1989	53,765	47,684	88.7	51,934	56,657	109.1
1990	53,586	48,750	91.0	52,162	56,944	109.2
1991	53,596	48,566	90.6	52,089	56,667	108.8
1992	54,395	51,223	94.2	53,278	58,509	109.8
1993	54,906	53,405	97.3	53,583	60,568	113.0
1994	56,302	55,851	99.2	54,072	64,748	119.7
1995	56,946	55,465	97.4	54,031	68,396	126.6
1996	57,190	55,511	97.1	54,832	69,655	127.0
1997	58,321	57,191	98.1	55,679	73,030	131.2
1998	58,513	56,942	97.3	57,445	76,182	132.6
	Average annual rates of growth					
77-81	-0.20	-1.27	-1.07	0.15	1.22	1.07
81-89	1.33	2.82	1.47	1.11	3.74	2.60
89-97	1.02	2.30	1.26	0.87	3.22	2.33
77-97	0.90	1.78	0.87	0.82	3.03	2.18
89-98	0.94	1.99	1.04	1.13	3.34	2.19
77-98	0.87	1.67	0.79	0.93	3.09	2.13

Sources : Canada - Statistics Canada, GDP Data, CANSIM series D15721, I53036, 1999;  
Employment: Canada Total Economy - Statistics Canada Labour Force Historical Review,  
71F0004XCB, 1999; Manufacturing - Statistics Canada, unpublished Labour Force Survey Data, 1999;  
United States - Bureau of Economic Analysis, 1999 ([http://www.bea.doc.gov/bea/uguide.htm#\\_1\\_14](http://www.bea.doc.gov/bea/uguide.htm#_1_14))

Table 9: Real GDP per Working Hour, in constant 1992 dollars,  
Canada - U.S. Comparison.

	Canada			United States		
	Total Economy	Manufacturing	Ratio Mfg. / Total Economy	Total Economy	Manufacturing	Ratio Mfg. / Total Economy
1976	26.40	20.52	77.7	n/a	n/a	
1977	26.79	21.32	79.6	25.25	19.18	76.0
1978	26.69	21.47	80.4	25.50	19.25	75.5
1979	26.68	21.10	79.1	25.47	19.54	76.7
1980	26.72	20.03	74.9	25.57	19.51	76.3
1981	27.20	20.68	76.1	25.92	20.37	78.6
1982	27.39	20.02	73.1	26.09	21.08	80.8
1983	27.93	21.26	76.1	26.78	22.13	82.6
1984	28.70	23.14	80.6	27.25	22.98	84.3
1985	29.23	23.99	82.1	27.69	23.91	86.3
1986	29.15	23.89	81.9	28.15	23.97	85.2
1987	29.67	24.74	83.4	28.19	25.55	90.6
1988	29.67	24.48	82.5	28.58	26.76	93.6
1989	29.43	24.35	82.8	28.93	26.62	92.0
1990	29.78	25.37	85.2	29.13	26.86	92.2
1991	30.38	25.65	84.4	29.25	26.80	91.6
1992	31.34	27.30	87.1	29.81	27.38	91.9
1993	31.20	27.57	88.4	29.86	28.09	94.1
1994	31.58	28.64	90.7	30.02	29.69	98.9
1995	32.15	28.68	89.2	30.18	31.61	104.8
1996	32.09	28.56	89.0	30.62	32.23	105.3
1997	32.73	29.32	89.6	30.93	33.46	108.2
1998	33.13	29.52	89.1	31.93	35.09	109.9
	Average annual rates of growth					
77-81	0.38	-0.75	-1.13	0.66	1.52	0.85
81-89	0.99	2.06	1.06	1.38	3.40	1.99
89-97	1.34	2.35	1.00	0.84	2.90	2.04
77-97	1.01	1.61	0.59	1.02	2.82	1.78
89-98	1.33	2.16	0.82	1.10	3.12	1.99
77-98	1.02	1.56	0.54	1.12	2.92	1.77

Sources : Canada - Statistics Canada, GDP Data, CANSIM series D15721, I53036, 1999;  
Employment: Canada Total Economy - Statistics Canada Labour Force Historical Review,  
71F0004XCB, 1999; Manufacturing - Statistics Canada, unpublished Labour Force Survey Data, 1999;  
United States - Bureau of Economic Analysis, 1999 ([http://www.bea.doc.gov/bea/uguide.htm#\\_1\\_14](http://www.bea.doc.gov/bea/uguide.htm#_1_14))

Table 10: Output, Output Per Hour, and Labour Input in Manufacturing in Canada and the U.S.  
(average annual rates of change)

	Real Output		Output per hour		Total hours		Employment		Output per employed person	
	Canada	U.S.	Canada	U.S.	Canada	U.S.	Canada	U.S.	Canada	U.S.
1981-89	3.0	3.2	2.3	3.2	0.7	0.0	0.3	-0.5	2.7	3.7
1989-98	2.0	2.9	2.1	3.0	-0.1	-0.2	-0.2	-0.3	2.3	3.2
1981-98	2.5	3.0	2.2	3.1	0.3	-0.1	0.0	-0.4	2.5	3.4

Source: International Comparisons of Manufacturing Productivity and Unit Labour Costs Trends, 1998, News, Bureau of Labor Statistics, U.S. Department of Labor, August, 1999.

Table 11: Output Per Hour Growth in Manufacturing in Industrial Countries  
(average annual rate of change)

	1981-89	1989-98	1981-98
Canada	2.3	2.1	2.2
U.S.	3.2	3.0	3.1
Japan	3.9	3.4	3.6
France	3.7	3.7	3.7
U.K.	4.8	2.2	3.4
Italy	3.9	2.7	3.3
Germany	2.3	3.3	2.9
G-7 average	3.4	2.9	3.2
Belgium	4.1	2.6	3.3
Denmark	1.0	n/a	n/a
Netherlands	4.0	3.5	3.8
Norway	2.7	1.1	1.8
Sweden	3.1	4.3	3.7

Source: International Comparisons of Manufacturing Productivity and Unit Labour Costs Trends, 1999, Bureau of Labor Statistics, U.S. Department of Labor, August, 1999.  
Note: NA indicates data are not available.

