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TRADE NEGOCIATIONS STUDIES:

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STUDY NO. 21:

Unit cost comparisons for Canadian and American industries.

(Data Resources of Canada for Dept. of External Affairs.

September 1985)

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Dept. of External Affairs
Min. des Affaires extérieures

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UNIT COST COMPARISONS
FOR CANADIAN AND AMERICAN INDUSTRIES

PREPARED FOR:
THE DEPARTMENT OF EXTERNAL AFFAIRS

PREPARED BY:
DATA RESOURCES OF CANADA

SEPTEMBER 1985

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INTRODUCTION

The following pages contain a detailed compilation of Canadian and American economic and industrial statistics. This data was organized by Data Resources of Canada (DRI) for the Department of External Affairs with the intention of revealing the cost-competitiveness between the two countries for major industry groupings. The selection of industries and related data was predicated on the overall objective of having the report serve as one input into the Canadian government's current review of Canada-U.S. trade policy. In particular, if this policy review encompasses plans for reduced trade barriers, there will be a critical need to distinguish which sectors will be more severely impacted by increased competition. These contemplated policy issues helped to reduce the choice of industries under evaluation to goods-producing sectors.

Before work began on the project, it was agreed that no interpretation, analysis of causality or behavioural hypotheses testing would be included in the report. The emphasis is, rather, on a graphical/numerical comparison of cost measures. As such, most of the work concentrated on building the underlying data base and checking the comparability of different concepts and sources of information.

Section II of the report, "Methodology - A General Overview", provides an outline of the approach taken to create comparable cost data for the two countries. The subsequent "Industry Analysis" section presents comparisons of material and labour costs, indirect taxes, and capital-related measures for each industry in question. Numerical details and documentation and an in-depth review of data sources and methodology is contained in the appendices.

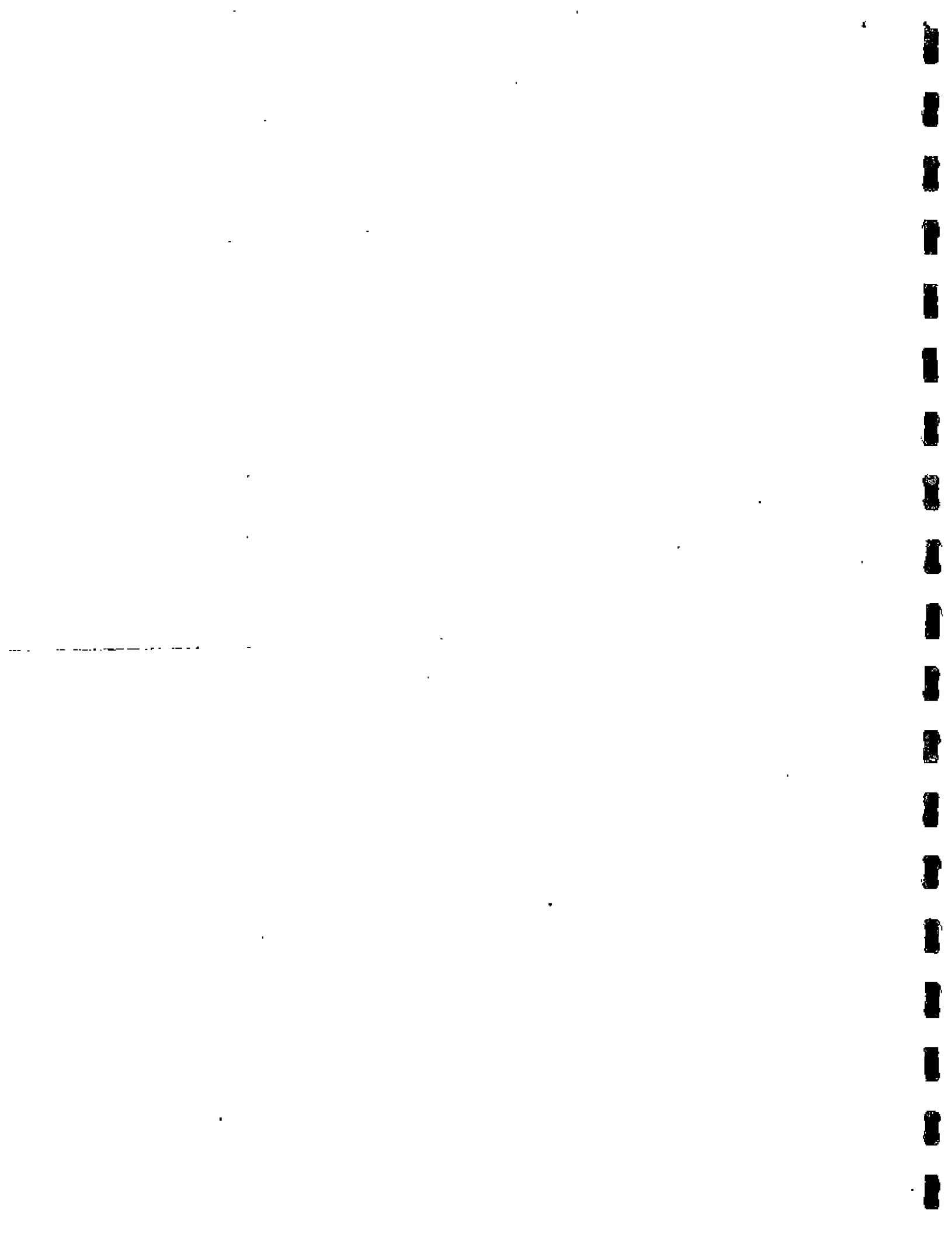
Throughout the report, the reader should bear in mind that many difficult trade-offs and approximations are involved when making both international and inter-industry cost comparisons. Perhaps first among these is the aggregation problem that not only affects this report, but will also affect the whole process of building a new national trade policy. There is also the issue of data definitions and comparability between countries. For these and other reasons, the interpretation of the numbers must necessarily be partial and limited. The following discussion of methodology is intended to review these matters carefully, but as briefly as possible so as to

provide the reader an opportunity to objectively review the findings in the report.

Notwithstanding these caveats, the current analysis, and previous work of this nature, allows Data Resources to offer the following study as an important contribution to the policy review. The authors believe that the analysis reveals key areas of strength and weakness in Canadian industry. In general, the results confirm the overall perspective that Canadian industries were operating in 1984 with costs that were 10 to 20 per cent higher than those faced by comparable American industries before accounting for the effect of the exchange rate. The depreciation of the Canadian dollar relative to the U.S. dollar after 1976 has provided a significant advantage to domestic producers, making most industries more cost-competitive than their U.S. counterparts in 1984.

The relatively strong position of many Canadian industries in 1984 is a recent development and few industries have enjoyed a consistent cost advantage for many years. Rather most sectors showed a consistent loss of competitiveness, especially before the exchange adjustment, during the 1970's.

Another general observation is that where Canadian industries show a cost advantage it is more often related to lower material costs (often lower energy costs) than to labour costs. Many industries show high and rising labour costs relative to U.S. industries.



Given these concerns, and extensive research on data availability, it was decided to proceed with an analysis of the following 25 large industrial sectors and five selected sub-groups:

- 1) Agriculture
- 2) Forestry
- 3) Fishing, Hunting & Trapping
- 4) Metal Mines
- 5) Mineral Fuels
- 6) Non-Metal Mines & Quarries
- 7) Food and Beverage Industries
- 8) Tobacco Products Industries
- 9) Rubber & Plastics Products Industries
- 10) Leather Industries
- 11) Textile Industries
- 12) Knitting Mills
- 13) Clothing Industries
- 14) Wood Industries
- 15) Furniture & Fixture Industries
- 16) Paper & Allied Industries
- 17) Printing & Publishing
- 18) Primary Metal Industries
- 19) Metal Fabricating Industries
- 20) Machinery Industries
- 21) Transportation Equipment Industries
- 22) Electrical Products Industries
- 23) Non-Metallic Mineral Products Industries
- 24) Petroleum & Coal Products Industries
- 25) Chemical & Chemical Products Industries
- 26) Iron and Steel
- 27) Synthetic Textiles
- 28) Motor Vehicle Accessories & Parts
- 29) Pulp and Paper
- 30) Metal Stamping, Pressing & Coating

For each of these 30 industries, cross-country comparisons were made for:

- 1) material costs¹;
- 2) labour costs;
- 3) indirect taxes;
- 4) interest payments; and,
- 5) depreciation.

This was done by creating historical "unit cost" measures for each of these factors, defined as nominal-dollar expenditures for each item in each year divided by constant-dollar (1971\$) real output for the industry in question. In Canada, most of the data was taken from the Input-Output (I-O) tables prepared by Statistics Canada². Current- and constant-dollar I-O tables itemize output for 191 industry groupings and summarize all of the related costs of doing business. These include purchases of materials; outlays for wages, salaries and supplementary labour income; and payments of direct and indirect taxes. Creating unit-cost measures in this manner allowed us to get a handle on exact expenditures made by each industry. They reflect the fact that an industry may buy goods at discounted prices, purchase imported as well as domestically produced materials, and use a different mix of inputs than comparable U.S. industries.

Canadian I-O data and corresponding U.S. information prepared by the U.S. Department of Commerce is available on an establishment basis. The establishment is defined as the smallest operating unit which produces as homogeneous a set of goods and services as possible, capable of reporting all elements of basic industrial data. So, for example, if a company produces both raw chemicals and packaging materials, it would be classified in two separate industry groupings on an establishment basis.

Since Canada I-O data is not available for capital costs, it was necessary to use Statistics Canada corporate tax statistics in this area. The use of interest and

¹ Material costs include transportation and storage, utilities, communication expenses, advertising etc.

² For a more detailed description of I-O tables, see the Appendix page A2.

depreciation values from this source makes it important to use care in interpreting the results on the study. This is due to fact that these capital-related measures are collected on a "corporate" rather than an "establishment" basis. A corporation is classified in its entirety to a single industry, even if it is engaged in a variety of industrial activities. Unfortunately, this creates some differences in accounting for costs in some industries. Similar U.S. data used in the study is measured on an establishment basis³. While these matters were outlined as a concern from the beginning, the data that follows reveals an encouraging similarity between U.S. and Canadian data on interest and depreciation costs. This similarity plus the fact that these costs are a relatively small part of the totals, suggest that important information can be added to the analysis on the capital side.

A series of data definitions and manipulation issues are also relevant. While in general the study-team tried to follow the Standard Industrial Classifications (SIC's), it was often not possible to build on a consistent base. In almost every case, this would be due to the larger U.S. economy and the fact that more and different products are produced there. While much time was spent in trying to ascertain that U.S. and Canadian data were collected from comparable industry groups, in the final analysis it is likely that the industrial groupings are not exactly homogeneous.

One mitigating consideration is that the thrust of this report is an inquiry into the unit costs of production and that these are intended to reflect the costs of industrial processes. Insofar as Canadian and American industries use similar processes, the unit cost analysis will still offer the derived "competitiveness" interpretation.

In the case of both Canadian and American data, industrial detail is only available up to the 1980 to 1983 period. Since many related data sources are available to 1984, most measures have been extended forward⁴. In general, this process involves

³ For some industries the misallocation of corporate data with establishments makes comparison of interest and depreciation costs unreliable. For this reason there are no such comparisons for Mineral Fuels, Transportation Equipment and Motor Vehicle Parts and Accessories

⁴ Interest and depreciation payments in Canada are only available to 1982 and were not extended beyond this date.

using early data on production techniques and more recent data on prices. Production techniques are generally captured in the "fixed proportions" model of I-O systems. In this framework, the ratio of constant-dollar inputs to constant-dollar outputs reflect the productivity of, say, materials and labour used. The unit cost measures shown in the next section combine productivity and price data. That is, they reflect both changing prices and changing utilization rates for the inputs. In most cases, the process of extending unit costs to 1984 combines trended or constant productivity measures from 1980 with a relevant aggregation of price/wage measures. Special attention was given to measuring unit labour costs, as recent data does allow a more careful presentation of labour productivity. Indeed, the combination of the 1982 recession and the 1983-84 recovery provides important changes in this area.

The treatment of indirect taxes was a challenging and useful addition. Canadian data was collected for total indirect taxes and indirect taxes net of subsidies. Although this latter subsidy measurement might be useful for purposes of negotiating trade protection measures, several data limitations made it impossible to present this information. Not only was it difficult to obtain comparable Canadian and American data on subsidies by industry, but the data that was available was only updated to the 1980 to 1982 time-frame. While the extrapolation of indirect taxes to 1984 did not seem likely to violate any known tax changes, the authors felt less able to support an assumption that the structure of subsidies has remained unchanged in both countries over the past few years. Examination of the results and a check of data sources also showed that U.S. data on indirect taxes includes royalties while Canadian data does not include this measure.

Consideration of the preceding remarks will help the reader to understand that great care must be taken in aggregating the various input measures. One clear objective of the study is to arrive at a single "total unit cost" measure for each industry based in a common currency. After consideration of all of the above issues, it is the authors' view that total costs defined as the sum of material, labour and indirect taxes is the more appropriate measure to use.

While this caveat may be disappointing, it is worthwhile to note that more research may be worthwhile in this area. U.S. analysis by Data Resources' Inter-Industry Group has prepared user cost of capital measures for a set of U.S. industries that

roughly correspond to the 30 used here. Comparable Canadian measures might be built in fairly short order. The "user cost of capital" concept is a more market-based cost measure than the analysis attempted here. Interest and depreciation payments are more of a return to capital already put in place, while the user cost measure looks at the cost of the next incremental unit of capital to be added.

The following section now draws some conclusions from the many unit cost measures presented. These conclusions are basically static, as they capture only the relative positions of specific industries up to 1984 and make no allowance for overall growth or technological change. These last factors may prove to be of considerable importance in the future. Nevertheless, in the authors' view the unit cost comparisons offer a realistic aggregate picture of the cost-competitiveness of U.S. and Canadian goods-producing sectors.

INDUSTRY ANALYSIS

This section provides an in-depth review of the different cost structures facing Canadian and American producers over the 1971 to 1984 period for each of the 30 goods-producing industries in question. To make cross-country comparisons easier, four pages of graphs are presented for each industry. The first page depicts unit costs for each of the individual inputs: materials, labour, indirect taxes, interest payments, and depreciation. In addition, two measures of total costs are included: the sum of materials, labour and indirect taxes, and the sum of all inputs including interest and depreciation⁵. This latter measure is labelled TOTAL on the graphs.

When mention is made in the text to total unit costs, it refers to the sum of materials, labour and indirect taxes only. As discussed earlier, the authors view this to be a more exact measure of costs given the discrepancies that exist between corporation- and establishment-based data. When reference is made to shares of total unit costs — for example, material costs account for 50 per cent of total costs — all costs are included in the calculation. Given the number of cost concepts under consideration, two graphs are presented for each country to avoid over-crowding in the diagrams.

The second page shows the same information, but on an exchange-rate-adjusted basis. U.S. costs are expressed in Canadian currency, and were converted from U.S. dollars by multiplying the unit cost measure by the average annual value of the Canadian/U.S. exchange rate. The discussion of cost differences between the two countries for each of the inputs is based on pre-exchange-rate-adjusted values. Given the depreciation of the Canadian dollar against the U.S. dollar from 1976 onwards, all exchange-rate-adjusted cost profiles move in Canada's favour after that time.

⁵ Interest and depreciation costs are not included for the Petroleum and Coal, Mineral Fuels, Transportation and Motor Vehicle Accessories and Parts industries. See Appendix, page A19 for a detailed explanation.

The third page illustrates the differences between the two countries on a total cost basis. Both measures of total cost are included and are shown on both a pre- and post- exchange-rate-adjusted basis:

The final page depicts labour productivity⁶, which is shown as the ratio of Canadian to U.S. productivity levels. A 100 per cent value would indicate that productivity levels were the same between the two countries in that year.

⁶ Productivity is not available for Fishing, Hunting and Trapping since there is no employment data published for this sector.

AGRICULTURE

Throughout the early 1970's, Canadian farmers held a significant cost advantage relative to U.S. producers on a pre-exchange-rate-adjusted basis. This was principally due to the fact that unit material costs in Canada, which historically accounted for over 75 per cent of total expenditures, were anywhere from 15 to 30 per cent below U.S. costs. While both countries experienced substantial increases in unit material costs from 1972 to 1974, the increase in U.S. expenditures over the three-year period was higher: 65 per cent versus 52 per cent in Canada. This left Canadian material costs 28 per cent below U.S. levels in 1974.

This advantage began to diminish in the mid-1970's, however, and in 1981 domestic material costs had jumped 25 per cent above U.S. levels. In 1984, Canadian costs increased by 6 per cent, while similar U.S. costs fell by almost 22 per cent. This left Canadian material costs 67 per cent higher than U.S. levels at the end of the period.

Canadian unit labour costs, which accounted for approximately 10 to 12 per cent of total expenditures in each year, were higher and grew more rapidly than similar U.S. costs over the period. The average annual growth rate⁷ was 8.4 per cent in Canada compared to 7 per cent in the U.S., leaving domestic costs 36 per cent above U.S. costs by 1984. Labour productivity in Canada was very low compared to the U.S., fluctuating between 42 to 52 per cent of U.S. levels over the period.

U.S. unit interest payments grew at a phenomenal rate after 1976, accounting for 18 per cent of total U.S. costs in 1984. In 1982, the last year of available Canadian interest-rate data, Canadian unit payments were 65 per cent below U.S. levels. However, this factor only accounted for 3.6 per cent of total Canadian costs in that year.

⁷ To avoid having an endpoint outlier skew the calculation of average annual growth, the calculation was based on a Least Squares regression against a monotonically increasing series called TIME.

The Canadian dollar improved Canada's position after 1976, and, on an exchange-rate-adjusted basis, domestic farmers were cost-competitive until 1980. In 1984, however, total unit costs for Canadian producers still remained 22 per cent above U.S. levels.

FORESTRY

Although total unit costs for the U.S. industry fluctuated above and below Canadian levels over the 1970's, U.S. producers held a distinct cost advantage over the early 1980's (pre-exchange-rate-adjustment). This was the result of more rapidly increasing material costs in Canada from 1980 to 1982, and substantially higher labour costs from 1980 to the end of the period.

Historical expenditures on these two items as a share of total expenditures differed substantially between the two countries. In 1982⁸, Canadian material and labour costs represented approximately 61 and 32 per cent of total unit costs respectively. In the U.S., in the same year, they accounted for 78 and 13 per cent of total costs. While domestic unit material costs remained below similar U.S. costs in most years, they increased at a much faster pace from 1980 to 1982, eliminating all of the cost advantage for domestic producers by 1982. Canadian costs grew at a much more moderate pace over the last two years of the interval relative to U.S. costs, however, and by 1984 were close to 19 per cent below U.S. levels.

Canadian unit labour costs were far higher than those in the U.S. throughout the entire period, despite the fact that Canadian productivity levels were 90 to 100 per cent of U.S. values from 1978 onwards. The worst year for domestic producers was 1975 when unit labour costs were three times as high as those in the U.S. That was also the year in which labour productivity levels dropped to about 50 per cent of the U.S. value. By 1984, Canadian unit labour costs were still 196 per cent above U.S. expenditures.

Unit interest and depreciation payments accounted for approximately 6 per cent of total costs in both countries in 1982. Canadian unit costs in 1982 were 15 per cent higher than in the U.S.

⁸ Since Canadian interest and depreciation data is only available to 1982, Canadian shares of total costs are not available after this time.

On an exchange-rate-adjusted basis, Canadian producers were competitive in every year from 1978 onwards except 1982. In 1984, Canadian costs were 24 per cent below U.S. levels.

FISHING, HUNTING AND TRAPPING

This industry maintained a substantial competitive edge over the U.S. sector from 1971 to 1981. By the end of the period, however, total unit costs in Canada were 4 per cent above U.S. levels.

Unit material costs accounted for 57 per cent of total Canadian costs and 78 per cent of total U.S. costs in 1982. Throughout the 1970's, Canadian unit material costs were on average 47 per cent below U.S. expenditures. This cost-gap began to narrow after 1980, however, and by 1984 Canadian unit material costs were 28 per cent lower than in the U.S.

Canadian unit labour costs were significantly higher over the entire period, increasing to a level of 274 per cent above U.S. costs by 1984. The average annual rate of increase from 1971 to 1984 was 11.1 per cent in Canada, compared to 6.2 per cent in the U.S.

Unit interest costs plus depreciation increased by 83 per cent in Canada from 1980 to 1981 accounting for almost 9 per cent of total domestic expenditures. In 1982, Canadian costs in this area were 30 per cent higher than in the U.S.

On an exchange-rate-adjusted basis, domestic producers were more cost-competitive than U.S. producers over the entire period. In 1984, Canadian total unit costs were 24 per cent below U.S. levels.

METAL MINES

Total unit costs for the Canadian Metal Mines industry were 25 to 30 per cent below those for the U.S. throughout the 1970's. Although domestic producers maintained their cost advantage in all years except 1983, the cost-gap between the two countries narrowed over the 1980's, and by 1984 Canadian unit costs were only 5 per cent lower than those in the U.S.

In 1971, domestic unit material costs were 42 per cent below U.S. levels. They grew at an average annual rate of 13.9 per cent, however, compared to a rate of 8.6 per cent in the U.S. While both countries experienced very large cost increases for a number of years, U.S. costs decreased by 18 per cent from 1980 to 1984 while Canadian costs jumped by 62 per cent during the same period. Consequently, unit material costs were 22 per cent higher in Canada by 1984.

Although unit labour costs were lower in Canada over the entire period, the advantage held by domestic producers began to diminish in 1981 as Canadian costs increased on a year-over-year basis by 17.2 per cent more than in the U.S. From 1982 to 1984, however, Canadian expenditures in this area decreased by 20 per cent compared to a 2 per cent increase in the U.S. This left Canadian unit labour costs 32 per cent lower than U.S. costs by the end of the interval. Canadian labour also proved to be more efficient than in the U.S. from 1973 onwards, with productivity levels that were approximately 10 per cent higher than in the U.S. in 1984.

While unit interest payments only accounted for 6.7 per cent of total Canadian unit costs in 1972, this share had increased to 13.6 per cent by 1982. The average annual rate of growth for domestic costs over this period was 18.3 per cent, with incredible increases being posted in 1981 and 1982. In 1982, Canadian unit interest payments were 241 per cent above U.S. levels.

On an exchange-rate-adjusted basis, Canadian producers maintained their cost advantage throughout the period. Although cost differences between the two countries began to narrow from 1981 to 1983, Canadian costs were still 36 per cent below U.S. expenditures in 1984.

MINERAL FUELS

The Canadian Mineral Fuels sector has been at a total cost disadvantage relative to the U.S. industry since 1975. Faster rates of growth in both unit material and labour costs over the period raised domestic costs to a level of 32 per cent above U.S. costs by 1984 (pre-exchange-adjustment).

Unit material costs accounted for 63 per cent of total input costs in Canada and 38 per cent in the U.S. in 1982. While material costs grew at a rapid pace over the interval in the U.S. (with average annual growth of 15.3 per cent), they increased even more dramatically in Canada (with average annual growth of 20.7 per cent). By 1984, Canadian unit material costs were 90 per cent higher than in the U.S.

Unit labour costs accounted for 12 and 23.5 per cent of total factor costs in Canada and the U.S. respectively in 1982. Over the 1970's, domestic unit labour costs were, on average, 50 per cent below U.S. levels. While both countries experienced very high increases in this area throughout the period, the average annual rate of growth in Canada (1971 to 1984) was 2.1 per cent higher than in the U.S. While domestic producers retained their competitive advantage over the entire period, the cost-gap narrowed from 1980 onwards. In particular, in 1983 and 1984 unit labour costs declined in both countries, but by a more significant amount in the U.S. This left domestic costs only 23 per cent below U.S. levels in 1984. Canadian labour was very productive relative to labour in the U.S. over the 1970's. However, efficiency rates had dropped to about 90 per cent of the U.S. level by 1981, and only increased gradually over the remainder of the interval.

Unit gross indirect taxes accounted for 13.6 per cent of total U.S. costs in 1982, compared to only 5 per cent in Canada. Unit tax payments escalated dramatically in the U.S. in 1980 and 1981 (212 and 116 per cent respectively over the previous year). They fell approximately 22 per cent in each of the following two years, however, and by 1984 were 60 per cent higher than similar Canadian payments.

On an exchange-rate-adjusted basis, this sector was slightly less cost-competitive than the U.S. sector in 1983 and 1984.

NON-METAL MINES AND QUARRIES

Total unit costs for the two countries were fairly comparable until 1977, when Canadian costs rose 12 per cent above U.S. levels (pre-exchange-rate-adjustment). Domestic producers remained at a cost disadvantage for the remainder of the period, and in 1984 faced total unit costs that were almost 18 per cent higher than in the U.S.

Unit material costs, which historically accounted for approximately 50 per cent of total input costs in the two countries, increased at an average annual rate of 12 per cent in Canada compared to 10 per cent in the U.S. While domestic costs tended to be lower over the early 1970's, they were 7 and 3 per cent higher in 1980 and 1981 respectively. A large 18 per cent decrease in U.S. material costs in 1984 brought Canadian expenditures 46 per cent above U.S. levels in that year.

Domestic unit labour costs, which accounted for approximately 35 per cent of total Canadian costs each year, were below U.S. levels until 1975 when several years of phenomenal cost growth completely eliminated Canada's competitive position in this area. By 1983, unit labour costs were 22 per cent higher than in the U.S. This situation reversed in 1984, when Canadian costs declined 17 per cent while comparable U.S. costs increased 11.5 per cent. This left Canadian unit labour costs 9 per cent lower than U.S. costs. Canadian labour was extremely efficient, posting productivity levels over the period that were two to five times as high as in the U.S.

Canadian unit interest payments increased 429 per cent from 1979 to 1982, representing 7.9 per cent of total costs in 1982. While the average annual rate of growth for comparable U.S. payments was also high over the same period, Canadian costs were 287 per cent above those in the U.S. in 1982. U.S. expenditures in this area only accounted for 2.5 per cent of total costs in that year.

Unit depreciation payments in 1982 accounted for 8 per cent of total input costs in Canada and 11.8 per cent in the U.S. In 1982, U.S. payments were 14 per cent higher than in Canada.

On an exchange-rate-adjusted basis, Canadian total unit costs were lower from 1978 onwards and were 9 per cent below U.S. levels in 1984.

FOOD AND BEVERAGES

The Canadian Food and Beverage industry lost its competitive edge in 1975, and total unit costs continued to rise above U.S. levels throughout the remainder of the period. By 1984, they were 27 per cent higher than in the U.S. (pre-exchange-rate-adjusted).

Unit material costs represented about 30 per cent of total costs in both countries over the period. While domestic producers held an advantage in this area in the early 1970's and were fairly competitive from 1975 to 1978, relatively higher growth rates were posted for Canadian material costs from 1978 onwards. The average annual rate of growth over the entire period was 3.9 per cent in Canada compared to 6 per cent in the U.S. By 1984, unit material costs in Canada were 34 per cent higher than in the U.S.

Domestic unit labour costs were consistently above U.S. levels throughout the entire period. The cost-gap between the two countries continued to expand every year, and by 1983 Canadian unit labour costs were 60 per cent higher than in the U.S. In 1984, however, U.S. costs increased by 38 per cent compared to a 1 per cent increase in Canada, leaving Canadian costs only 16 per cent above U.S. levels. Canadian labour was less productive than in the U.S. throughout the period, fluctuating within a range of 55 to 60 per cent of U.S. values.

Canadian unit interest payments increased much more dramatically than in the U.S., but accounted for less than 3 per cent of total costs in both countries in 1982. U.S. tax payments were significantly higher than in Canada throughout the period, but like interest payments, only represented a small portion of total costs in both countries.

On an exchange-rate-adjusted basis, costs were brought more in line between the two countries after 1976. In 1984, the Canadian industry held a slight cost advantage, with total unit costs 1.2 per cent lower than those in the U.S.

TOBACCO PRODUCTS

This sector was very cost-competitive over the entire period, particularly from 1982 onwards. In 1984, total unit costs were 23.7 per cent below U.S. levels (pre-exchange-rate-adjustment).

Purchases of materials accounted for approximately 75 per cent of total input costs in Canada and 68 per cent in the U.S. in 1982. Canadian expenditures in this area were higher than in the U.S. until 1982, when cost increases began to moderate in Canada, but continued at double-digit rates in the U.S. By 1984, U.S. costs were 23 per cent above domestic costs.

Unit labour costs historically accounted for approximately 20 per cent of total costs in Canada and 10 per cent in the U.S. Canadian costs were consistently higher than U.S. costs throughout the interval and in 1984, U.S. producers had a 38 per cent advantage in this area. Canadian labour productivity was very low relative to the U.S. over the whole period and was only 50 per cent of the U.S. level in 1984.

In 1982, unit tax payments accounted for 13 per cent of total costs in the U.S. and less than 1 per cent in Canada. Costs were substantially higher in the U.S. over the entire period and by 1984, U.S. unit tax payments were 94 per cent higher than Canadian levels.

On an exchange-rate-adjusted basis, the Canadian industry was in a very favourable position from 1977 onwards. In 1984, domestic producers held a 70 per cent cost advantage over the U.S. industry.

RUBBER AND PLASTICS PRODUCTS

This industry was more competitive than the U.S. industry until 1980, after which time domestic costs exceeded U.S. levels by approximately 3 to 10 per cent (pre-exchange-adjusted).

Unit material costs increased significantly in 1974 in both countries (33 per cent in Canada and 36 per cent in the U.S.) and began to escalate again in 1979. Canadian cost changes from 1979 to 1980 were more pronounced than in the U.S., however, and from 1980 to 1981 domestic cost increases were 3.3 per cent higher than in the U.S.

Domestic unit labour costs fluctuated above and below U.S. levels until 1981, after which time they remained above U.S. costs until the end of the period. From 1979 to 1982, costs increased by a rate of 57 per cent in Canada versus 18 per cent in the U.S., raising Canadian labour costs 23 per cent above U.S. levels in 1982. Canadian unit labour costs decreased in 1983 and 1984, however, leaving domestic costs only 6 per cent higher than those in the U.S. in 1984. Canadian labour productivity continued to improve over the period, and by 1984 was almost at the same level as in the U.S.

Unit gross indirect taxes were substantially higher in the U.S. over the entire period, but only accounted for 2 per cent of total U.S. expenditures in 1984. Canadian unit depreciation payments grew at a much higher rate than in the U.S., but accounted for a very small portion of total unit costs in both countries.

On an exchange-rate-adjusted basis, the domestic industry maintained a favourable cost position throughout the entire period. In 1984, total unit costs were 23 per cent below U.S. levels.

LEATHER INDUSTRIES

This sector was at a distinct cost disadvantage over the entire interval, particularly from 1982 onwards (pre-exchange-adjusted). The average annual rate of growth over the 1971 to 1984 interval for total costs was 3 per cent in Canada and 6.6 per cent in the U.S. In 1984, Canadian costs exceeded U.S. levels by almost 15 per cent.

Unit material costs accounted for about 60 to 65 per cent of total costs in both countries. Domestic expenditures in this area were above U.S. levels from 1973 onwards. While both countries experienced sharp increases in 1972 and 1979, the average annual growth rate over the entire period was 2.4 per cent higher in Canada. While Canadian costs increased moderately in 1982 (5.3 per cent), U.S. expenditures declined by 6 per cent that year, leaving Canadian costs close to 25 per cent above U.S. levels. U.S. costs continued to decline in 1983 and 1984, giving U.S. producers a 61 per cent advantage by the end of the period.

Unit labour costs were about 10 per cent above U.S. levels in the early 1980's. In 1984, however, Canadian costs declined by 10 per cent while similar U.S. costs increased by a rate of 42 per cent. This gave Canadian producers a 30 per cent cost advantage over their U.S. counterparts. Although relative Canadian labour productivity was low in the early part of the period, it had increased to over 90 per cent of U.S. values by 1984.

Canadian unit interest payments rose dramatically from 1979 to 1981, and were 245 per cent higher than similar U.S. payments in 1982. However, these costs only accounted for 3.5 per cent of total Canadian costs in that year.

After adjusting for the exchange rate, Canadian producers were cost-competitive from 1973 to the end of the period, with costs 13 per cent below those in the U.S. in 1984.

TEXTILE INDUSTRIES

The Canadian Textile Industry was very cost-competitive on a total-cost basis (pre-exchange-adjustment) until 1977. Cost differences between the two countries began to expand after that time, and by 1984 Canadian costs were 24 per cent above those in the U.S.

Domestic unit material costs (which on average accounted for approximately 65 per cent of total outlays in Canada and 75 per cent in the U.S.) remained substantially below U.S. levels until the latter half of the 1970's. The average annual rate of growth over the entire period was 2.3 per cent higher in Canada, however, and, as a result, domestic expenditures in this area were 2 per cent above U.S. levels by 1984.

Unit labour costs in Canada remained above those in the U.S., and grew at a much faster pace over the entire period. A large cost increase in Canada in 1982, combined with a 20 per cent cost decline in the U.S. in 1983, brought domestic unit labour costs 123 per cent above U.S. levels by 1983. Relative Canadian labour productivity declined from 1979 onwards and was less than 70 per cent of the U.S. level in 1984.

Domestic unit depreciation payments were 106 per cent higher than those in the U.S. in 1982, and domestic unit interest payments were 278 per cent higher. These two costs combined accounted for 6.7 per cent of total Canadian expenditures in 1982.

On an exchange-rate-adjusted basis, Canadian producers were cost-competitive in all years and total unit costs for the domestic industry were 4.2 per cent lower than in the U.S. by 1984.

KNITTING MILLS

In the first half of the 1970's, total unit costs for Canadian Knitting Mills were in the range of 4 to 14 per cent below those in the U.S. costs (pre-exchange-rate-adjustment). Canadian producers not only lost this advantage in 1976, but the cost difference between the two countries continued to increase after that time. By 1984, total unit costs for domestic manufacturers were 14 per cent above U.S. levels.

Canadian material and labour costs historically accounted for about 65 and 30 per cent of total expenditures respectively, as compared to 80 and 15 per cent in the U.S. Unit material costs were on average 23 per cent lower for domestic producers throughout the 1970's. Canadian unit material costs grew at an average annual rate of 5.3 per cent, however, compared to 2.9 per cent in the U.S., significantly eroding this advantage by the end of the interval.

Canadian unit labour costs remained more than 100 per cent above U.S. costs throughout the entire period. Canadian labour in this sector was not as efficient as U.S. labour; domestic labour productivity was less than 50 per cent of U.S. levels in 1984.

While overall growth in taxes and depreciation payments was relatively small in Canada compared to the U.S., interest payments in both countries increased substantially over the period. Interest payments accounted for less than 3 per cent of total costs in Canada in 1982, however, and only 1.3 per cent in the U.S.

On an exchange-rate-adjusted basis, Canadian producers maintained a cost advantage in all years except 1976, with total unit costs being 14 per cent below U.S. levels in 1984.

CLOTHING

Canadian Clothing manufacturers have faced higher total costs since 1974 (pre-exchange-rate-adjusted). While domestic producers were only at a 5 per cent disadvantage relative to U.S. producers in 1974, total unit costs were 23 per cent higher by 1984. This was due to the fact that Canadian expenditures for labour and materials grew at average annual rates of 6.6 and 7.3 per cent respectively over this period, as compared to rates of 4.7 per cent for both categories in the U.S.

Unit interest payments grew at a rate of 252 per cent in Canada and 220 per cent in the U.S. from 1978 to 1982. In 1982, they accounted for 2.9 per cent of total Canadian expenditures compared to 1.3 per cent in the U.S.

On an exchange-rate-adjusted basis, Canadian producers held a 5 per cent advantage over the U.S. industry in 1984.

WOOD

The Canadian Wood industry was at a total cost disadvantage relative to the U.S. sector over the entire period, although the cost-gap between the two countries fluctuated substantially from year to year.

Total unit material costs accounted for approximately 64 per cent of total factor input costs in both countries in 1982. Changes in this area were quite erratic over the period, with very large increases being posted in some years and negative growth occurring in others. The average annual growth rate was approximately 9 per cent in both countries, and Canadian costs were 9.6 per cent above U.S. levels in 1984.

Unit labour costs increased at an average annual rate of 7.6 per cent in Canada compared to only 4.5 per cent in the U.S., leaving domestic unit labour costs 33 per cent above those in the U.S. in 1984. Canadian labour productivity improved over the years and was slightly above the U.S. rate in 1984.

U.S. unit depreciation payments were 27 per cent above those in Canada in 1982. They declined by 26 per cent in 1983, however, and by 1984 accounted for less than 4 per cent of total U.S. costs.

On an exchange-rate-adjusted basis, Canadian producers held an 13 per cent cost advantage in 1984.

FURNITURE AND FIXTURES

After 1973, total unit costs (pre-adjusted) for domestic producers were higher, and grew at a faster pace, than those in the U.S. Total Canadian expenditures grew at an average annual rate of 3.5 per cent over the interval, compared to 6.6 per cent in the U.S., giving U.S. producers a 16 per cent cost advantage by 1984.

Material and labour costs accounted for close to 95 per cent of total input costs in both countries, thus dominating the picture. Costs for both categories were above U.S. levels from 1974 onwards; in 1983, Canadian unit material costs were 12.7 per cent higher than in the U.S. The difference between the two countries was only 9 per cent in 1984, however, as U.S. costs increased 12.8 per cent in that year compared to 3.3 per cent in Canada.

Unit labour costs increased at an average annual rate over the period of 3.1 per cent in Canada compared to 5.4 per cent in the U.S. By 1982, Canadian costs were 36 per cent above U.S. levels. The cost differences between the two countries decreased the following year as Canadian labour costs declined by 8 per cent compared to a decline of 1.5 per cent in the U.S. While costs in both countries continued to fall in 1984, those in the U.S. fell by a larger amount, making unit labour costs in Canada 31 per cent higher than in the U.S. in that year. Canadian labour productivity improved over the period, rising from approximately 60 per cent of U.S. levels in 1971 to close to 85 per cent in 1984.

Unit interest payments were substantially higher in Canada throughout the entire period (444 per cent higher in 1982), and increased at a much faster pace. In 1982, interest costs accounted for 3 per cent of total Canadian costs while representing less than 1 per cent of total costs in the U.S.

On an exchange-rate-adjusted basis, Canadian producers had lower total unit costs than the U.S. industry in 1983 and 1984. In 1984, domestic costs were 1.2 per cent below U.S. levels.

PAPER AND ALLIED INDUSTRIES

Total costs (pre-exchange-rate-adjustment) for the Canadian Paper and Allied industry were higher than comparable U.S. costs over the entire period. Purchases of materials represented the largest expenditure category in both countries, accounting for approximately 63 per cent of total costs in Canada and 45 per cent in the U.S. in 1982. Canadian material costs were, on average, 80 per cent higher than U.S. costs over the 1970's. The difference between the two countries narrowed somewhat in the early 1980's, however, and by 1984 domestic costs were 69 per cent above U.S. levels.

Unit labour costs for the Canadian industry were much lower than those in the U.S. throughout the period concerned, although they increased at an average annual rate that was 1.6 per cent higher than in the U.S. In 1984, Canadian producers still held a 32 per cent cost advantage in this area. Canadian labour efficiency rates were very close to the U.S. levels from 1971 to 1973. Productivity fell significantly, however, from 1973 to 1975, and did not reach U.S. levels again until 1980. Over the early 1980's, Canadian productivity levels fluctuated between 0 to 10 per cent below U.S. values.

On an exchange-rate-adjusted basis, total costs were 9 per cent below U.S. values in 1984.

PRINTING AND PUBLISHING

Total unit costs were very similar between the two countries (pre-exchange-rate-adjustment) until 1981, when Canadian material and labour costs began to increase more rapidly than those in the U.S. Unit material costs, which accounted for 51 per cent of total input costs in Canada and 60 per cent in the U.S. in 1982, were lower for domestic producers over the entire period. Both countries experienced high increases in this area in 1974 (of approximately 20 per cent) and again in the 1979 to 1980 period (of 10 to 13 per cent). Beginning in 1979, growth in Canadian material costs began to outpace that in the U.S., leaving domestic unit material costs only 2.3 per cent below U.S. levels by 1984.

Unit labour costs increased significantly in both countries in 1974 and 1975, and again in Canada in 1981 and 1982. In 1971, Canadian unit labour costs were only 5 per cent higher than in the U.S., while by 1983 they were 36 per cent higher. Canadian costs declined by 6.7 per cent in 1984, however, bringing domestic costs within 2 per cent of U.S. levels. Canadian labour productivity improved steadily over the 1970's, climbing from about 65 per cent of the U.S. value in 1971 to over 85 per cent in 1980. Canada lost ground in this area over the next few years, however, and relative productivity did not begin to improve again until 1983.

Both countries experienced high increases in interest and depreciation rates in the late 1970's and early 1980's. In 1982, total interest and depreciation charges were 60 per cent higher in Canada than in the U.S. These charges accounted for 7 per cent of total Canadian costs, and 3 per cent of total U.S. costs, in 1982.

On an exchange-rate-adjusted basis, Canadian producers had a total cost advantage after 1976. In 1984, total unit costs for domestic producers were 31 per cent below U.S. levels.

PRIMARY METAL INDUSTRIES

Total unit costs for Canadian producers (pre-exchange-rate-adjustment) were higher than U.S. expenditures from 1973 onwards. This cost disadvantage began to increase in 1980 and by 1984 Canadian total unit costs were 22.6 per cent higher than U.S. levels.

