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A COMPARISON OF OUTPUT PER MAN-HOUR, AVERAGE HOURLY EARNINGS
AND UNIT PAYROLL COSTS

MANUFACTURING INDUSTRIES

CANADA AND UNITED STATES
1947 - 1972

PRODUCTIVITY ANALYSIS BRANCH
DEPARTMENT OF INDUSTRY, TRADE AND COMMERCE
OTTAWA - CANADA

1973

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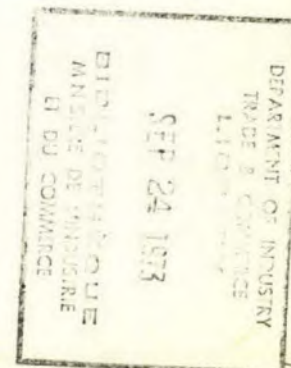
MANUFACTURING INDUSTRIES

C A N A D A A N D U N I T E D S T A T E S

1947 - 1972

PRODUCTIVITY ANALYSIS BRANCH
DEPARTMENT OF INDUSTRY, TRADE AND COMMERCE
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C O N T E N T S

- I. INTRODUCTION
- II. REVIEW OF PRODUCTIVITY, EARNINGS, AND UNIT PAYROLL COSTS
- III. STATISTICAL TABLES AND CHARTS

SECTION A: CANADA - U.S. COMPARISONS IN TERMS OF NATIONAL CURRENCIES

TABLE A: INDEXES OF OUTPUT PER MAN-HOUR, AVERAGE HOURLY EARNINGS AND UNIT PAYROLL COSTS IN MANUFACTURING, CANADA AND UNITED STATES, 1947-1972

CHARTS: A-1 Output per Man-Hour, 1961-1972 and 1947-1972
A-2 Average Hourly Earnings, 1961-1972 and 1947-1972
A-3 Unit Payroll Costs, 1961-1972 and 1947-1972
A-4 Differences in Year-to-Year Percentage Changes between Canadian and United States Manufacturing Industries

SECTION B: CANADA - U.S. COMPARISONS ADJUSTED FOR EXCHANGE RATE VARIATIONS

TABLE B: INDEXES OF AVERAGE HOURLY EARNINGS AND UNIT PAYROLL COSTS IN MANUFACTURING, ADJUSTED FOR EXCHANGE RATE VARIATIONS, CANADA, 1947-1972

CHARTS: B-1 Average Hourly Earnings, 1961-1972 and 1947-1972
B-2 Unit Payroll Costs, 1961-1972 and 1947-1972
B-3 Differences in Year-to-Year Percentage Changes between Canadian and United States Manufacturing Industries

I. INTRODUCTION

This report sets out in tabular and chart form the relative trends and movements of productivity, average hourly earnings and unit payroll costs in manufacturing in both the United States and Canada to ascertain whether Canada's competitive position has been deteriorating or improving. Productivity is measured in terms of output per man-hour. The data for earnings do not include the cost of fringe benefits which although substantial were not measured until recently. As some of the users of this material are primarily interested in recent movements and others use it for the analysis of long-term trends, both Sections A and B include two sets of charts, one for the past twelve years and one for the entire post-war period.

The values in Section A are expressed in national currencies. Since, however, exchange

rate variations can offset or aggravate the effects on competitiveness of changes in relative unit payroll costs, the average hourly earnings have been adjusted in Section B to take into account the effects of such variations.

No attempt has been made in this report to compare the changes in the unit material costs or unit capital costs of manufacturing but the time series which are necessary for this purpose are being developed.

II. REVIEW OF PRODUCTIVITY, EARNINGS AND UNIT PAYROLL COSTS

Productivity in Canadian manufacturing in 1972 was 4.5 percent greater than in 1971. The comparable increase in the United States was 4.2 percent. Over the period 1961 to 1972, as can be seen in table A and chart A-1, the percentage increase was 60.5 in Canada and only 45.7 in the United States. This faster advance in Canada is

a continuation of a trend observed over the entire post-war period. Despite this, in absolute terms, productivity in manufacturing is still about one-quarter higher in the United States.

The relative advance in Canadian productivity was offset by an even greater increase in average hourly earnings. Between 1961 and 1972, they rose 93.4 percent in Canada and 64.2 percent in the United States. When adjusted for exchange rate variations, the Canadian increase is even greater, 98.3 percent.

Because average hourly earnings have risen more quickly than productivity, unit payroll costs have of course risen in both countries. As can be seen in the tables and charts, unit payroll costs have risen more quickly in Canada both over the last decade and the post-war period. Between 1961 and 1972, they rose 20.5 percent in Canada and 12.7 percent in the United States. Between 1967 and 1969 there was some

improvement in Canada's relative position but since then it has again deteriorated. Charts A-4 and B-3 set out the U.S.-Canada differences in year-to-year percentage changes since 1961. A comparison of these two charts also shows to what extent the results have been affected by exchange rate variations.

Although this report does not encompass all components of cost in manufacturing, it is clear that an improvement in Canada's future competitive position will require a reversal of the observed deterioration of relative unit payroll costs.

INDEXES OF OUTPUT PER MAN-HOUR, AVERAGE HOURLY EARNINGS, AND UNIT PAYROLL COSTS IN MANUFACTURING,
CANADA AND UNITED STATES, YEARS 1947 - 1972.