**Table 12: Relative Productivity Levels Canada/US, %**  
(US = 100 in all years)

	Output per Hour in Manufacturing	Real GDP per employed person
1977	89.8	81.4
1978	90.5	81.4
1979	89.2	81.1
1980	85.9	80.6
1981	83.8	80.3
1982	79.5	81.4
1983	80.5	81.3
1984	84.0	81.9
1985	84.0	82.0
1986	83.0	81.6
1987	79.4	82.5
1988	76.3	82.6
1989	78.1	81.8
1990	80.0	81.1
1991	79.4	81.2
1992	82.1	80.5
1993	82.4	80.5
1994	80.5	81.0
1995	77.8	81.1
1996	75.1	80.2
1997	74.6	80.3
1998	72.2	77.9

*Source* : Based on an estimate of 79.4 for the 1987 benchmark year by Gjalt de Jong "Canada's Post-war Manufacturing Performance: A Comparison with the United States," Research Memorandum GD-32, Groningen Growth and Development Centre, University of Groningen, December 1996, and growth rates from *International Comparisons of Manufacturing Productivity and Unit Labour Costs, 1998*, News, Bureau of Labour Statistics, U.S. Department of Labour, August 1999.  
<http://www.bls.gov/news.release/prod4.t01.htm>

Table 13: Manufacturing Output by Sector in Canada and the United States, 1989-97

	Output by Industry (1992\$)				Percentage Change		Output Shares (%)			
	Canada (mill\$)		U.S. (bill\$)		1989-97		Canada		U.S.	
	1989	1997	1989	1997	Canada	U.S.	1989	1997	1989	1997
Total manufacturing industries	106,612	124,055	1106.0	1369.9	16.4	23.9	100.00	100.00	100.00	100.00
Wood industries	5,673	5,794	38.7	33.1	2.1	-14.5	5.32	4.67	3.50	2.42
Furniture and fixture industries	2,188	2,799	16.9	19.7	27.9	16.6	2.05	2.26	1.53	1.44
Non-metallic mineral products industries	3,473	3,117	25.6	29.3	-10.3	14.5	3.26	2.51	2.31	2.14
Primary metal industries	5,487	6,272	39.4	48.0	14.3	21.8	5.15	5.06	3.56	3.50
Fabricated metal products industries	8,260	9,202	75.2	93.0	11.4	23.7	7.75	7.42	6.80	6.79
Machinery industries	5,553	6,778	112.1	215.2	22.1	92.0	5.21	5.46	10.14	15.71
Electrical and electronic products industries	7,147	9,562	92.7	261.2	33.8	181.8	6.70	7.71	8.38	19.07
Transportation equipment industries	15,901	21,787	136.7	121.9	37.0	-10.8	14.91	17.56	12.36	8.90
Other manufacturing industries	3,176	3,857	78.7	59.4	21.5	-24.5	2.98	3.11	7.12	4.34
Food and kindred	14,955	16,911	102.7	106.7	13.1	3.9	14.03	13.63	9.29	7.79
Tobacco products industries	1,242	1,083	27.2	21.3	-12.8	-21.7	1.17	0.87	2.46	1.55
Textile industries	2,586	2,703	21.9	25.7	4.5	17.4	2.43	2.18	1.98	1.88
Clothing industries	3,154	2,964	27.2	28.2	-6.0	3.7	2.96	2.39	2.46	2.06
Paper and allied products industries	6,028	6,664	43.8	48.9	10.6	11.6	5.65	5.37	3.96	3.57
Printing, publishing and allied industries	8,827	7,057	87.9	76.7	-20.1	-12.7	8.28	5.69	7.95	5.60
Chemical and chemical products industries	8,617	10,336	111.4	141.2	19.9	26.8	8.08	8.33	10.07	10.31
Refined petroleum and coal products industries	961	1,107	33.4	32.4	15.3	-3.0	0.90	0.89	3.02	2.37
Rubber and plastic industries	3,770	5,710	34.5	53.7	51.4	55.7	3.54	4.60	3.12	3.92
Leather and allied products industries	586	352	4.9	4.3	-40.0	-12.2	0.55	0.28	0.44	0.31
Manufacturing - Machinery and Electric industries	93,912	107,715	901	894	14.7	-0.9	88.09	86.83	81.48	65.22

Source: Gross Domestic Product by Industry, CANSIM matrix 4677, Statistics Canada, 1999; Bureau of Economic Analysis, 1999, <http://www.bea.doc.gov/bea/an/1198gpo/maintext.htm>

Table 14: Selected Industries Real GDP in millions of constant 1992 dollars, Canada - U.S. Comparison.