Growth in unit material costs was fairly erratic in both countries over the entire period, although Canadian costs remained higher than U.S. levels after 1977. In 1974, material costs increased by 27 per cent in Canada and 38 per cent in the U.S. Similar increases were posted in 1979, but growth slowed substantially in both countries from 1981 onwards. The average annual rate of growth over the period was 10.2 per cent in Canada compared to 9.4 per cent in the U.S., bringing domestic costs in this area 22.6 per cent above U.S. expenditures in 1984.

Changes in unit labour costs were also fairly erratic over the period with large, double-digit growth rates being posted in a number of years in both countries. Canadian unit costs remained above U.S. levels throughout the entire period, however, and became significantly higher (50.5 per cent) in 1982 when costs jumped by 25 per cent over the previous year compared to an 8 per cent increase in the U.S. Canadian labour costs declined in 1983 and 1984, however, and were only 26 per cent above U.S. levels by the end of the period. Canadian labour productivity fluctuated at levels between 60 and 75 per cent of U.S. values over the entire period.

U.S. unit depreciation payments increased significantly from 1979 onwards, growing by 42 per cent from 1981 to 1982. Canadian depreciation rates also increased rapidly, although not quite as dramatically as in the U.S. Unit interest payments in both countries grew rapidly from 1979 to 1982, increasing by 93 per cent in Canada and 97 per cent in the U.S. Unit interest plus depreciation payments in Canada were 13.6 per cent below U.S. levels in 1982 accounting for 6.3 per cent of total domestic expenditures.

On an exchange-rate-adjusted basis, Canadian producers were competitive from 1977 onwards with costs 6 per cent lower than in the U.S. in 1984.

METAL FABRICATING INDUSTRIES

Canadian producers were competitive in this industry until 1976 (pre-exchange-rate-adjustment), when costs moved close to par with U.S. levels for a period of several years. In 1979, total unit costs in Canada jumped by 17 per cent, becoming 3 per cent higher than those in the U.S. This cost-gap continued to widen until 1983, when total Canadian unit costs were 15 per cent higher than in the U.S. Improvements in domestic material and labour costs eventually helped to reduce this upward climb, and by 1984 Canadian costs were only 9 per cent above U.S. levels.

Although both industries experienced high increases in unit material costs in 1974 (22 per cent in Canada and 33 per cent in the U.S.), Canadian costs continued to grow at double-digit rates in 1975, 1979 and 1980. As a result, by 1984 total unit material costs for domestic manufacturers were 32.5 per cent higher than in the U.S.

Canadian unit labour costs were below U.S. levels over the entire period, but Canada's cost advantage diminished significantly in 1982 when domestic unit labour costs increased 18 per cent over the previous year compared with a 5 per cent rate of increase in the U.S. Canadian costs showed moderate growth in 1983, but declined by 14 per cent in 1984, leaving Canadian unit labour costs 26 per cent below U.S. levels. Canadian labour productivity increased from approximately 65 per cent of the U.S. value in 1971 to over 85 per cent in 1981. Canada's position then deteriorated for several years, but Canadian productivity levels were back to 85 per cent of the U.S. value in 1984.

Canadian unit interest payments more than tripled from 1979 to 1982, while in comparison U.S. payments increased by 63 per cent. Interest payments only accounted for 4 per cent of total expenditures in Canada in 1982, however, and as such did not dramatically affect the industry's competitive position.

On an exchange-rate-adjusted basis, Canadian producers were cost-competitive in all years except 1976. In 1984, Canadian total unit costs were 20 per cent lower than those in the U.S.

MACHINERY

To be forwarded when data anomalies resolved

TRANSPORTATION EQUIPMENT

Canada's Transportation Equipment industry was very uncompetitive from 1971 to 1976, with total unit costs being in the range of 27 to 46 per cent higher than U.S. levels. In 1977, this situation began to reverse, and from 1979 onwards the Canadian sector was at a competitive advantage with respect to U.S. producers. In 1984, total unit costs in Canada were 10 per cent below those in the U.S.

Unit material costs, which accounted for 72 per cent of total costs in both countries in 1982, were much more volatile in the U.S. and increased at a much higher rate over the period. In 1977, in particular, U.S. unit material costs grew at an incredible rate of 77 per cent over the previous year. The average annual growth rate was 9.2 per cent in Canada as opposed to 15.7 per cent in the U.S. As a result, Canadian costs went from being 90 per cent more expensive than U.S. costs in 1971 to .5 per cent more expensive in 1984.

Canadian unit labour costs rose substantially from 1979 to 1982, but then fell by 23 and 12 per cent respectively in 1983 and 1984. U.S. labour costs showed similarly high rates of growth, and on average increased by about 1 per cent more per year than Canadian costs. Domestic producers held a strong advantage in this area throughout the entire period, and costs were 41.5 per cent below U.S. levels in 1984. Canadian labour productivity improved significantly from 1982 to 1984, and was slightly above the U.S. value by the end of the interval.

The exchange-rate adjustment further improved the situation for domestic producers, and in 1984 Canadian costs for this industry were 43 per cent below U.S. costs.

ELECTRICAL PRODUCTS

Although Canadian producers enjoyed lower costs from 1971 to 1974 in this industry, expenditures grew at a much faster pace than in the U.S. after that time. By 1977, domestic costs were 5.5 per cent above those in the U.S., and by 1984 they were 23 per cent higher (pre-exchange-rate-adjustment).

Unit material costs rose sharply in both countries in 1974 (21 per cent in Canada and 20 per cent in the U.S.) and again in 1979 (14 per cent in Canada and 12 per cent in the U.S.). On average, however, Canadian unit material cost increases were 2 per cent higher per year than in the U.S., and by 1984 domestic costs were 29 per cent above U.S. expenditures.

On the labour front, Canadian unit costs were below U.S. costs until 1977. They then began to fluctuate slightly above U.S. levels (5 per cent range) until 1982, when they increased by a rate of 13.7 per cent more than in the U.S. This raised domestic costs 19 per cent above U.S. levels in that year. Canadian unit labour costs declined in 1983, however, and increased by only 4 per cent in 1984, leaving unit costs only 16.5 per cent above those in the U.S. by the end of the period. While domestic labour productivity was close to the U.S. level in 1980, relative efficiency rates dropped dramatically over the next few years leaving Canadian productivity about 85 per cent of the U.S. value in 1984.

In 1982, U.S. depreciation costs were 41 per cent higher than in Canada, and they continued to grow at a very fast pace until 1983. They accounted for 6 per cent of total U.S. costs in 1982, and 3 per cent of total Canadian costs. Unit interest payments were substantially higher in Canada than in the U.S. from 1976 onwards and by 1982 were 337 per cent above U.S. levels. However, they only accounted for 3 per cent of total Canadian costs in 1982.

On an exchange-rate basis, domestic producers were cost-competitive in every year except 1976 and 1983. In 1984, Canadian total unit costs were 5 per cent lower than in the U.S.

NON-METALIC MINERAL PRODUCTS

Total unit costs for the Canadian industry were slightly more than 10 per cent below U.S. costs for the first part of the 1970's. This decreased to a 5 per cent advantage in 1975, and for the next several years costs were very comparable between the two countries. In 1982, however, U.S. producers began to gain a competitive edge and by the end of the period held a 6 per cent total cost advantage. This was principally due to the higher cost increases in Canada for material inputs, which accounted for 55 per cent of total Canadian costs in 1982. The average annual rate of growth over the period for material inputs was 11 per cent in Canada compared to 9 per cent in the U.S. By 1984, Canadian costs in this area were 13 per cent above U.S. levels.

Unit labour costs were lower in Canada until 1982, when domestic costs jumped by 17 per cent compared to a more moderate increase of 7 per cent in the U.S. Growth was negative in 1983 and very small in 1984, however, leaving Canadian costs 13 per cent below U.S. levels at the end of the period. Relative labour productivity was very good in this industry, with Canadian levels being over 96 per cent of U.S. values over the entire period. Canadian efficiency rates peaked in 1980 at about 6 per cent above the U.S. level, but had declined 10 per cent by 1984.

While Canadian unit interest payments only accounted for 2.5 per cent of total costs in 1972, this share had risen to 3.7 per cent by 1982. Costs for this factor increased dramatically over the 1974 to 1978 interval, and again from 1980 to 1982. While U.S. costs also increased sharply over this latter period, they only accounted for 2 per cent of total U.S. expenditures in 1982.

On an exchange-rate-adjusted basis, the Canadian industry was in a very favourable position over the entire interval and in 1984 had a total unit cost advantage of 22 per cent.

PETROLEUM AND COAL

Canadian producers were at a distinct disadvantage on a total cost basis (pre-exchange-rate-adjustment) from 1974 to 1979, and from 1982 onwards. In 1984, total domestic costs were 64 per cent above U.S. levels.

Unit material costs, which historically accounted for close to 90 per cent of total costs in both countries, grew at an average annual rate of 18 per cent in Canada compared to 16.7 per cent in the U.S. From 1981 to 1984, U.S. costs in this area actually declined by 30 per cent, while Canadian costs grew by 25 per cent. By the end of the period, domestic material costs were 65 per cent above U.S. levels.

Unit indirect taxes grew at a phenomenal average annual rate of 37.4 per cent in Canada compared to only 1 per cent in the U.S. This reflected the impact of the Syncrude levy from 1978 to 1980 and other charges that were associated with the National Energy Program. Although they were 110 per cent higher than U.S. unit tax payments in 1984, they only represented 3 per cent of total domestic costs in 1982.

On an exchange-rate-adjusted basis, the situation improved for domestic producers, but total costs still remained 21 per cent above U.S. levels in 1984.

CHEMICAL AND CHEMICAL PRODUCTS

Total costs between the two countries were fairly comparable until 1981 when domestic costs jumped 11.5 per cent above U.S. levels. By 1984, total Canadian costs were 25 per cent higher than in the U.S.

Unit material costs accounted for 73 per cent of total costs in Canada and 67 per cent in the U.S. in 1982. Over the 1971 to 1984 period, the average annual growth rate in Canadian unit material costs was 11.6 per cent compared to 9.3 per cent in the U.S. By 1984, unit material costs for domestic producers were 36 per cent above U.S. costs.

Unit labour costs fluctuated slightly above and below U.S. levels throughout the 1981 to 1984 period, and by the end of the period were 5 per cent lower than those in the U.S. Canadian labour productivity fluctuated between 60 and 70 per cent of U.S. levels over most of the interval, and was only about 65 per cent of the U.S. value in 1982.

U.S. unit depreciation payments grew at an average annual rate of 10.4 per cent over the period. In 1982, they were 33 per cent above Canadian levels. They accounted for 6.7 per cent of total U.S. costs and 3.7 per cent of total Canadian costs in this year.

Unit interest payments increased dramatically over the period in both countries, but were 93 per cent higher in Canada in 1982. They accounted for a very small share of total costs in each country throughout the period.

After adjusting for the exchange rate, Canadian costs were 4 per cent below U.S. levels in 1984.

IRON AND STEEL

The domestic Iron and Steel industry was cost-competitive with the U.S. industry until 1980 (pre-exchange-adjustment). By 1984, total domestic costs were 9 per cent above those in the U.S.

Unit material costs accounted for approximately 60 per cent of total factor costs in both countries in 1982. The average annual rate of growth for this input was 11.5 per cent in Canada compared to 9 per cent in the U.S. While domestic material costs were lower than U.S. costs for most of the 1970's, this higher growth rate in Canada raised domestic costs above U.S. levels throughout the 1980's. Canadian costs increased by 10 per cent from 1982 to 1984, while U.S. costs only increased by 3.9 per cent. This raised domestic costs to a level of 21 per cent above U.S. values in 1984.

Domestic unit labour costs fluctuated above and below U.S. levels throughout the interval. In 1983 and 1984, however, Canadian producers gained an advantage in this area as domestic costs decreased on a year-over-year basis by 11 per cent and 1 per cent respectively in each of these years.

Unit depreciation payments increased dramatically in both countries over the period and were almost at the same level in 1982. Unit interest payments escalated at a much more rapid pace in Canada, however, and were 118 per cent above U.S. payments in 1982. They represented less than 5 per cent of total costs, however, and as such did not significantly affect Canada's competitive position.

On an exchange-rate-adjusted basis, the Canadian industry was more cost-competitive than the U.S. industry over the entire period, with total unit costs being 19 per cent lower than in the U.S. in 1984.

SYNTHETIC TEXTILES

The Canadian industry was more cost-competitive than their U.S. counterpart until 1980 (pre-exchange-adjustment). Total costs were only slightly higher than in the U.S. in 1980 and 1981, but jumped 11.8 per cent above U.S. levels in 1982. This was due to the fact that total unit material costs increased by 5 per cent in Canada in that year, while falling 9.7 per cent in the U.S. Total costs between the two countries were brought back into line in 1983, however, and total Canadian costs were only 3 per cent above U.S. levels in 1984.

Domestic unit interest payments were substantially higher than U.S. levels (187 per cent in 1982) throughout the period and accounted for 4.6 per cent of total Canadian costs in 1982. On the other hand, U.S. unit depreciation payments were significantly higher than in Canada (100 per cent in 1982) and represented 8.5 per cent of total U.S. costs in 1982. The share fell to 5 per cent of total costs by the end of the period, however, as U.S. depreciation payments fell 40 per cent in 1983.

On an exchange-rate-adjusted basis, Canadian producers held an advantage throughout most of the period, with costs being in the range of 17 to 2.6 per cent below U.S. levels from 1980 to 1984.

MOTOR VEHICLE ACCESSORIES & PARTS

To be drafted when data anomalies are resolved.

PULP AND PAPER

The Canadian Pulp and Paper industry was at a cost disadvantage vis-a-vis their U.S. counterparts from 1975 onwards (pre-exchange-adjustment). In 1982 and 1983, total unit costs for the industry were over 25 per cent higher than in the U.S. The cost-gap narrowed somewhat in 1984, however, leaving Canadian producers with total costs 20 per cent above those in the U.S.

In 1982, unit material costs accounted for 61 per cent of total costs in Canada and 74 per cent in the U.S. While Canadian costs in this area were lower than those in the U.S. over the first part of the 1970's, they exceeded U.S. levels for the remainder of the period. Domestic expenditures for this category grew at an average annual rate of 10.7 per cent, compared to 9 per cent in the U.S. By 1984, domestic unit material costs were 9 per cent above U.S. levels.

Unit labour costs accounted for 26 per cent of total Canadian costs in 1982 and 19 per cent in the U.S. Canadian producers were burdened with significantly higher unit labour costs throughout the entire period. From 1980 to 1982, Canadian unit labour costs grew 22.6 per cent more than U.S. costs, leaving domestic costs in 1982 83 per cent higher than in the U.S. Unit labour costs for Canada decreased in 1983 and increased only marginally in 1984, however, leaving Canadian costs only 62 per cent above U.S. levels by the end of the period. Canadian labour was also far less productive than in the U.S., and efficiency rates fell from 85 to approximately 65 per cent of U.S. levels over the period.

Canadian unit interest payments increased dramatically in 1981 and 1982, and were 899 per cent higher than U.S. payments in 1982, accounting for 7 per cent of total Canadian costs. U.S. payments accounted for less than 1 per cent of total U.S. costs throughout the period. Domestic depreciation payments were 63 per cent higher than those in the U.S. in 1982 and accounted for 3.3 per cent of total Canadian costs.

On an exchange-rate-adjusted basis, Canadian costs were 7.7 per cent lower than U.S. costs in 1984.

METAL STAMPING

Canadian producers were at a cost disadvantage over most of the period, and total domestic unit costs began to increase at a much faster pace than in the U.S. from 1979 onwards (pre-exchange-adjustment). By 1984, domestic costs were 45 per cent higher than U.S. levels due to the fact that Canadian unit material costs increased by 41 per cent from 1979 to 1984 compared to a 19 per cent increase in U.S. material costs over the same period. By 1984, Canadian costs in this area were 147 per cent above U.S. levels.

Unit labour costs accounted for 23 per cent of total factor costs in Canada in 1982 and 45 per cent in the U.S. Canadian costs were 40 to 45 per cent below U.S. levels in all years except 1982 and 1983. This was due to the fact that U.S. costs decreased by approximately 2.5 per cent in each of these years, while Canadian costs increased by 21 per cent and 5.5 per cent in 1982 and 1983 respectively. Domestic costs for this input were once again about 40 per cent below U.S. costs by 1984, due to the fact that Canadian unit labour costs fell 20.7 per cent that year. Canadian labour was less efficient throughout the entire period, although domestic productivity rates improved substantially over the 1970's. Although Canadian productivity fell sharply relative to the U.S. in the early 1980's, domestic rates were close to 90 per cent of the U.S. levels by the end of the period.

Unit depreciation payments increased significantly over the interval in the U.S., leaving U.S. costs 45 per cent above Canadian levels in 1982. Depreciation payments accounted for 6 per cent of total U.S. costs in that year and only 2.4 per cent of total Canadian costs.

Unit interest payments grew much more rapidly in Canada, increasing 66 per cent in 1982 and bringing Canadian costs 126 per cent above U.S. payments. This category only accounted for 3 per cent of total Canadian costs at that time.

On an exchange-rate-adjusted basis, Canadian costs were 12 per cent above U.S. levels in 1984.

APPENDIX

CANADIAN DATA DEFINITIONS

Statistics Canada maintains annual, current- and constant-dollar Input-Output (I-O) tables for Canada covering the period 1961 to 1980. An I-O table provides a structural picture of inter-industrial transactions in the Canadian economy. The basic unit of the table is a sector or industry. Sectors use products of other sectors as inputs for their own manufacturing activity; these same sectors distribute their products either to other sectors, where they become inputs into additional production processes (known as intermediate flows), or to a final consumer who uses the product as is.

A three-sector Input-Output table is shown below.

An Input-Output Table For Hypothetical Economy

	Purchases			(4) Final Demand (e.g., Household Consumption)	(5) Gross Production Including Commodities Used Up
	(1) Agriculture	(2) Manufacturing	(3) Services		
Agriculture	150.00	300.00	50.00	400.00	900.00
Manufacturing	250.00	130.00	150.00	600.00	1,150.00
Services	80.00	120.00	50.00	500.00	750.00
Primary Inputs (e.g., Labour)	420.00	580.00	500.00	1,500.00	
Total Value of Inputs	\$ 900.00	1,150.00	\$750.00		\$2,800.00

Total final demands listed in column (4) require the intermediate levels of production in columns (1) to (3). Reading across a row shows all the uses of the product. Reading down a column shows all the inputs required to make the product.

The columns in the table show the value of inputs (or purchases) used for that sector's production process, and the rows list the value of outputs, (that is, that sector's distribution to other sectors or to final consumption). Each sector appears twice in the table — once as a purchaser and once as a seller. Since this is true, and since any increase in output implies a corresponding increase in inputs, an Input-

Output table reflects the inter-relationships of industrial activity throughout the economy.

The tables also include a section for value-added, defined as the difference between the value of the goods produced and the cost of the materials used in producing those goods. Actual Canadian I-O tables are in the form of a 191 by 191 matrix. For each industry, data is captured on the following: inter-industry purchases of materials; expenditures on government goods and services; commodity indirect taxes; subsidies; other indirect taxes; wages and salaries; supplementary labour income; net income of unincorporated business; and, other operating surplus. With the exception of capital-related measures, all of the Canadian data used in the study were retrieved from this source.

To make the data set more manageable, the current-dollar tables were re-aggregated into a 37-sector economy.

Table 1
Canadian Industry Groupings

<u>Sectors Analyzed</u>	<u>Industries Included*</u>
1. Agriculture	1
2. Forestry	2
3. Fishing, Hunting & Trapping	3
4. Metal Mines	4-7
5. Mineral Fuels	8-9
6. Non-Metal Mines & Quarries	10-15
7. Food & Beverage Industries	16-32
8. Tobacco Products Industries	33-34
9. Rubber & Plastics Products Industries	35-38
10. Leather Industries	39-42
11. Textile Industries	43-55
12. Knitting Mills	56-57
13. Clothing Industries	58
14. Wood Industries	59-64
15. Furniture & Fixture Industries	65-68
16. Paper & Allied Industries	69-72
17. Printing & Publishing	73-74
18. Primary Metal Industries	75-82
19. Metal Fabricating Industries	83-91
20. Machinery Industries	92-95
21. Transportation Equipment Industries	96-102
22. Electrical Products Industries	101-110
23. Non-Metallic Mineral Products Industries	111-120
24. Petroleum & Coal Products Industries	121-122
25. Chemical & Chemical Products Industries	123-130
<u>Sectors Not Analyzed, But Contained In Re-Defined Matrix</u>	
26. Miscellaneous Manufacturing	131-137
27. Construction	138-146
28. Transportation & Storage	147-157
29. Communication	158-160
30. Electrical Power Utilities	161
31. Other Utilities	162-163
32. Trade	164-165
33. Finance, Insurance & Real Estate	166-170
34. Education, Health & Business Services	171-183
35. Transportation Margins	187
36. Office Operating, Lab. & Food	184-188, 188, 191
37. Travel, Advertising & Promotion	189-190

* See accompanying Table 2 on Aggregation Parameters.

TABLE 2

AGGREGATION PARAMETERS (INDUSTRIES)

INDUSTRY TITLE	L	M	S	1960 SIC	1970 SIC
0100 AGRICULTURE	1	1	1	01	01
0200 FORESTRY	2	2	2	02	02
0300 FISHING, HUNTING & TRAPPING	3	3	3	03	03
0400 GOLD MINES	4	4	4	04	04
0500 URANIUM MINES	5	5	5	05	05
0600 IRON MINES	6	6	6	06	06
0700 BASE METAL & OTHER METAL MINES	7	7	7	07	07
0800 COAL MINES	8	8	8	08	08
0900 PETROLEUM & GAS WELLS	9	9	9	09	09
1000 ASBESTOS MINES	10	10	10	10	10
1100 SYNGAS MINES	11	11	11	11	11
1200 SALT MINES	12	12	12	12	12
1300 OTHER NON METAL MINES	13	13	13	13	13
1400 QUARRIES & SAND PITS	14	14	14	14	14
1500 SERVICES INCIDENTAL TO MINING	15	15	15	15	15
1600 SLAUGHTERING & MEAT PROCESSORS	16	16	16	16	16
1700 POULTRY PROCESSORS	17	17	17	17	17
1800 DAIRY FACTORIES	18	18	18	18	18
1900 FISH PRODUCTS INDUSTRY	19	19	19	19	19
2000 FRESH FRUIT & VEGETABLE PROCESSING	20	20	20	20	20
2100 FEED WFGS	21	21	21	21	21
2200 FLUR & BREAKFAST CEREALS IND.	22	22	22	22	22
2300 BEVERAGE WFGS	23	23	23	23	23
2400 BAKERIES	24	24	24	24	24
2500 CONFECTIONERY WFGS	25	25	25	25	25
2600 SUGAR REFINERIES	26	26	26	26	26
2700 VEGETABLE OIL MILLS	27	27	27	27	27
2800 MISCELLANEOUS FOOD INDUSTRIES	28	28	28	28	28
2900 SOFT DRINK WFGS	29	29	29	29	29
3000 DISTILLERIES	30	30	30	30	30
3100 BREWERIES	31	31	31	31	31
3200 WINERIES	32	32	32	32	32
3300 LEAF TOBACCO PROCESSING	33	33	33	33	33
3400 TOBACCO PRODUCTS WFGS	34	34	34	34	34
3500 RUBBER FOOTWEAR WFGS	35	35	35	35	35
3600 TIRE & TUBE WFGS	36	36	36	36	36
3700 OTHER RUBBER INDUSTRIES	37	37	37	37	37
3800 PLASTIC FABRICATORS, NEE	38	38	38	38	38
3900 LEATHER TANNERIES	39	39	39	39	39
4000 SHOE FACTORIES	40	40	40	40	40
4100 LEATHER GLOVE FACTORIES	41	41	41	41	41
4200 SMALL LEATHER GOODS WFGS	42	42	42	42	42
4300 COTTON YARN & CLOTH MILLS	43	43	43	43	43
4400 WOOL YARN & CLOTH MILLS	44	44	44	44	44
4500 SYNTHETIC TEXTILE MILLS	45	45	45	45	45
4600 FIBRE PREPARING MILLS	46	46	46	46	46
4700 THREAD MILLS	47	47	47	47	47
4800 CORDAGE & TWINE INDUSTRY	48	48	48	48	48
4900 NARROW FABRIC MILLS	49	49	49	49	49
5000 PASSED & PUNCHED FELT MILLS	50	50	50	50	50
5100 CARPET, MAT & RUG INDUSTRY	51	51	51	51	51
5200 TEXTILE DYING & FINISHING	52	52	52	52	52
5300 CANVAS PRODUCTS INDUSTRY	53	53	53	53	53
5400 COTTON & JUTE BAG INDUSTRY	54	54	54	54	54
5500 MISCELLANEOUS TEXTILE IND.	55	55	55	55	55
5600 HOSIERY MILLS	56	56	56	56	56
5700 OTHER KNITTING MILLS	57	57	57	57	57
5800 CLOTHING INDUSTRIES	58	58	58	58	58
5900 SAWMILLS	59	59	59	59	59
6000 VENEER & PLYWOOD MILLS	60	60	60	60	60
6100 SASH & DOOR & PLANING MILLS	61	61	61	61	61
6200 WOODEN BOX FACTORIES	62	62	62	62	62
6300 COFFIN & CASKET INDUSTRY	63	63	63	63	63
6400 MISCELLANEOUS WOOD INDUSTRIES	64	64	64	64	64
6500 HOUSEHOLD FURNITURE INDUSTRY	65	65	65	65	65
6600 OFFICE FURNITURE INDUSTRY	66	66	66	66	66
6700 OTHER FURNITURE INDUSTRIES	67	67	67	67	67
6800 ELECTRIC LAMP & SHADE INDUSTRY	68	68	68	68	68
6900 PULP & PAPER INDUSTRY	69	69	69	69	69
7000 ASPHALT AND RELATED PRODUCTS	70	70	70	70	70
7100 PAPER BOX & BAG WFGS	71	71	71	71	71
7200 OTHER PAPER CONVERTERS	72	72	72	72	72
7300 PRINTING & PUBLISHING	73	73	73	73	73
7400 ENGRAVING, STELEOTYPING AND	74	74	74	74	74
7500 IRON & STEEL INDUSTRY	75	75	75	75	75
7600 STEEL PIPE & TUBE MILLS	76	76	76	76	76
7700 IRON FOUNDRIES	77	77	77	77	77
7800 ALUMINUM SMELTING & REFINING	78	78	78	78	78
7900 OTHER SMELTING & REFINING	79	79	79	79	79
8000 ALUMINUM ROLLING & EXTRUDING	80	80	80	80	80
8100 COPPER & ALLOY ROLLING	81	81	81	81	81
8200 METAL CASTING & EXTRUDING NEE	82	82	82	82	82
8300 BOILER & PLATE WORKS	83	83	83	83	83
8400 FABRICATED STRUCT. METAL IND.	84	84	84	84	84
8500 ORNAMENTAL & ARCH. METAL IND.	85	85	85	85	85
8600 METAL STAMP, PRESS & COATING	86	86	86	86	86
8700 WIRE & WIRE PRODUCTS WFGS	87	87	87	87	87
8800 HARDWARE TOOL & CUTLERY WFGS	88	88	88	88	88
8900 HEATING EQUIPMENT WFGS	89	89	89	89	89
9000 MACHINE SHOPS	90	90	90	90	90
9100 MISC. METAL FABRICATING AND	91	91	91	91	91
9200 AGRICULTURAL IMPLEMENT AND	92	92	92	92	92
9300 MISC. MACHINERY & EQUIP. WFGS	93	93	93	93	93
9400 COMM. EQUIP. & AIR COND. WFGS	94	94	94	94	94
9500 OFFICE & STORE MACHINERY WFGS	95	95	95	95	95
9600 AIRCRAFT & PARTS WFGS	96	96	96	96	96

AGGREGATION PARAMETERS (INDUSTRIES)

INDUSTRY TITLE	L	M	S	1959 SIC	1970 SIC
0870 MOTOR VEHICLE MFGS.	77	01	1	371	371
0880 TRUCK BODY & TRAILER MFGS.	77	01	1	372	372
0890 MOTOR VEH. P.T.S. & ACCESS. MFGS.	77	01	1	373	373
1000 RAILROAD ROLLING STOCK IND.	35	01	4	351	351
1010 SHIPBUILDING & REPAIR	37	01	3	371	371
1020 MISC. TRANSP. EQUIP. IND.	37	01	3	372	372
1030 SMALL ELECTRICAL APPLIANCES	36	01	3	361	361
1040 MAJOR APPLIANCES ELECT. & NON.	36	01	3	362	362
1050 RADIO & TELEVISION RECEIVERS	36	01	3	363	363
1060 COMMUNICATIONS EQUIPMENT MFGS.	36	01	3	364	364
1070 MFGS. OF ELECT. IND. EQUIP.	36	01	3	365	365
1080 BATTERY MFGS.	36	01	3	366	366
1090 MFGS. OF ELECTRIC WIRE & CABLE	36	01	3	367	367
1100 MFGS. OF MISC. ELECT. PRODUCTS	36	01	3	368	368
1110 CEMENT MFGS.	27	01	1	271	271
1120 LIME MFGS.	27	01	1	272	272
1130 CONCRETE PRODUCTS MFGS.	27	01	2	273	273
1140 READY-MIX CONCRETE MFGS.	27	01	2	274	274
1150 CLAY PRODUCTS MFGS.	26	01	1	261	261
1160 REFRACTORIES MFGS.	26	01	2	262	262
1170 STONE PRODUCTS MFGS.	20	01	1	201	201
1180 OTHER NON-METALLIC PRODUCTS IND.	20	01	2	202	202
1190 GLASS & GLASS PRODUCTS MFGS.	26	01	3	263	263
1200 ABRASIVES MFGS.	26	01	4	264	264
1310 PETROLEUM REFINERIES	13	01	1	131	131
1320 OTHER PETROL. & COAL PROD. IND.	13	01	2	132	132
1330 MFGS. OF MIXED FERTILIZERS	28	01	2	282	282
1340 MFGS. OF PLAST. SYNTH. RES.	28	01	3	283	283
1350 MFGS. OF PHARM. & MEDICINES	28	01	4	284	284
1360 PAINT & VARNISH MFGS.	28	01	5	285	285
1370 MFGS. OF SOAP & CLEANING COMP.	28	01	6	286	286
1380 MFGS. OF TOILET PREPARATIONS	28	01	7	287	287
1390 MFGS. OF INDUSTRIAL CHEMICALS	28	01	8	288	288
1400 OTHER CHEMICAL INDUSTRIES	28	01	9	289	289
1410 SCIENT. & PROP. EQUIP. MFGS.	38	01	1	381	381
1420 JEWELRY & SILVERWARE MFGS.	35	01	3	353	353
1430 BROOM BRUSH & MOP INDUSTRY	26	01	4	264	264
1440 SPORTING GOODS & TOY INDUSTRY	30	01	3	303	303
1450 LINOLEUM & COATED FABRICS IND.	26	01	5	265	265
1460 SIGNS & DISPLAYS INDUSTRY	26	01	6	266	266
1470 MISC. MANUFACTURING IND. NES	20	01	9	209	209
1500 REPAIR CONSTRUCTION	15	01	9	159	159
1600 RESIDENTIAL CONSTRUCTION	15	01	2	152	152
1700 NON-RESIDENTIAL CONSTRUCTION	15	01	3	153	153
1800 ROAD HIGHWAY AIRSTRIP CONST.	15	01	4	154	154
1900 GAS AND OIL FACILITY CONST.	13	01	4	134	134
2000 DAMS AND IRRIGATION PROJECTS	14	01	4	144	144
2100 RAILWAY TELEPHONE TELEGRAPH COM.	40	01	4	404	404
2200 OTHER ENGINEERING CONSTRUCTION	14	01	5	145	145
2300 CONSTRUCTION OTHER ACTIVITIES	14	01	9	149	149
4000 AIR TRANSPORT	40	01	1	401	401
4100 SERVICES INCIDENTAL TO TRANSP.	40	01	2	402	402
4200 WATER TRANSPORT	40	01	3	403	403
4300 RAILWAY TRANSPORT	40	01	4	404	404
4400 TRUCK TRANSPORT	40	01	5	405	405
4500 BUS TRANSP. INTERURBAN & RURAL	40	01	6	406	406
4600 URBAN TRANSIT SYSTEMS	40	01	7	407	407
4700 TAXICAB OPERATIONS	40	01	8	408	408
4800 PIPELINE TRANSPORT	40	01	9	409	409
5000 HIGHWAY & BRIDGE MAINTENANCE	15	01	9	159	159
5100 STORAGE	13	01	3	133	133
5200 RADIO & TV BROADCASTING	48	01	1	481	481
5300 COMMUNICATION INDUSTRIES NES	48	01	2	482	482
8000 POST OFFICE	80	01	1	801	801
8100 ELECTRIC POWER	49	01	1	491	491
8200 GAS DISTRIBUTION	49	01	2	492	492
8300 WATER & OTHER UTILITIES	49	01	3	493	493
8400 WHOLESALE TRADE	54	01	1	541	541
8500 RETAIL TRADE	54	01	2	542	542
8600 OWNER OCCUPIED DWELLINGS	80	01	2	802	802
8700 GOVT. ROYALTIES ON NAT. RESOURCES	80	01	3	803	803
8800 BANKS AND CREDIT UNIONS	60	01	1	601	601
8900 INSURANCE	60	01	2	602	602
1700 OTHER FIN. INS. & REAL ESTATE	60	01	3	603	603
7100 EDUCATION & RELATED SERVICES	80	01	2	802	802
7200 HOSPITALS	80	01	3	803	803
7300 HEALTH SERVICES	80	01	4	804	804
7400 MOTION PICTURE THEATRES	79	01	1	791	791
7500 OTHER RECREATIONAL SERVICES	79	01	2	792	792
7600 PROF. SERVICES TO BUSINESS	80	01	3	803	803
7700 ADVERTISING SERVICES	80	01	4	804	804
7800 LAUNDRIES & CLEANERS	80	01	5	805	805
7900 ACCOMMODATION & FOOD SERVICES	80	01	6	806	806
8000 OTHER PERSONAL SERVICES	80	01	7	807	807
8100 PHOTOGRAPHY	80	01	8	808	808
8200 MISC. REPAIR & MAINTENANCE	80	01	9	809	809
8300 MISC. SERVICES TO BUS. & PERS.	80	01	0	800	800
8400 OPERATING SUPPLIES	80	01	1	801	801
8500 OFFICE SUPPLIES	80	01	2	802	802
8600 CATERING RESTA.	80	01	3	803	803
8700 TRANSPORTATION MARGINS	80	01	4	804	804
8800 LABORATORY SUPPLIES	80	01	5	805	805
8900 TRAVEL & ENTERTAINMENT	80	01	6	806	806
9000 ADVERTISING & PROMOTION	80	01	7	807	807
9100 MACHINERY REPAIR SERVICES	80	01	8	808	808

A second matrix (5 by 37) was created for the five industry sub-groups: Iron and Steel; Synthetic Textiles; Motor Vehicles Accessories and Parts; Pulp and Paper; and Metal Stamping, Pressing and Coating.

A. Total Material Costs

Total material costs were calculated for each of the 30 industries under evaluation using the I-O data. A historical unit material cost measure was created by dividing total nominal-dollar expenditures for materials in each year by constant-dollar (1971\$) gross output for the overall industry. Since Canadian data is only available to 1980, it was necessary to extrapolate material costs to 1984. This was done by accounting for both price and productivity changes.

Industry selling price indices and proxies thereof were selected from the CANSIM data base and the DRI Canadian model data base for each of the materials used (see Tables 3 and 4). Where necessary, these were re-based to equal 100 in 1971.

Table 3
Industry Selling Price Index 1971=100

INDUSTRY	INDUSTRY SELLING PRICE INDEX 1971=100
AGRICULTURE	NA
FORESTRY	NA
FISH&TRAP	NA
METAL MINES	NA
MIN FUELS	NA
OTHER MINING	NA
FOOD&BEV	D500001
TOBACCO	D511200
RUBBER	D511500
LEATHER	D513400
TEX MILLS	D514500
KNIT MILLS	D516600
CLOTHING	D517501
WOOD IND	D519100
FURNITURE	D523200
PAPER&	D524200
PRINT&PBS	D627120
PRIMARY MET	D527100
METAL FAB	D529400
MACHINERY	D532900
TRANS EQUP	D535801
ELECTRICAL	D537300
NON-METAL	D541400
PET&COAL	D544000
CHEMICALS	D545200
SYNTH TEX	NA
PULP&PAPER	D524201
METAL STMP	D530301
HY&PARTS	D536401
IRON&STEEL	D527101

SOURCE: STATISTICS CANADA MINI BASE, MATRIX 655 THROUGH 674, 964

Table 4
Miscellaneous Generated Prices

MISCELLANEOUS GENERATED PRICES

GPCNFUEL	GENERATED PRICE - CONSUMPTION OF FUEL
GPCOM	GENERATED PRICE - COMMUNICATION
GPEDEBA&	GENERATED PRICE - EDUCATION, HEALTH & BUSINESS
GPFI&R	GENERATED PRICE - FINANCE, INSURANCE & REAL ESTATE
GPPOR	GENERATED PRICE - FORESTRY
GPMISC	GENERATED PRICE - MISCELLANEOUS MANUFACTURING
GPOOLF	GENERATED PRICE - OFFICE, OPERATING, LAB & FOOD
GPPRNT&	GENERATED PRICE - PRINTING, PUBLISHING & ALLIED
GPTAP	GENERATED PRICE - TRAVEL, ADVERTISING & PROMOTION
GPTR&S	GENERATED PRICE - TRANSPORTATION & STORAGE
GPTRADE	GENERATED PRICE - WHOLESALE & RETAIL TRADE
GPTRMAR	GENERATED PRICE - TRANSPORTATION MARGINS
GPUTO	GENERATED PRICE - UTILITIES, OTHER
PAF	PRICE INDEX - AGRICULTURE AT THE FARM (1971=100)
PCNST	PRICE INDEX - CONSTRUCTION INDUSTRY
PELEC	PRICE INDEX - ELECTRICITY
PFISH	PRICE INDEX (CPI) - FISH
FWMIMTL	WHOLESALE PRICE - METALS
FWMINM	WHOLESALE PRICE - NONMETALLIC MINERALS

SOURCE: DRI MACROECONOMIC MODEL DATA BANK, @CANADA/QDATA

Shares of each of the 37 material input purchases to total material expenditures were then calculated by industry. The product of these shares, multiplied by the relevant industry selling price indices, were summed to produce a weighted material price index for each industry. This was set equal to 1 in 1980.

$$\text{Weighted Material Price Index}_{(i)} (1980 = 1) = \sum_{j=1}^{37} \text{share}_{(j)} * \text{price index}_{(j)}$$

where i = industries 1 to 30
j = materials 1 to 37

Technical coefficients, defined as ratios of total real material input costs to total real output by industry, were constructed from the constant-dollar I-O tables. These coefficients, which reflect the changing composition of material input usage across industries over time, were then regressed on an annual time trend over the period 1971 to 1980. Where significant statistical relationships existed, an equation was formed to project the coefficients over the 1981 to 1984 period. In all other instances, they were held constant at 1980 levels. All coefficients were then transformed into an index number set equal to 1 in 1980.

Over the period 1981 to 1984, unit material costs were calculated by multiplying the value of unit material costs in 1980 by the indexed coefficient and the weighted material price index.

$$\text{Unit Material Costs}_{(i)} (1981 \text{ to } 1984) = \text{Unit Material Costs}_{(i)} (1980) * \text{Indexed Coefficient}_{(i)} * \text{Weighted Material Price Index}_{(i)}$$

where i = industries 1 to 30

B. Unit Labour Costs

Over the period 1971 to 1980, unit labour costs for all 30 industries were defined as being the sum of wages, salaries and supplementary labour income divided by real gross output (1971\$). Supplementary labour income includes employer contributions to health/welfare programs, U.I.C. contributions, payments in kind, or irregularly or infrequently paid bonuses, etc. All data was sourced from the I-O tables.

In all but three cases, the technique used to extrapolate these measures over the 1981 to 1984 interval first involved creating a proxy defined as average hourly earnings multiplied by the number of employees (to represent wages, salaries and supplementary labour income)¹ divided by real gross output.

$$\text{Unit Labour Cost Proxy}_{(i)} (1981 \text{ to } 1984) = \frac{\text{Average Hourly Earnings}_{(i)} * \text{Number of Employees}_{(i)}}{\text{Real Gross Output (1971\$)}_{(i)}}$$

where i = industries 1 to 30

Average hourly earnings and employment information was taken from the CANSIM base (see Table 5). Real gross output was assumed to grow at the same rate as the corresponding real domestic product measure available in the CANSIM base (see Table 6). Growth rates were calculated for the proxy over the 1981 to 1984 period, and these rates were applied to the 1980 I-O unit labour cost measure to extrapolate the data to 1984.

¹ Data on number of employee hours was not available.