(1961=100)

UNITED STATES

CANADA

Year	UNITED STATES						CANADA						Index of Relative Unit Payroll Cost $\frac{\text{CANADA}}{\text{U.S.}}$ (f) (c)	Relative Year-to-Year % Change in Unit Payroll Costs $\frac{\text{CANADA}}{\text{U.S.}}$ Per Cent
	Index of Output per Man-Hour (a)	Year to Year % Chge.	Index of Average Hourly Earnings (b)	Year to Year % Chge.	Index of Unit Payroll Cost $c = \frac{(b)}{(a)}$	Year to Year % Chge.	Index of Output per Man-Hour (d)	Year to Year % Chge.	Index of Average Hourly Earnings (e)	Year to Year % Chge.	Index of Unit Payroll Cost $f = \frac{(e)}{(d)}$	Year to Year % Chge.		
1947	67.2	-	52.5	-	78.1	-	59.3	-	44.3	-	74.7	-	95.6	-
1948	70.9	5.5	57.2	9.0	80.7	3.3	60.2	1.5	50.3	13.5	83.6	11.9	103.6	+8.4
1949	73.3	3.4	59.4	3.8	81.0	0.4	62.2	3.3	54.1	7.6	87.0	4.1	107.4	+3.7
1950	78.8	7.5	62.1	4.5	78.8	-2.7	65.8	5.8	56.8	5.0	86.3	-0.8	109.5	+2.0
1951	80.5	2.2	67.2	8.2	83.5	6.0	68.7	4.4	64.5	13.6	93.9	8.8	112.5	+2.7
1952	81.0	0.6	71.1	5.8	87.8	5.1	70.2	2.2	71.0	10.1	101.1	7.7	115.1	+2.3
1953	83.5	3.1	75.0	5.5	89.8	2.3	72.5	3.3	74.3	4.6	102.5	1.4	114.1	-0.9
1954	84.9	1.7	76.7	2.3	90.3	0.6	75.5	4.1	77.0	3.6	102.0	-0.5	113.0	-1.0
1955	90.1	6.1	80.2	4.6	89.0	-1.4	80.4	6.5	79.2	2.9	98.5	-3.4	110.7	-2.0
1956	89.1	-1.1	84.1	4.9	94.4	6.1	83.8	4.2	83.1	4.9	99.2	0.7	105.1	-5.1
1957	90.9	2.0	88.4	5.1	97.2	3.0	84.3	0.6	88.0	5.9	104.4	5.2	107.4	+2.2
1958	90.9	N.C.	90.9	2.8	100.0	2.9	87.0	3.2	90.7	3.1	104.3	-0.1	104.3	-2.9
1959	96.0	5.6	94.4	3.9	98.3	-1.7	91.8	5.5	94.5	4.2	102.9	-1.3	104.7	+0.4
1960	97.8	1.9	97.4	3.2	99.6	1.3	95.2	3.7	97.8	3.5	102.7	-0.2	103.1	-1.5
1961	100.0	2.2	100.0	2.7	100.0	0.4	100.0	5.0	100.0	2.2	100.0	-2.6	100.0	-3.0
1962	105.9	5.9	103.0	3.0	97.3	-2.7	105.3	5.3	102.7	2.7	97.5	-2.5	100.2	+0.2
1963	110.1	4.0	106.0	2.9	96.3	-1.0	109.4	3.9	106.6	3.8	97.4	-0.1	101.1	+0.9
1964	115.6	5.0	109.1	2.9	94.4	-2.0	114.2	4.4	110.4	3.6	96.7	-0.7	102.4	+1.3
1965	120.2	4.0	112.5	3.1	93.6	-0.8	118.5	3.8	115.8	4.9	97.7	1.0	104.4	+2.0
1966	122.0	1.5	117.2	4.2	96.1	2.7	122.0	3.0	123.0	6.2	100.8	3.2	104.9	+0.5
1967	122.2	0.2	122.0	4.1	99.8	3.9	125.6	3.0	131.1	6.6	104.4	3.6	104.6	-0.3
1968	127.9	4.7	129.7	6.3	101.4	1.6	134.8	7.3	141.0	7.6	104.6	0.2	103.2	-1.3
1969	131.1	2.5	137.5	6.0	104.9	3.5	142.3	5.6	152.5	8.2	107.2	2.5	102.2	-1.0
1970	132.1	0.8	144.8	5.3	109.6	4.5	144.6	1.6	164.5	7.9	113.8	6.2	103.8	+1.6
1971	139.8	5.8	153.4	5.9	109.7	0.1	153.6(P)	6.2	179.2	8.9	116.7(P)	2.5	106.4	+2.5
1972	145.7	4.2	164.2	7.0	112.7	2.7	160.5(P)	4.5	193.4	7.9	120.5(P)	3.3	106.9	+0.5

% CHANGE:

1972/1967	34.6	19.2	12.9	27.8	47.5	15.4	2.2
1972/1961	64.2	45.7	12.7	60.5	93.4	20.5	6.9
1972/1947	212.8	116.8	44.3	170.7	336.6	61.3	11.8