	Canada			United States		
	Manufact. Industries	Electrical & Electronic Prod. Industries	Machinery Industries (Exc. Elec. Machinery)	Manufact. Industries	Electronic and other electric equipment	Industrial machinery and equipment
1976	75,917	2,493	4,624	n/a	n/a	n/a
1977	78,421	2,489	4,714	796,538	n/a	47,657
1978	82,774	2,501	4,981	836,549	n/a	54,073
1979	86,109	3,014	5,722	864,841	n/a	58,531
1980	82,165	3,363	5,805	822,674	n/a	60,032
1981	84,136	3,810	5,698	858,601	n/a	65,199
1982	74,743	3,488	4,438	810,101	n/a	58,951
1983	78,638	3,487	3,817	856,726	n/a	61,015
1984	89,152	4,493	4,550	948,217	n/a	72,338
1985	93,799	4,952	4,710	976,446	n/a	78,907
1986	94,829	5,198	4,950	967,675	n/a	76,197
1987	99,215	5,862	4,903	1,041,675	78,137	90,880
1988	105,126	6,622	5,443	1,111,013	85,227	105,922
1989	106,612	7,147	5,553	1,105,992	92,713	112,105
1990	102,570	6,900	5,004	1,089,974	92,474	113,182
1991	94,999	6,797	4,052	1,050,216	95,925	103,560
1992	96,184	7,143	3,799	1,063,628	98,601	108,640
1993	101,104	7,172	4,512	1,100,823	118,316	115,056
1994	108,861	7,945	5,341	1,193,167	145,778	131,537
1995	114,241	8,830	6,234	1,271,556	178,747	162,888
1996	116,180	8,479	6,176	1,293,847	213,198	183,169
1997	124,055	9,562	6,778	1,369,889	261,238	215,150
1998	128,827	10,638	6,594	n/a	n/a	n/a
	Average annual rates of growth					
77-81	1.77	11.23	4.85	1.89	n/a	8.15
81-89	3.00	8.18	-0.32	3.22	n/a	7.01
89-97	1.91	3.71	2.52	2.71	13.82	8.49
77-97	2.32	6.96	1.83	2.75	n/a	7.83
89-98	2.13	4.52	1.93	n/a	n/a	n/a
77-98	2.39	7.16	1.61	n/a	n/a	n/a

Source : Statistics Canada, CANSIM Matrix 4677, GDP Data, November 1999

United States - Bureau of Economic Analysis, 1999 ([http://www.bea.doc.gov/bea/uguide.htm#\\_1\\_14](http://www.bea.doc.gov/bea/uguide.htm#_1_14))

Table 15: Selected Industries Real GDP Share in Manufacturing, %  
Canada - U.S. Comparison.

	Canada		United States	
	Electrical & Electronic Industries	Machinery Industries (Exc. Elec. Machinery)	Electronic and other electric equipment	Industrial machinery and equipment
1976	3.3	6.1		
1977	3.2	6.0		6.0
1978	3.0	6.0		6.5
1979	3.5	6.6		6.8
1980	4.1	7.1		7.3
1981	4.5	6.8		7.6
1982	4.7	5.9		7.3
1983	4.4	4.9		7.1
1984	5.0	5.1		7.6
1985	5.3	5.0		8.1
1986	5.5	5.2		7.9
1987	5.9	4.9	7.5	8.7
1988	6.3	5.2	7.7	9.5
1989	6.7	5.2	8.4	10.1
1990	6.7	4.9	8.5	10.4
1991	7.2	4.3	9.1	9.9
1992	7.4	3.9	9.3	10.2
1993	7.1	4.5	10.7	10.5
1994	7.3	4.9	12.2	11.0
1995	7.7	5.5	14.1	12.8
1996	7.3	5.3	16.5	14.2
1997	7.7	5.5	19.1	15.7
1998	8.3	5.1		
	Average annual rates of growth			
77-81	9.29	3.03	n/a	6.14
81-89	5.03	-3.23	n/a	3.68
89-97	1.76	0.60	10.82	5.63
77-97	4.54	-0.48	n/a	4.94
89-98	2.34	-0.19	n/a	n/a
77-98	4.66	-0.76	n/a	n/a

Source : Statistics Canada, CANSIM Matrix 4677, GDP Data, November 1999

United States - Bureau of Economic Analysis, 1999 ([http://www.bea.doc.gov/bea/uguide.htm#\\_1\\_14](http://www.bea.doc.gov/bea/uguide.htm#_1_14))