Table 5

INDUSTRY	GROSS DOMESTIC PRODUCT CONSTANT 1971 PRICES
AGRICULTURE	D141941
FORESTRY	D141942
FISH&TRAP	D141943
METAL MINES	D141945
MIN FUELS	D143829
OTHER MINING	D143832
FOOD&BEV	D141956
TOBACCO	D141969
RUBBER	D141970
LEATHER	D141973
TEX MILLS	D141975
KNIT MILLS	D141978
CLOTHING	D141979
WOOD IND	D141983
FURNITURE	D141987
PAPER&	D141989
PRINT&PUB	D141993
PRIMARY MET	D141996
METAL FAB	D142001
MACHINERY	D142007
TRANS EQUP	D142009
ELECTRICAL	D142016
NON-METAL	D142023
PET&COAL	D142027
CHEMICALS	D142029
MAN-MADE FIBRE	D143857
PULP&PAPER	D141990
METAL SHIP	D143883
MV&PARTS	D143892
IRON&STEEL	D141997

SOURCE: STATISTICS CANADA MINI BASE, MATRIX 1126

Table 6

INDUSTRY	AVG. HOURLY EARNINGS		NO. OF EMPLOYEES	
	OLD	NEW	OLD	NEW
AGRICULTURE	* D5249		** D772020	
FORESTRY	NA	L5583	D700100	L3
FISH&TRAP	NA	NA	NA	NA
METAL MINES	D708301	L5587	D700104	L7
MIN FUELS	D708305	L5593	D700108	L13
NON-MET MINES	D708307	L5596	D700111	L16
FOOD&BEV	D708314	L5670	D700118	L9
TOBACCO	D708329	L5681	D700134	L101
RUBBER	D708331	L5683	D700136	L103
LEATHER	D708335	L5686	D700141	L106
TEX MILLS	D708338	L5691	D700144	L111
KNIT MILLS	D708345	L5701	D700151	L121
CLOTHING	D708348	L5704	D700154	L124
WOOD IND	D708352	L5609	D700158	L29
FURNITURE	D708356	L5616	D700162	L36
PAPER&	D708359	L5711	D700165	L131
PRINT&PUB	D708363	L5716	D700171	L136
PRIMARY MET	D708366	L5621	D700174	L41
METAL FAB	D708371	L5629	D700180	L49
MACHINERY	D708380	L5639	D700189	L59
TRANS EQUIP	D708383	L5644	D700192	L64
ELECTRICAL	D708389	L5652	D700198	L72
NON-METAL	D708396	L5661	D700206	L81
PET&COAL	D708400	L5721	D700210	L141
CHEMICALS	D708402	L5724	D700213	L144
MAN-MADE FIBRE	D708341	L5694	D700147	L114
PULP&PAPER	D708360	L5712	D700167	L132
METAL STMP	D708375	L5633	D700184	L53
MV&PARTS	D708387	L5648	D700196	L68
IRON&STEEL	D708367	L5622	D700147	L42

SOURCE: STATISTICS CANADA MAIN AND MINI BASE

OLD EMPLOYMENT EARNINGS AND HOURS SURVEY, AVERAGE HOURLY EARNINGS OF HOURLY-RATED WAGE-EARNERS AND EMPLOYMENT INDEXES, MATRIX 1432 & 1435

REVISED EMPLOYMENT, PAYROLLS AND HOURS SURVEY, AVERAGE HOURLY EARNINGS OF OF EMPLOYEES PAID BY HOUR AND NUMBER OF EMPLOYEES, MATRIX 8003 & 8021

* D5249, WAGES AND SALARIES, AGRICULTURE, FISHING, HUNTING AND TRAPPING, MATRIX 1792

** D772020, EMPLOYED IN AGRICULTURE, MATRIX 2075, LABOUR FORCE SURVEY

Table 7

INDUSTRY	(1)	(2)	(3)	(4)	(5)	(6)
AGRICULTURE	D185830	D187186	D187412	D187638	D187864	D188090
FORESTRY	D185831	D187187	D187413	D187639	D187865	D188091
FISH&TRAP	D185832	D187188	D187414	D187640	D187866	D188093
METAL MINES	D185833	D187189	D187415	D187641	D187867	D188093
MIN FUELS	D185834	D187190	D187416	D187642	D187868	D188094
OTHER MINING	D185835	D187191	D187417	D187643	D187869	D188095
FOOD	D185836	D187192	D187418	D187644	D187870	D188096
BEVERAGES	D185837	D187193	D187419	D187645	D187871	D188097
TOBACCO	D185838	D187194	D187420	D187646	D187872	D188098
RUBBER	D185839	D187195	D187421	D187647	D187873	D188099
LEATHER	D185840	D187196	D187422	D187648	D187874	D188100
TEX MILLS	D185841	D187197	D187423	D187649	D187875	D188101
KNIT MILLS	D185842	D187198	D187424	D187650	D187876	D188102
CLOTHING	D185843	D187199	D187425	D187651	D187877	D188103
WOOD IND	D185844	D187200	D187426	D187652	D187878	D188104
FURNITURE	D185845	D187201	D187427	D187653	D187879	D188105
PAPERS	D185846	D187202	D187428	D187654	D187880	D188106
PRINT&PUB	D185847	D187203	D187429	D187655	D187881	D188107
PRIMARY MET	D185848	D187204	D187430	D187656	D187882	D188108
METAL FAB	D185849	D187205	D187431	D187657	D187883	D188109
MACHINERY	D185850	D187206	D187432	D187658	D187884	D188110
TRANS EQUP	D185851	D187207	D187433	D187659	D187885	D188111
ELECTRICAL	D185852	D187208	D187434	D187660	D187886	D188112
NON-METAL	D185853	D187209	D187435	D187661	D187887	D188113
PET&COAL	D185854	D187210	D187436	D187662	D187888	D188114
CHEMICALS	D185855	D187211	D187437	D187663	D187889	D188115
SYNTH TEX	D185883	D187239	D187465	D187691	D187917	D188144
PULP&PAPER	D185902	D187258	D187484	D187710	D187936	D188162
METAL STMP	D185915	D187271	D187497	D187723	D187949	D188175
MV&PARTS	D185925	D187281	D187507	D187733	D187959	D188185
IRON&STEEL	D185909	D187265	D187491	D187717	D187943	D188169

FOOTNOTES:

- (1) MATERIALS
- (2) BOND INTEREST
- (3) MORTGAGE INTEREST
- (4) OTHER INTEREST
- (5) TAXES OTHER THAN DIRECT TAXES
- (6) DEPRECIATION

SOURCE: STATISTICS CANADA MAIN BASE, MATRIX 5113 THROUGH 5265,
CORPORATE FINANCIAL STATISTICS

U.S. DATA DEFINITIONS

All U.S. data used in the study is collected by the U.S. Department of Commerce. Output and employment information is compiled by the Bureau of Industrial Economics (BIE). This data is establishment-based and is consistent with the corresponding data used for Canadian industries. Indirect taxes, interest payments and depreciation are also establishment-based and comes from the Gross Product Originating (GPO) Tapes compiled by the Bureau of Economic Analysis (BEA).

GPO data represents value-added and includes measures of: wages and salaries; supplements to wages and salaries; net allowances; non-corporate capital adjustment allowances; indirect business taxes and non-tax liabilities; business transfer payments; corporate profits before taxes; non-corporate income; corporate inventory evaluation adjustments; rental income of persons; government subsidies; and current surpluses of government enterprises.

Using the information on output from BIE and value-added from BEA, material costs for each industry were calculated as the difference between nominal output and value-added:

A. Unit Material Costs

Unit material costs were defined as nominal-dollar expenditures on materials divided by real output (1971\$) for the industry in question.

B. Unit Labour Costs

Unit labour costs were defined as nominal-dollar expenditures on wages, salaries and supplementary labour income divided by real output (1971\$) per industry. As in the case of the Canadian data, supplements include pension and profit-sharing contributions, group insurance, workmen's compensation, supplemental unemployment, etc.

C. Labour Productivity

Labour productivity was calculated as the ratio of real output (1971\$) to total number of employees (millions).

D. Unit Gross Indirect Taxes

Indirect taxes include sales, excise and property taxes, and windfall profits on crude oil production. It also includes non-tax liabilities such as royalty payments. Unit gross indirect taxes were defined as the ratio of gross indirect taxes to real output per industry (1971\$).

E. Interest Payments and Depreciation

Interest payments include interest from all sources including bonds and mortgages. Depreciation is based on the book-value of assets and consists of depreciation changes and accidental damage to business capital for non-farm business. For farms and non-profit organizations, it is calculated by BEA based on straight-line depreciation and historical costs. This data is taken from the GPO tapes and is establishment-based. Unit interest payments were calculated as the ratio of nominal interest payments to real output (1971\$) per industry. Unit depreciation was calculated as the ratio of nominal depreciation payments to real output (1971\$) per industry.

EXTENDING U.S. DATA

Since actual U.S. data is only available to 1983 for manufacturing sectors and 1982 for non-manufacturing sectors, it was necessary to draw forecast information from DRP's U.S. Inter-Industry Service to complete the data set². The Inter-Industry Service provides an interlocking set of mathematical models which are backed by extensive historical data bases, including the Department of Commerce information described above. At the core of the service is an input-output model that traces the flow of goods and services through over 400 industrial sectors of the U.S. economy. The model is linked to DRP's macroeconomic model to provide regular forecasts of output, employment, production costs and other key factors.

The model was re-aggregated to correspond to the 30 industry sectors under evaluation in the study to provide the 1983 and 1984 data required.

² The historical data was retrieved from the service as well.

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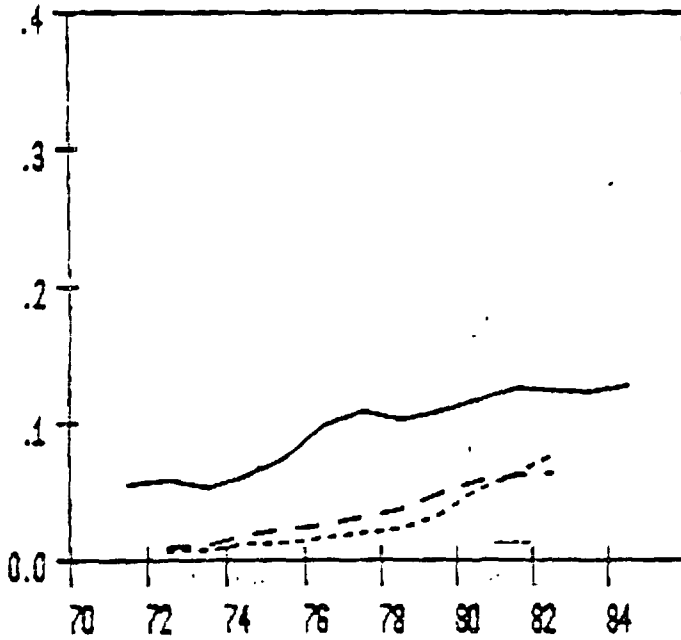
Unit Input Costs

Nominal Dollars per unit of Real (71\$) Output

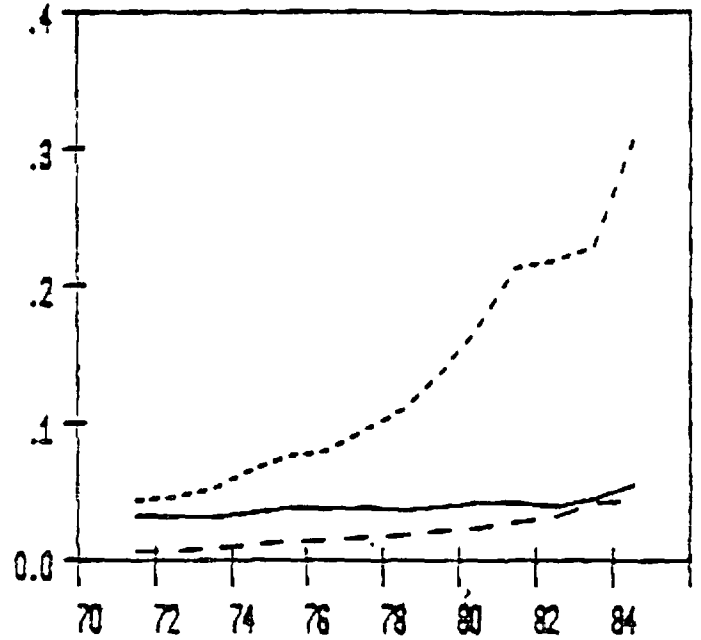
Agriculture

Pre-Exchange Rate Adjusted

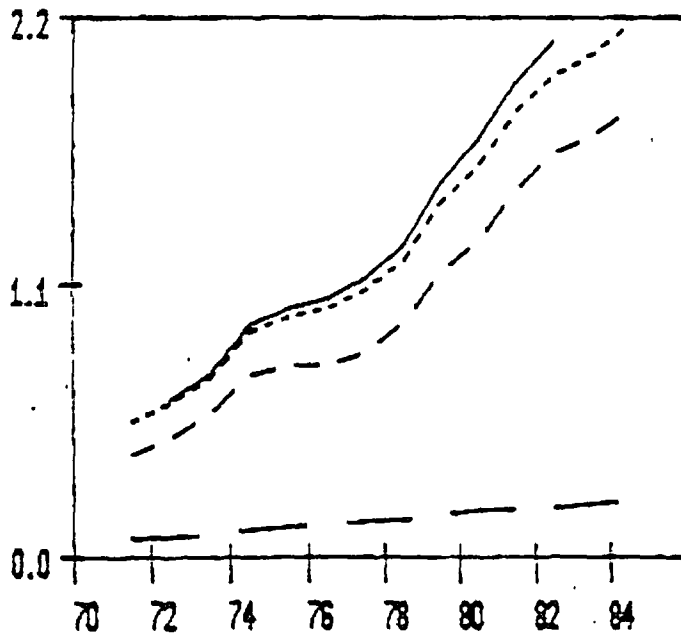
Can. Inputs
Taxes (Line)
Int. (Dot) Depr. (Dash)



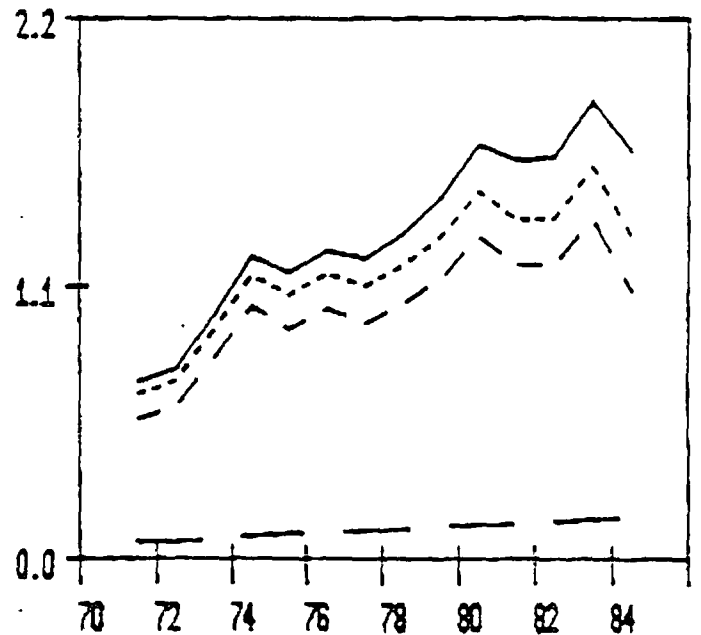
U.S. Inputs
Taxes (Line)
Int. (Dot) Depr. (Dash)



Can. Input Totals
Lab. (L Dash) Mat. (Dash) Total (Line)
Materials, Labour and Taxes (Dot)



U.S. Input Totals
Lab. (L Dash) Mat. (Dash) Total (Line)
Materials, Labour and Taxes (Dot)



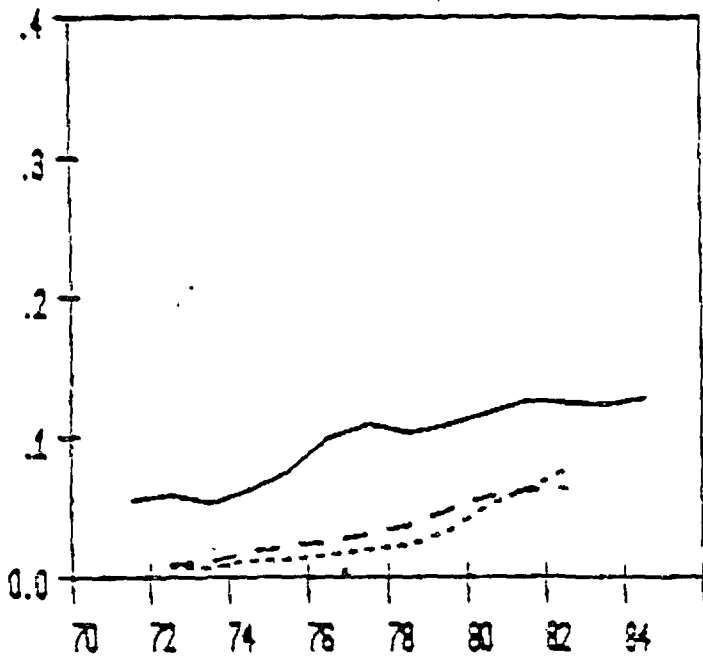
Unit Input Costs
 Nominal Dollars per unit of Real (71\$) Output
 Agriculture
 Exchange Rate Adjusted

Can. Inputs

Taxes (Line)

Int. (Dot)

Depr. (Dash)

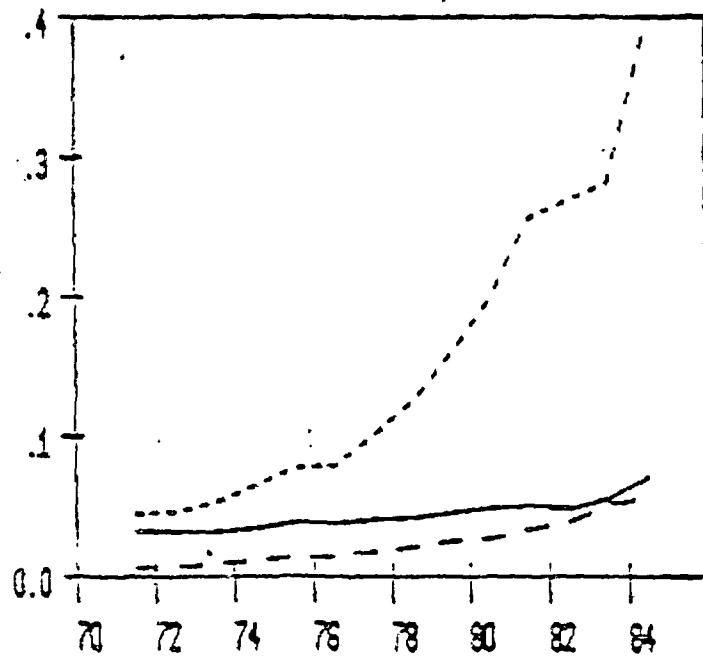


U.S. Inputs

Taxes (Line)

Int. (Dot)

Depr. (Dash)



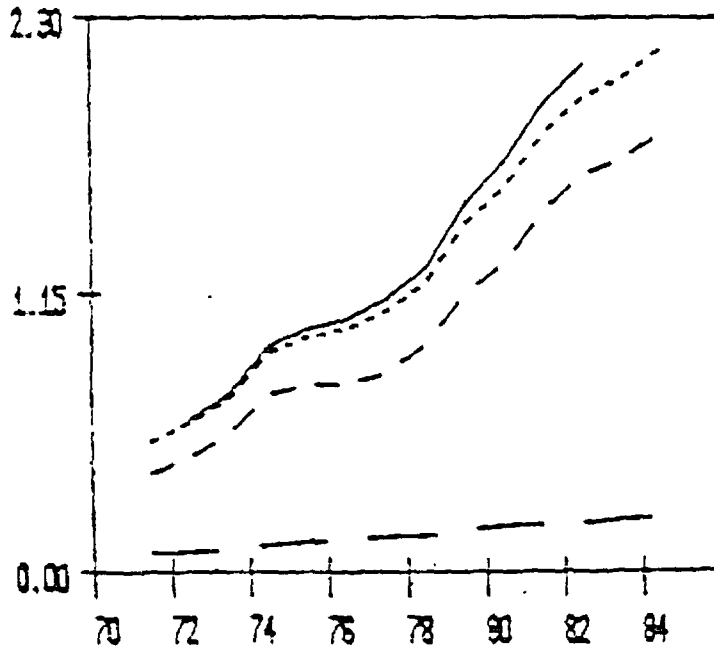
Can. Input Totals

Lab. (L Dash)

Mat. (Dash)

Total (Line)

Materials, Labour and Taxes (Dot)



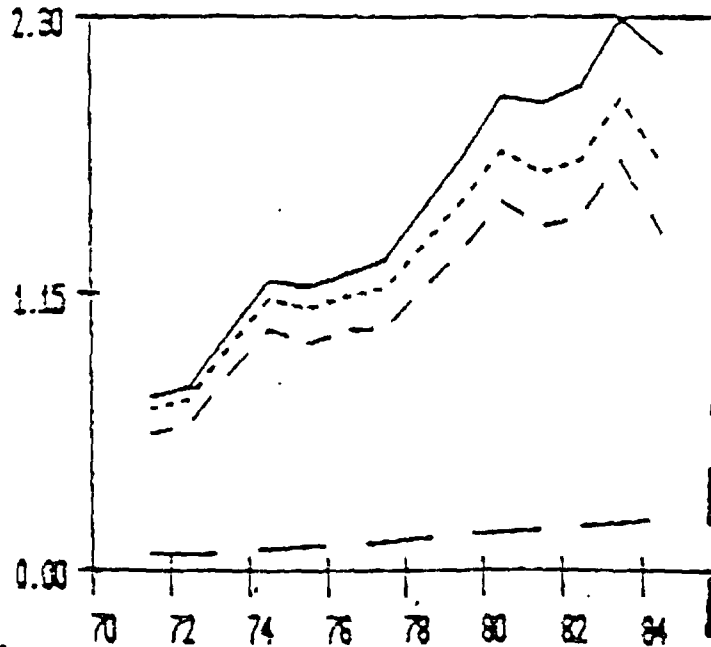
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Lab. (L Dash)

Mat. (Dash)

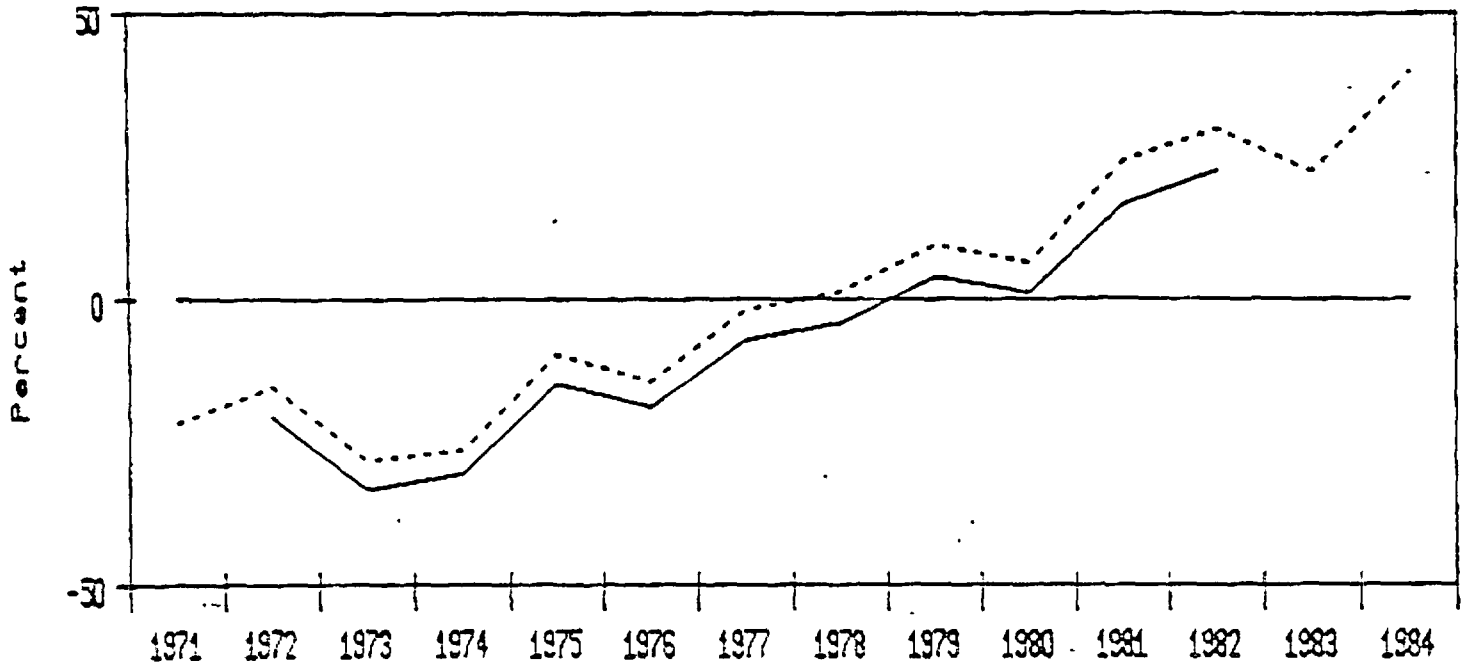
Total (Line)

Materials, Labour and Taxes (Dot)



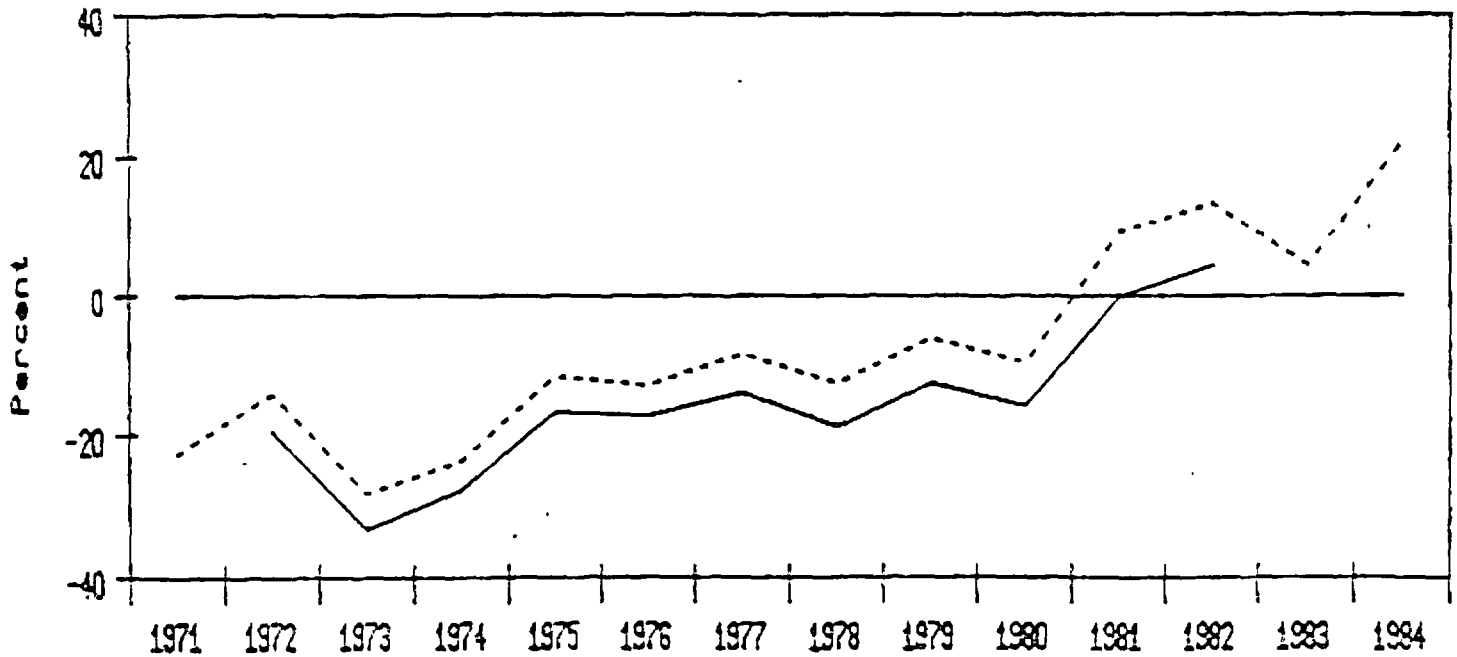
% Difference between Canada and U.S. Input Unit Costs Agriculture

Pre-Exchange Rate Adjusted
Total (Line) Materials, Labour and Taxes (Dot)



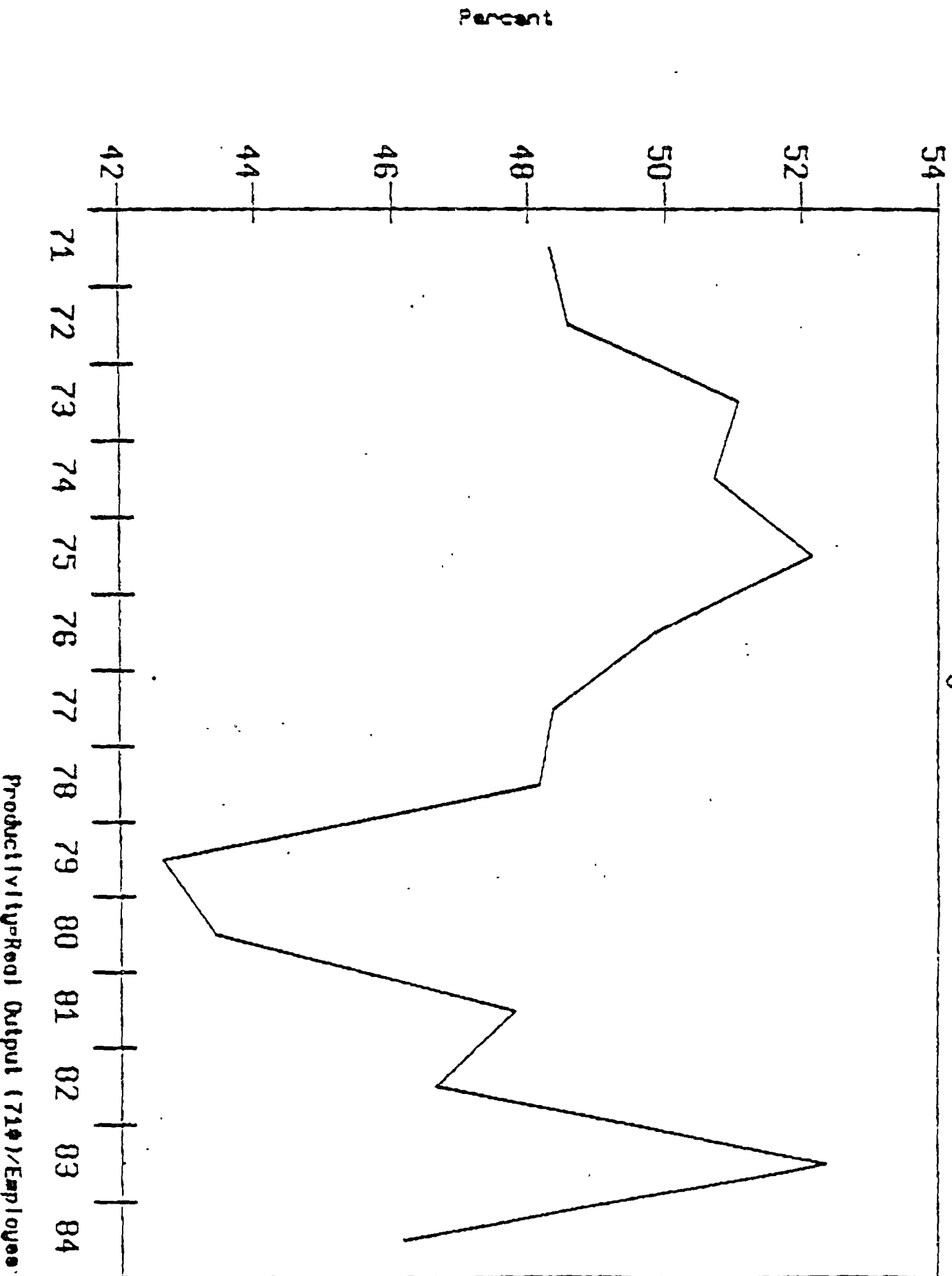
note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line

Exchange Rate Adjusted
Total (Line) Materials, Labour and Taxes (Dot)



Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line

Canadian Productivity as a % of U.S. Productivity
Agriculture



Unit Input Costs

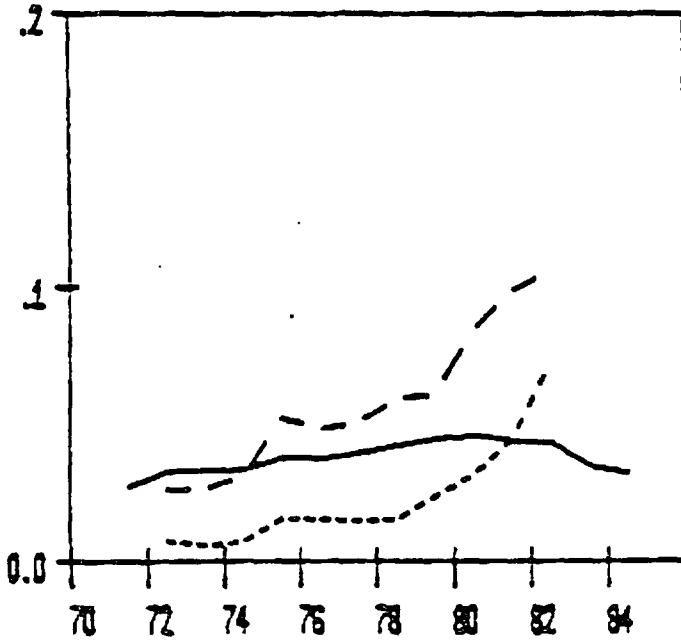
Nominal Dollars per unit of Real (71\$) Output

Forestry

Pre-Exchange Rate Adjusted

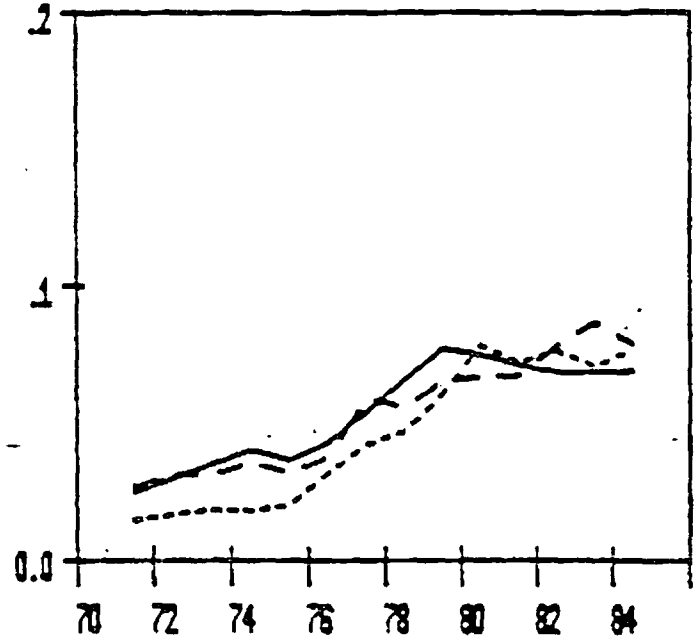
Can. Inputs
Taxes (Line)

Int. (Dot) Depr. (Dash)



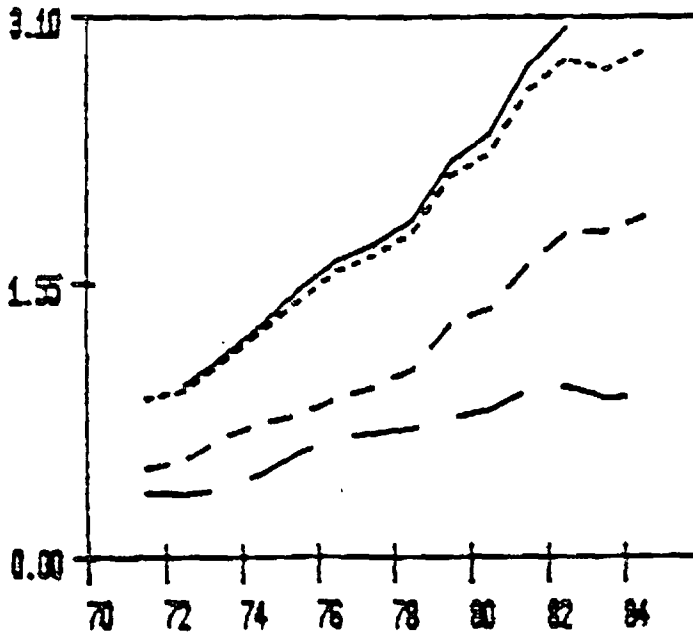
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Taxes (Line)

Int. (Dot) Depr. (Dash)



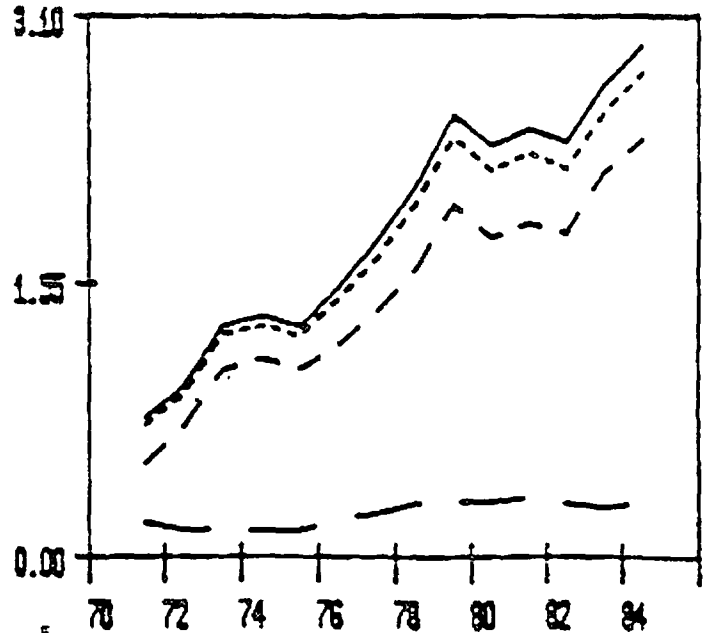
Can. Input Totals

Lab. (L Dash) Mat. (Dash) Total (Line)
Materials, Labour and Taxes (Dot)



U.S. Input Totals

Lab. (L Dash) Mat. (Dash) Total (Line)
Materials, Labour and Taxes (Dot)



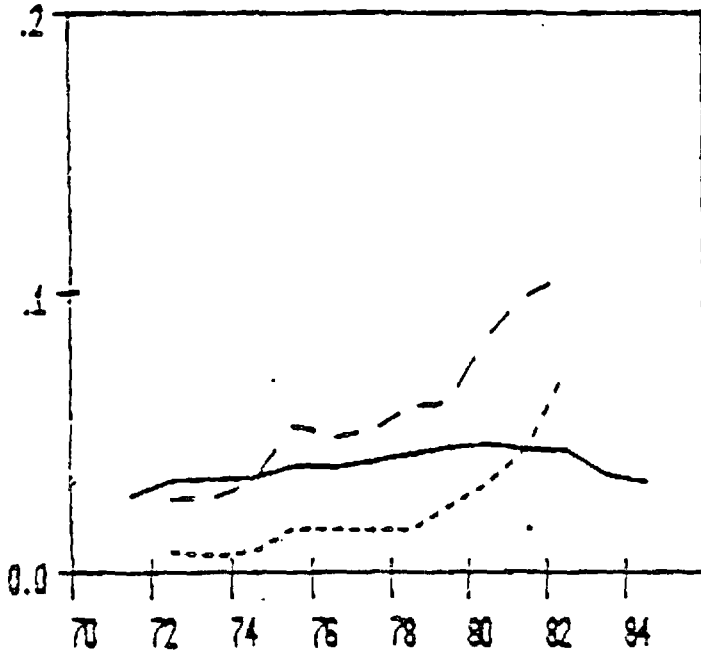
Unit Input Costs

Nominal Dollars per unit of Real (71\$) Output

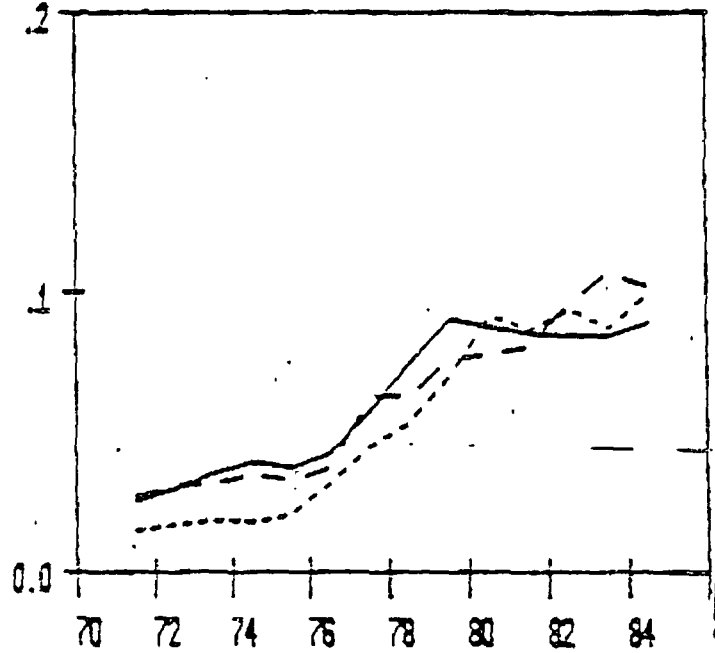
Forestry

Exchange Rate Adjusted

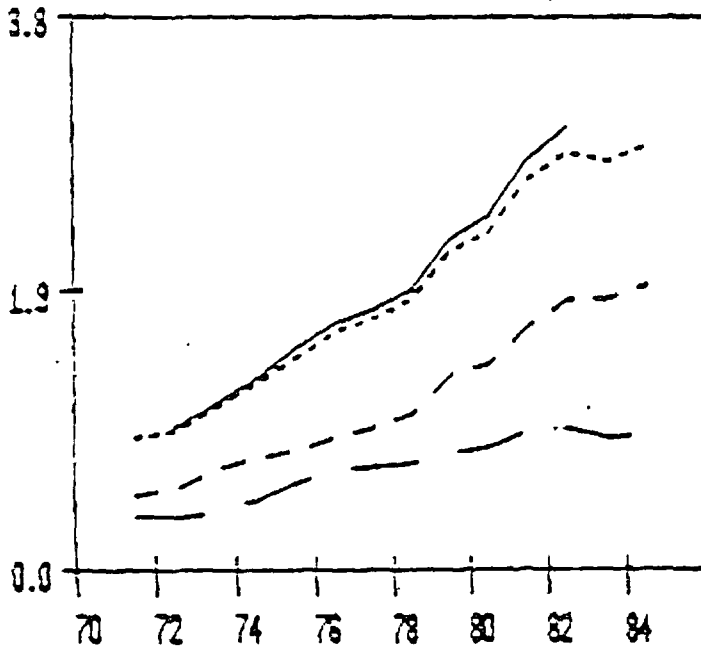
Cdn. Inputs
Taxes (Line)
Int. (Dot) Depr. (Dash)