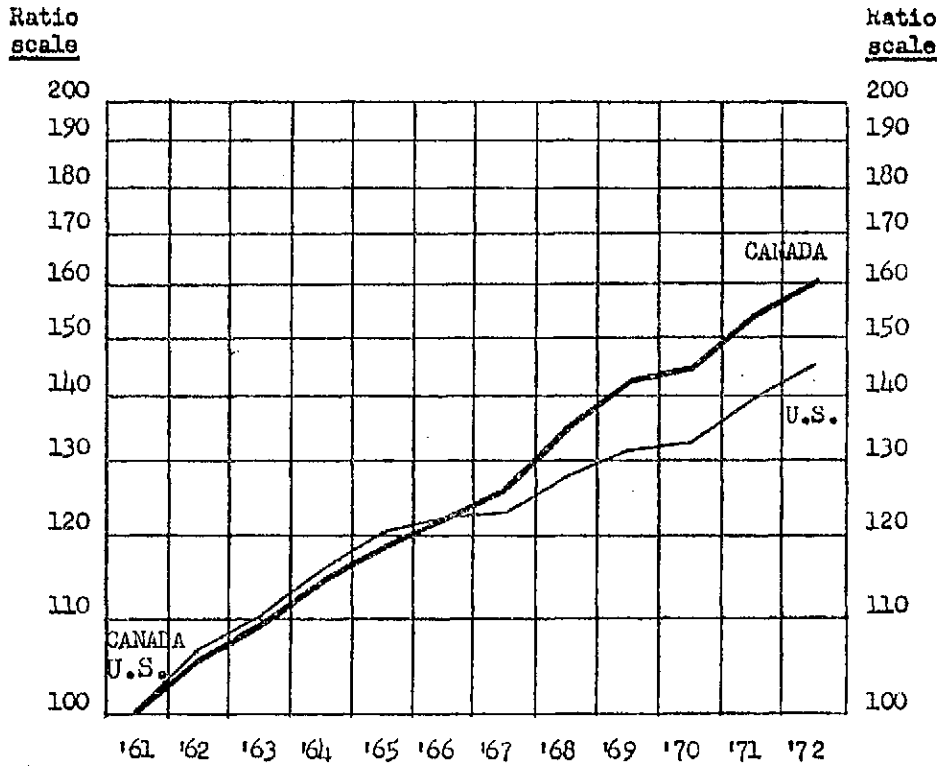
SOURCES:

- (a) U.S. Bureau of Labor Statistics, Office of Productivity and Technology, Table 1-A, Output per Man-Hour and Related Data, Private Economy, 1947-1972.
- (b) Years 1947-1970: U.S. Dept. of Labor, B.L.S., Bulletin No.1312, Table 5;
Years 1971-1972: Monthly Labor Review, U.S. Dept. of Labor, June 1973, Table 21, p. 101.
- (d) Statistics Canada, Cat. 14-201, Aggregate Productivity Trends (years 1947-1960 incl.) and Productivity Research and Analysis Section (years 1961-1972).
- (e) Statistics Canada, Review of Man-Hours and Hourly Earnings, Cat. 72-202, Table 9, p. 27 (years 1947-1956 incl.); Cat. 72-202, Table 5, p. 24 (years 1957-1967 incl.); Cat. 72-202, Table 5, p. 42 (years 1968-69); and Canadian Statistical Review, Cat. 11-003, May 1973, Section 4, Table 14, p.54 (years 1970-72).

CHART A-1

INDEXES OF OUTPUT PER MAN-HOUR
MANUFACTURING
CANADA AND UNITED STATES
(1961=100)