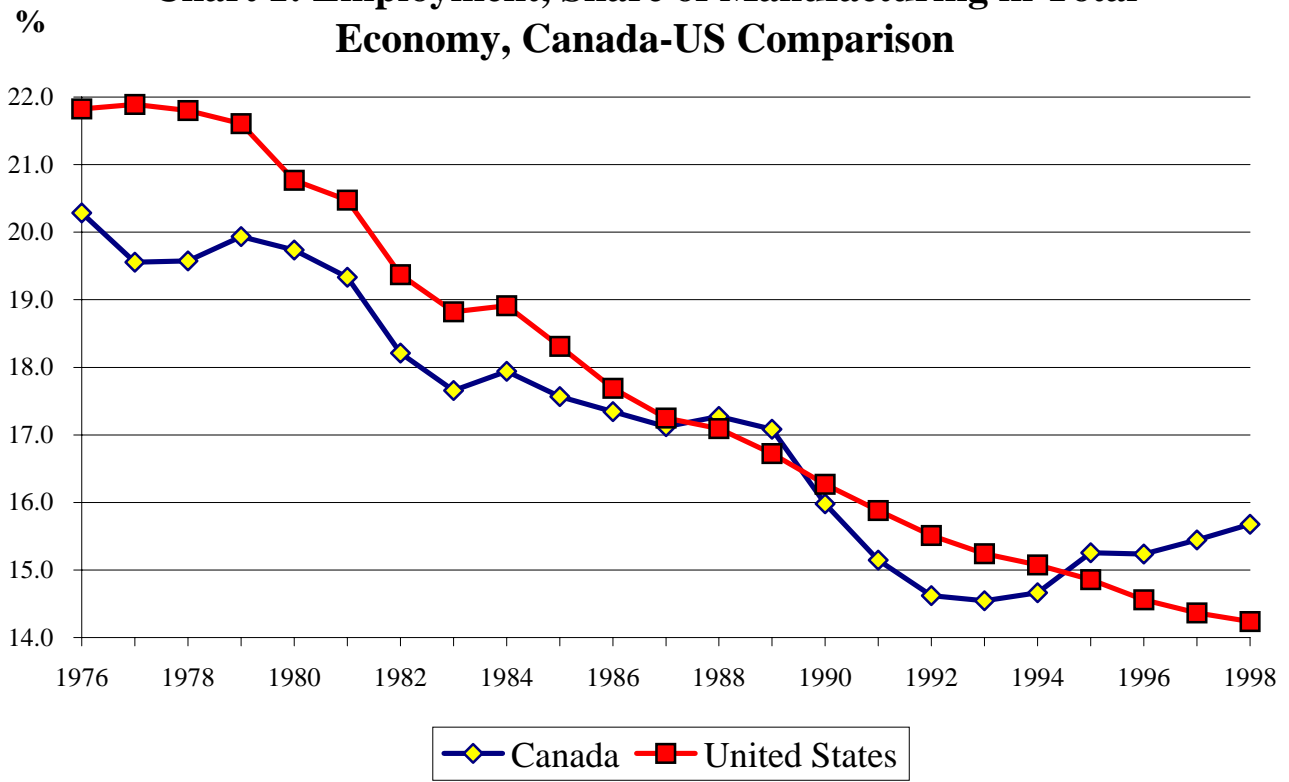


Table 16: VALUE ADDED PER PERSON HOUR  
Estimates of GDP per hour, by Industry

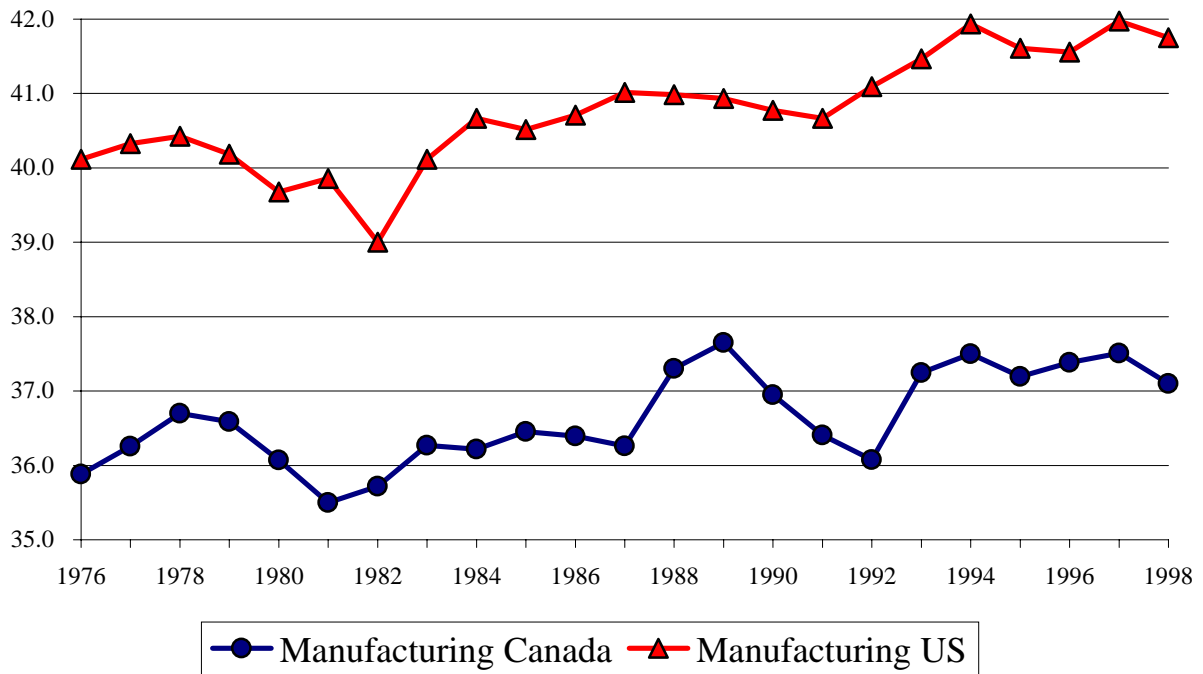
	% Average compound growth rates					
	1981-89 Canada	US	1989-97 Canada	US	1981-97 Canada	US
All industries	0.80	1.38	1.32	0.84	1.06	1.11
Total manufacturing industries	2.06	3.40	2.44	2.90	2.25	3.15
Wood industries	3.89	3.73	-1.47	-2.88	1.18	0.37
Furniture and fixture industries	0.26	0.51	5.97	2.03	3.08	1.26
Non-metallic mineral products industries	3.34	3.29	-0.68	1.84	1.31	2.56
Primary metal industries	3.56	-0.32	4.69	2.99	4.13	1.32
Fabricated metal products industries	2.57	2.73	1.21	2.01	1.89	2.37
Machinery industries	5.00	8.72	1.47	7.88	3.22	8.30
Electrical and electronic products industries	4.54	n/a	3.99	13.91	4.26	n/a
Transportation equipment industries	2.76	2.49	2.49	-0.70	2.62	0.88
Other manufacturing industries	-0.06	n/a	0.47	-2.18	0.21	n/a
Food and kindred	0.22	2.82	1.90	-0.09	1.06	1.35
Tobacco products industries	n/a	-5.42	12.88	-0.17	n/a	-2.83
Textile industries	3.04	3.31	6.39	3.95	4.70	3.63
Clothing industries	-0.83	3.91	1.84	3.83	0.49	3.87
Paper and allied products industries	0.08	2.77	4.38	1.44	2.21	2.10
Printing, publishing and allied industries	-2.01	-0.35	-2.50	-1.80	-2.26	-1.08
Chemical and chemical products industries	3.42	4.53	3.51	3.23	3.47	3.88
Refined petroleum and coal products industries	0.62	8.66	6.47	1.60	3.51	5.07
Rubber and plastic industries	1.67	4.12	5.18	4.03	3.41	4.07
Leather and allied products industries	2.85	4.21	-0.92	4.11	0.95	4.16
Manufacturing - Machinery and Electric industries	1.84	2.95	2.35	0.20	2.09	1.56
Manufacturing (BLS data)	2.3	3.2	2.2	3.3	2.2	3.2