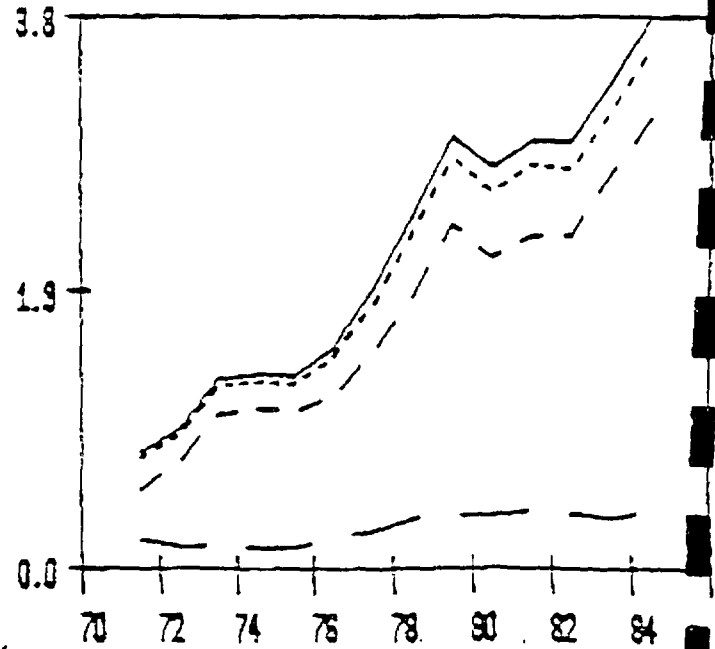
U.S. Inputs
Taxes (Line)
Int. (Dot) Depr. (Dash)



Cdn. Input Totals
Lab. (L Dash) Mat. (Dash) Total (Line)
Materials, Labour and Taxes (Dot)

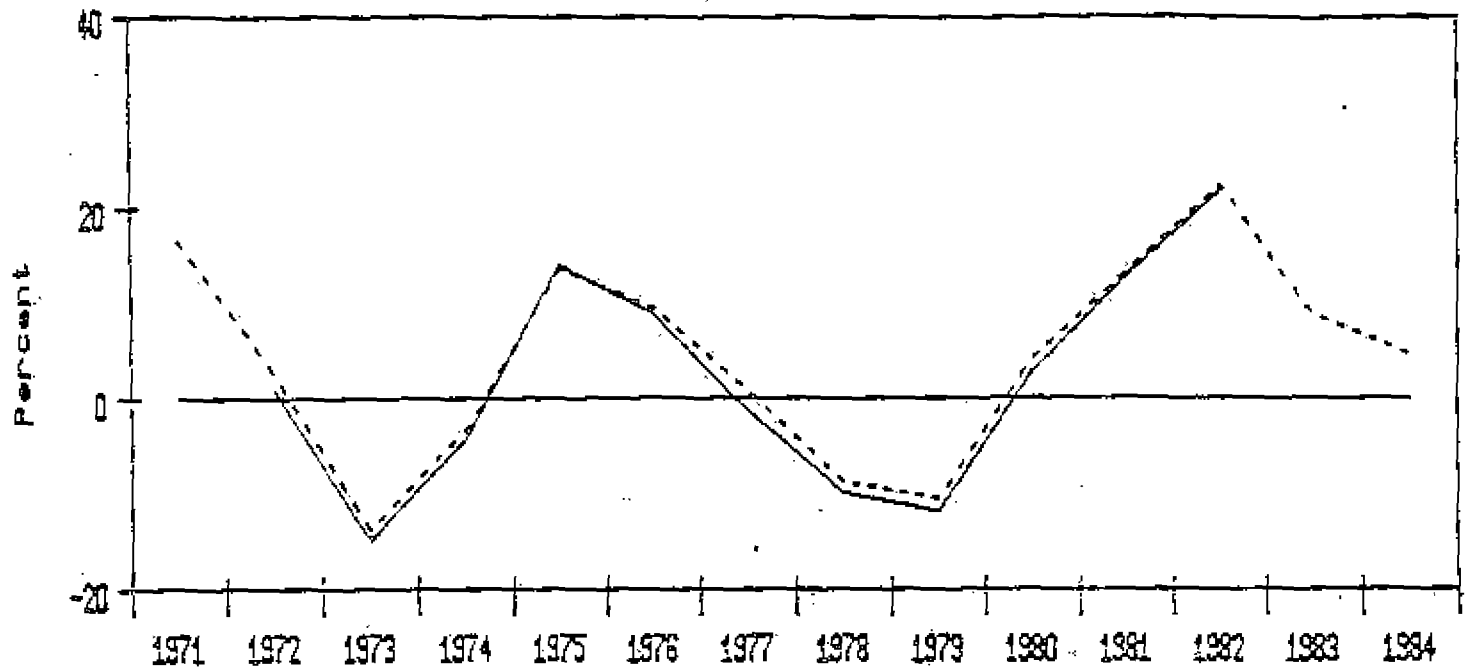


U.S. Input Totals
Lab. (L Dash) Mat. (Dash) Total (Line)
Materials, Labour and Taxes (Dot)



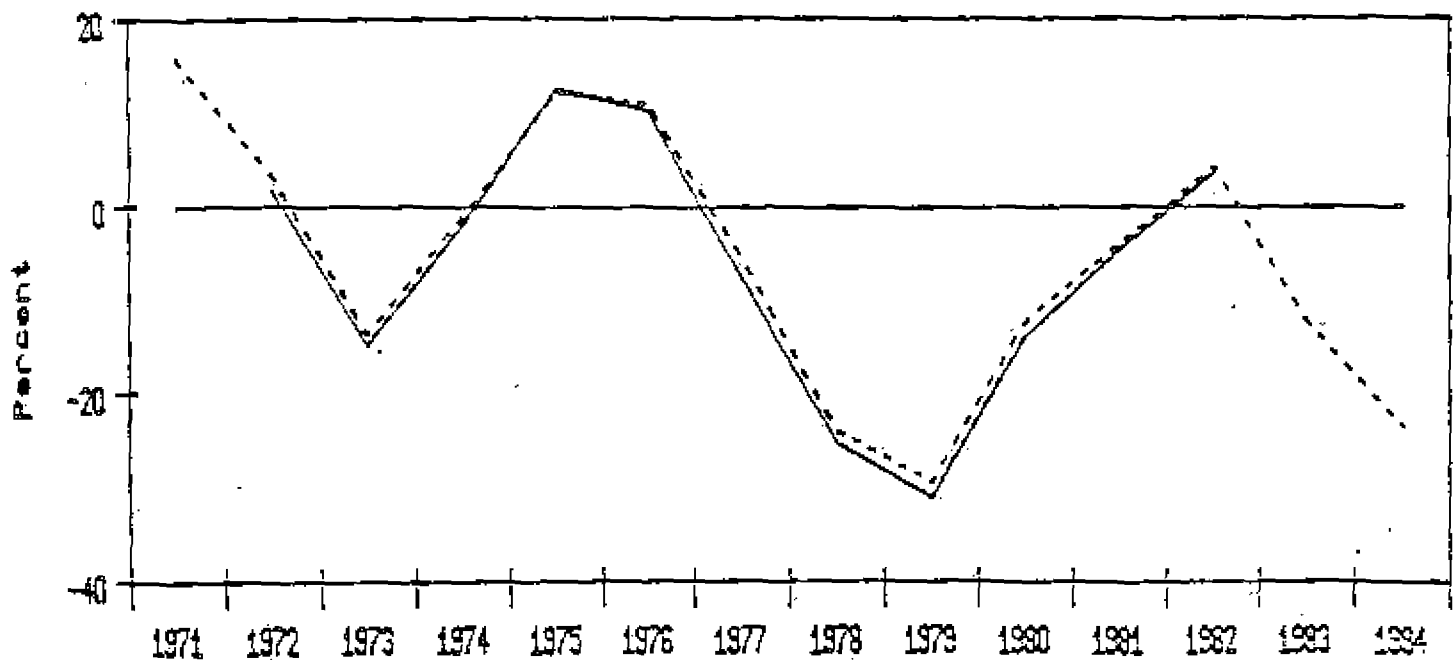
% Difference between Canada and U.S. Input Unit Costs Forestry

Pre-Exchange Rate Adjusted
Total (Line) Materials, Labour and Taxes (Dot)



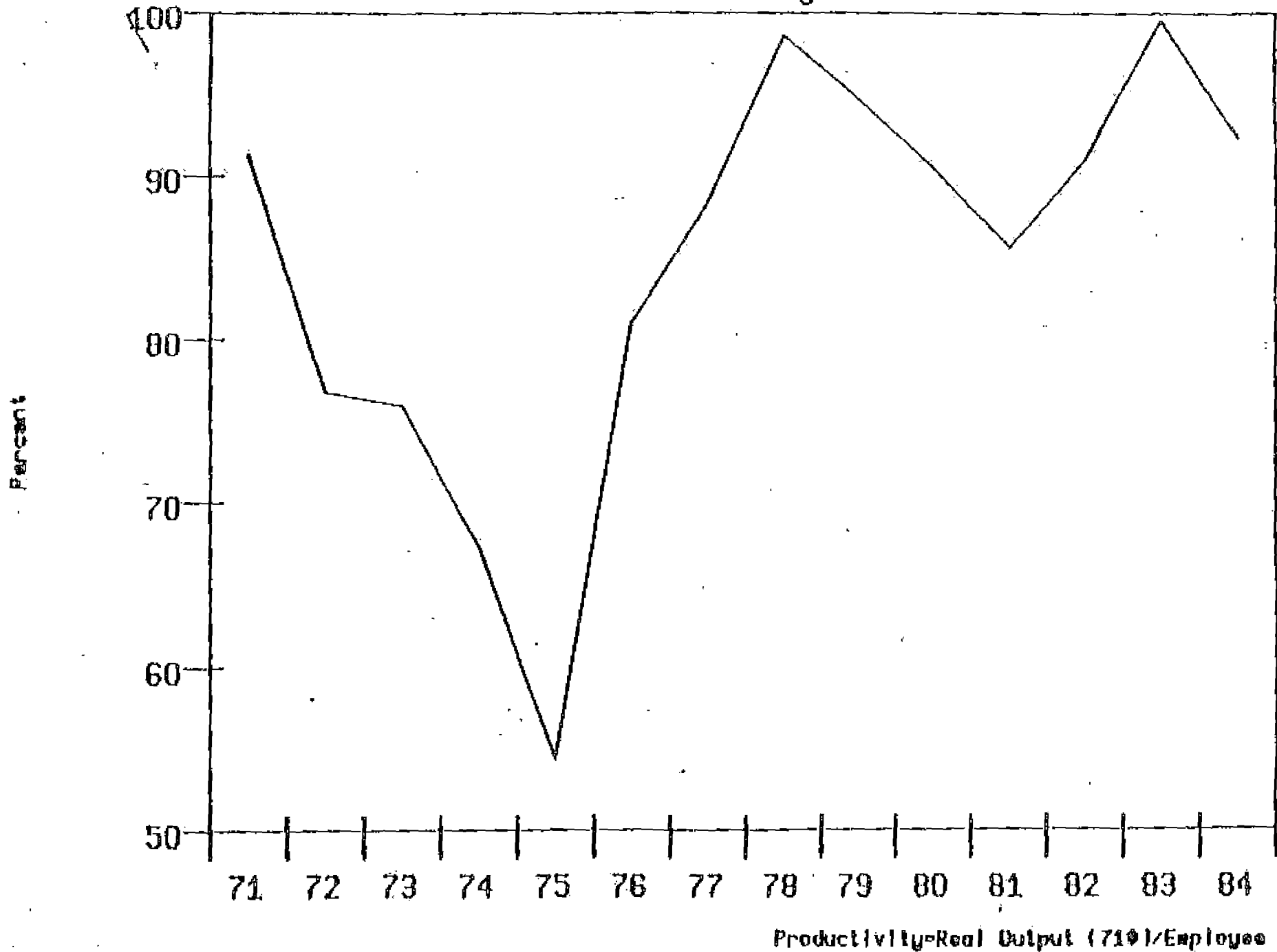
Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line

Exchange Rate Adjusted
Total (Line) Materials, Labour and Taxes (Dot)



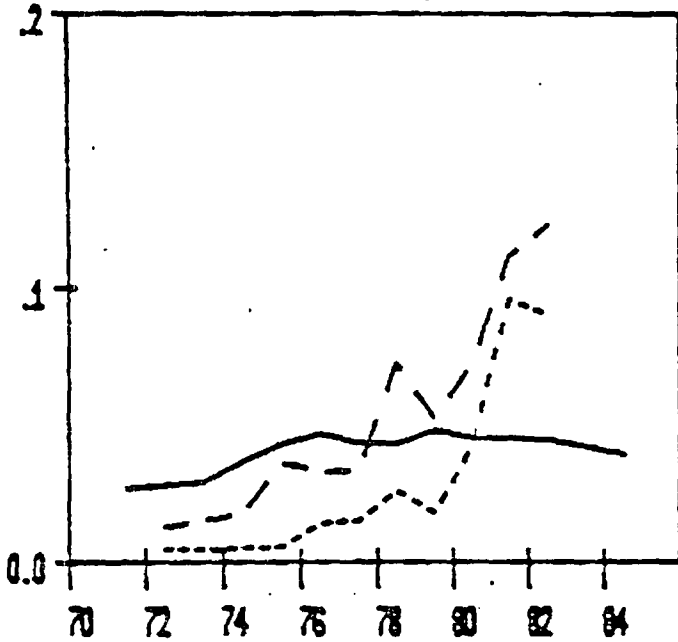
Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line

Productivity Ratio
Canadian Productivity as a % of U.S. Productivity
Forestry

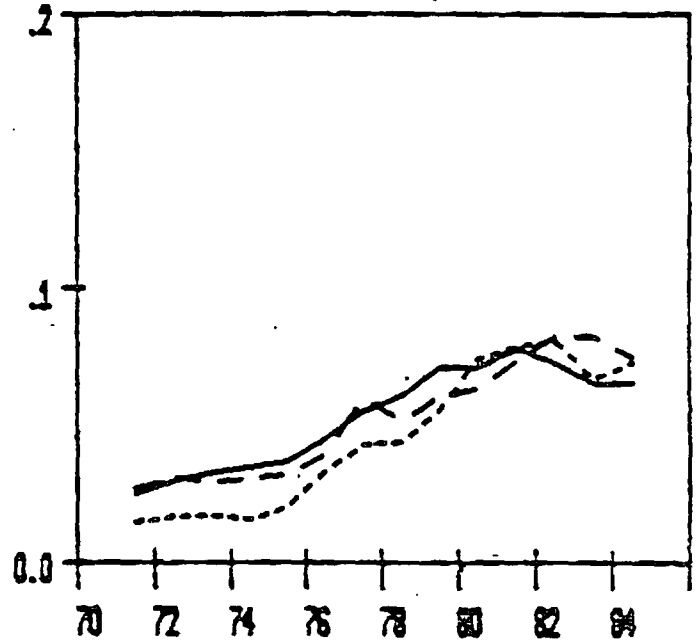


Unit Input Costs
 Nominal Dollars per unit of Real (71\$) Output
 Fishing, Hunting & Trapping
 Pre-Exchange Rate Adjusted

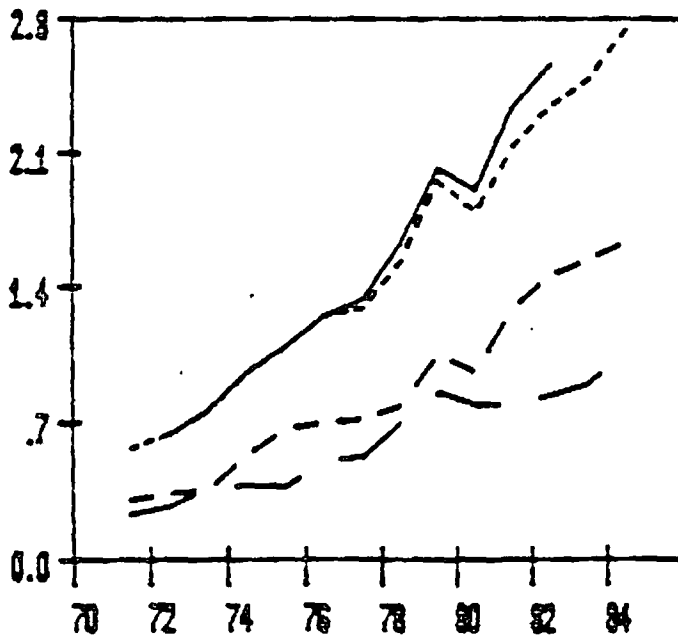
Can. Inputs
 Taxes (Line)
 Int. (Dot) Depn. (Dash)



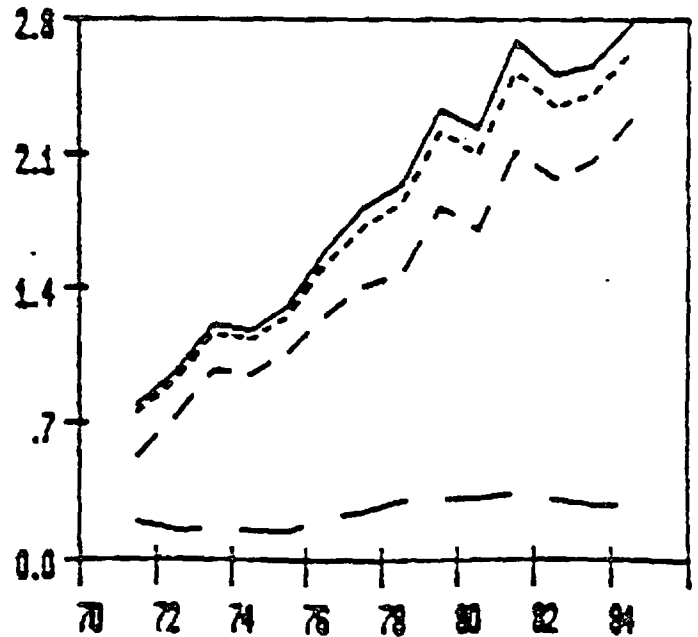
U.S. Inputs
 Taxes (Line)
 Int. (Dot) Depn. (Dash)



Can. Input Totals
 Lab. (L Dash) Mat. (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)



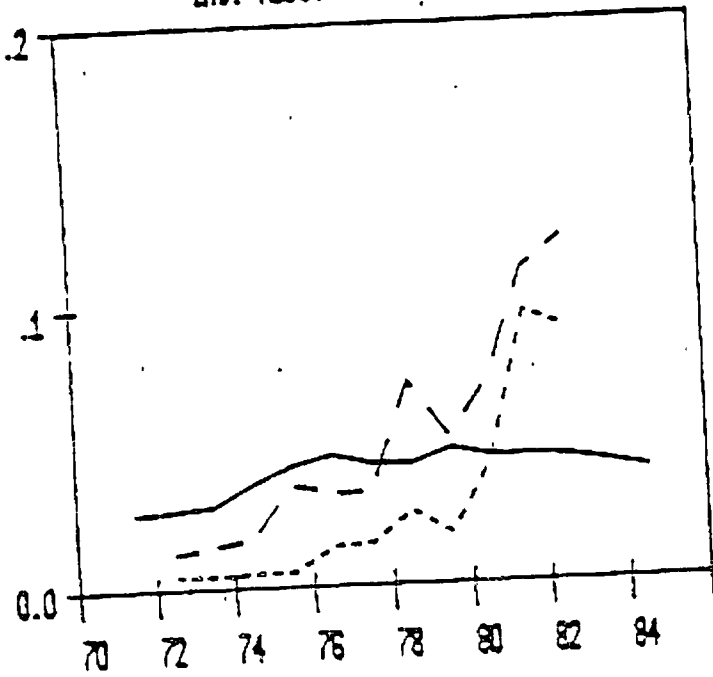
U.S. Input Totals
 Lab. (L Dash) Mat. (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)



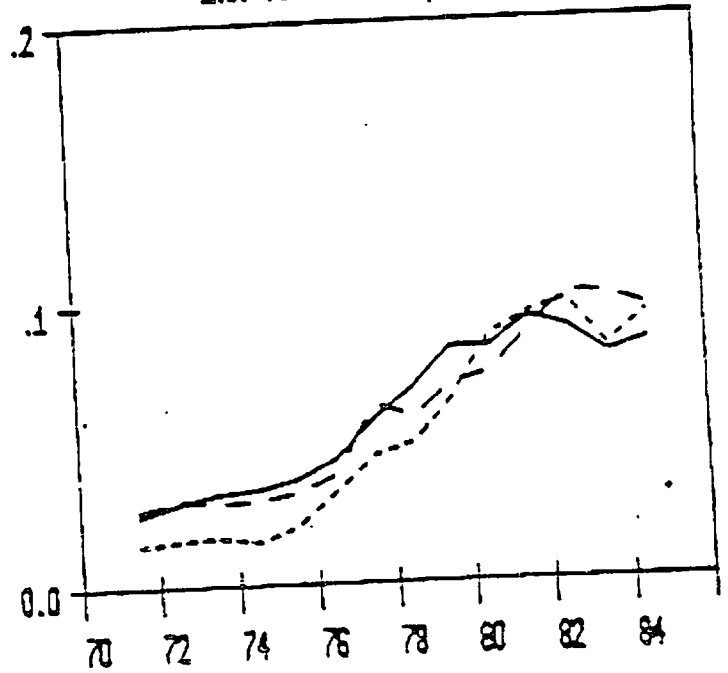
Unit Input Costs

Nominal Dollars per unit of Real (71\$) Output
Fishing, Hunting & Trapping
Exchange Rate Adjusted

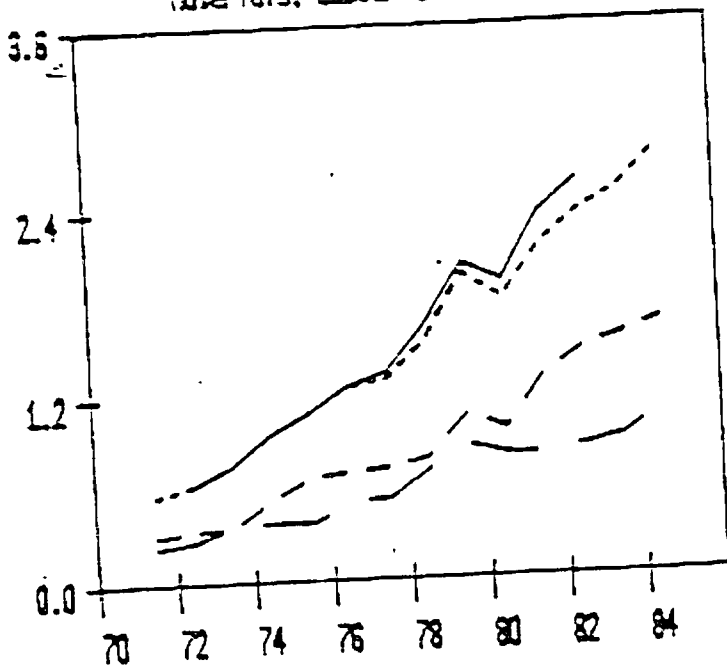
Cdn. Inputs
Taxes (Line)
Int. (Dot) Depr. (Dash)



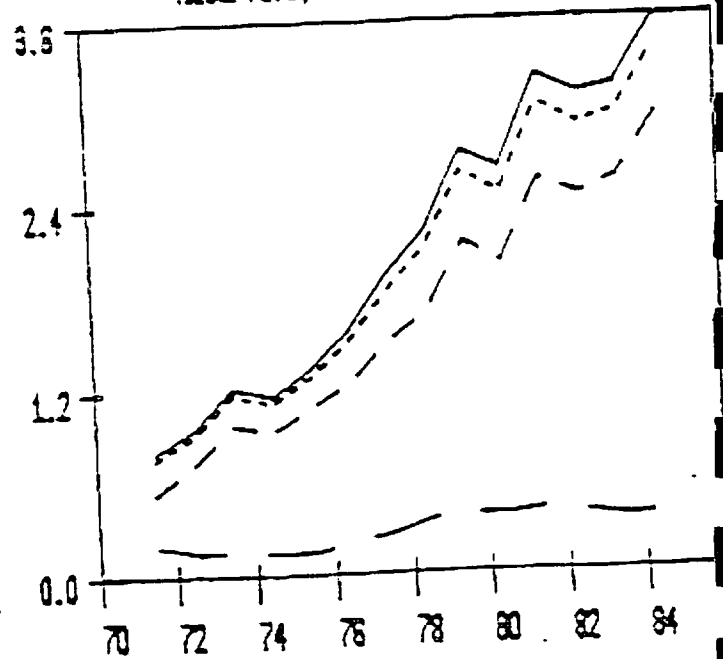
U.S. Inputs
Taxes (Line)
Int. (Dot) Depr. (Dash)



Cdn. Input Totals
Lab. (L Dash) Mat. (Dash) Total (Line)
Materials, Labour and Taxes (Dot)

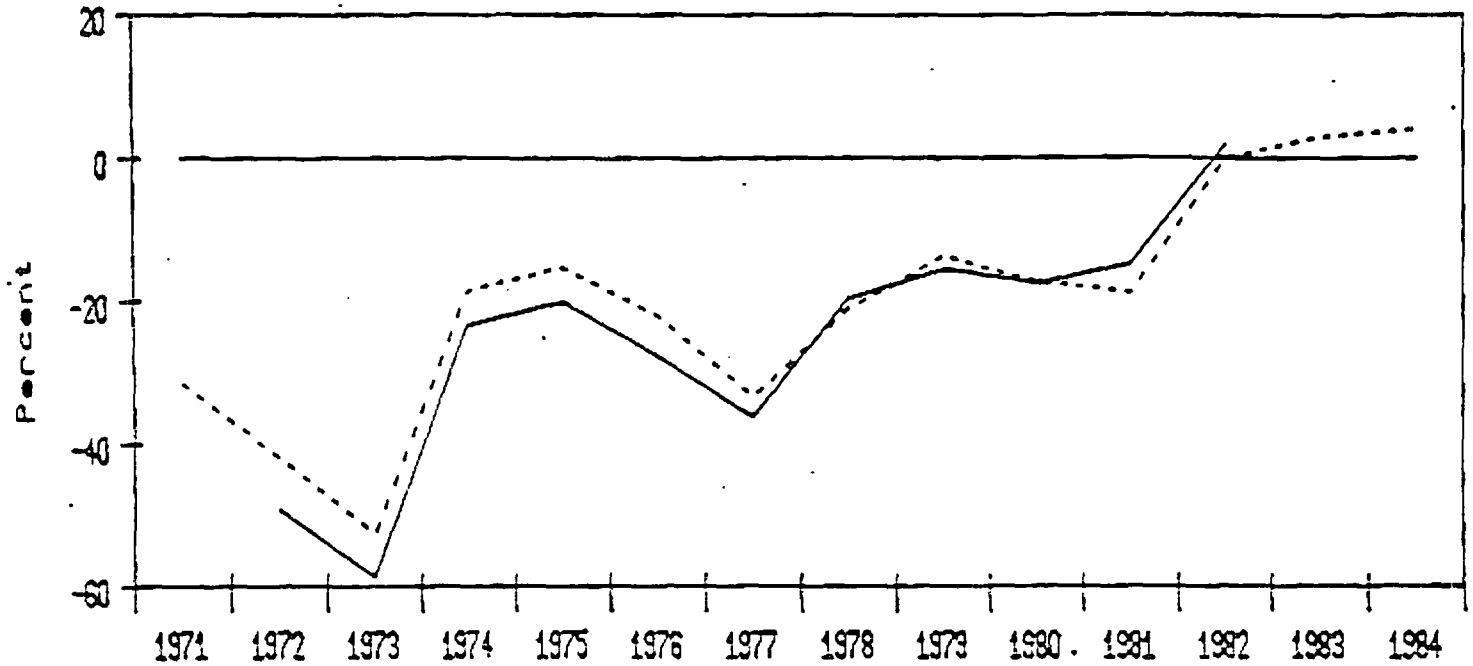


U.S. Input Totals
Lab. (L Dash) Mat. (Dash) Total (Line)
Materials, Labour and Taxes (Dot)



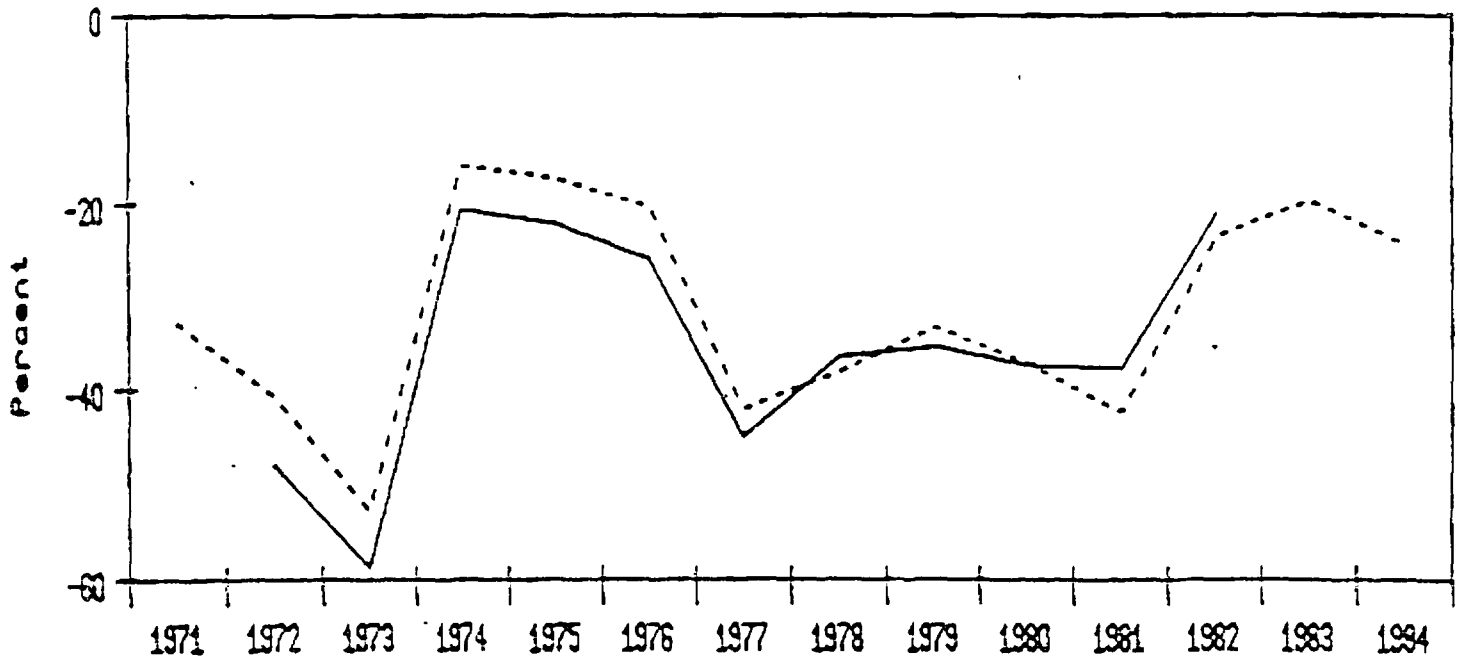
% Difference between Canada and U.S. Input Unit Costs Fishing, Hunting & Trapping

Pre-Exchange Rate Adjusted
Total (Line) Materials, Labour and Taxes (Dot)



Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line

Exchange Rate Adjusted
Total (Line) Materials, Labour and Taxes (Dot)

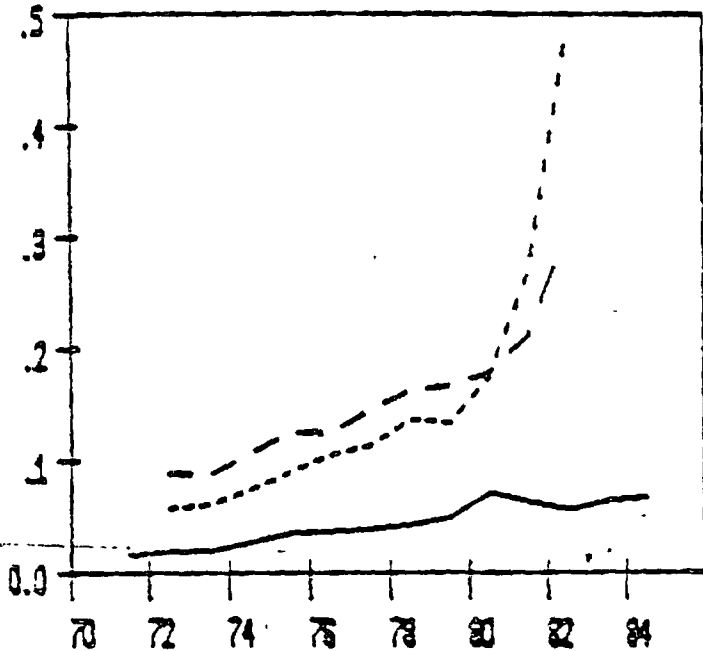


Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line

Unit Input Costs
 Nominal Dollars per unit of Real (71\$) Output
 Metal Mines
 Pre-Exchange Rate Adjusted

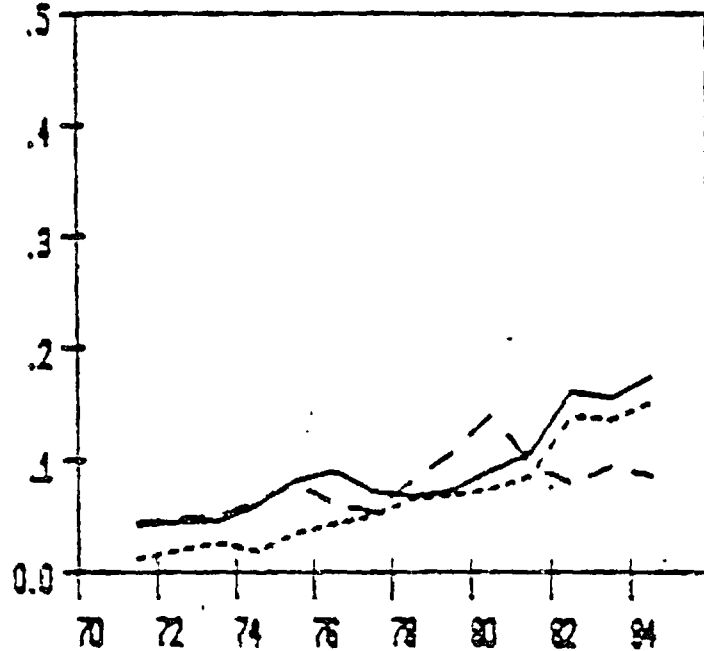
Can. Inputs
 Texas (Line)

Int. (Dot) Depn. (Dash)



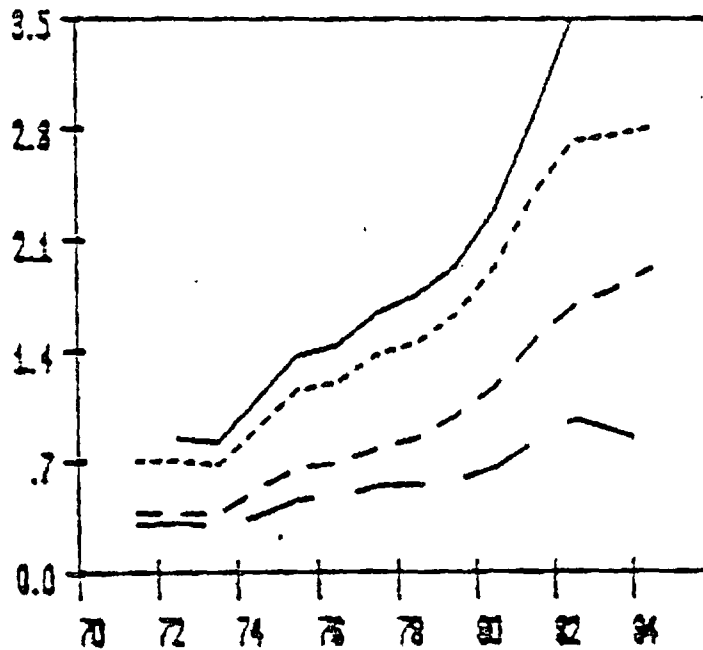
U.S. Inputs
 Texas (Line)

Int. (Dot) Depn. (Dash)



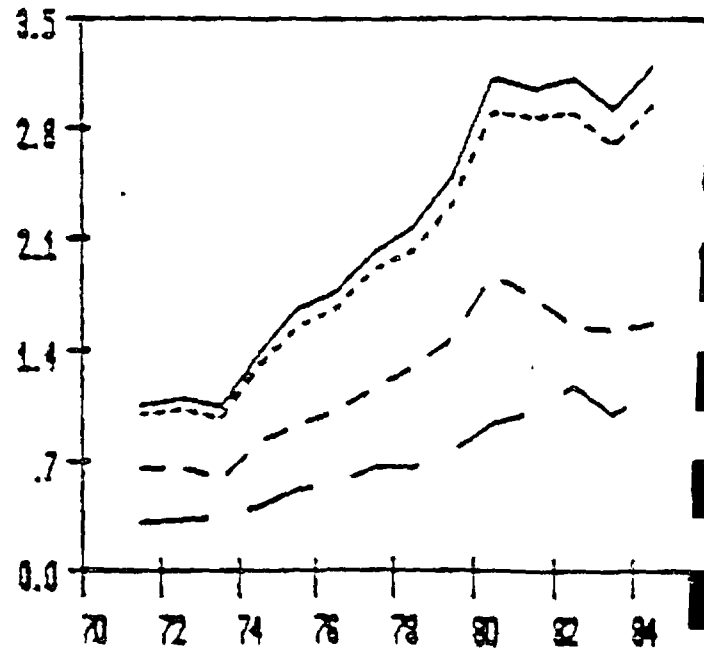
Can. Input Totals

Lab. (L Dash) Mat. (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)



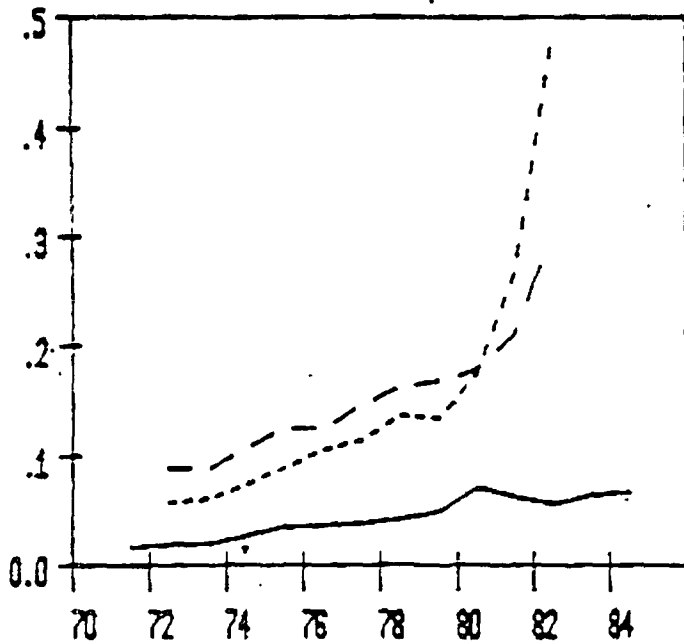
U.S. Input Totals

Lab. (L Dash) Mat. (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)

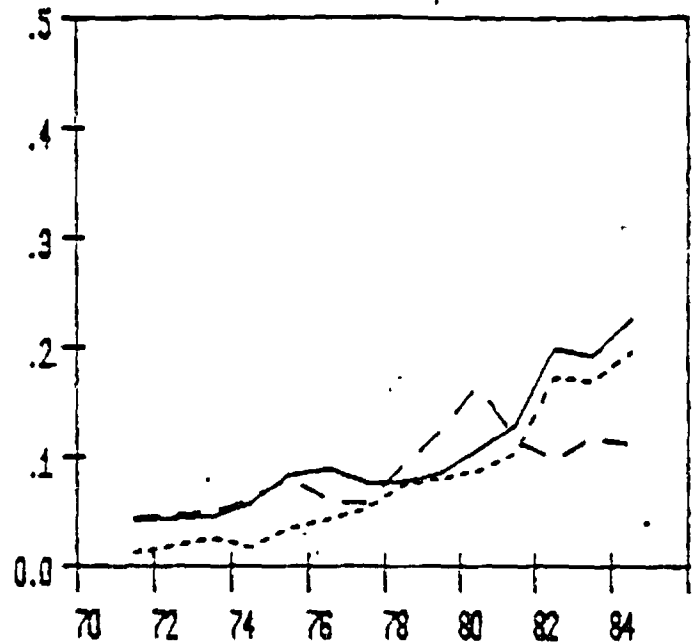


Unit Input Costs
 Nominal Dollars per unit of Real (71\$) Output
 Metal Mines
 Exchange Rate Adjusted