1961-1972

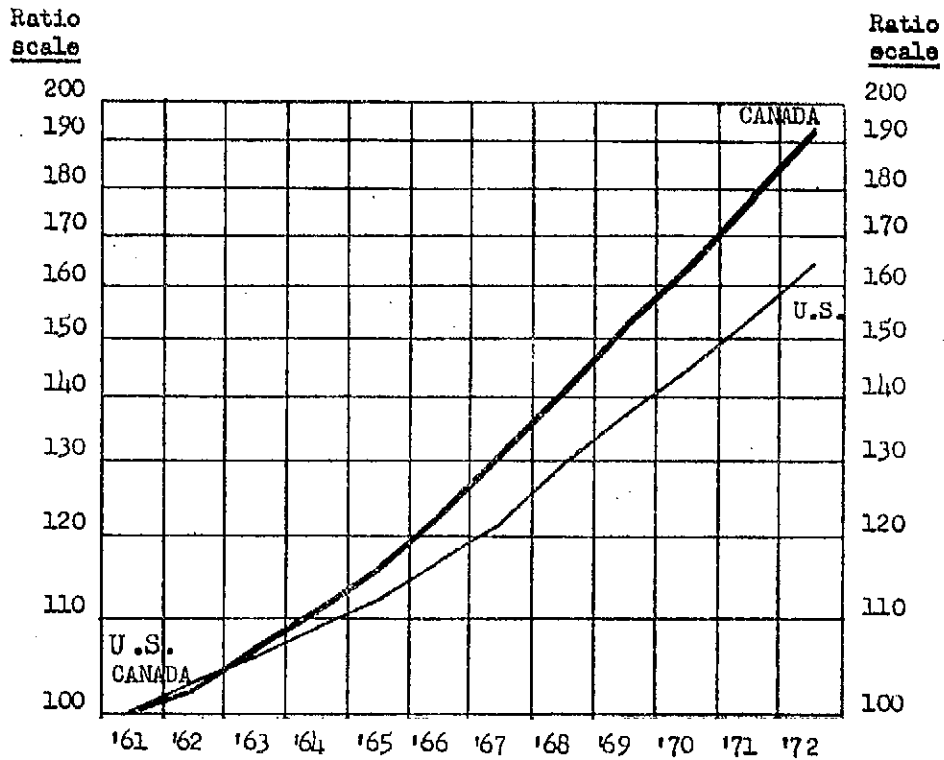


1947-1972

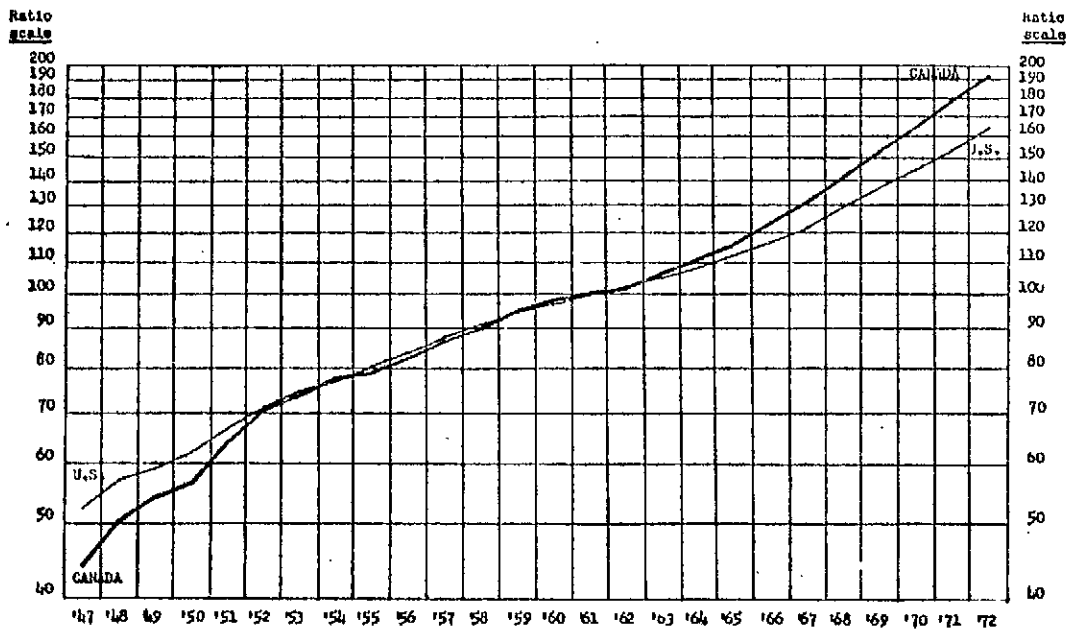


INDEXES OF AVERAGE HOURLY EARNINGS (x)
MANUFACTURING
CANADA AND UNITED STATES
(1961=100)