Source: CSLS productivity database

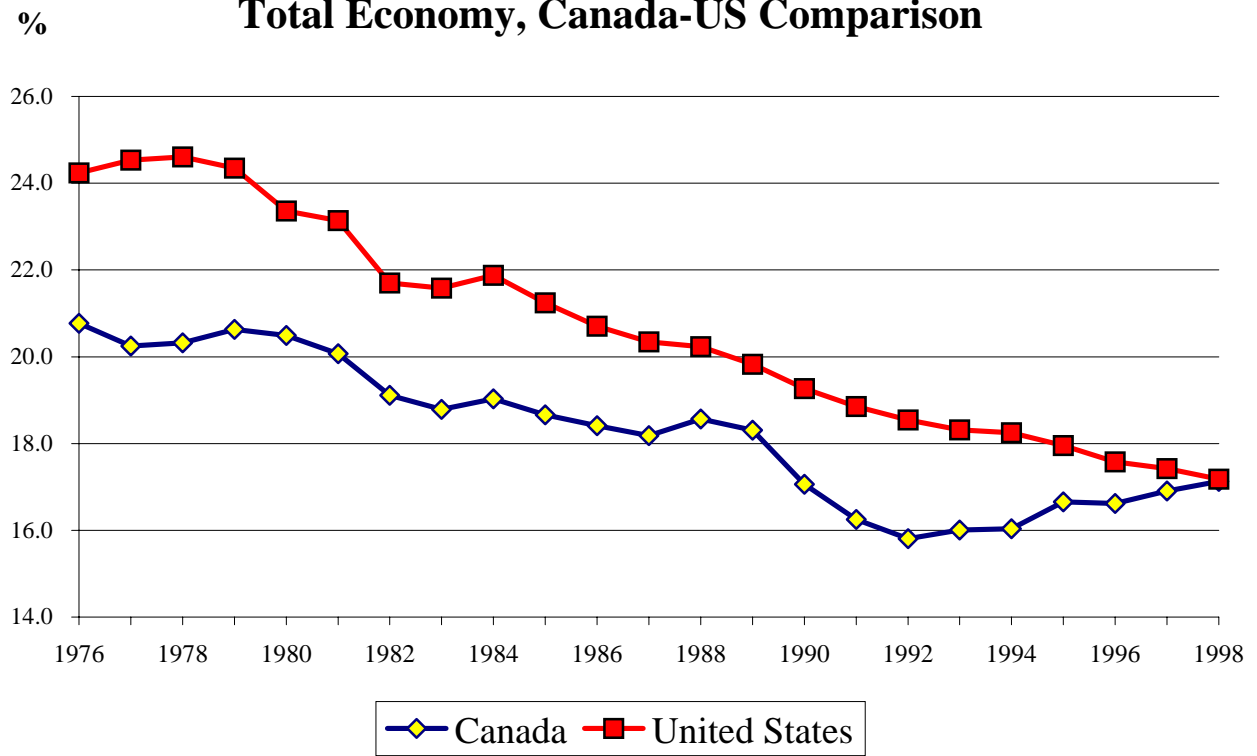
**Chart 1: Employment, Share of Manufacturing in Total Economy, Canada-US Comparison**



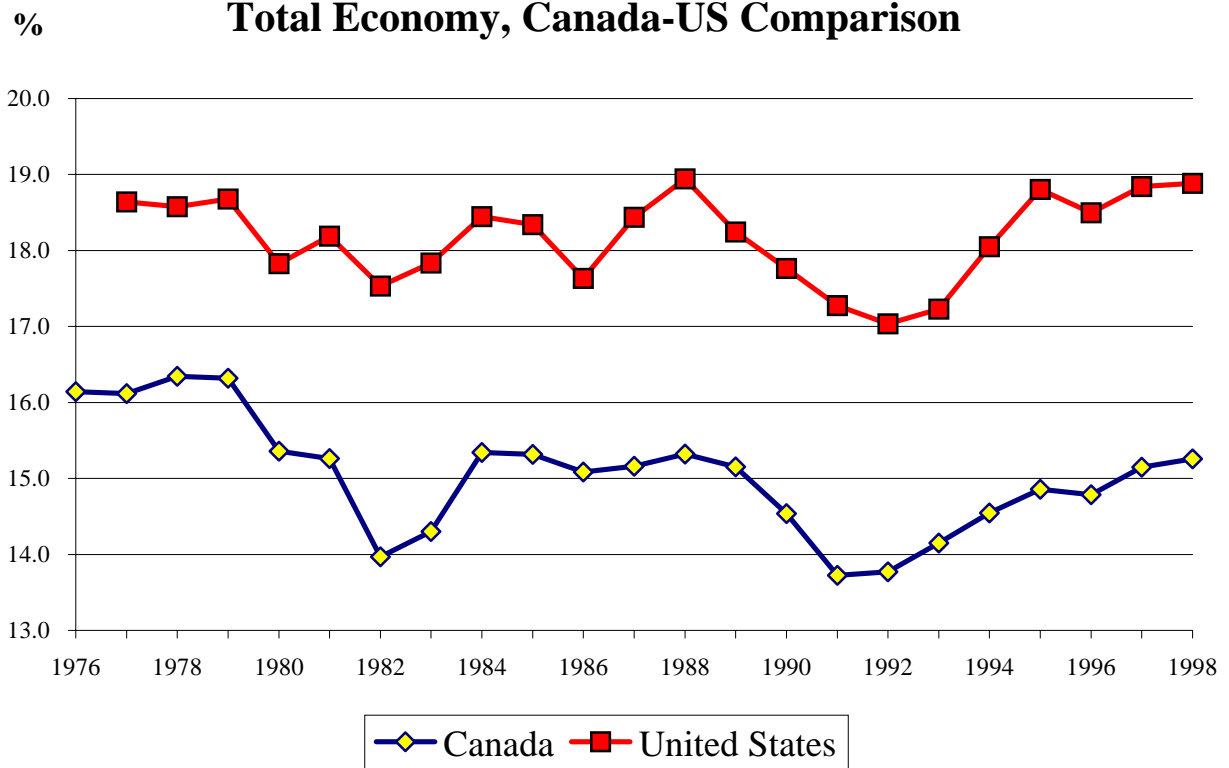
**Chart 2: Average Weekly Hours in Manufacturing and Total Economy, Canada-US Comparison**