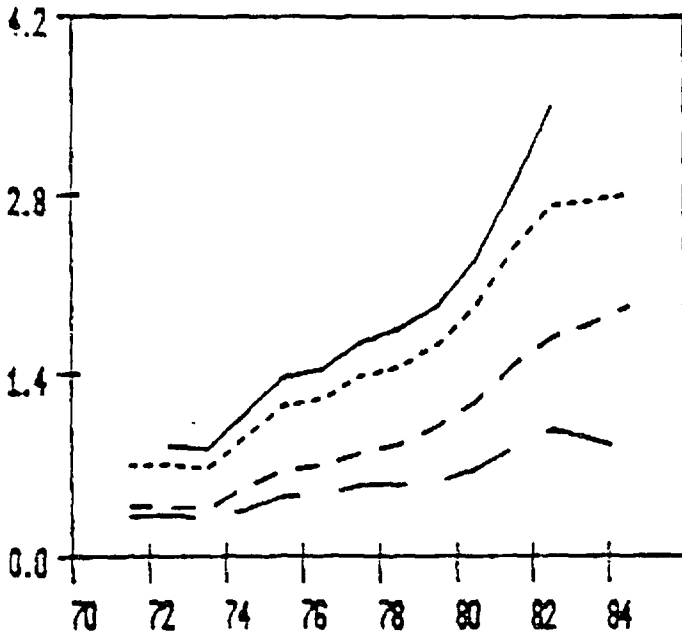
Cdn. Inputs
 Taxes (Line)
 Int. (Dot) Depr. (Dash)



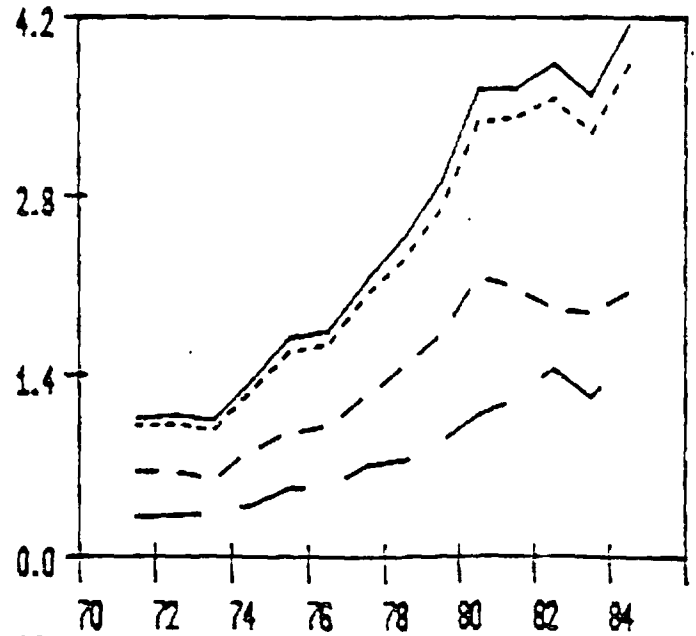
U.S. Inputs
 Taxes (Line)
 Int. (Dot) Depr. (Dash)



Cdn. Input Totals
 Lab. (L Dash) Mat. (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)

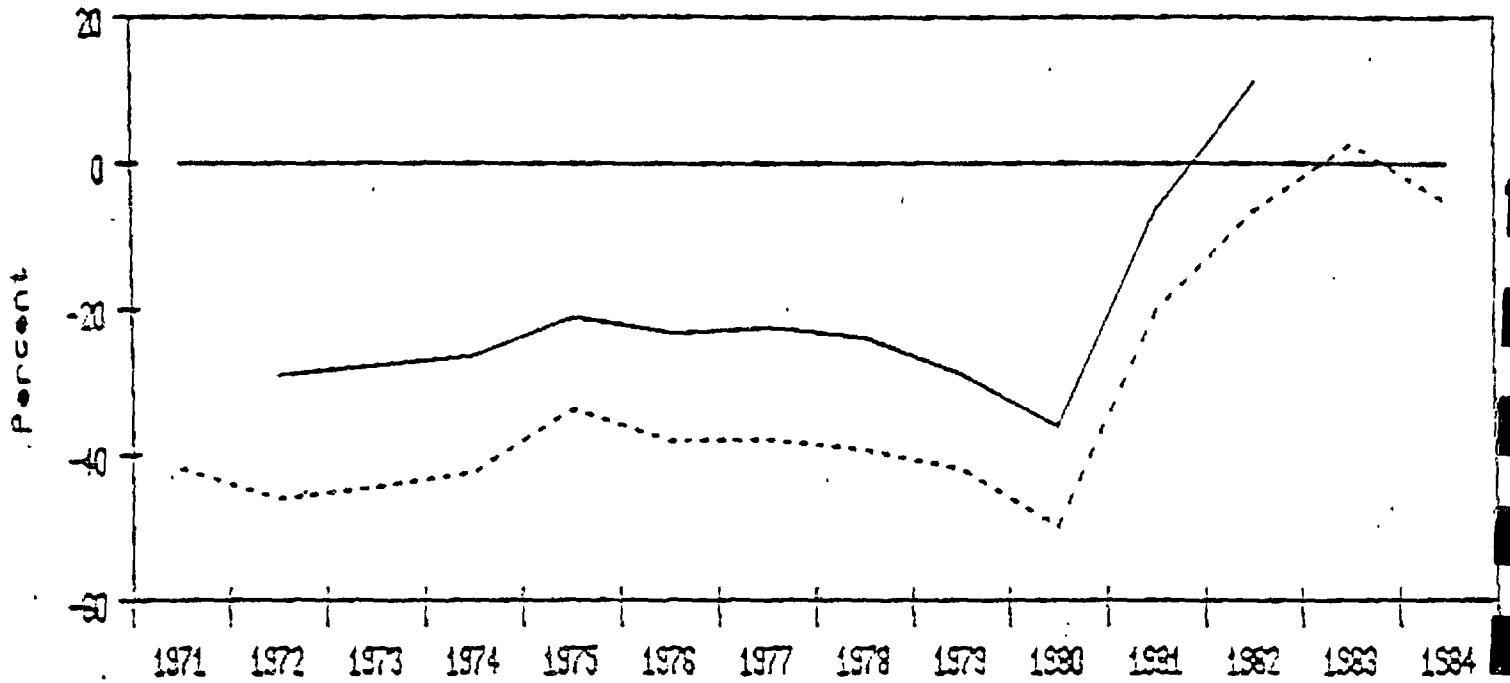


U.S. Input Totals
 Lab. (L Dash) Mat. (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)



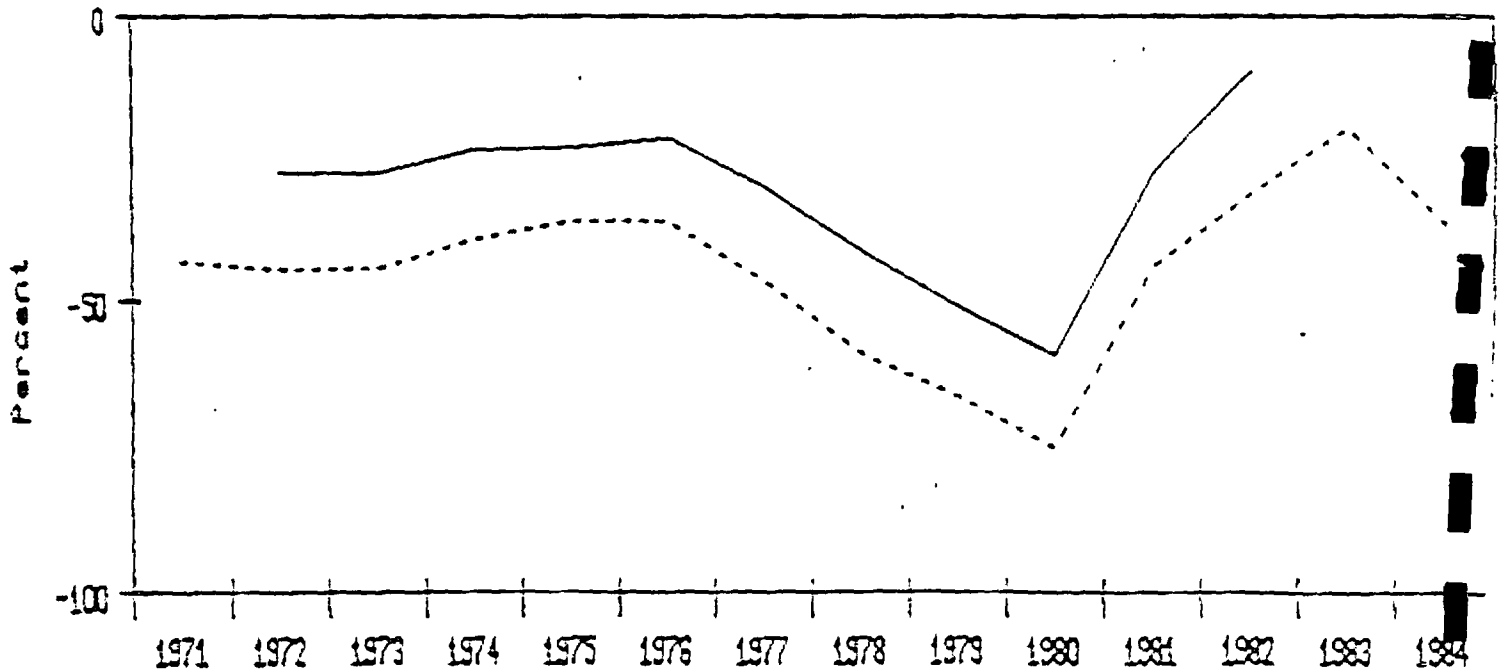
% Difference between Canada and U.S. Input Unit Costs Metal Mines

Pre-Exchange Rate Adjusted
Total (Line) Materials, Labour and Taxes (Dot)



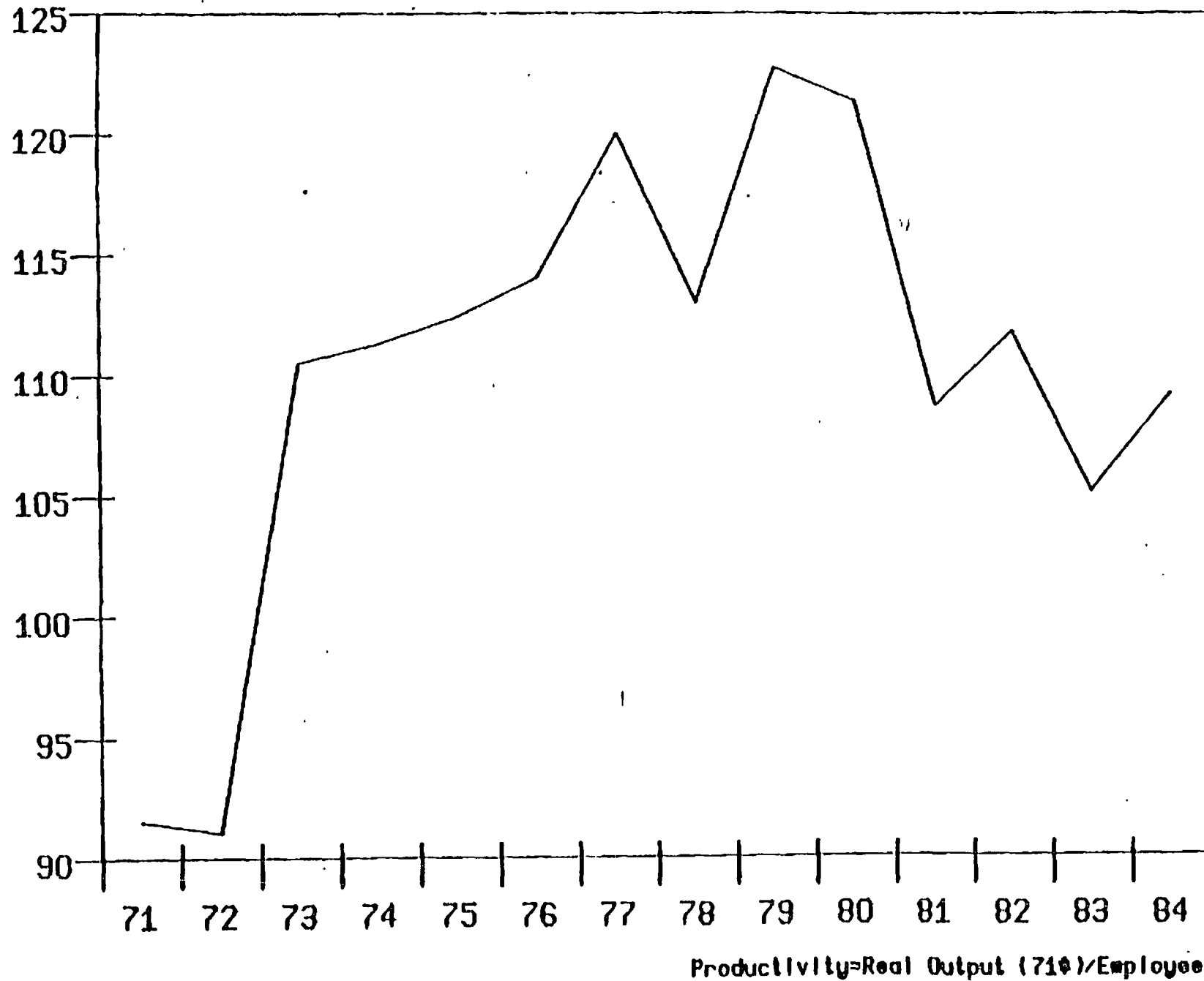
Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line

Exchange Rate Adjusted
Total (Line) Materials, Labour and Taxes (Dot)



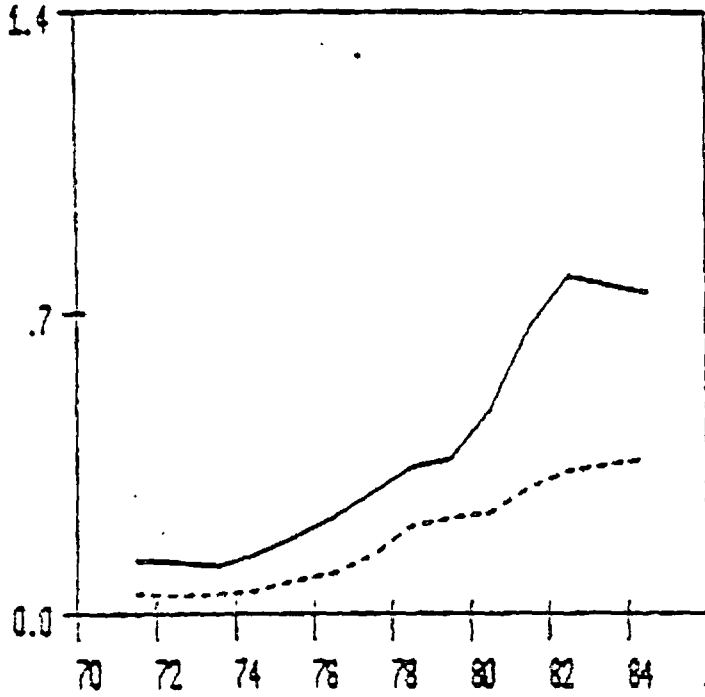
Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line

Productivity Ratio
Canadian Productivity as a % of U.S. Productivity
Metal Mines

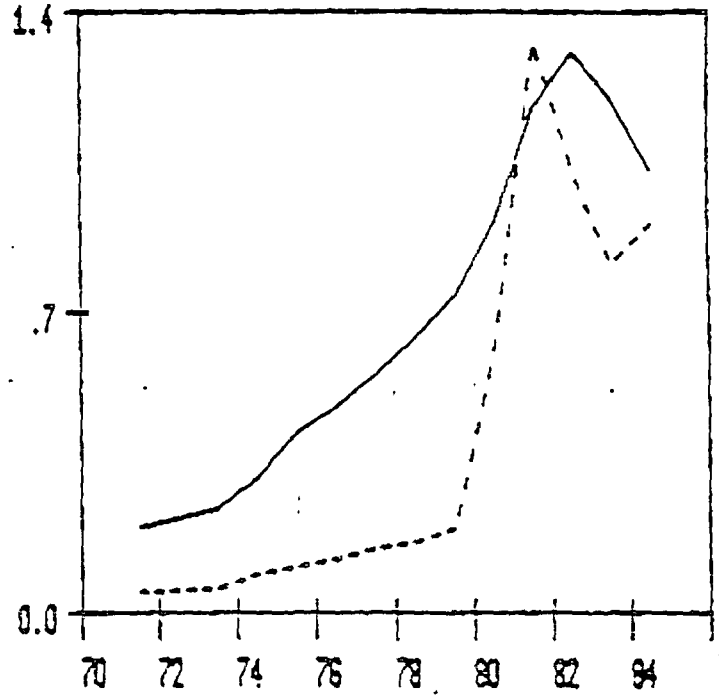


Unit Input Costs
 Nominal Dollars per unit of Real (71\$) Output
 Mineral Fuels
 Pre-Exchange Rate Adjusted

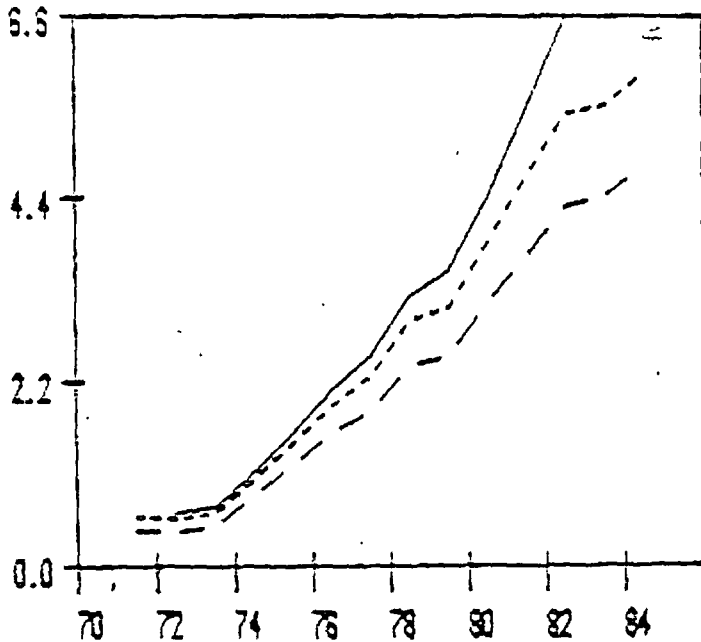
Can. Inputs
 Labour (Line) Taxes (Dot)



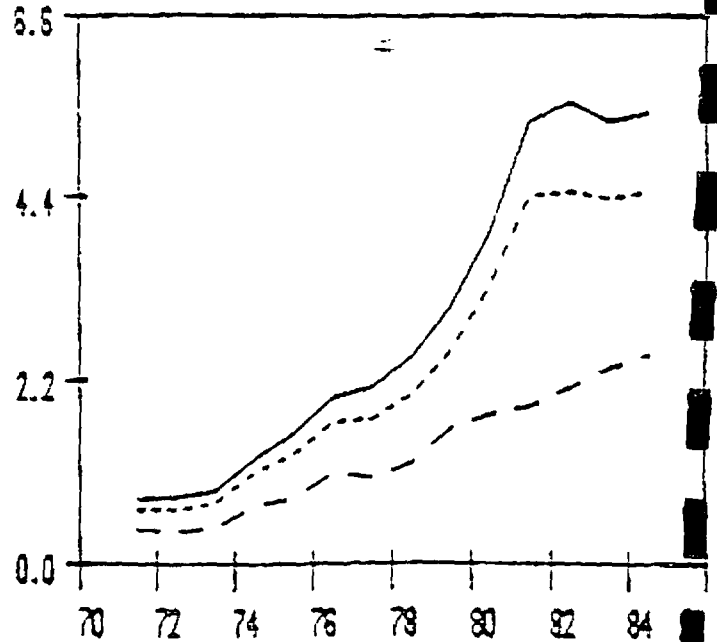
U.S. Inputs
 Labour (Line) Taxes (Dot)



Can. Input Totals
 Materials (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)

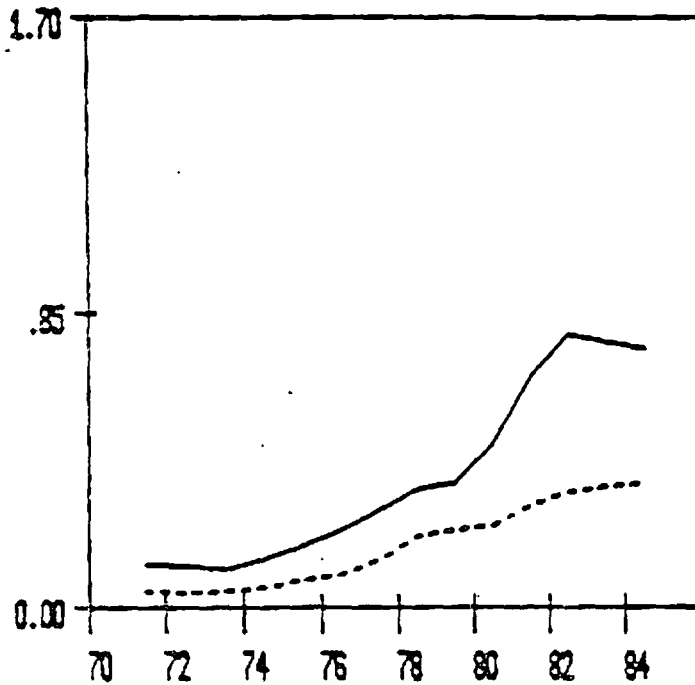


U.S. Input Totals
 Materials (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)

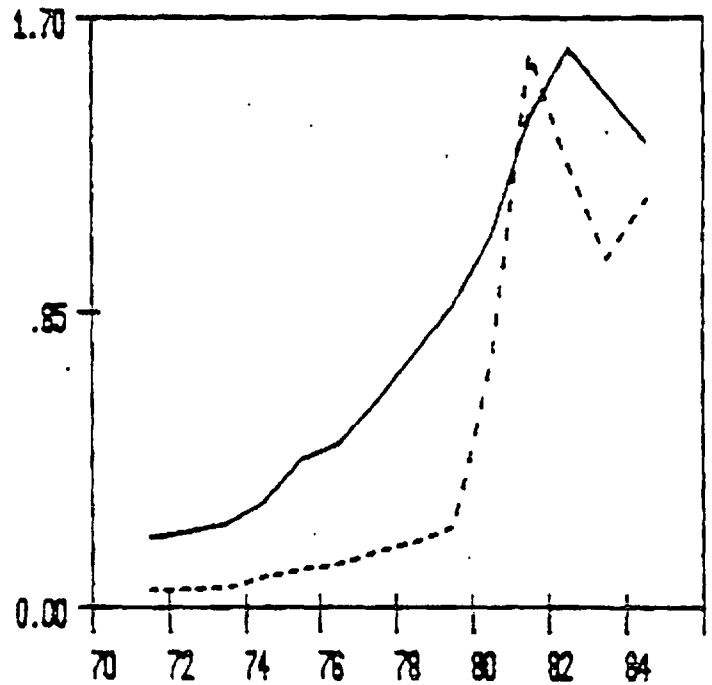


Unit Input Costs
 Nominal Dollars per unit of Real (71\$) Output
 Mineral Fuels
 Exchange Rate Adjusted

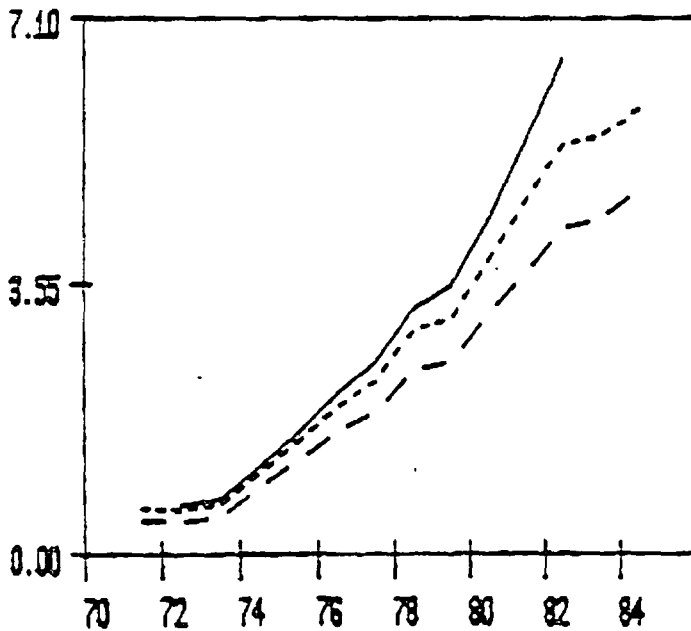
Can. Inputs
 Labour (Line) Taxes (Dot)



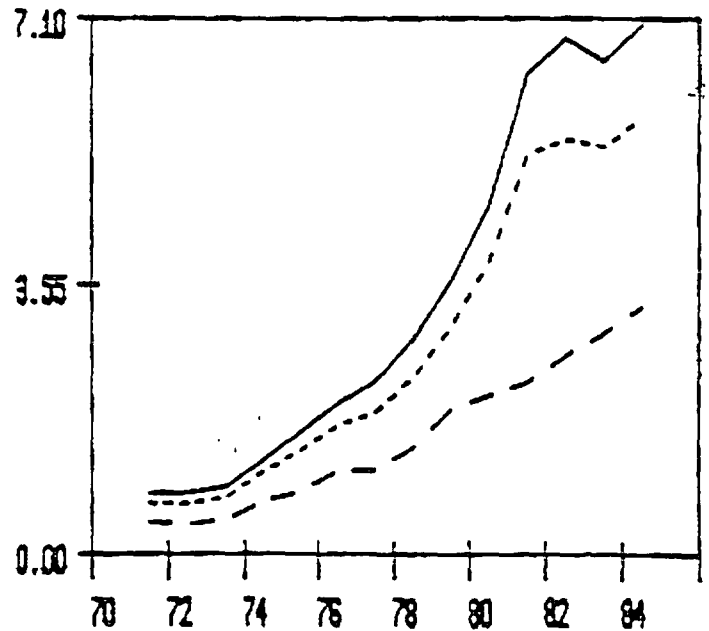
U.S. Inputs
 Labour (Line) Taxes (Dot)



Can. Input Totals
 Materials (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)

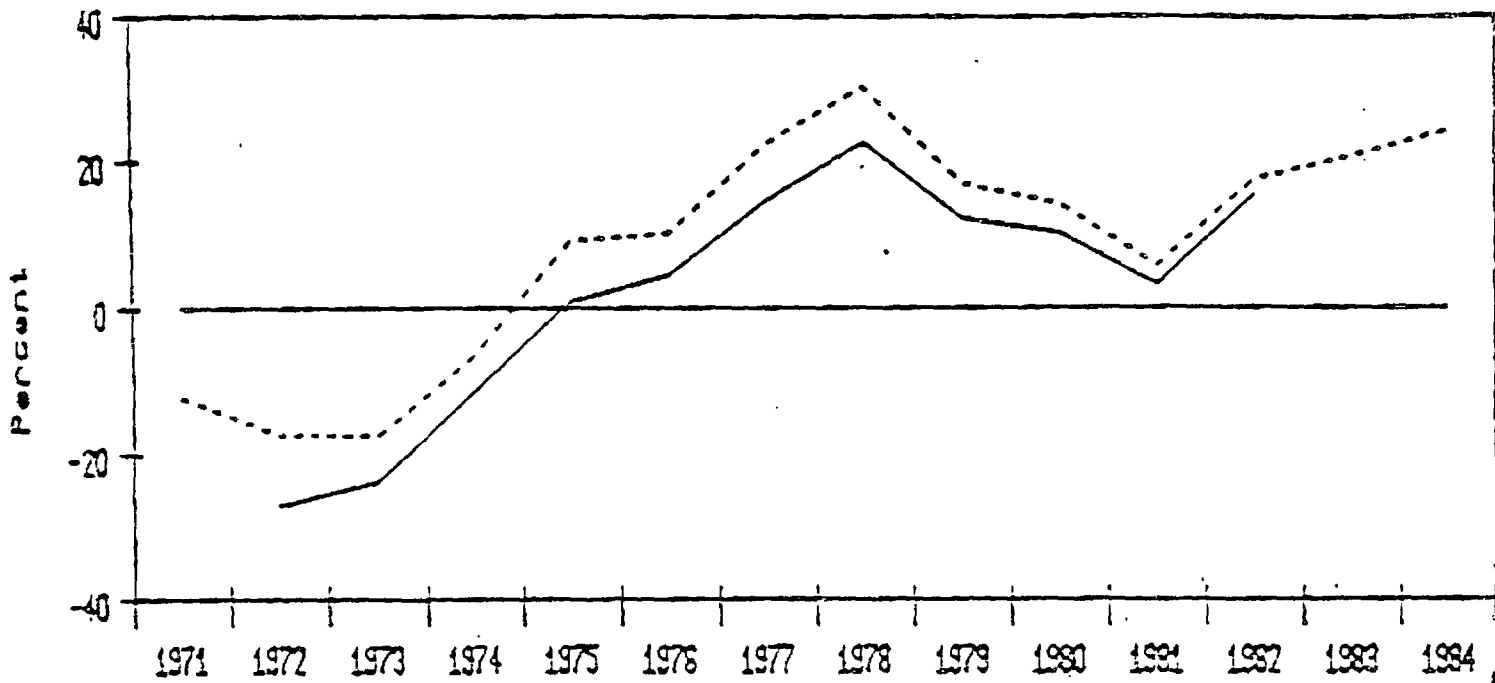


U.S. Input Totals
 Materials (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)



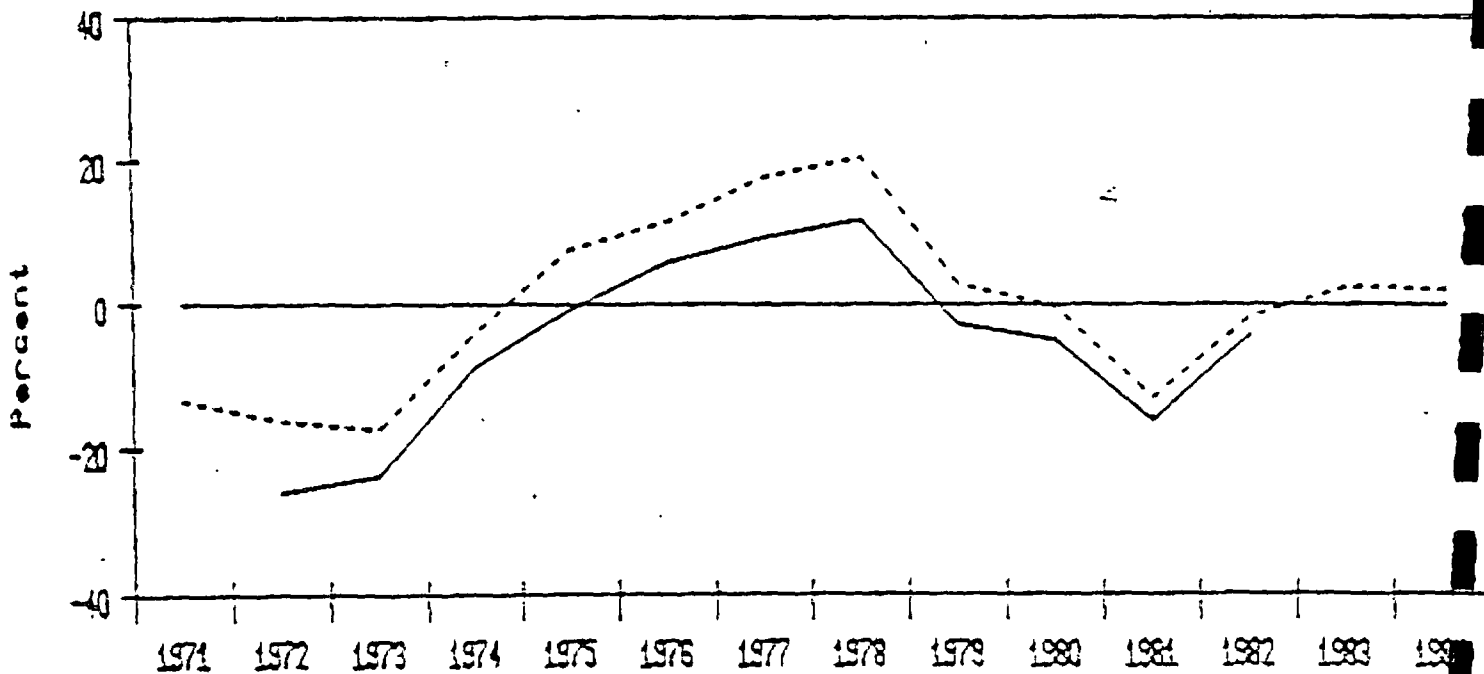
% Difference between Canada and U.S. Input Unit Costs Mineral Fuels

Pre-Exchange Rate Adjusted
Total (Line) Materials, Labour and Taxes (Dot)



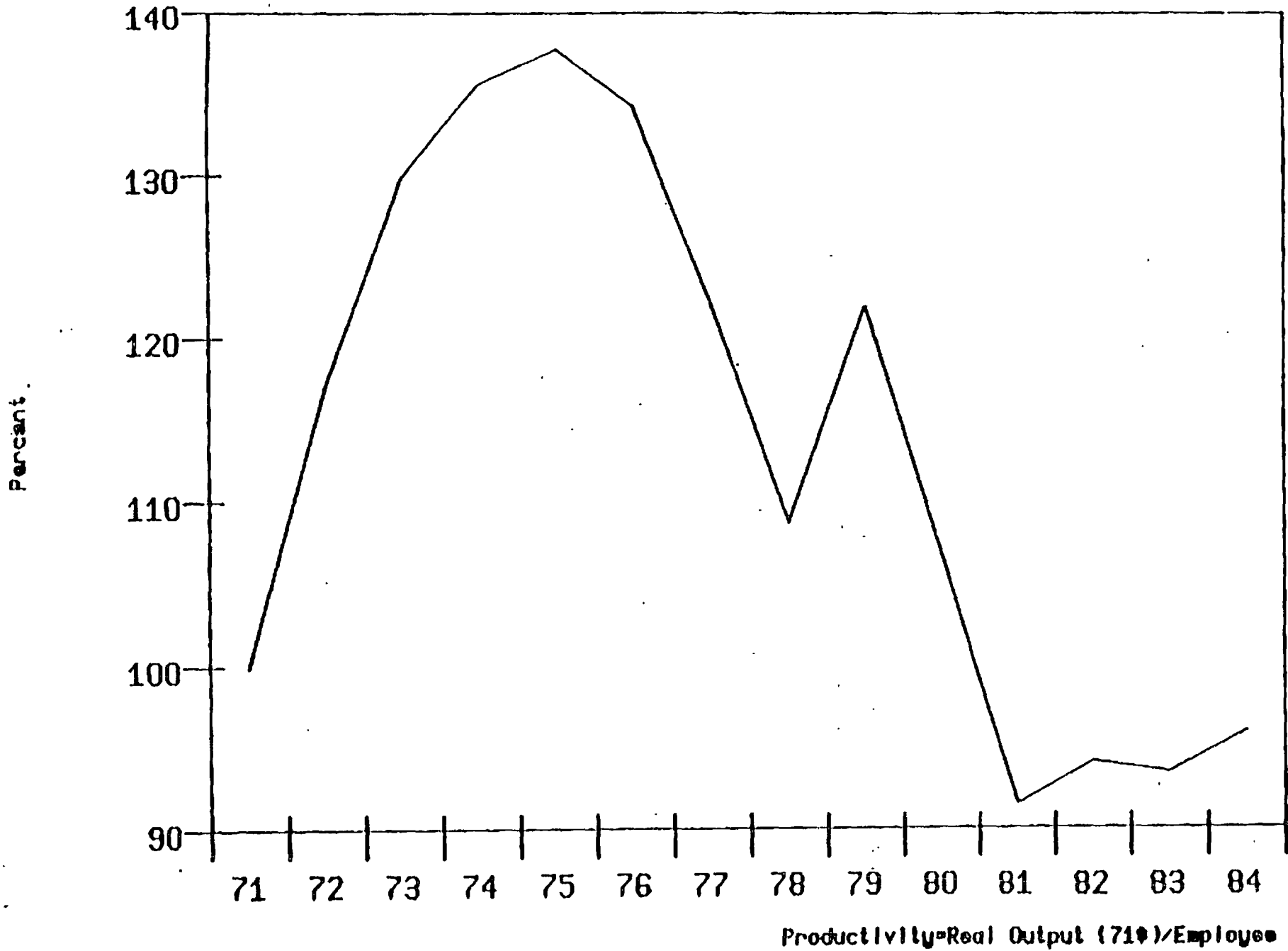
Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line

Exchange Rate Adjusted
Total (Line) Materials, Labour and Taxes (Dot)

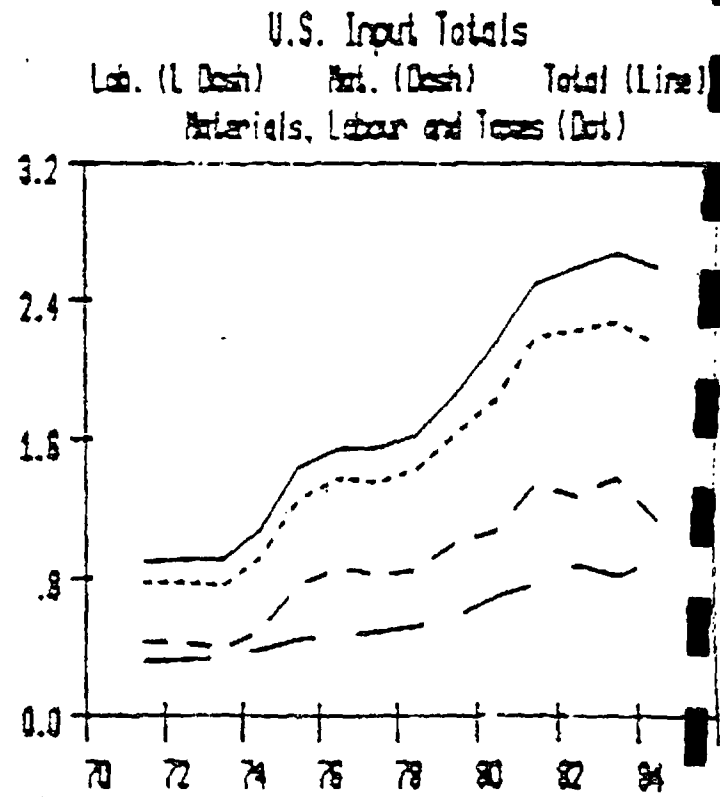
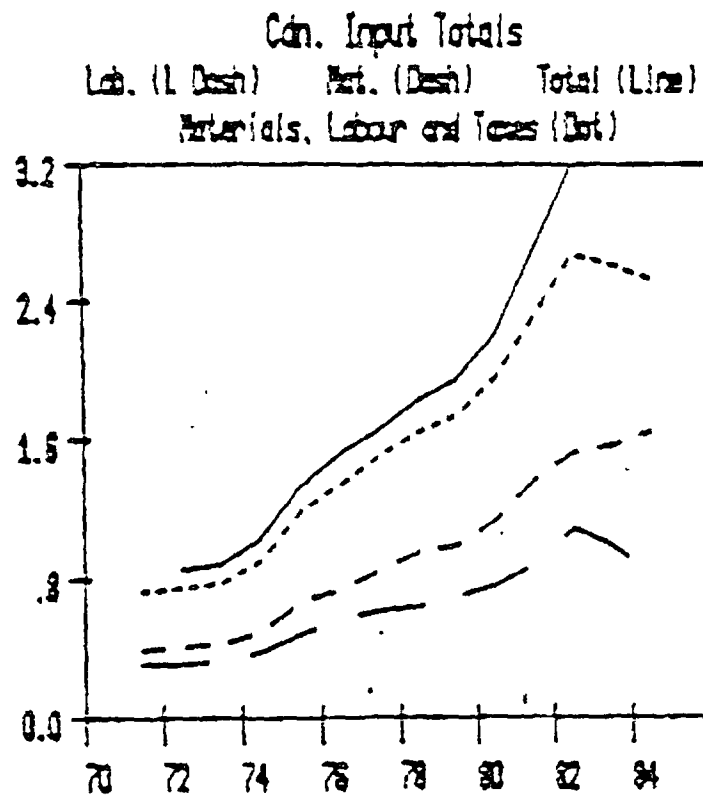
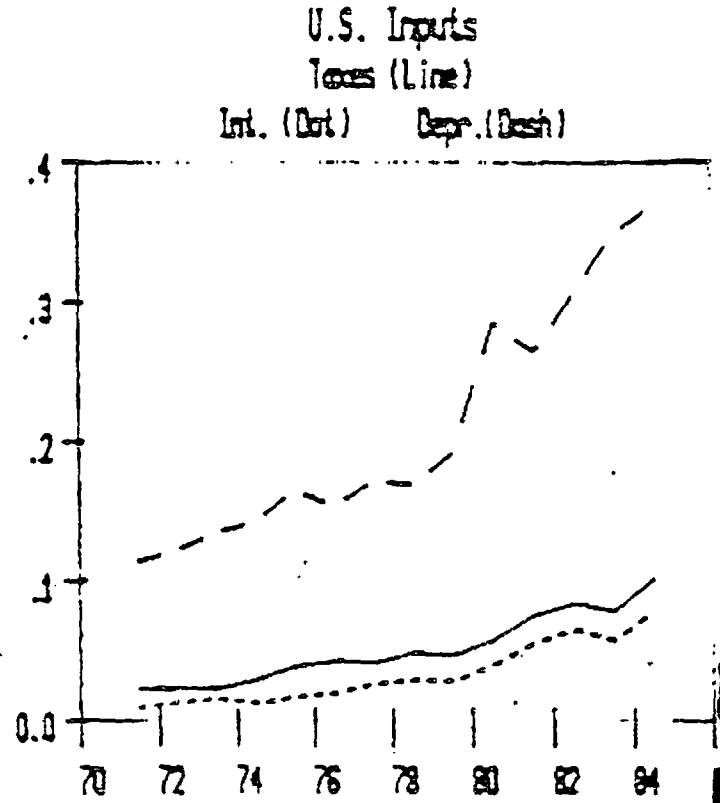
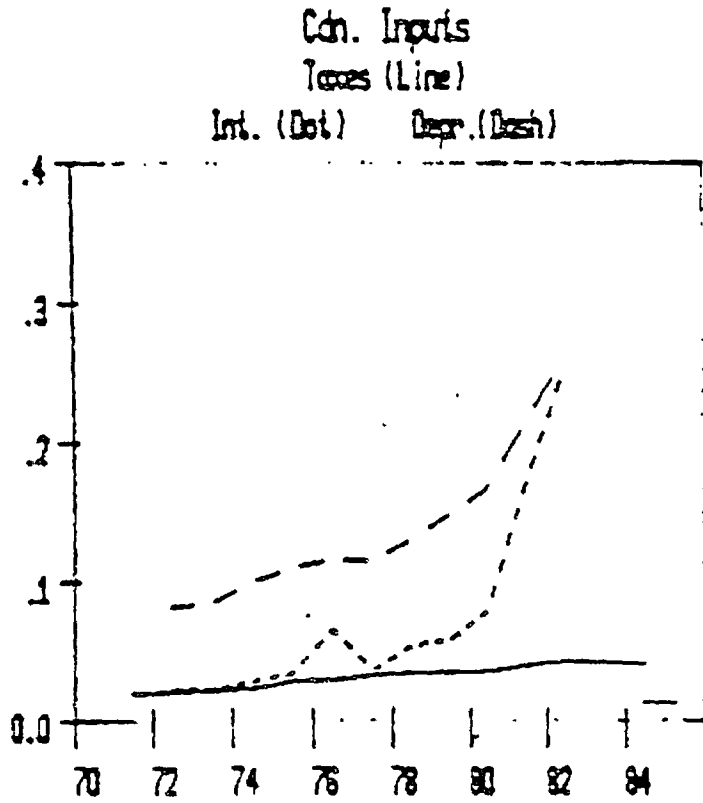


Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line

Productivity Ratio
Canadian Productivity as a % of U.S. Productivity
Mineral Fuels



Unit Input Costs
 Nominal Dollars per unit of Real (71\$) Output
 Non-Metal Mines & Quarries
 Pre-Exchange Rate Adjusted



Unit Input Costs

Nominal Dollars per unit of Real (71\$) Output

Non-Metal Mines & Quarries

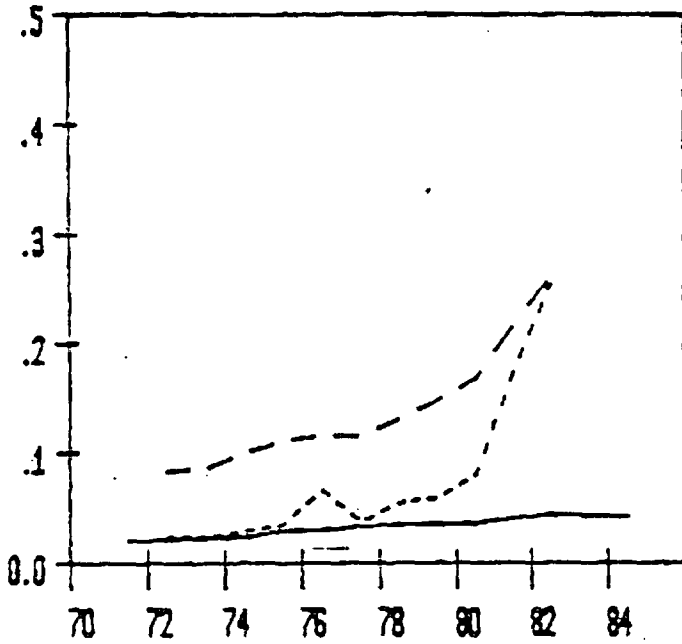
Exchange Rate Adjusted

Can. Inputs

Taxes (Line)

Int. (Dot)

Depr. (Dash)

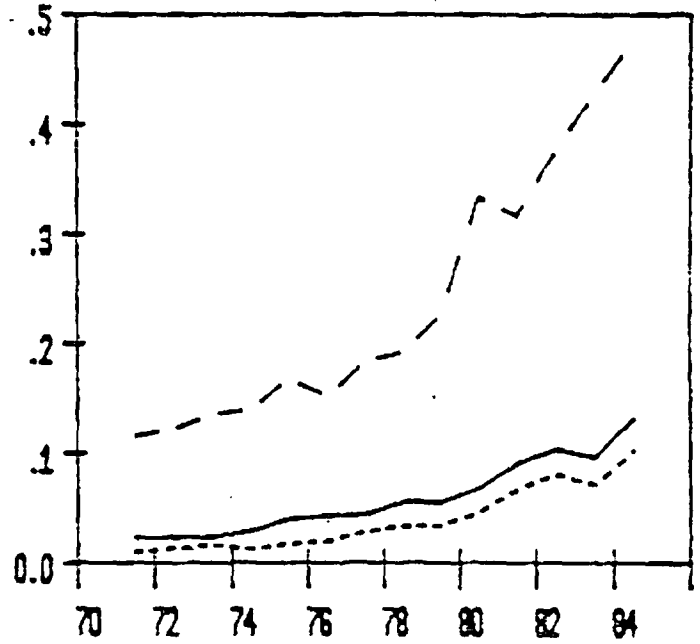


U.S. Inputs

Taxes (Line)

Int. (Dot)

Depr. (Dash)



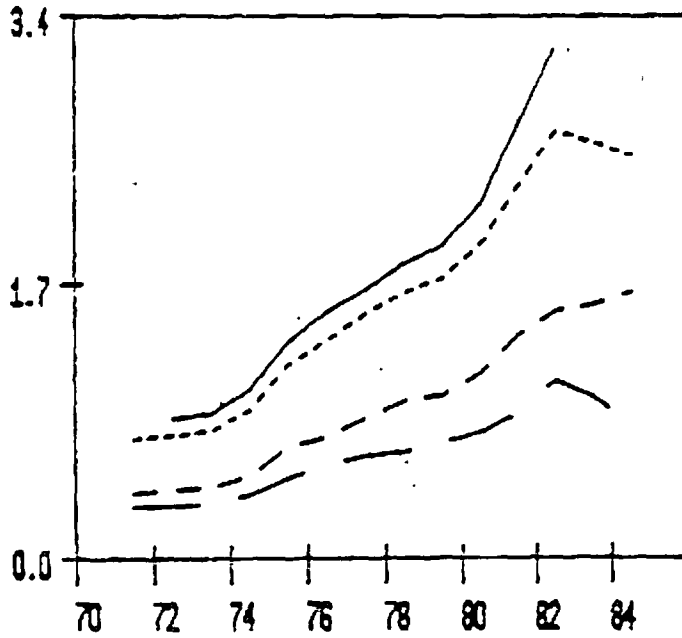
Can. Input Totals

Lab. (L Dash)

Mat. (Dash)

Total (Line)

Materials, Labour and Taxes (Dot)



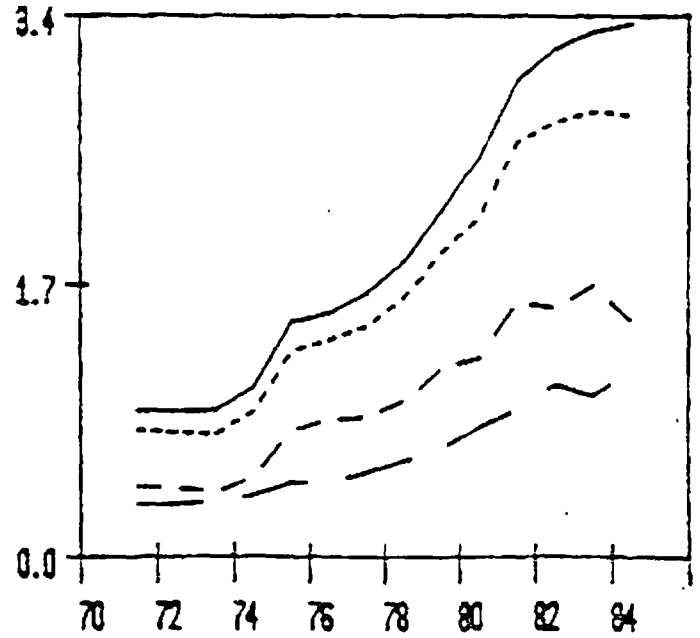
U.S. Input Totals

Lab. (L Dash)

Mat. (Dash)

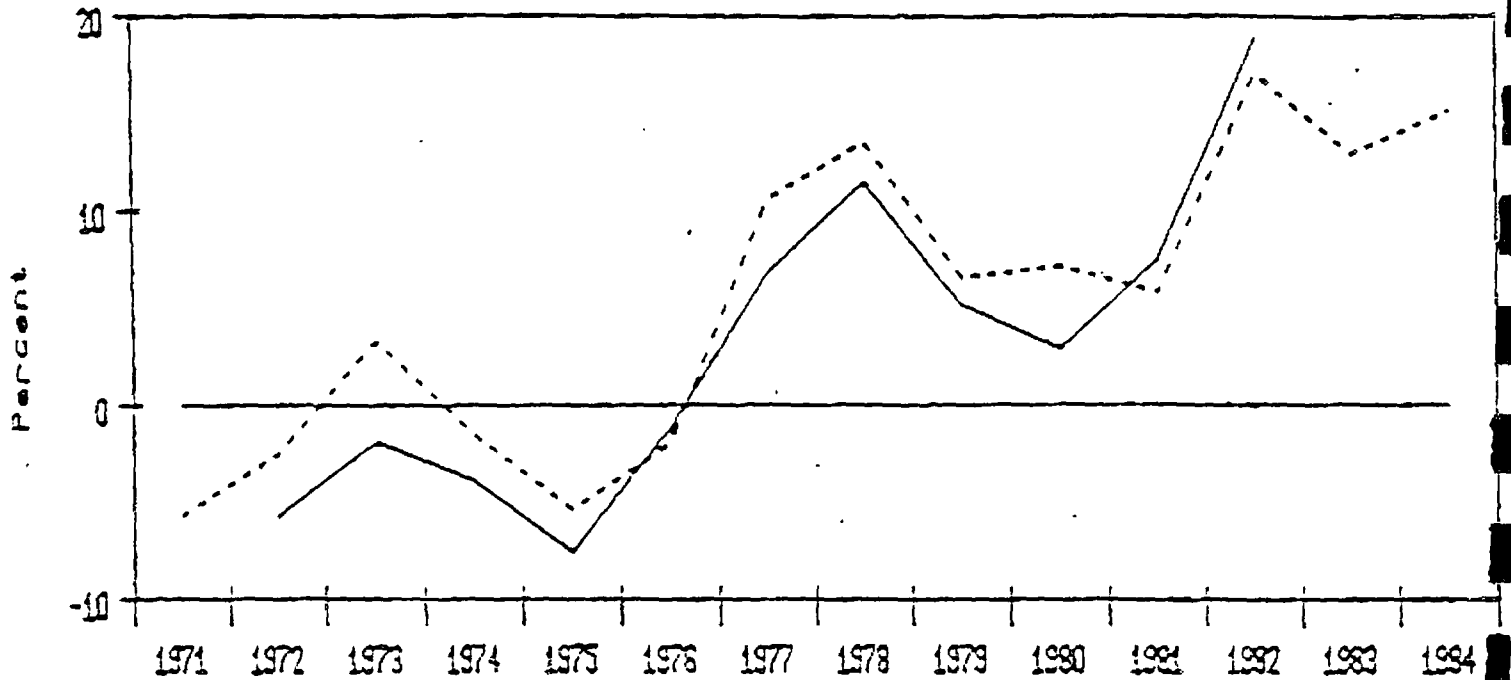
Total (Line)

Materials, Labour and Taxes (Dot)



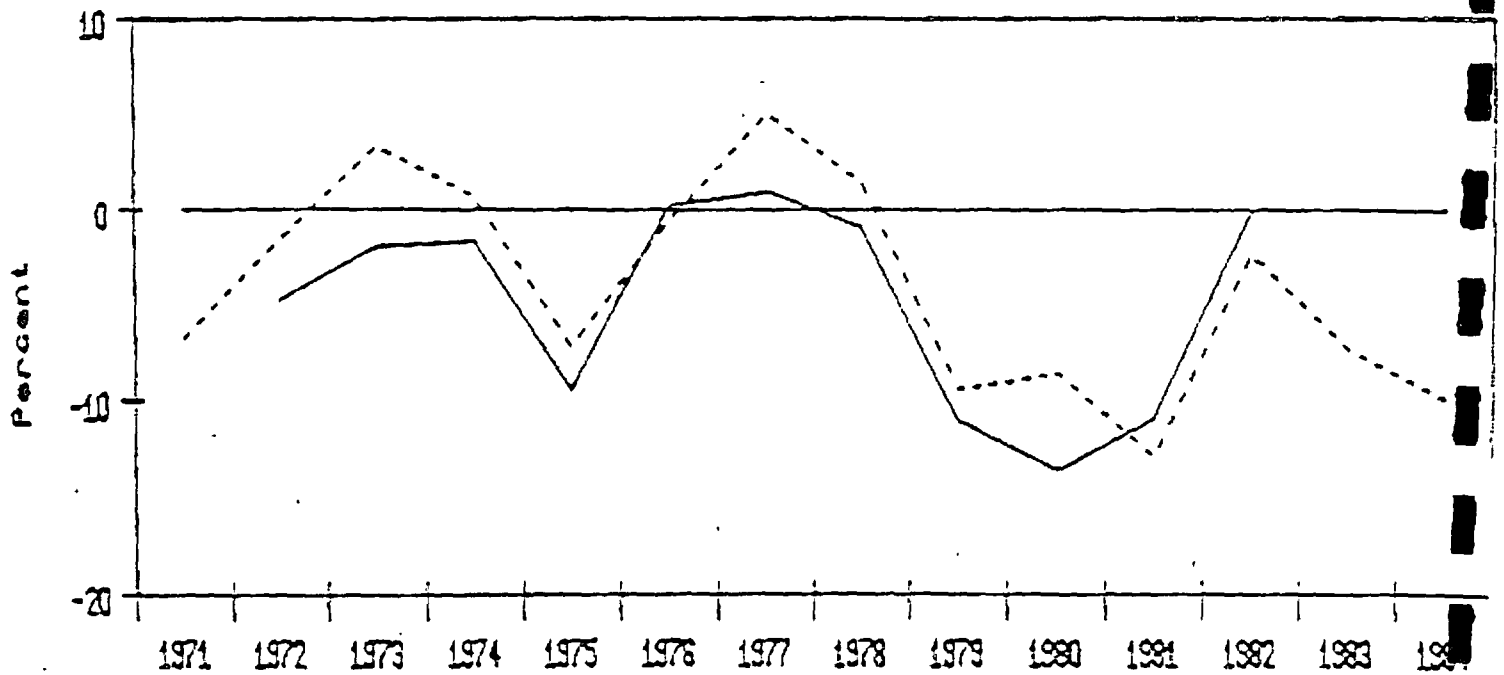
% Difference between Canada and U.S. Input Unit Costs Non-Metal Mines & Quarries

Pre-Exchange Rate Adjusted
Total (Line) Materials, Labour and Taxes (Dot)



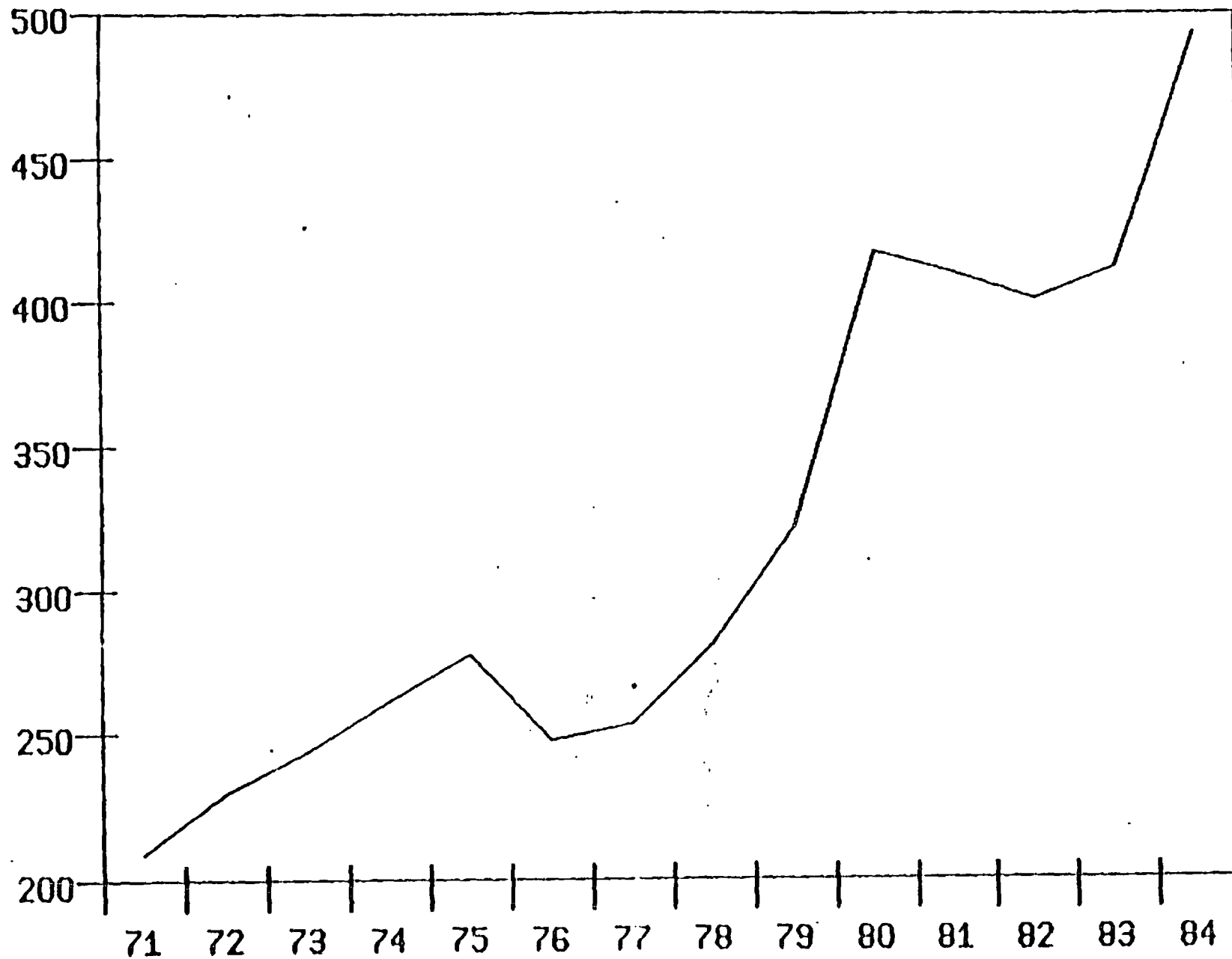
Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line

Exchange Rate Adjusted
Total (Line) Materials, Labour and Taxes (Dot)



Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line

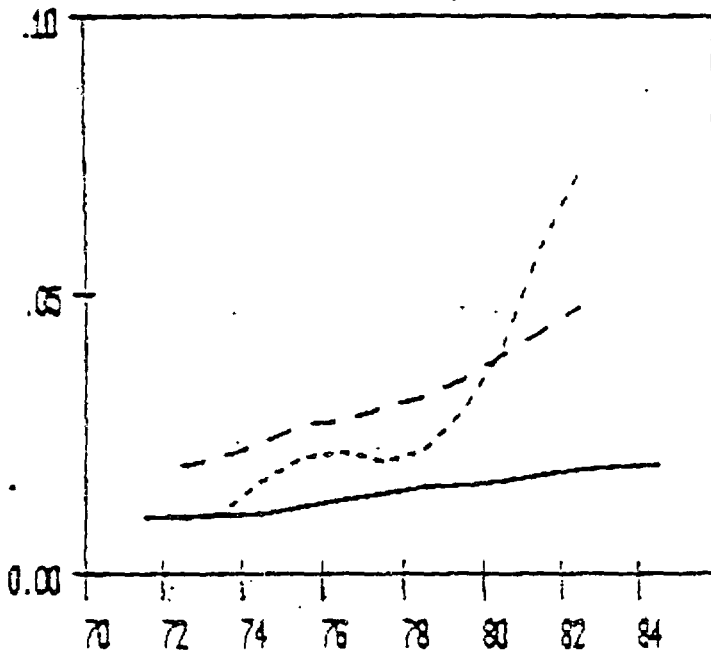
Productivity Ratio
Canadian Productivity as a % of U.S. Productivity
Non-Metal Mines & Quarries



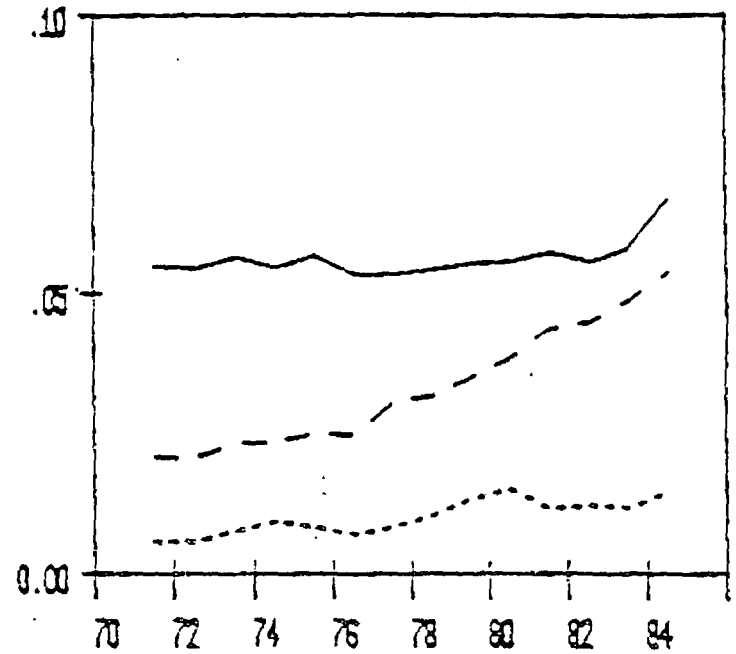
Productivity=Real Output (71=1)/Employee

Unit Input Costs
 Nominal Dollars per unit of Real (71\$) Output
 Food & Beverage Industries
 Pre-Exchange Rate Adjusted

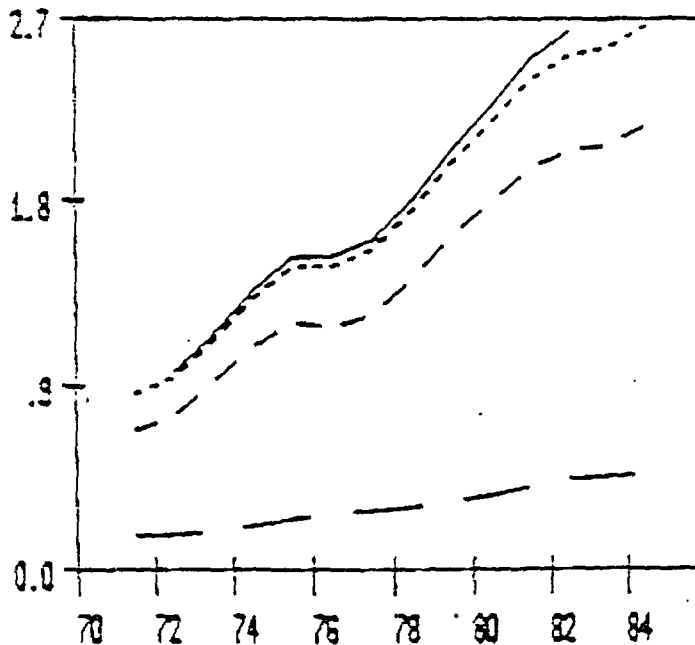
Can. Inputs
 Taxes (Line)
 Int. (Dot) Depr. (Dash)



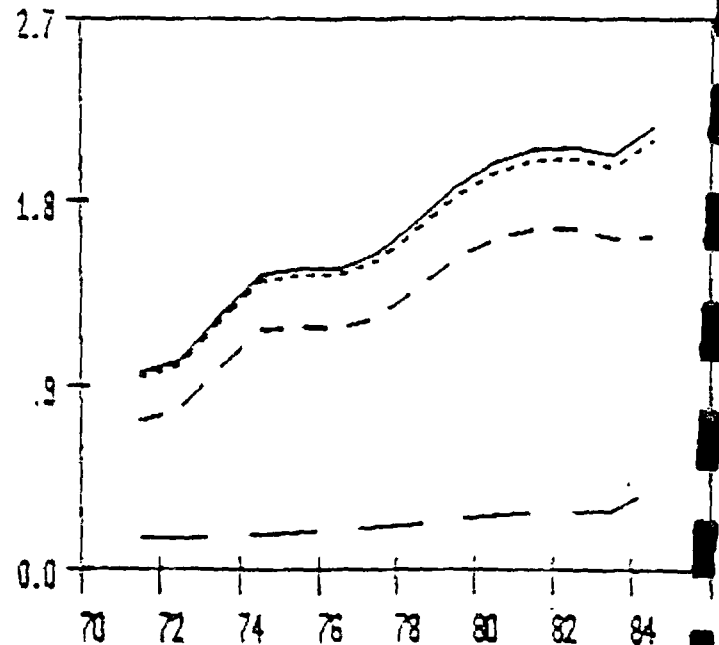
U.S. Inputs
 Taxes (Line)
 Int. (Dot) Depr. (Dash)



Can. Input Totals
 Lab. (L Dash) Mat. (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)

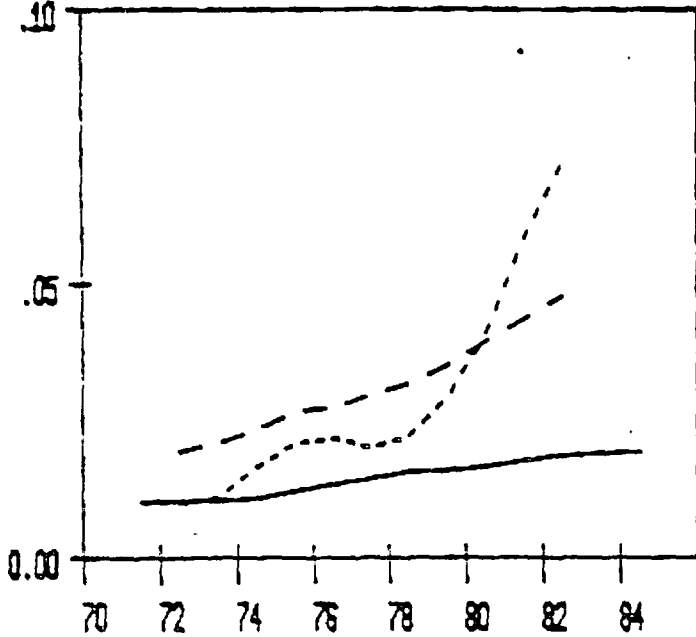


U.S. Input Totals
 Lab. (L Dash) Mat. (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)

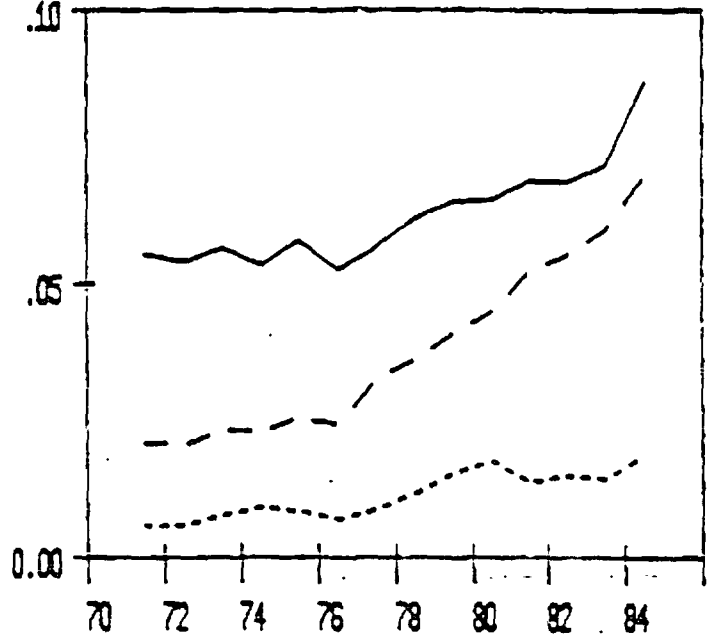


Unit Input Costs
 Nominal Dollars per unit of Real (71\$) Output
 Food & Beverage Industries
 Exchange Rate Adjusted

Can. Inputs
 Taxes (Line)
 Int. (Dot) Depr. (Dash)

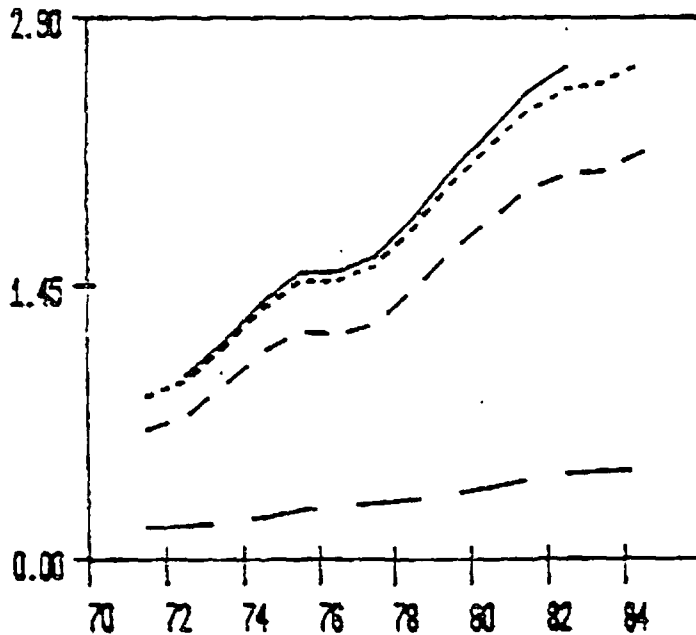


U.S. Inputs
 Taxes (Line)
 Int. (Dot) Depr. (Dash)



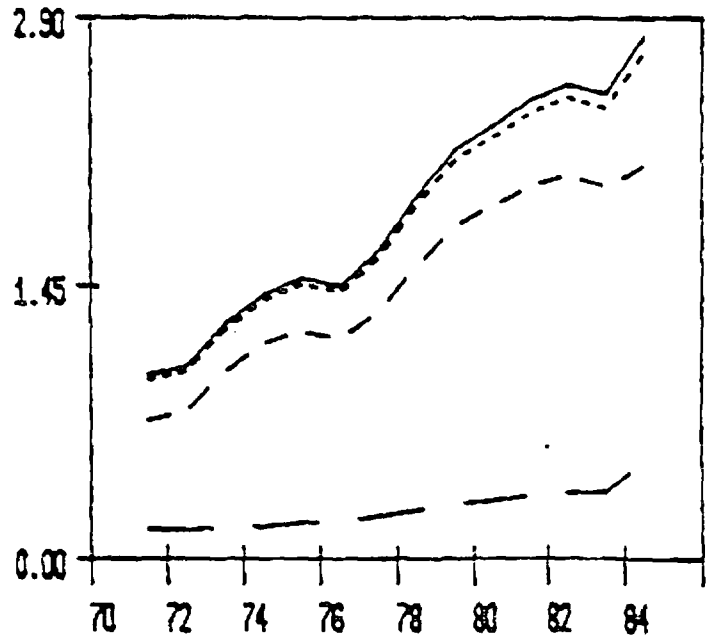
Can. Input Totals

Lab. (L Dash) Mat. (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)



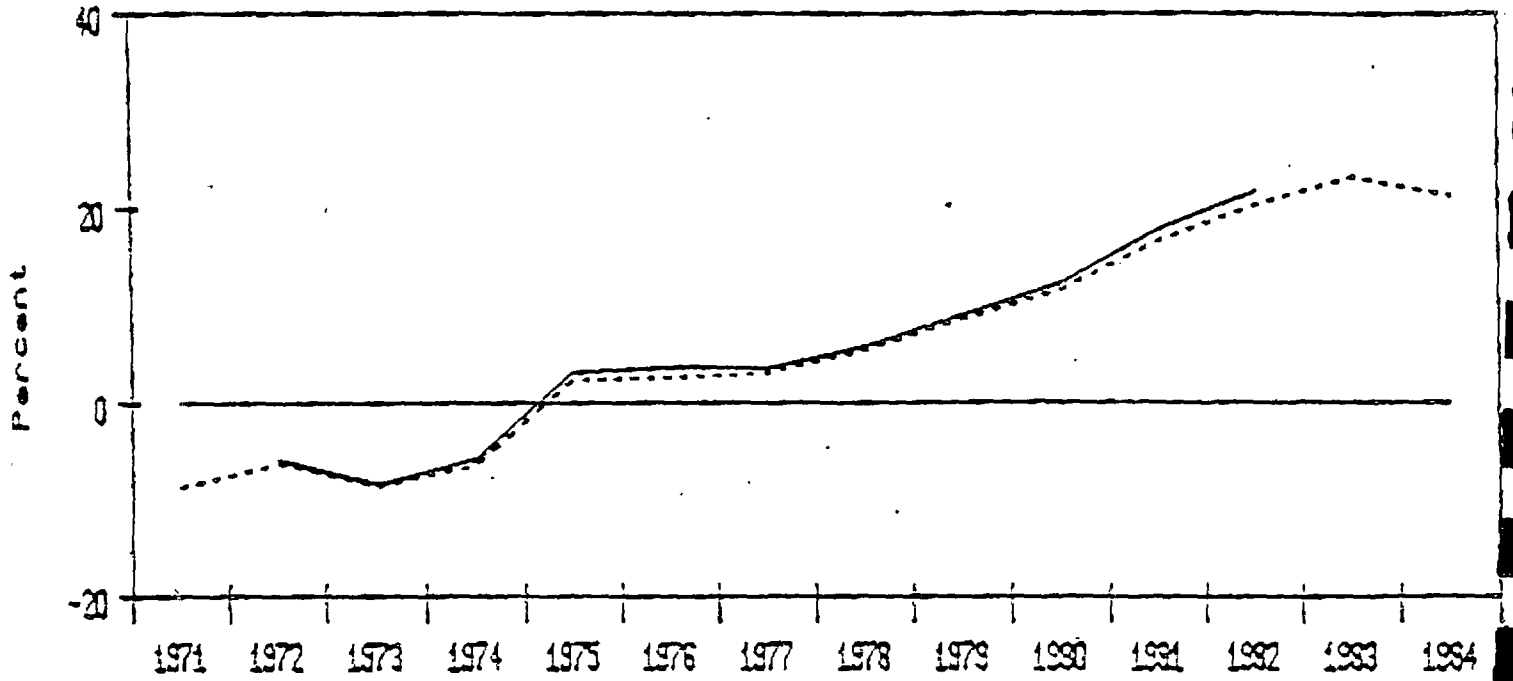
U.S. Input Totals

Lab. (L Dash) Mat. (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)



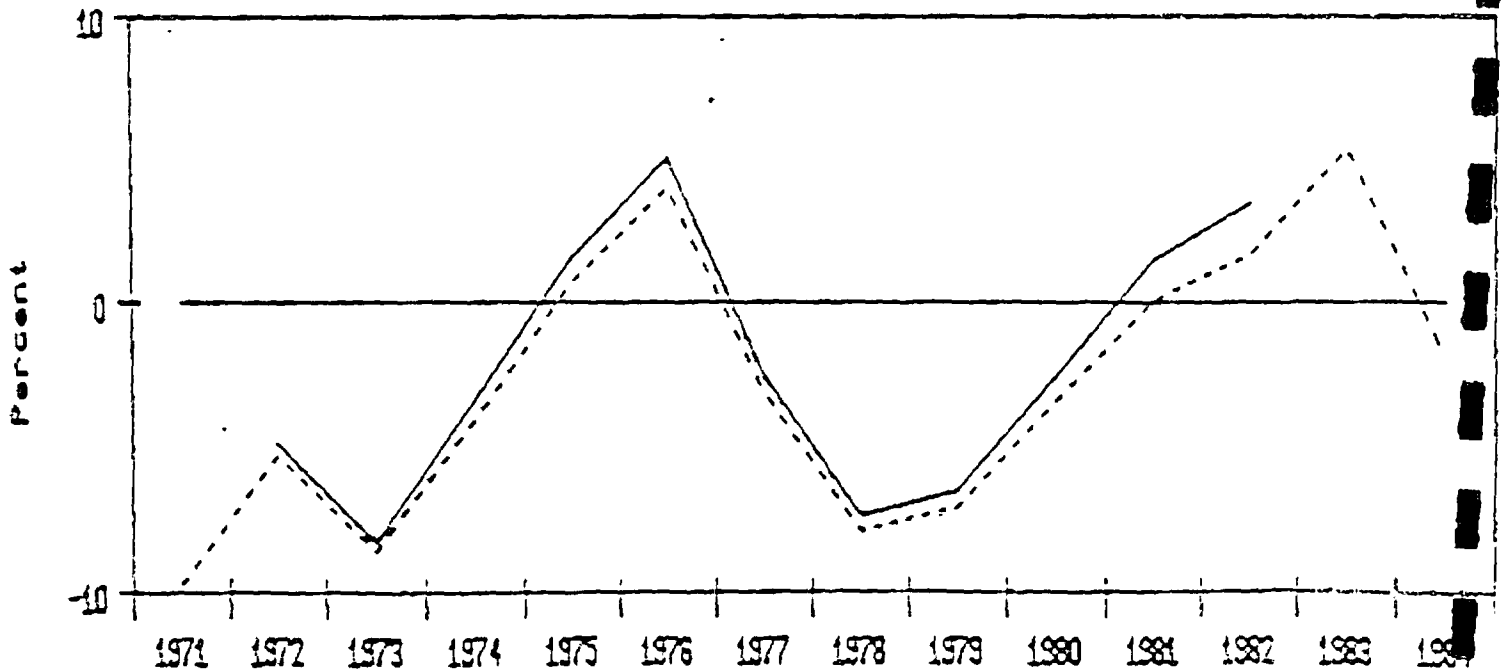
% Difference between Canada and U.S. Input Unit Costs Food & Beverage Industries

Pre-Exchange Rate Adjusted
Total (Line) Materials, Labour and Taxes (Dot)



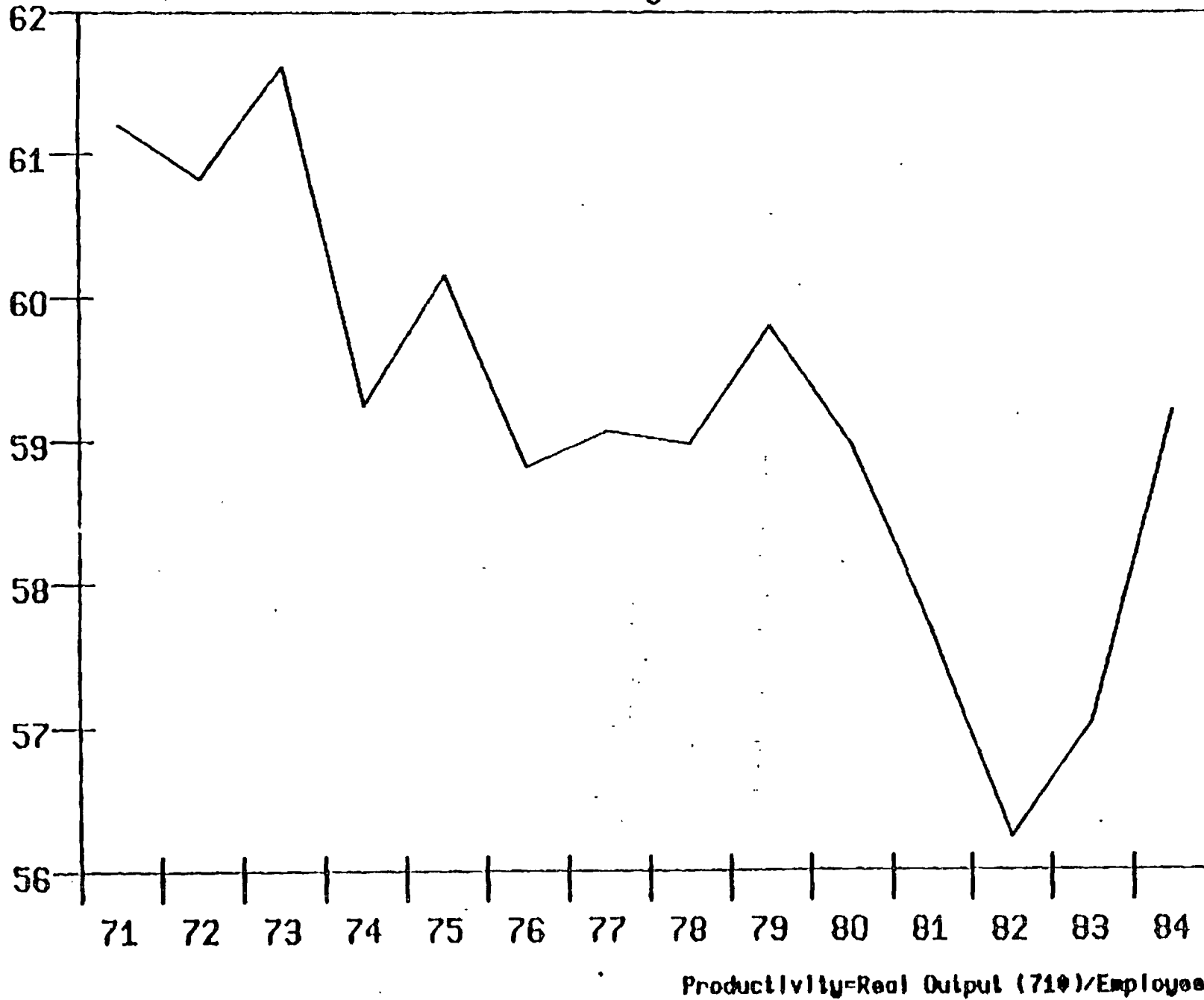
Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line