1961-1972



1947-1972

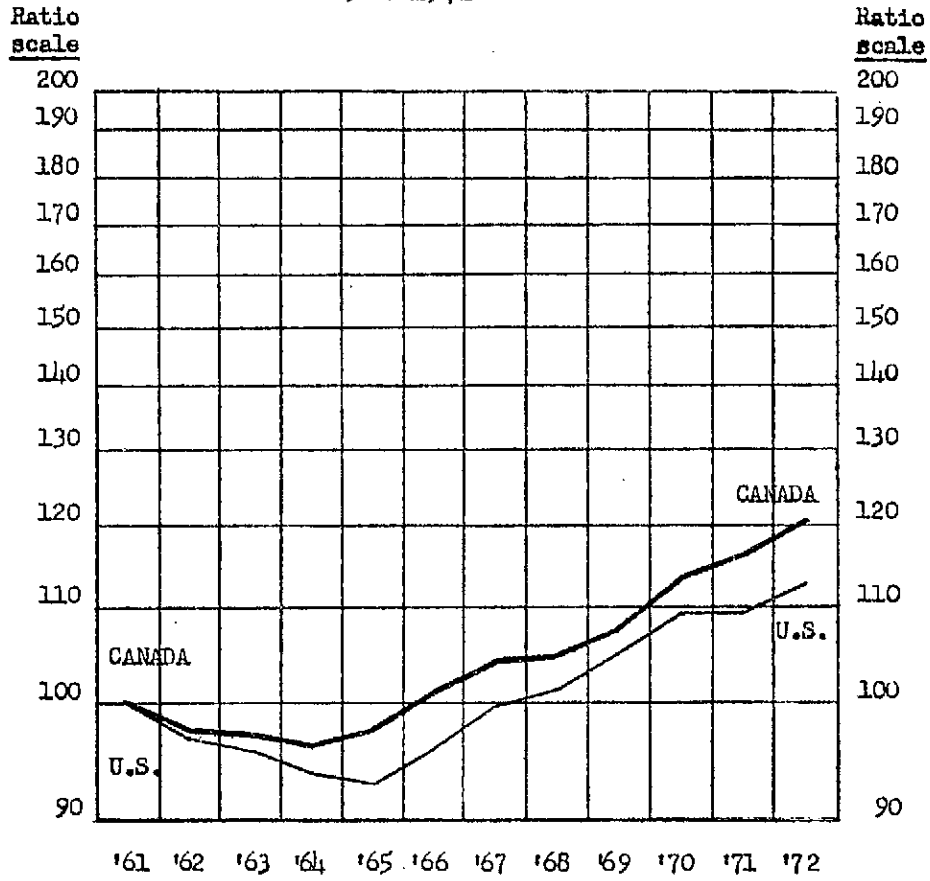


(x) in national currencies, not adjusted for exchange rate

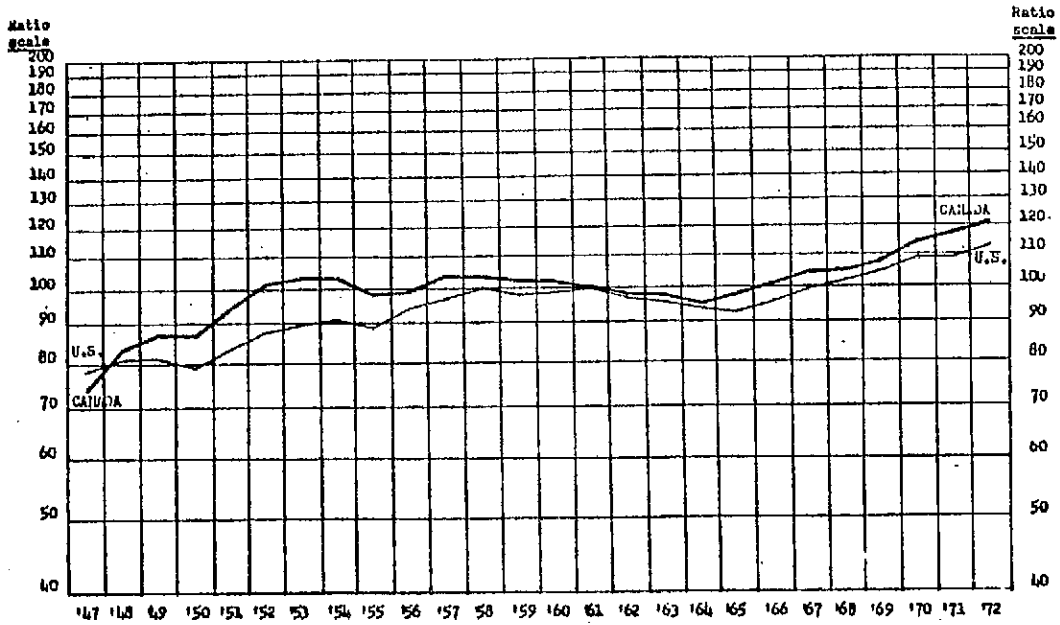
CHART A-3

INDEXES OF UNIT PAYROLL COSTS (x)
MANUFACTURING
CANADA AND UNITED STATES
 (1961=100)