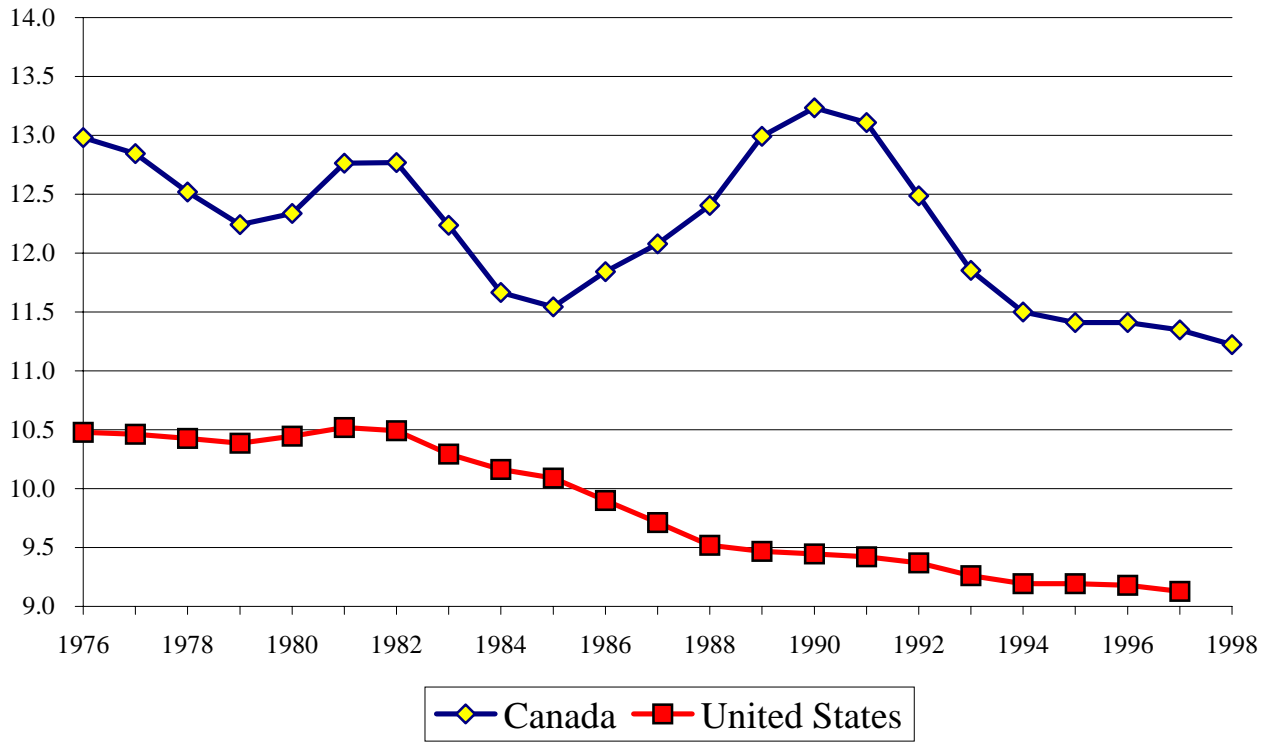
**Chart 3: Working Hours, Share of Manufacturing in Total Economy, Canada-US Comparison**



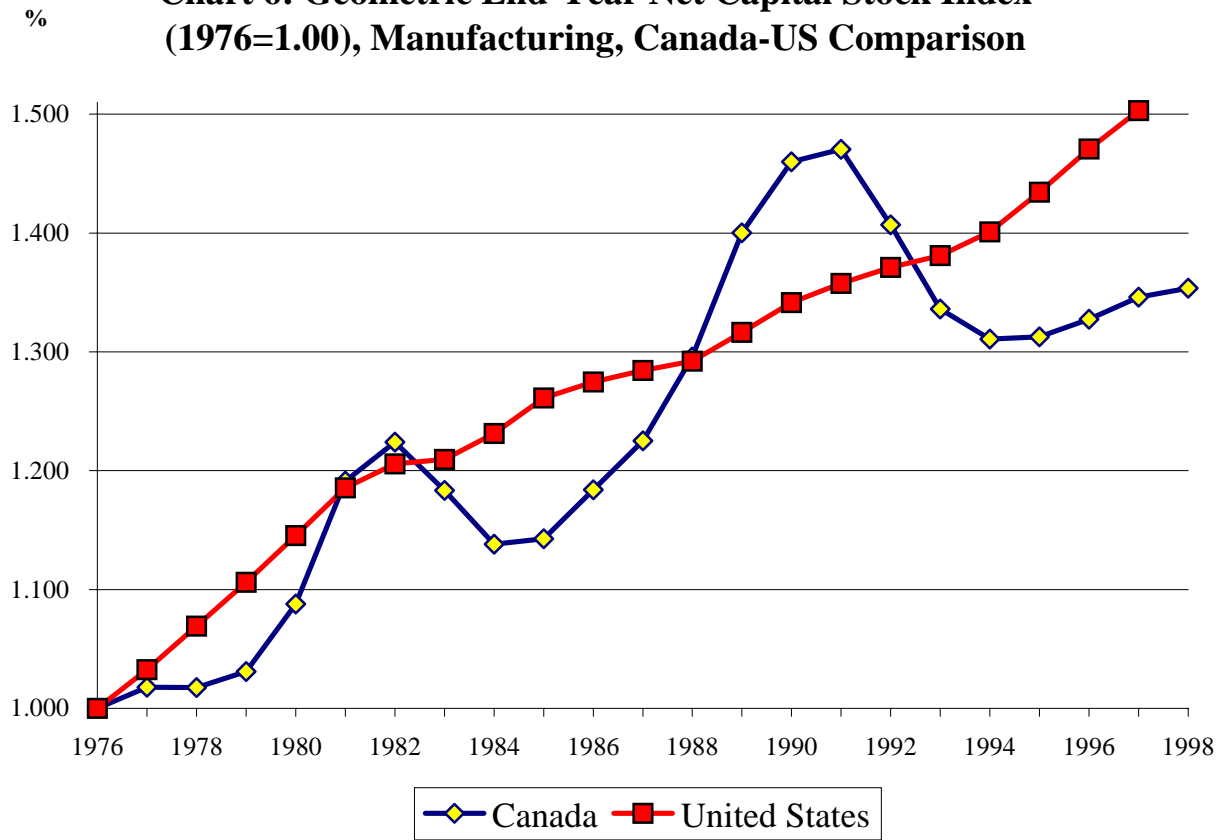
**Chart 4: Real GDP (\$1992), Share of Manufacturing in Total Economy, Canada-US Comparison**