Exchange Rate Adjusted
Total (Line) Materials, Labour and Taxes (Dot)



Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line

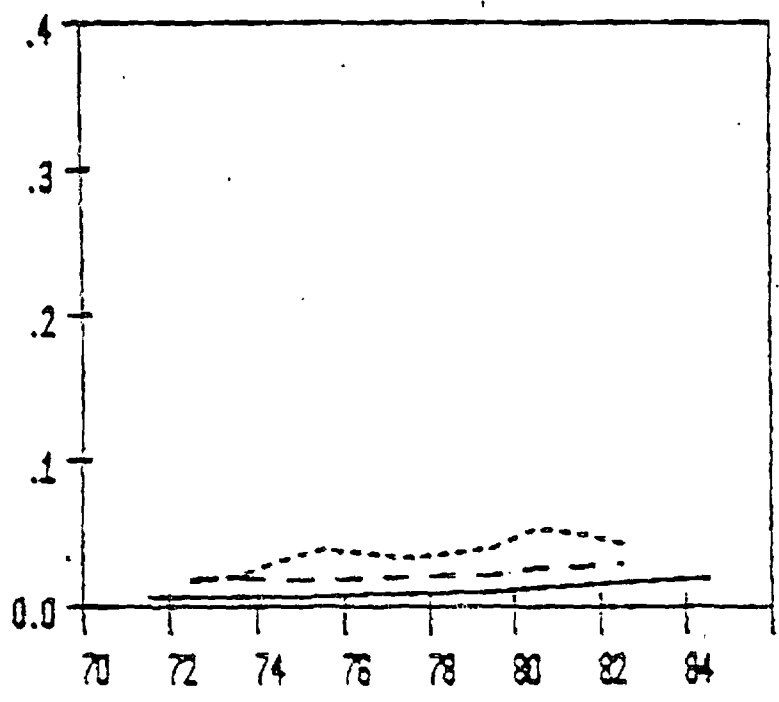
Productivity Ratio
Canadian Productivity as a % of U.S. Productivity
Food & Beverage Industries



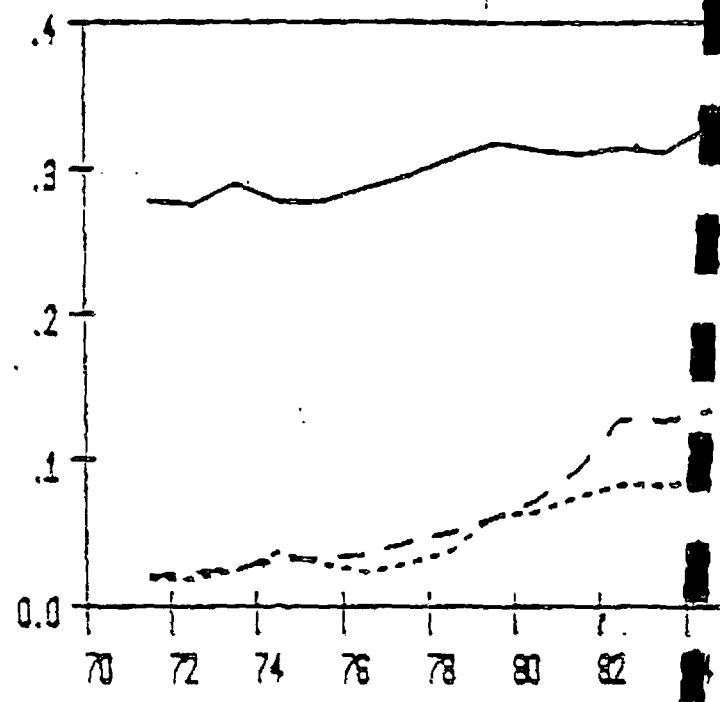
Unit Input Costs

Nominal Dollars per unit of Real (71\$) Output
Tobacco Products Industries
Pre-Exchange Rate Adjusted

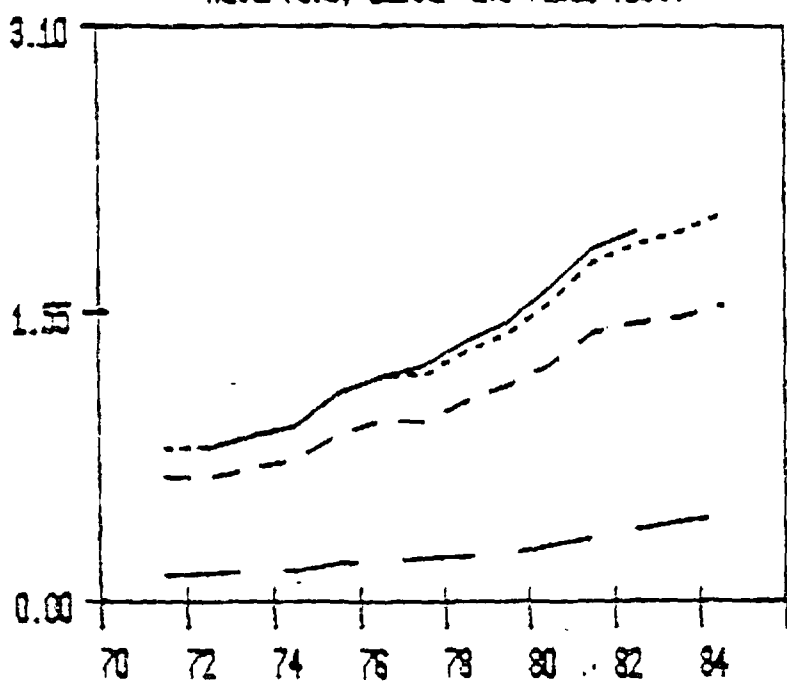
Can. Inputs
Taxes (Line)
Int. (Dot) Depr. (Dash)



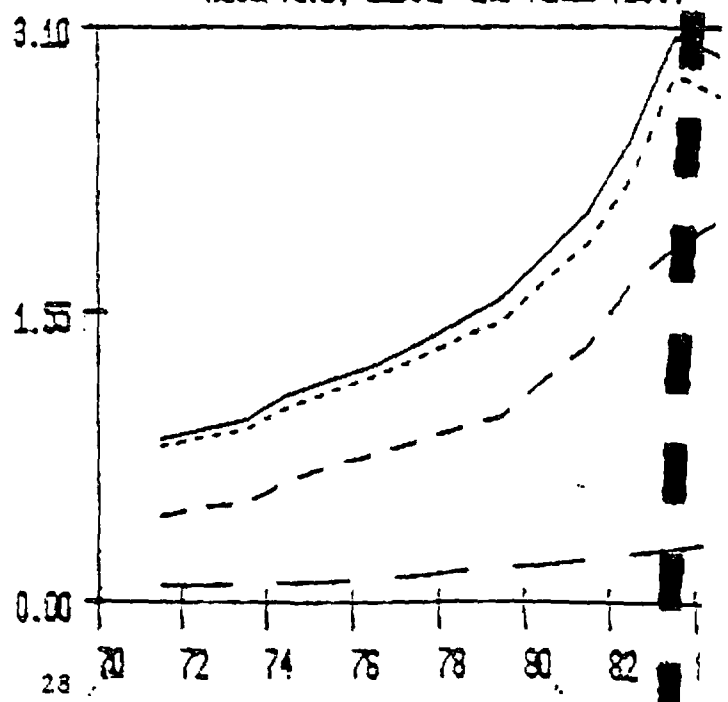
U.S. Inputs
Taxes (Line)
Int. (Dot) Depr. (Dash)



Can. Input Totals
Lab. (L Dash) Mat. (Dash) Total (Line)
Materials, Labour and Taxes (Bot)



U.S. Input Totals
Lab. (L Dash) Mat. (Dash) Total (Line)
Materials, Labour and Taxes (Bot)



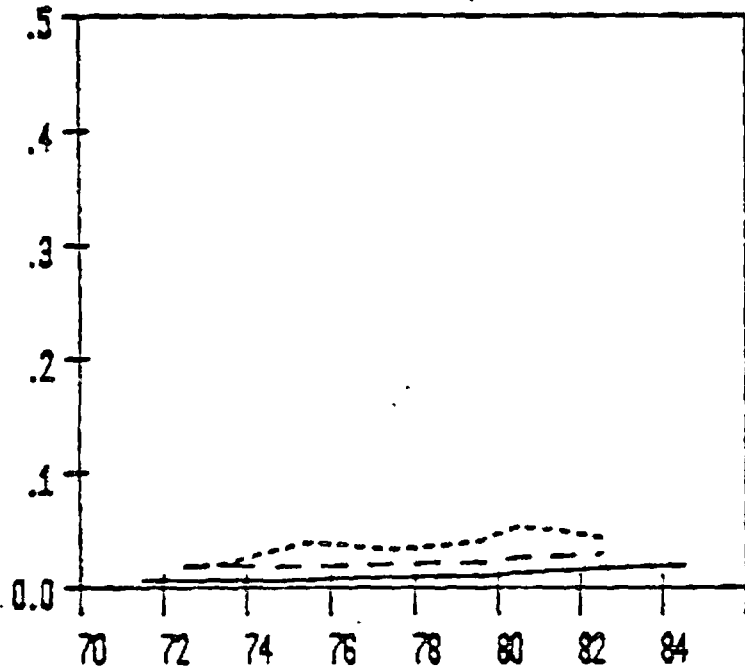
Unit Input Costs

Nominal Dollars per unit of Real (71\$) Output

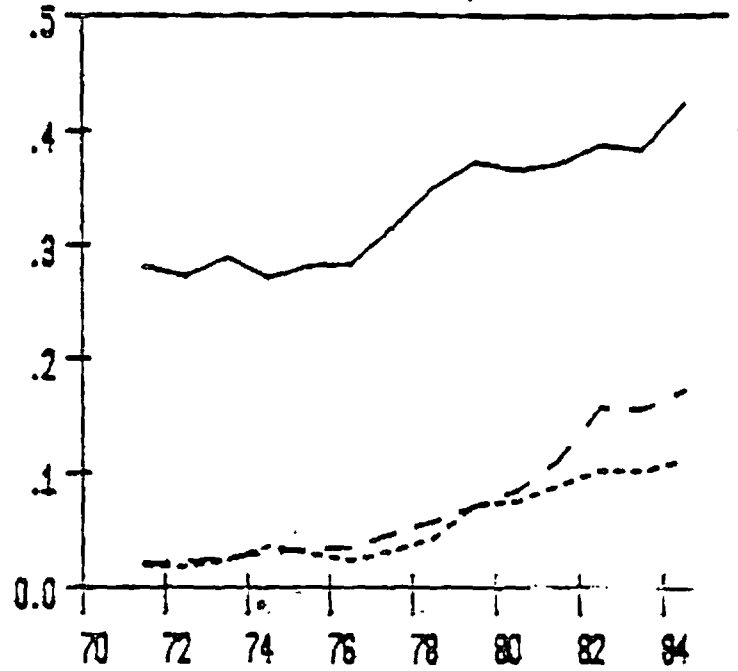
Tobacco Products Industries

Exchange Rate Adjusted

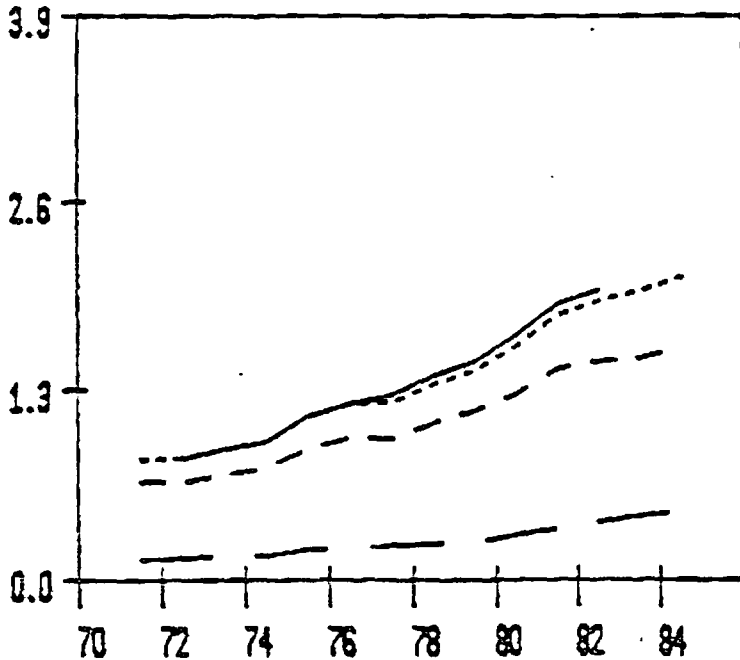
Cdn. Inputs
Taxes (Line)
Int. (Dot) Depr. (Dash)



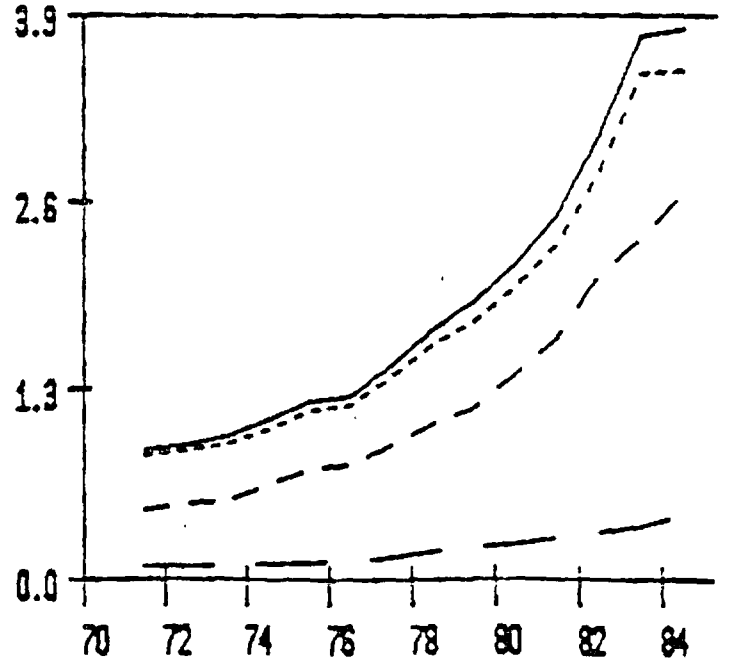
U.S. Inputs
Taxes (Line)
Int. (Dot) Depr. (Dash)



Cdn. Input Totals
Lab. (L Dash) Mat. (Dash) Total (Line)
Materials, Labour and Taxes (Dot)

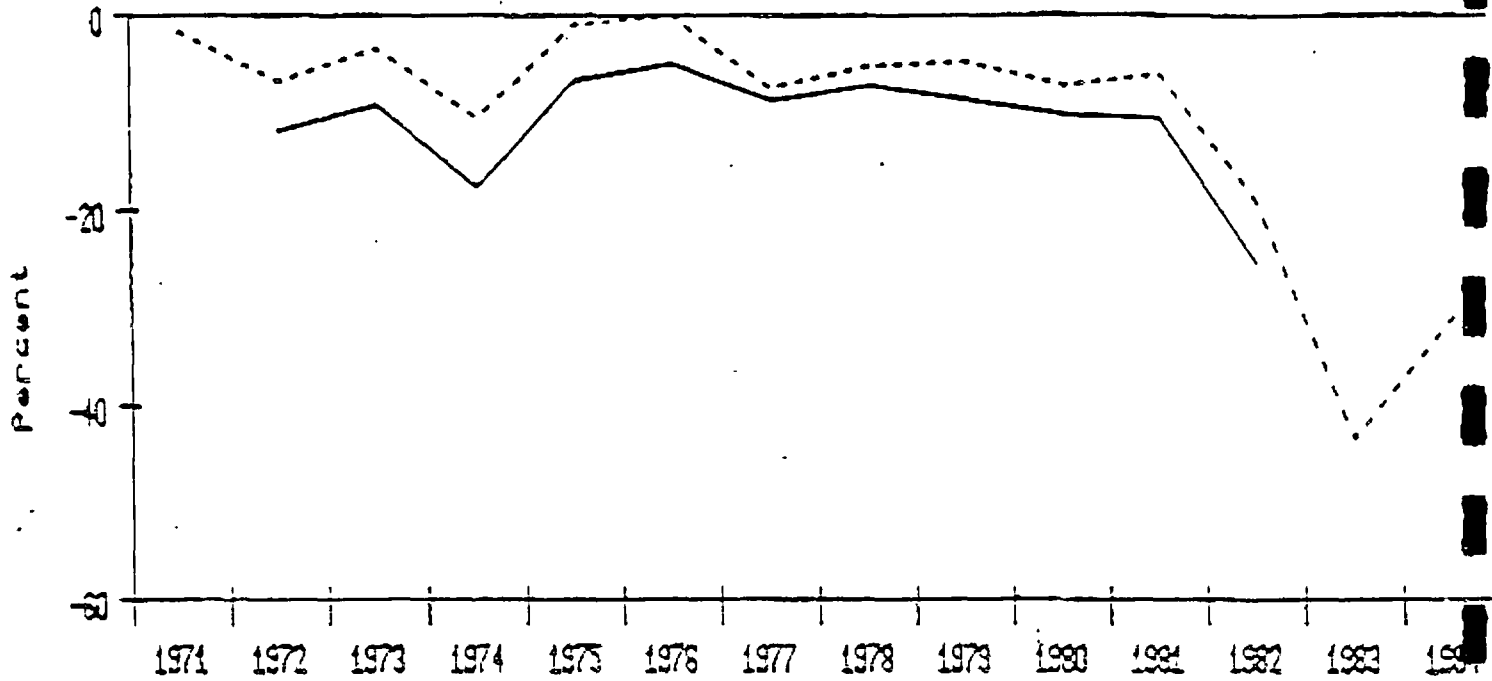


U.S. Input Totals
Lab. (L Dash) Mat. (Dash) Total (Line)
Materials, Labour and Taxes (Dot)



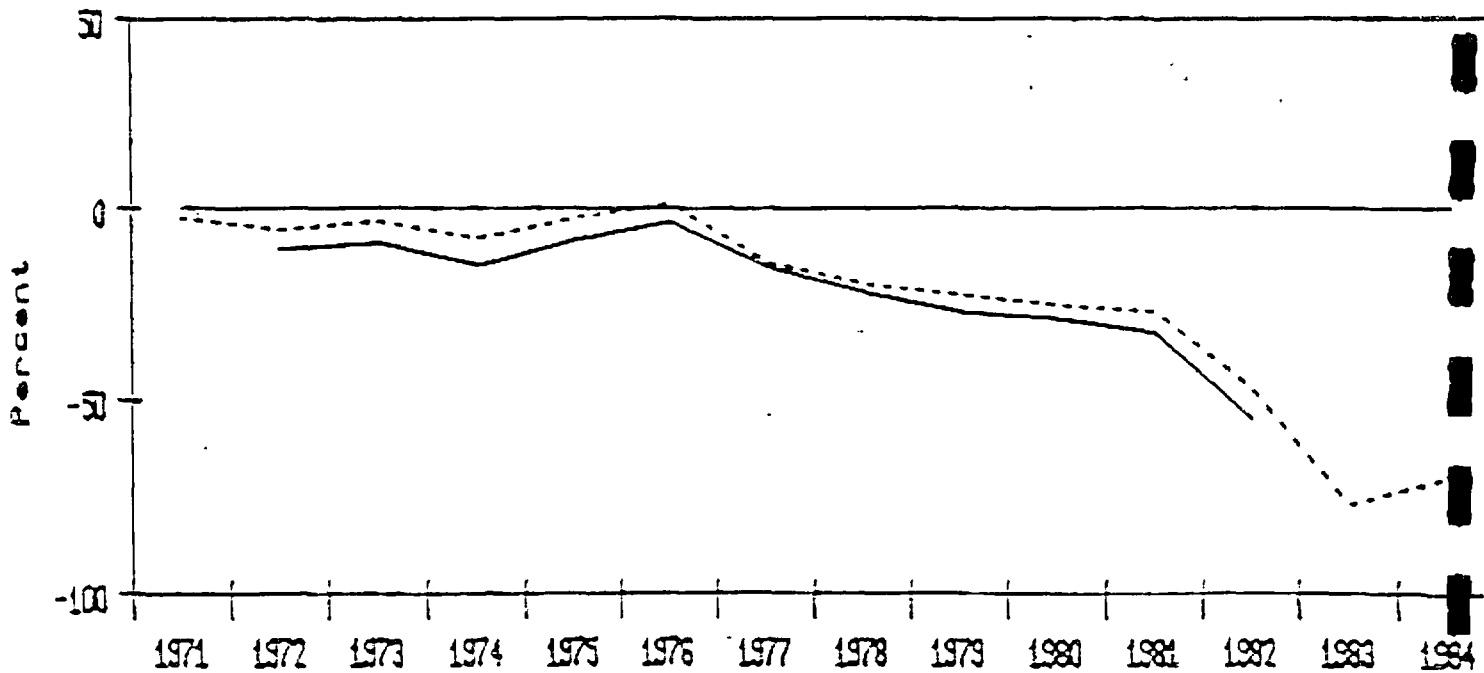
% Difference between Canada and U.S. Input Unit Costs
Tobacco Products Industries

Pre-Exchange Rate Adjusted
Total (Line) Materials, Labour and Taxes (Dot)



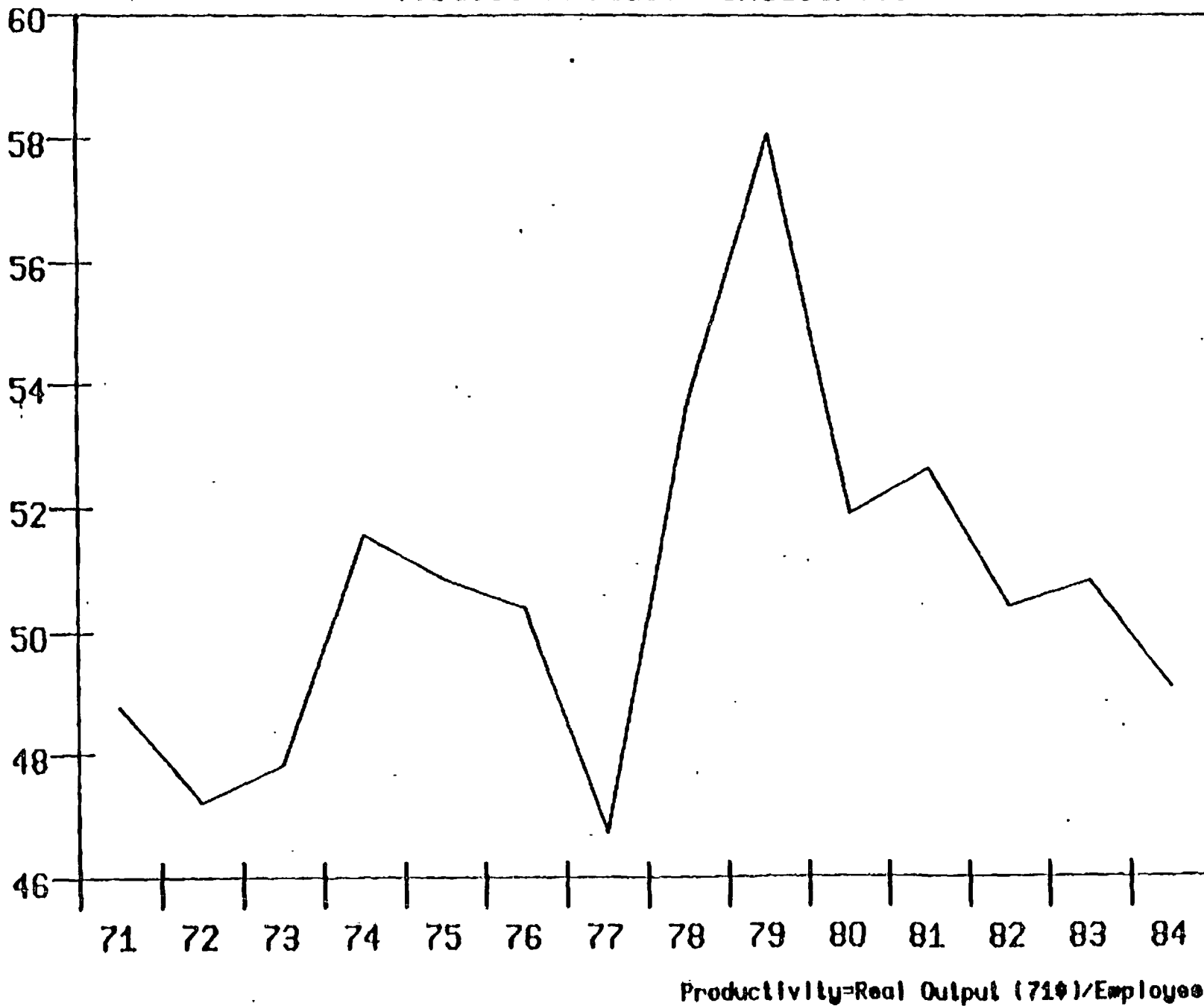
Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line

Exchange Rate Adjusted
Total (Line) Materials, Labour and Taxes (Dot)



Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line

Productivity Ratio
Canadian Productivity as a % of U.S. Productivity
Tobacco Products Industries

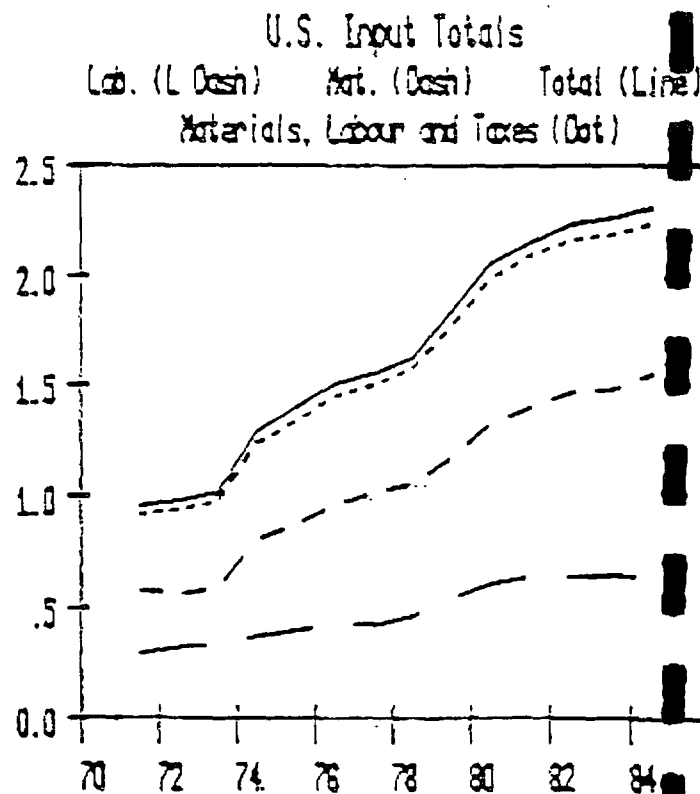
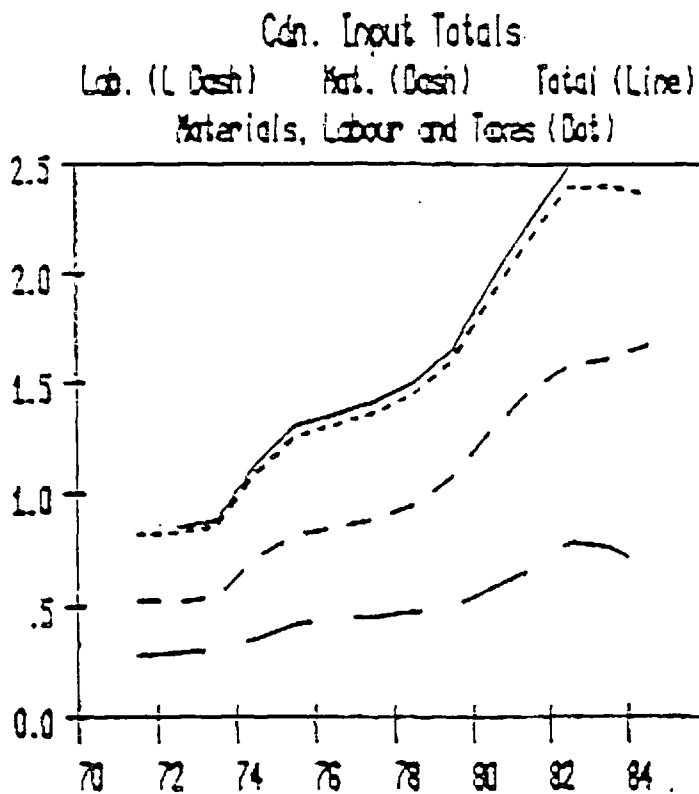
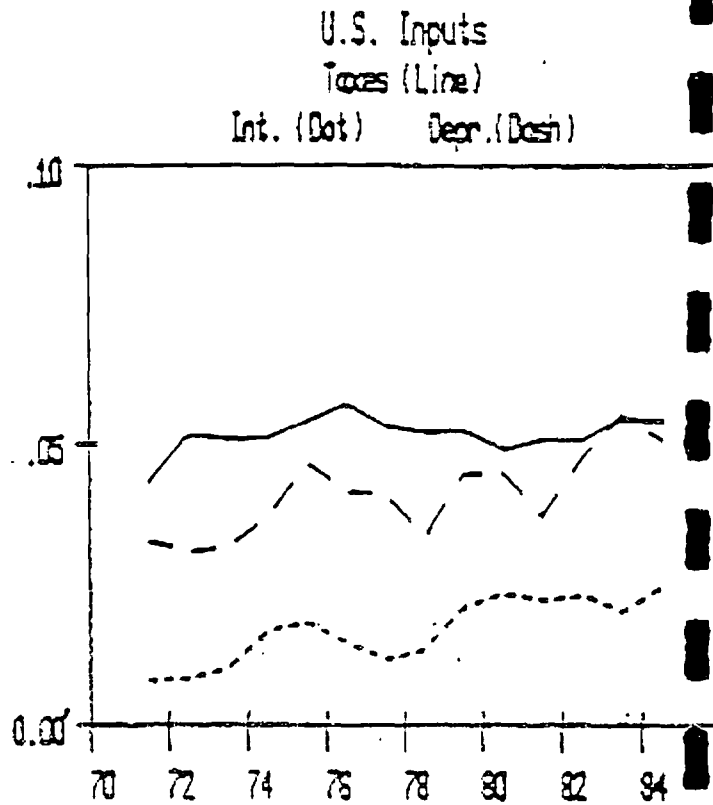
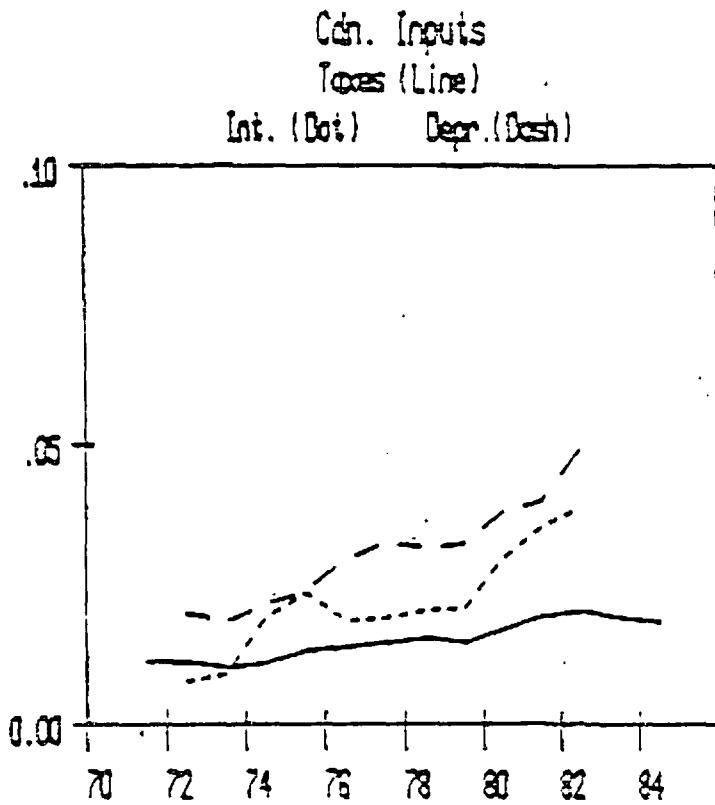


Unit Input Costs

Nominal Dollars per unit of Real (71\$) Output

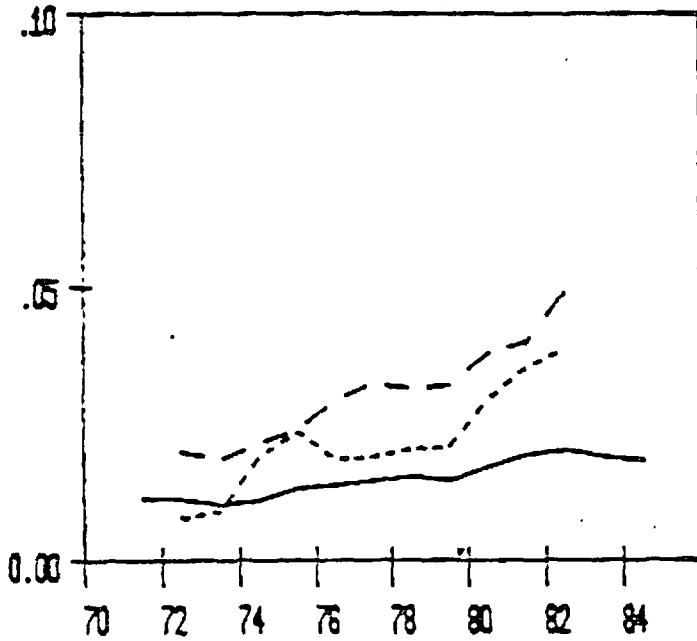
Rubber & Plastics Products Industries

Pre-Exchange Rate Adjusted

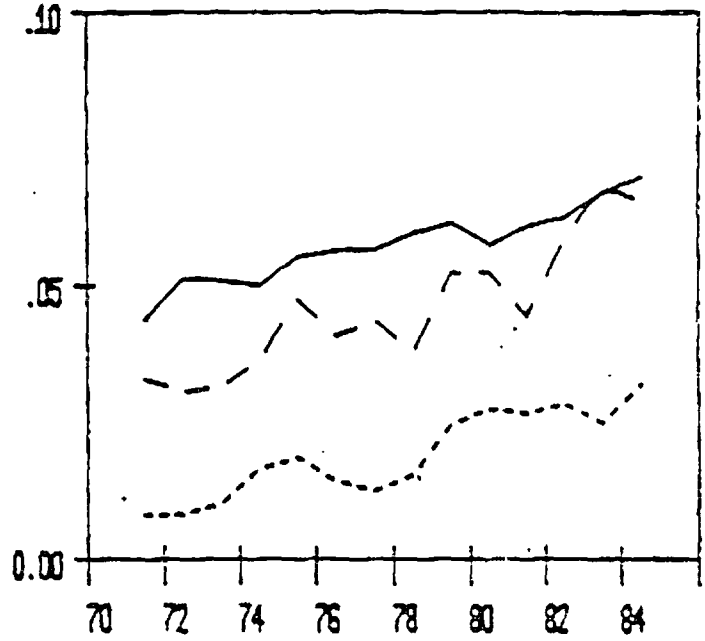


Unit Input Costs
 Nominal Dollars per unit of Real (71\$) Output
 Rubber & Plastics Products Industries
 Exchange Rate Adjusted

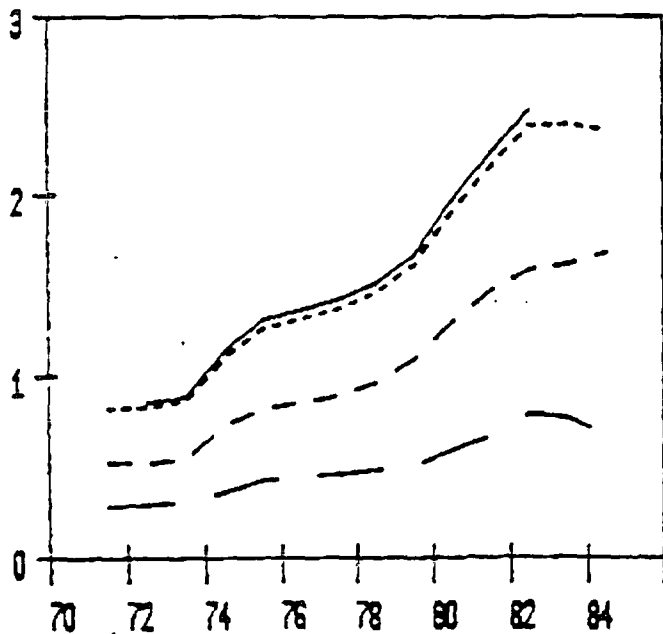
Cdn. Inputs
 Taxes (Line)
 Int. (Dot) Depr. (Dash)



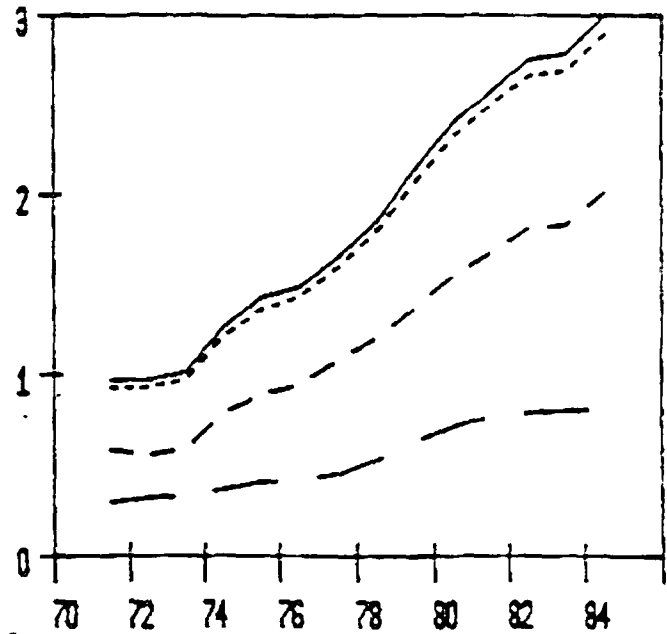
U.S. Inputs
 Taxes (Line)
 Int. (Dot) Depr. (Dash)



Cdn. Input Totals
 Lab. (L Dash) Mat. (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)

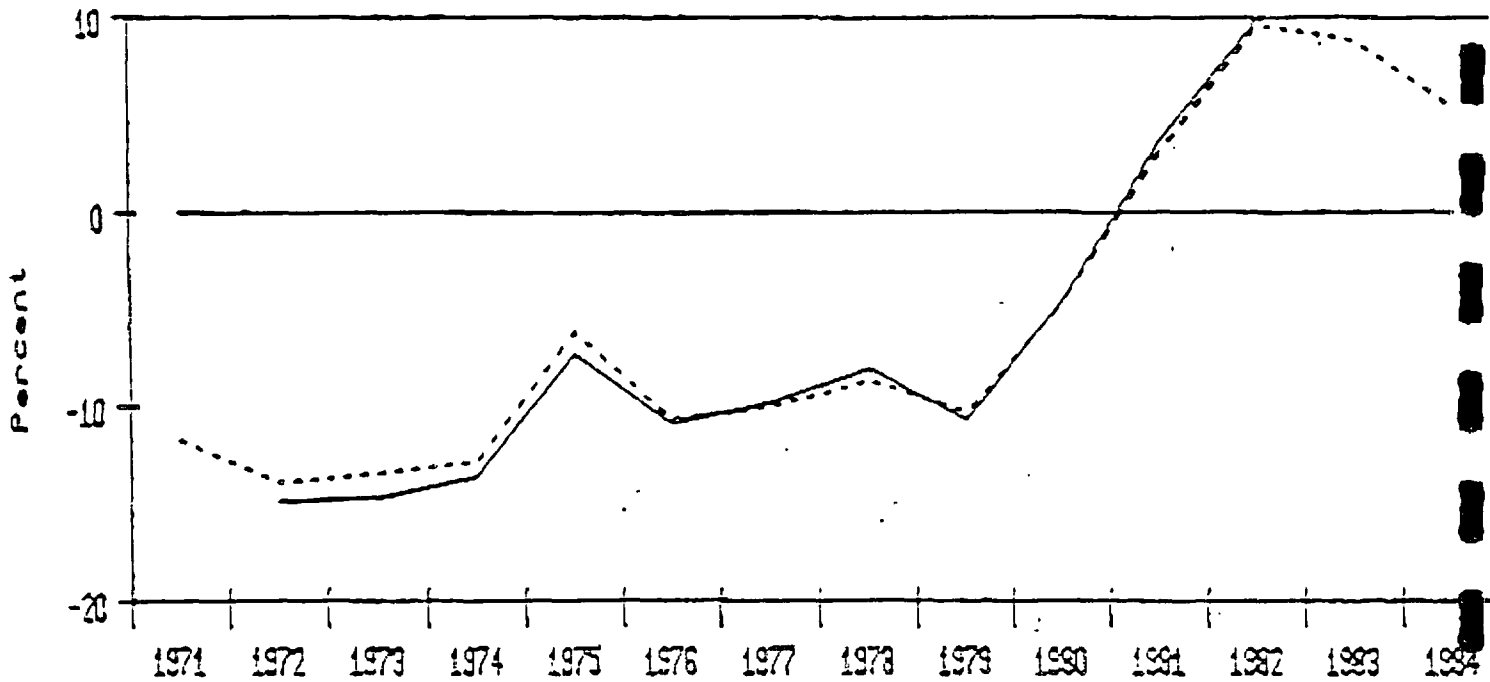


U.S. Input Totals
 Lab. (L Dash) Mat. (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)