1961-1972



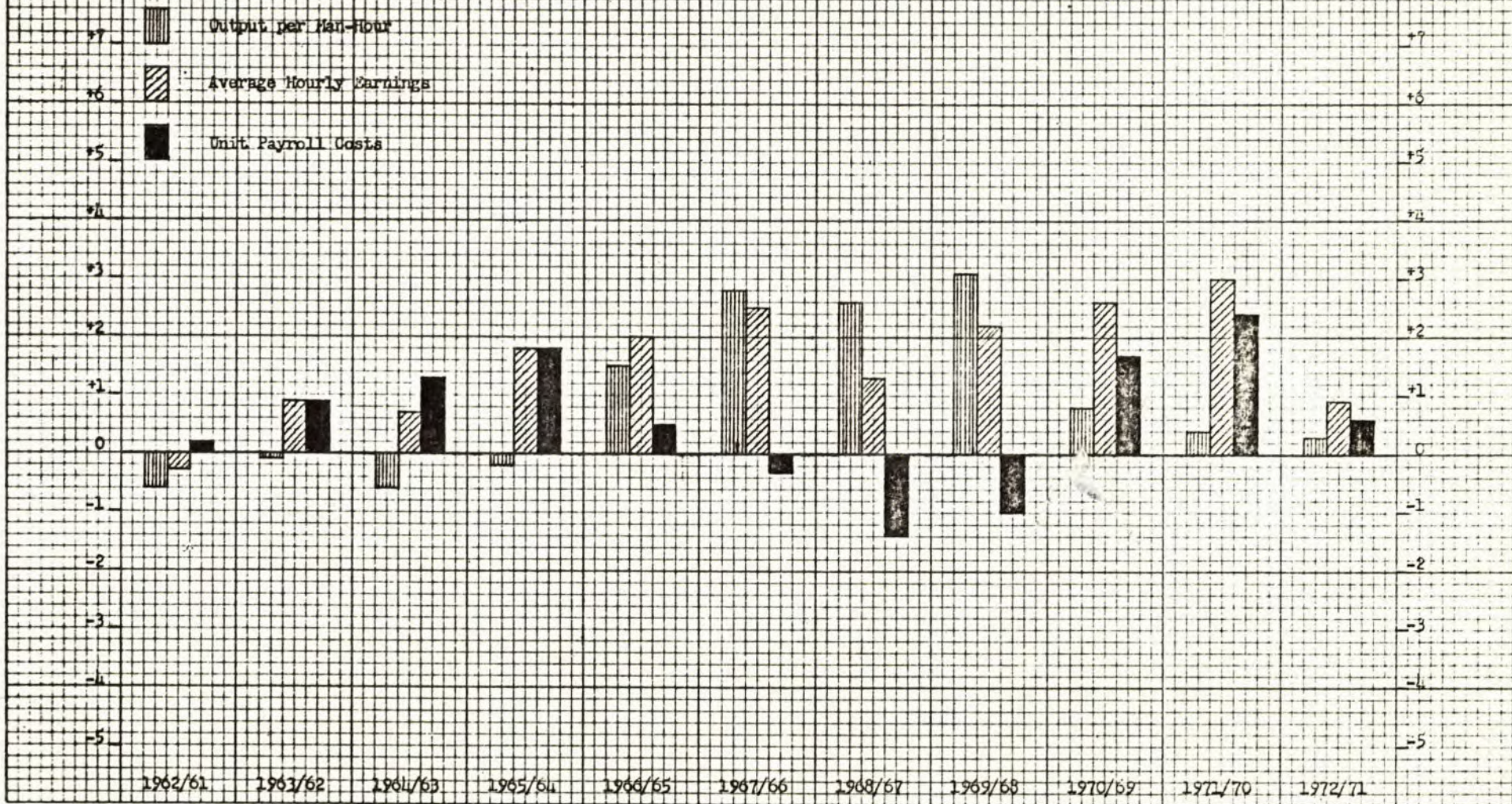
1947-1972



(x) in national currencies, not adjusted for exchange rate

DIFFERENCES IN YEAR-TO-YEAR PERCENTAGE CHANGES IN OUTPUT PER MAN-HOUR, AVERAGE HOURLY EARNINGS, AND UNIT PAYROLL COSTS BETWEEN CANADIAN AND UNITED STATES MANUFACTURING INDUSTRIES; 1962/61 TO 1972/71.

(Positive data show relatively faster increases in Canada)



INDEXES OF AVERAGE HOURLY EARNINGS AND UNIT PAYROLL COSTS IN MANUFACTURING,
ADJUSTED FOR EXCHANGE RATE VARIATIONS, CANADA, YEARS 1947-1972.

(1961=100)

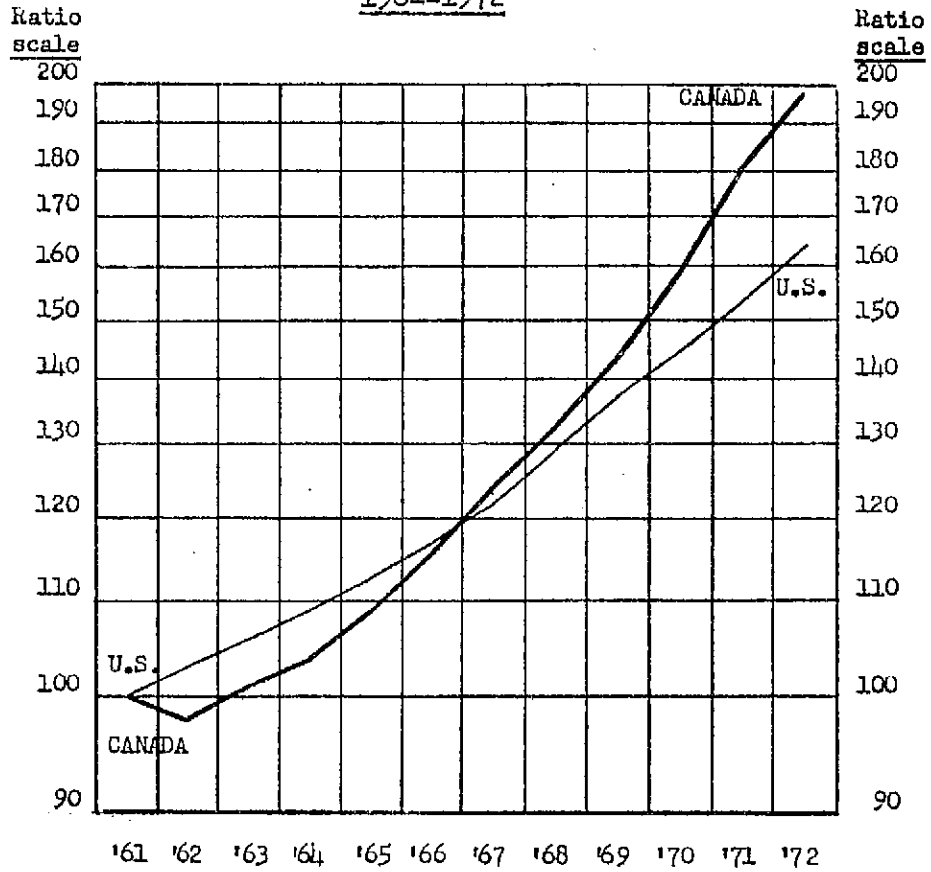
Year	Average Hourly Earnings (Wage-Earner)	Canadian Dollars per (1) 100 U.S. Dollars	Average Hourly Earnings (Adjusted)	Index of Average Hourly Earnings (1961=100) (d)	Year to Year % Chge.	Index of Output per Man-Hour (e)	Year to Year % Chge.	Index of Unit Payroll Cost (f) = $\frac{(d)}{(e)}$	Year to Year % Chge.
1947	.81	100.25	.81	45.0	-	59.3	-	75.9	-
1948	.92	100.25	.92	51.1	13.6	60.2	1.5	84.9	11.9
1949	.99	103.08	.96	53.3	4.3	62.2	3.3	85.7	0.9
1950	1.04	108.92	.95	52.8	-0.9	65.8	5.8	80.2	-6.4
1951	1.18	105.28	1.12	62.2	17.8	68.7	4.4	90.5	12.8
1952	1.30	97.89	1.33	73.9	18.8	70.2	2.2	105.3	16.4
1953	1.36	98.34	1.38	76.7	3.8	72.5	3.3	105.8	0.5
1954	1.41	97.32	1.45	80.6	5.1	75.5	4.1	106.8	0.9
1955	1.45	98.63	1.47	81.7	1.4	80.4	6.5	101.6	-4.9
1956	1.52	98.41	1.54	85.6	4.8	83.8	4.2	102.1	0.5
1957	1.61	95.88	1.68	93.3	9.0	84.3	0.6	110.7	8.4
1958	1.66	97.06	1.71	95.0	1.8	87.0	3.2	109.2	-1.4
1959	1.72	95.90	1.79	99.4	4.6	91.8	5.5	108.3	-0.8
1960	1.78	96.97	1.84	102.2	2.8	95.2	3.7	107.4	-0.8
1961	1.83	101.32	1.81	100.0	-2.2	100.0	5.0	100.0	-6.9
1962	1.88	106.89	1.76	97.8	-2.2	105.3	5.3	92.9	-7.1
1963	1.95	107.85	1.81	100.6	2.9	109.4	3.9	92.0	-1.0
1964	2.02	107.86	1.87	103.9	3.3	114.2	4.4	91.0	-1.1
1965	2.12	107.80	1.97	109.4	5.3	118.5	3.8	92.3	1.4
1966	2.25	107.73	2.09	116.1	6.1	122.0	3.0	95.2	3.1
1967	2.40	107.87	2.22	123.3	6.2	125.6	3.0	98.2	3.2
1968	2.58	107.75	2.39	132.8	7.7	134.8	7.3	98.5	0.3
1969	2.79	107.68	2.59	143.9	8.4	142.3	5.6	101.1	2.6
1970	3.01	104.40	2.88	160.0	11.2	144.6	1.6	110.7	9.5
1971	3.28	100.98	3.25	180.6	12.9	153.6	6.2	117.6	6.2
1972	3.54	99.05	3.57	198.3	9.8	160.5	4.5	123.6	5.1