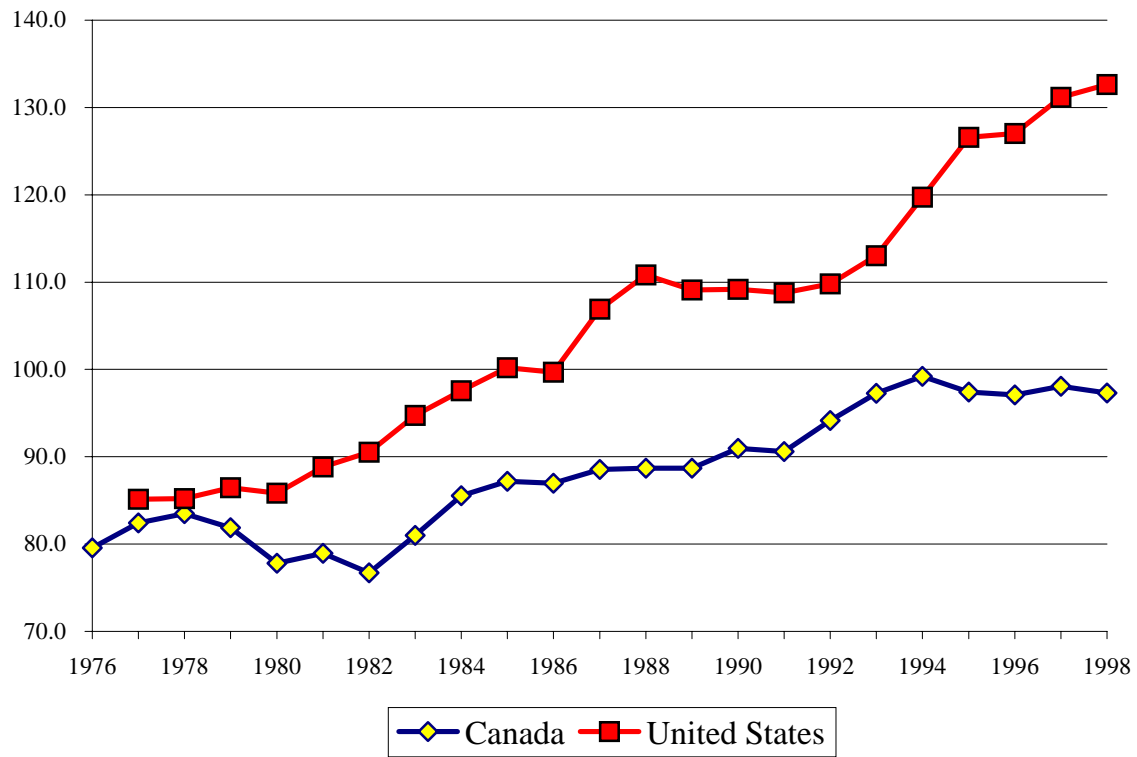
**Chart 5: Geometric End-Year Net Capital Stock, Share of Manufacturing in Total Economy, Canada-US Comparison**