(1) Bank of Canada Review, January 1973, Table 59 (Average Noon Spot Rates).

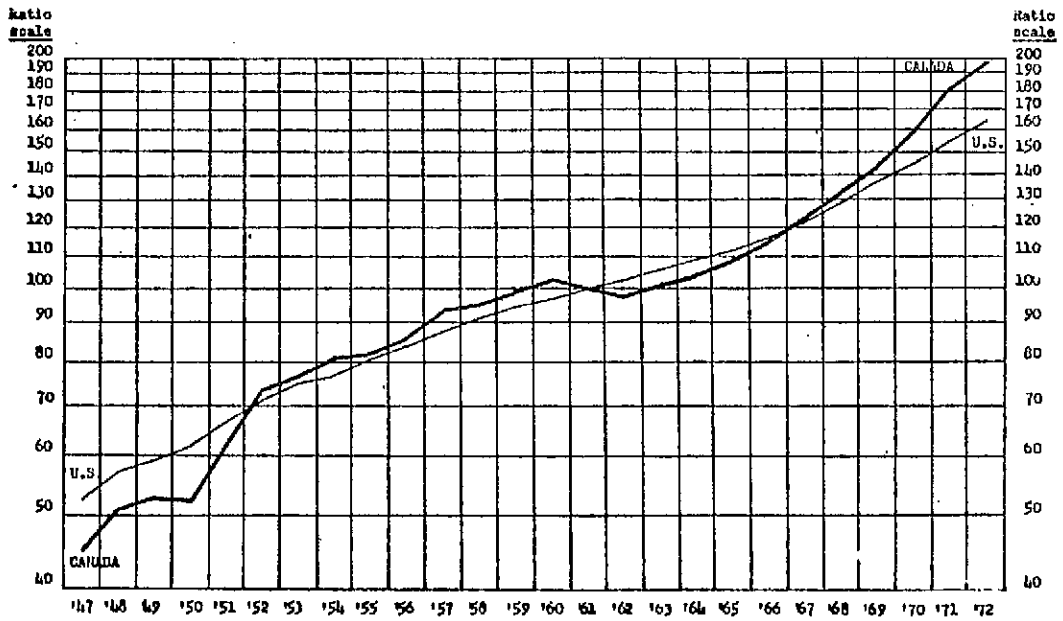
CHART B-1

INDEXES OF AVERAGE HOURLY EARNINGS
MANUFACTURING
CANADA (1) AND UNITED STATES
(1961=100)

1961-1972



1947-1972

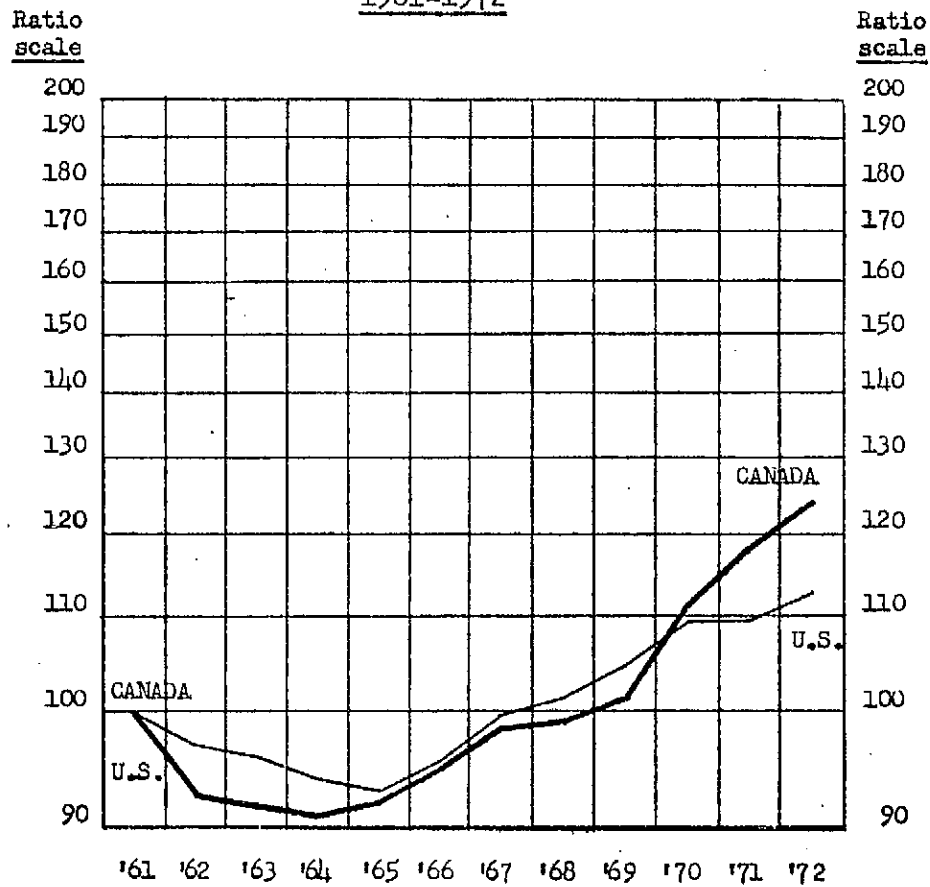


(1) Adjusted for exchange rate variations

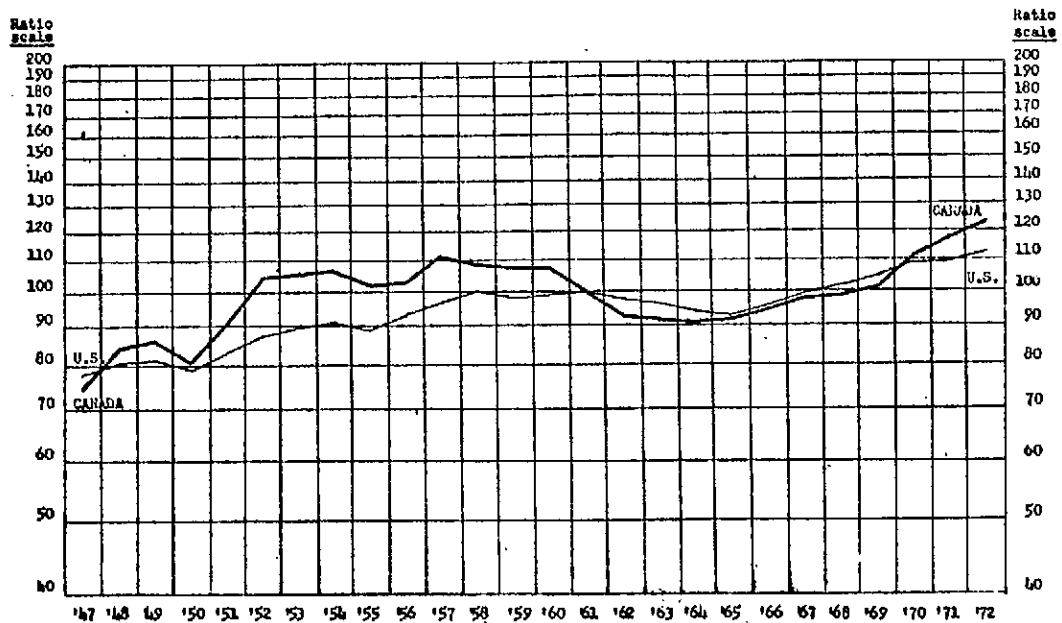
CHART B-2

INDEXES OF UNIT PAYROLL COSTS
MANUFACTURING
CANADA⁽¹⁾ AND UNITED STATES
 (1961=100)

1961-1972



1947-1972



DIFFERENCES IN YEAR-TO-YEAR PERCENTAGE CHANGES IN OUTPUT PER MAN-HOUR, AVERAGE HOURLY EARNINGS, AND UNIT PAYROLL COSTS, BETWEEN CANADIAN AND UNITED STATES MANUFACTURING INDUSTRIES, 1962/61 TO 1972/71, ADJUSTED FOR EXCHANGE RATE (1) VARIATIONS.

(Positive data show relatively faster increases in Canada)