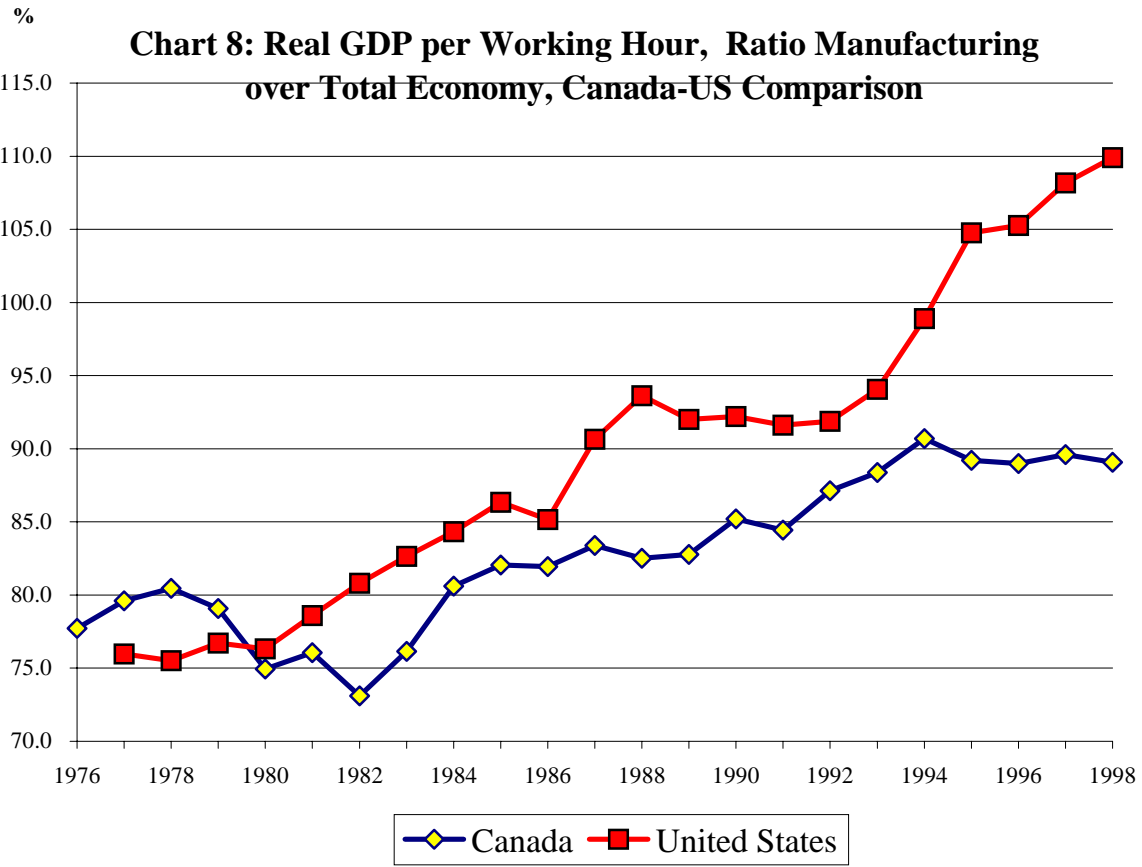
**Chart 6: Geometric End-Year Net Capital Stock Index (1976=1.00), Manufacturing, Canada-US Comparison**



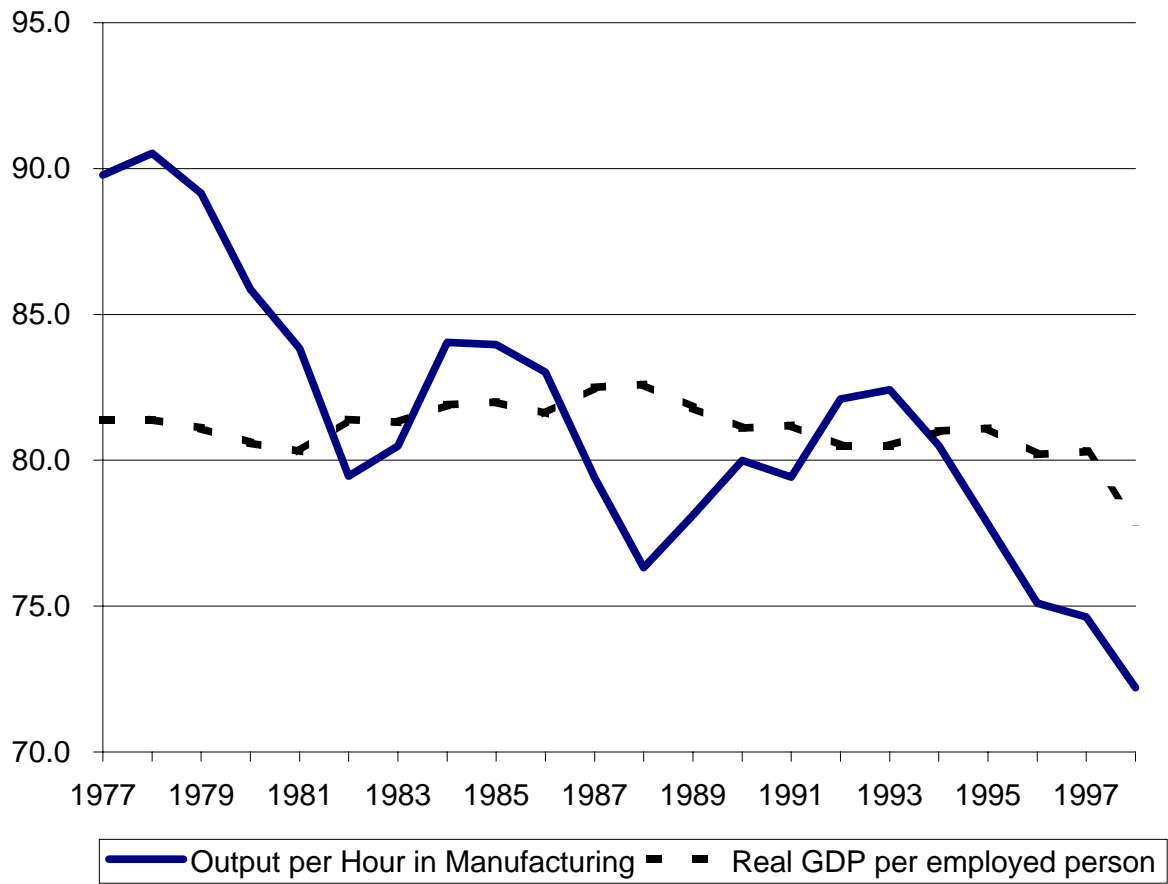
**Chart 7: Real GDP per Worker, Ratio Manufacturing over Total Economy, Canada-US Comparison**







**Chart 9: Relative Productivity Levels  
(Canada/US)**



**Chart 10: Selected Industries Real GDP Share in Manufacturing,  
%, Canada-US Comparison**