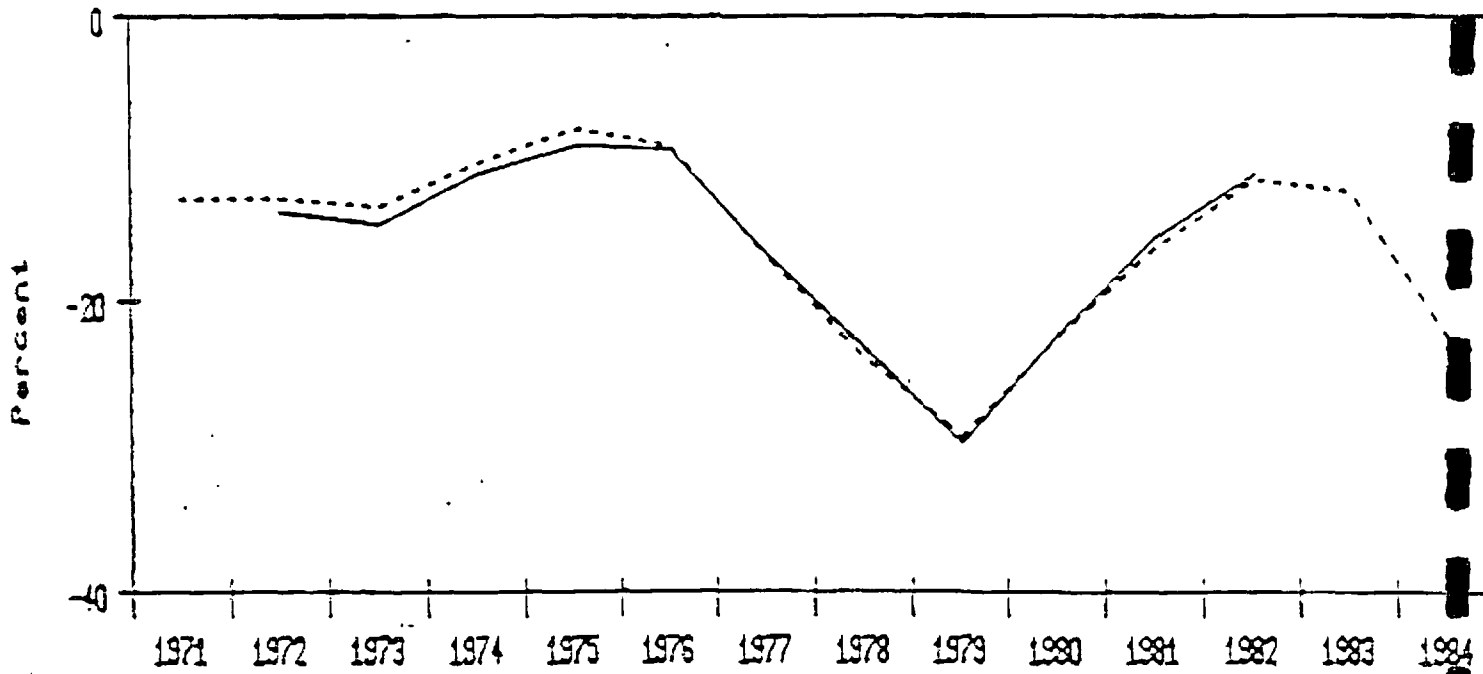
% Difference between Canada and U.S. Input Unit Costs Rubber & Plastics Products Industries

Pre-Exchange Rate Adjusted
Total (Line) Materials, Labour and Taxes (Dot)



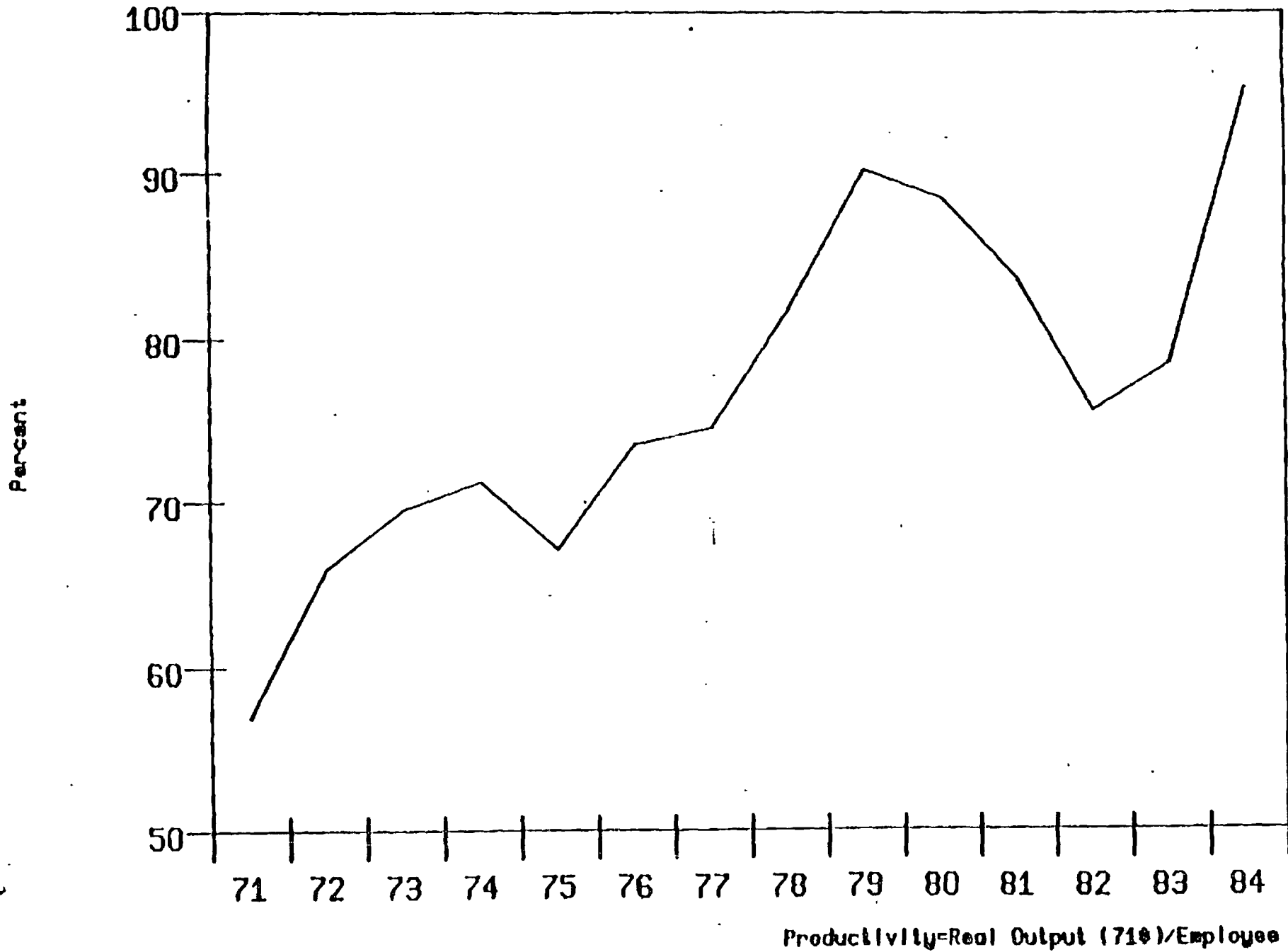
Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line

Exchange Rate Adjusted
Total (Line) Materials, Labour and Taxes (Dot)



Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line

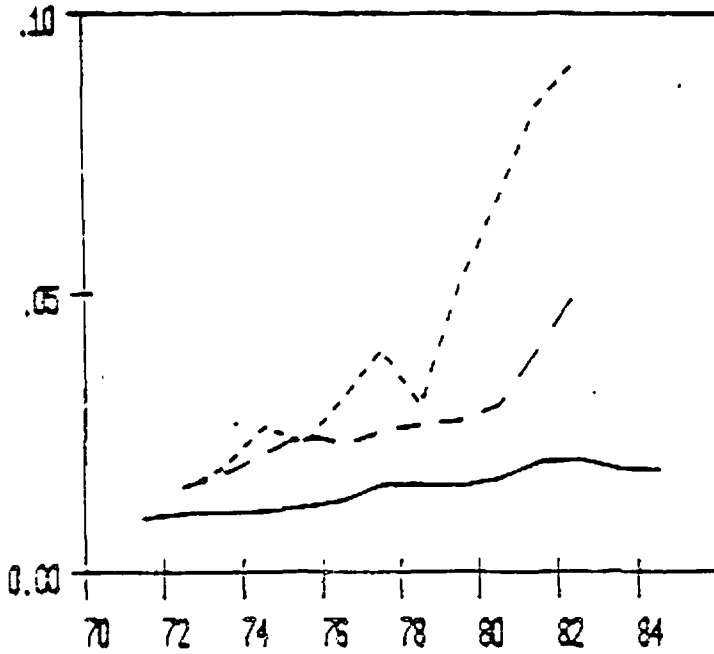
Productivity Ratio
Canadian Productivity as a % of U.S. Productivity
Rubber & Plastics Products Industries



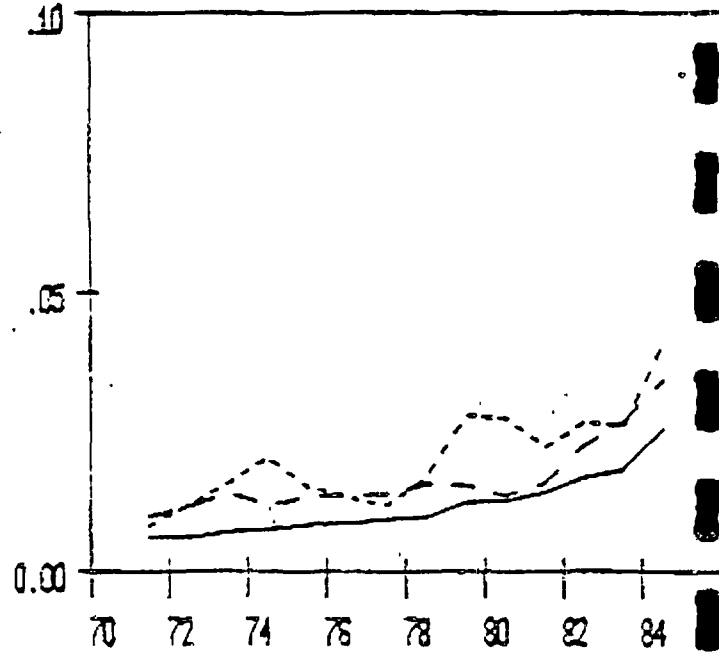
Productivity=Real Output (71¢)/Employee

Unit Input Costs
 Nominal Dollars per unit of Real (71\$) Output
 Leather Industries
 Pre-Exchange Rate Adjusted

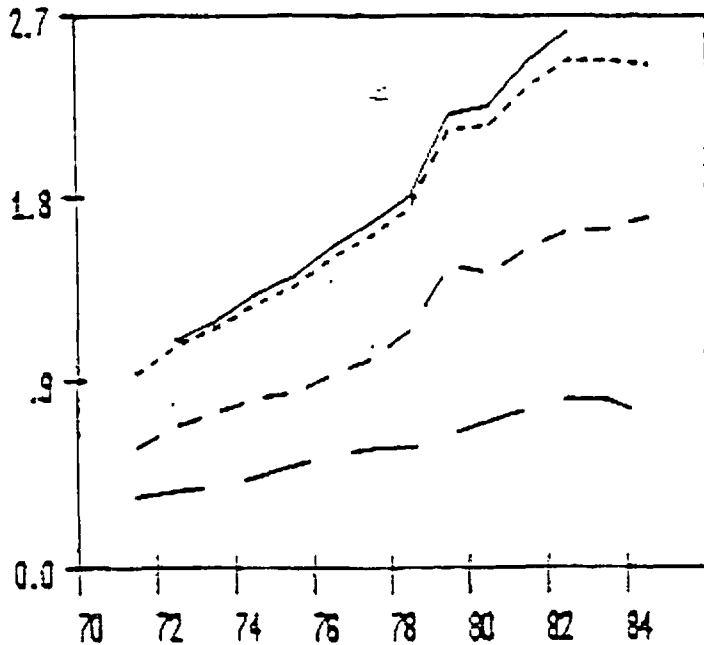
Cdn. Inputs
 Taxes (Line)
 Int. (Dot) Depr. (Dash)



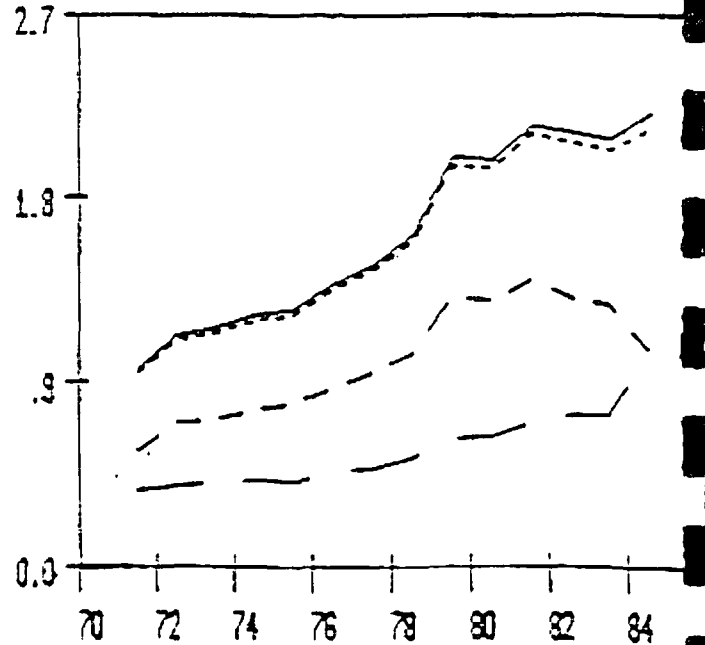
U.S. Inputs
 Taxes (Line)
 Int. (Dot) Depr. (Dash)



Cdn. Input Totals
 Lab. (L Dash) Mat. (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)

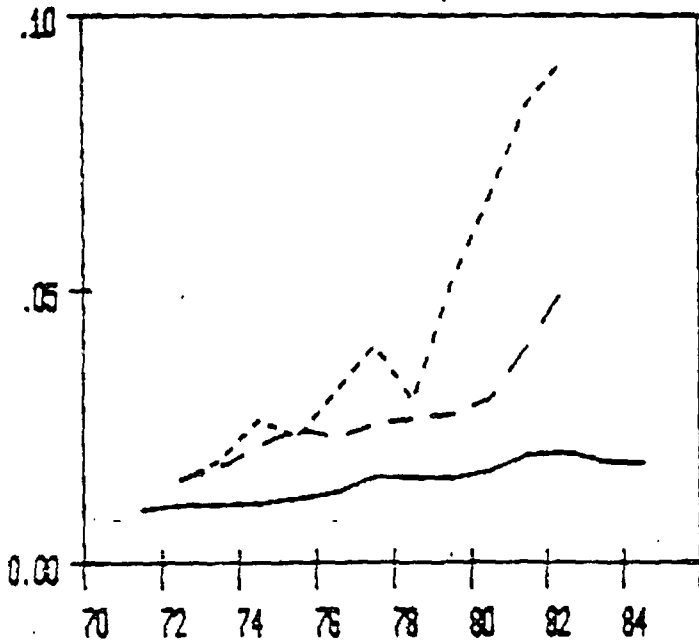


U.S. Input Totals
 Lab. (L Dash) Mat. (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)

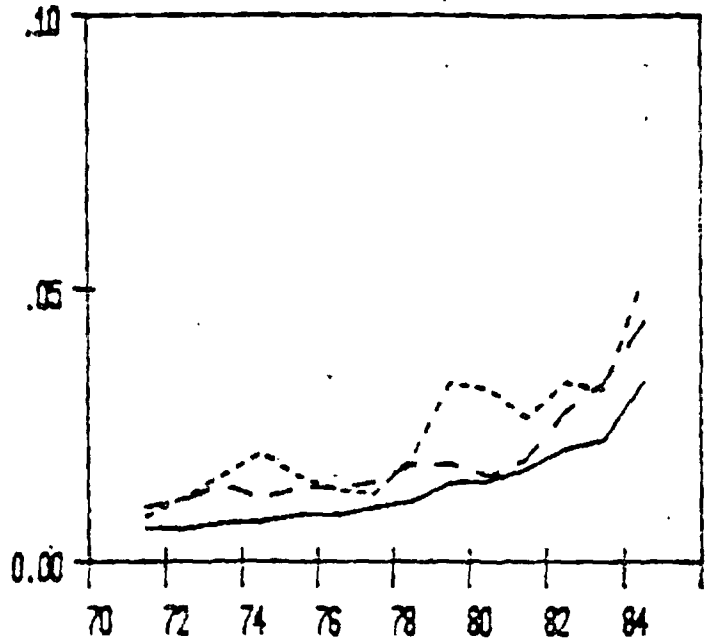


Unit Input Costs
 Nominal Dollars per unit of Real (71\$) Output
 Leather Industries
 Exchange Rate Adjusted

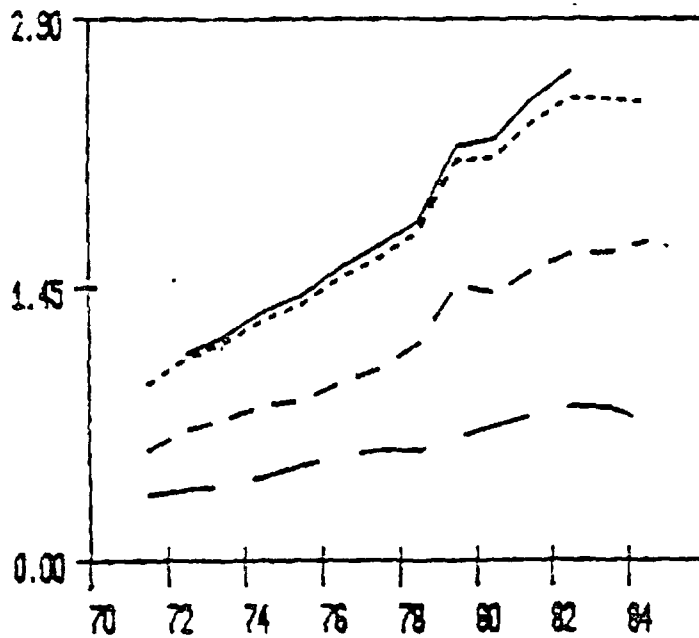
Cdn. Inputs
 Taxes (Line)
 Int. (Dot) Depr. (Dash)



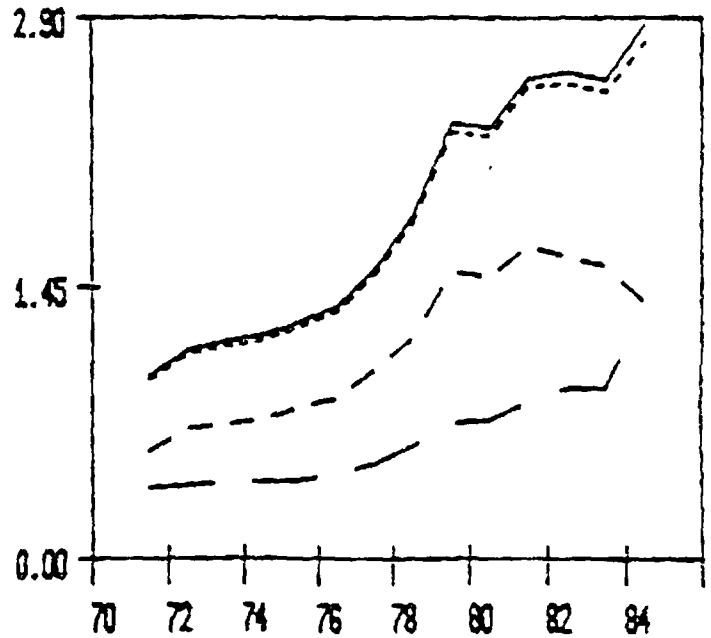
U.S. Inputs
 Taxes (Line)
 Int. (Dot) Depr. (Dash)



Cdn. Input Totals
 Lab. (L Dash) Mat. (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)



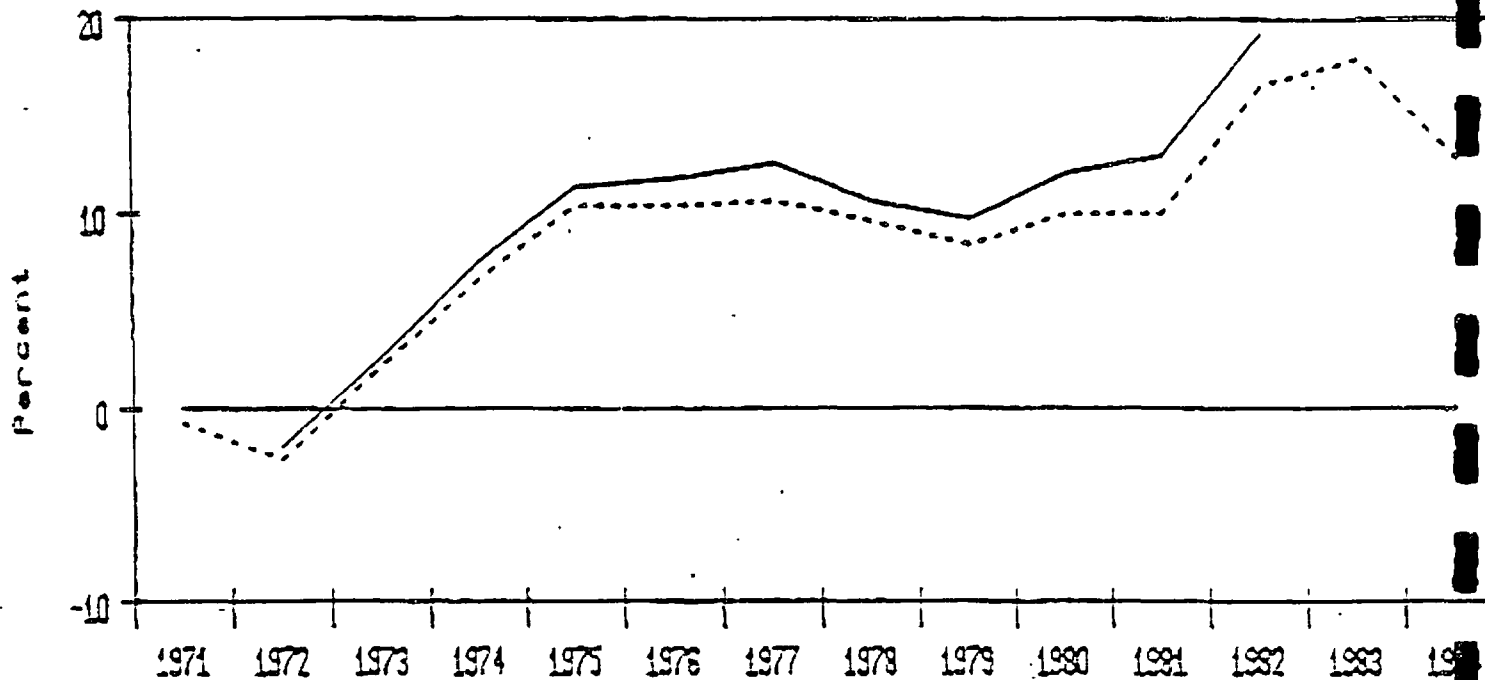
U.S. Input Totals
 Lab. (L Dash) Mat. (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)



% Difference between Canada and U.S. Input Unit Costs Leather Industries

Pre-Exchange Rate Adjusted

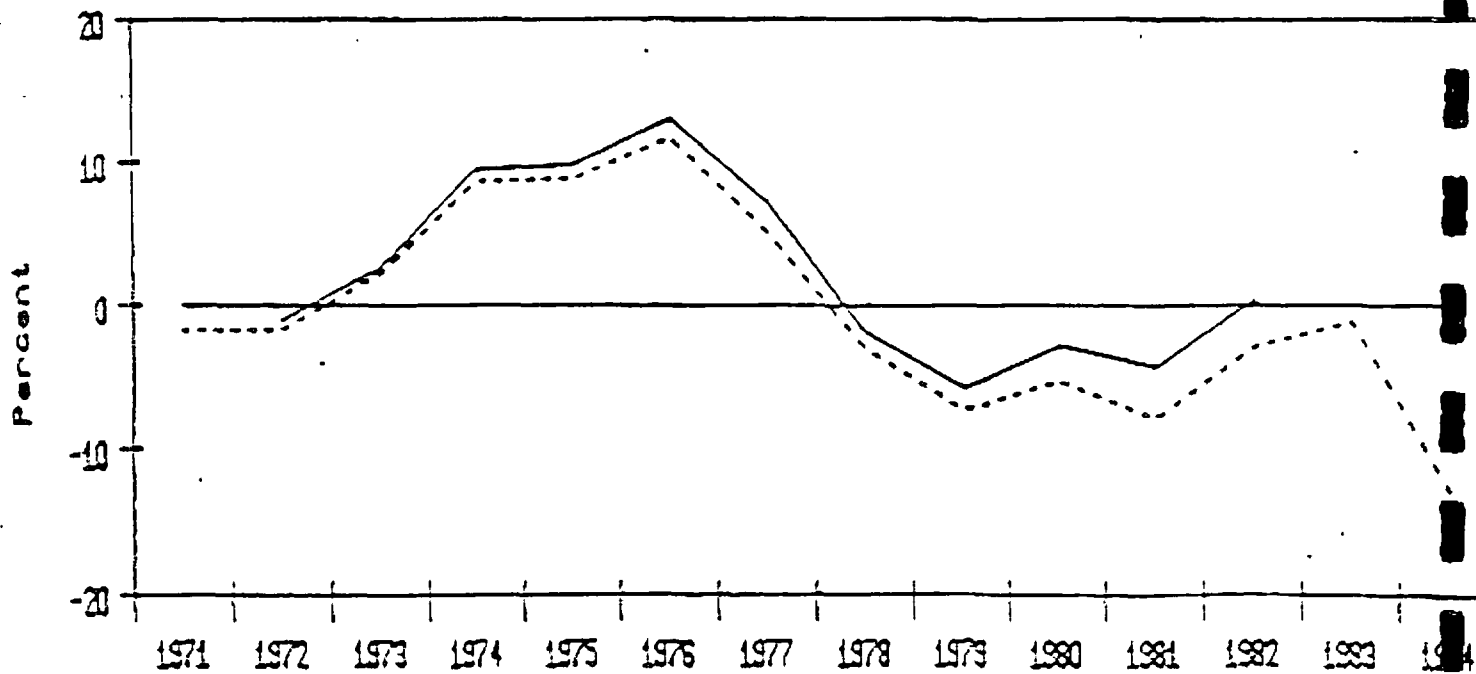
Total (Line) Materials, Labour and Taxes (Dot)



Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line

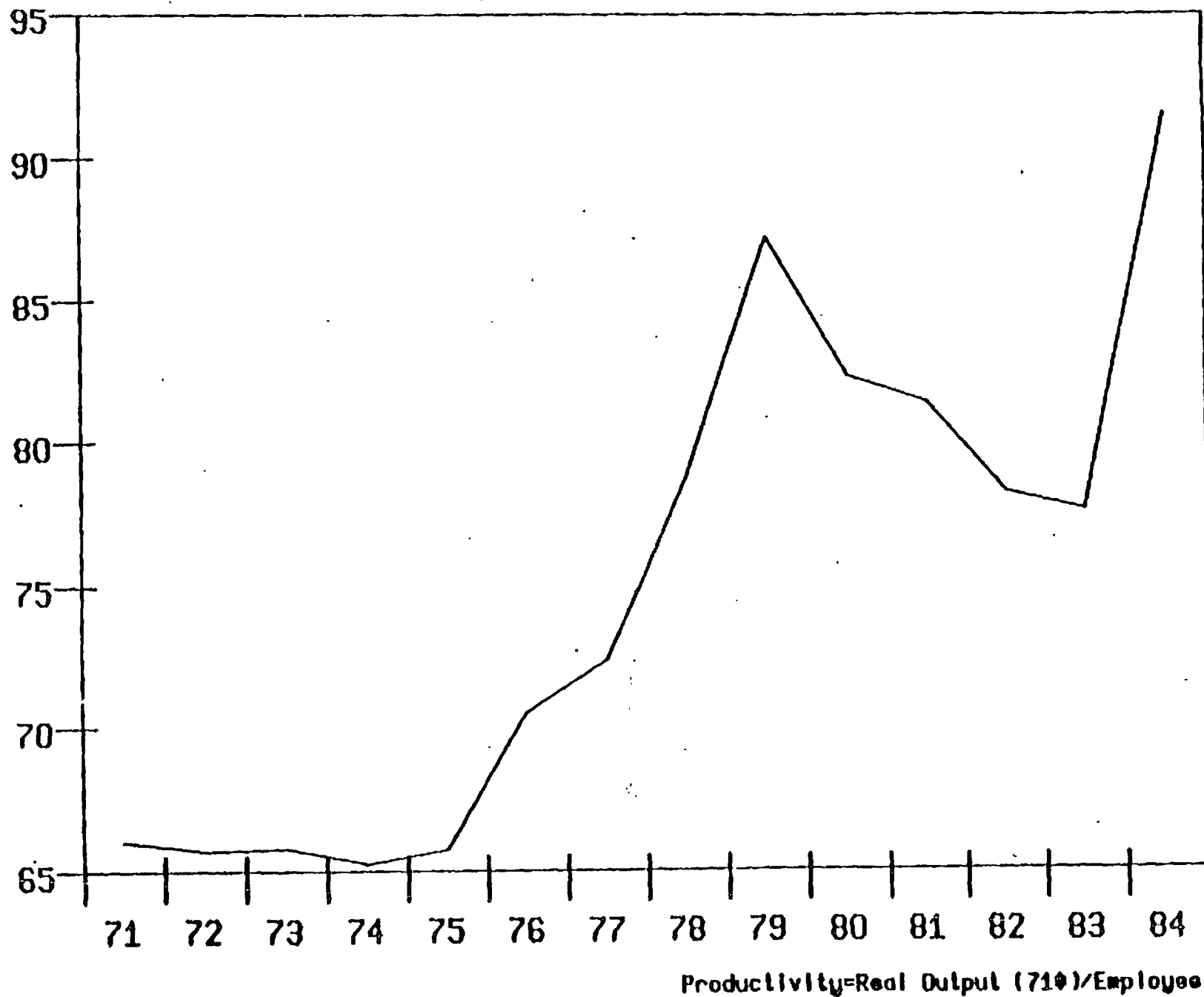
Exchange Rate Adjusted

Total (Line) Materials, Labour and Taxes (Dot)



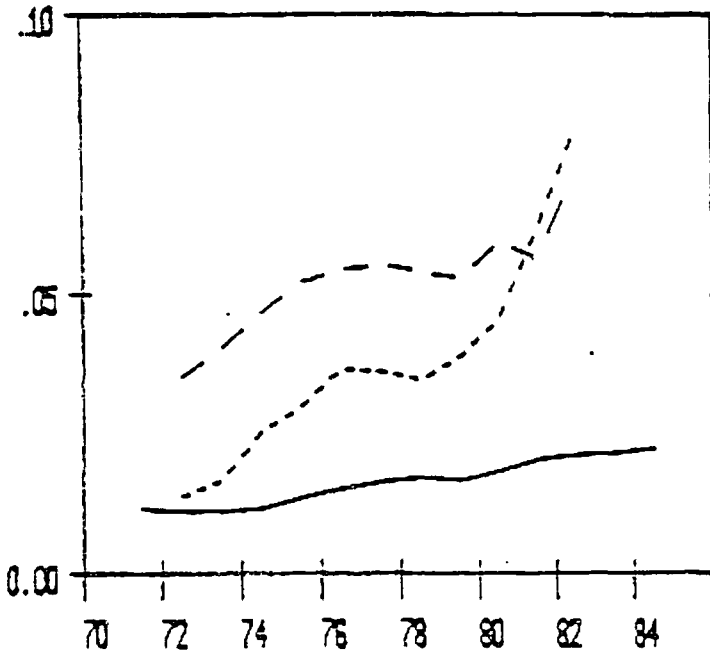
Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line

Productivity Ratio
Canadian Productivity as a % of U.S. Productivity
Leather Industries

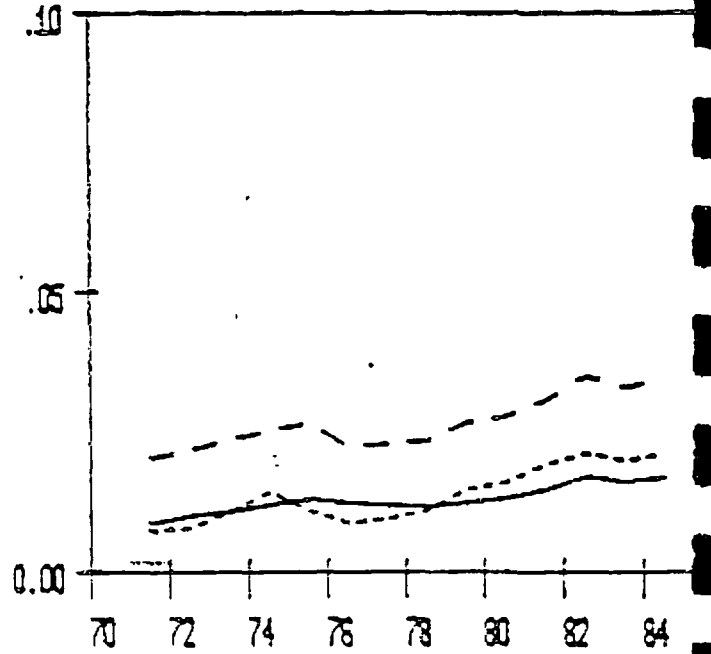


Unit Input Costs
 Nominal Dollars per unit of Real (71\$) Output
 Textile Industries
 Pre-Exchange Rate Adjusted

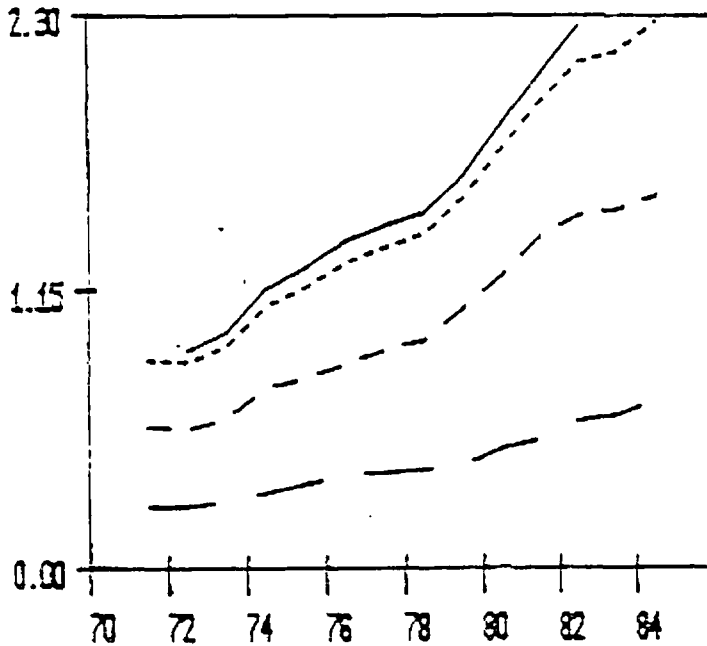
Can. Inputs
 Taxes (Line)
 Int. (Dot) Depr. (Dash)



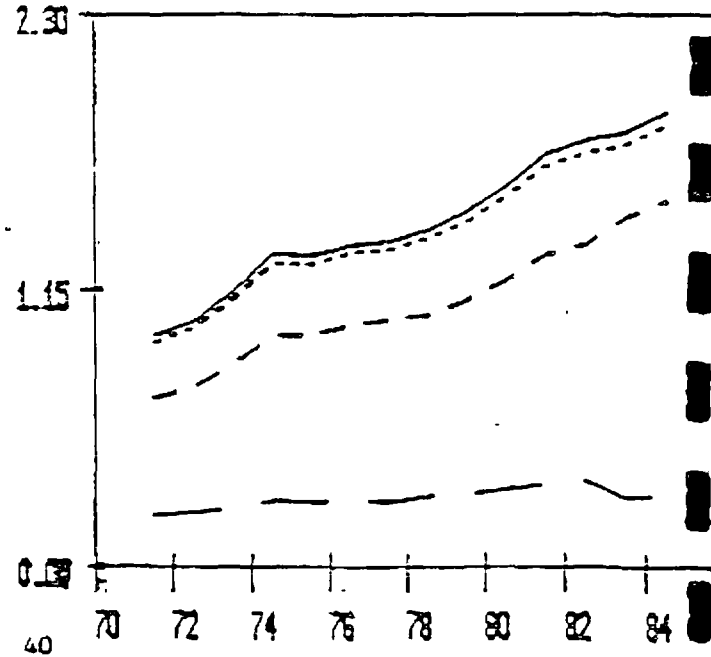
U.S. Inputs
 Taxes (Line)
 Int. (Dot) Depr. (Dash)



Can. Input Totals
 Lab. (L Dash) Mat. (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)

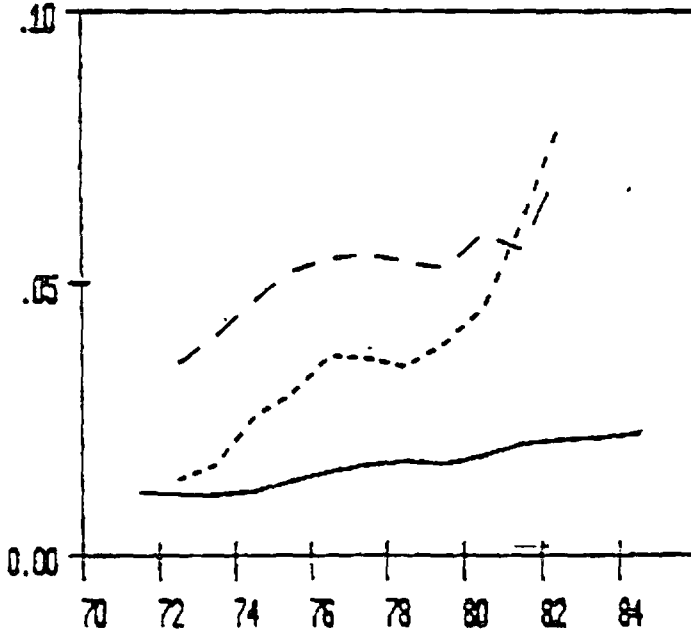


U.S. Input Totals
 Lab. (L Dash) Mat. (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)

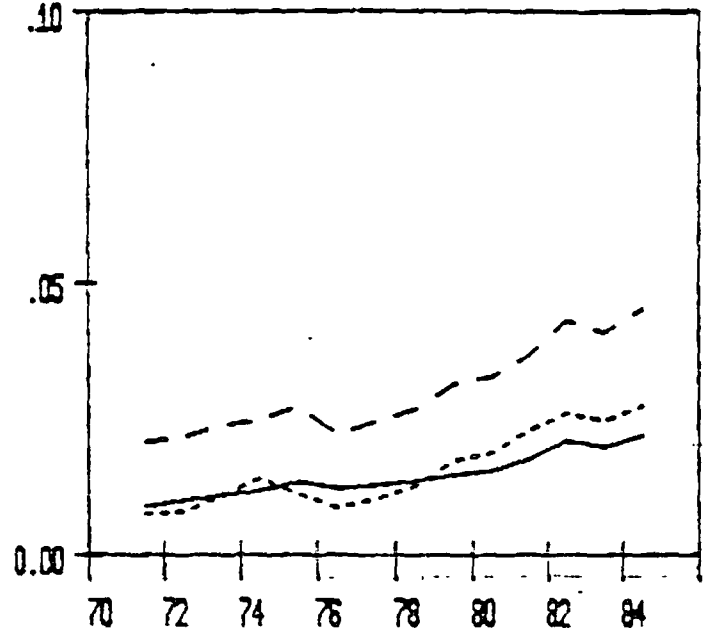


Unit Input Costs
 Nominal Dollars per unit of Real (71\$) Output
 Textile Industries
 Exchange Rate Adjusted

Can. Inputs
 Taxes (Line)
 Int. (Dot) Depr. (Dash)

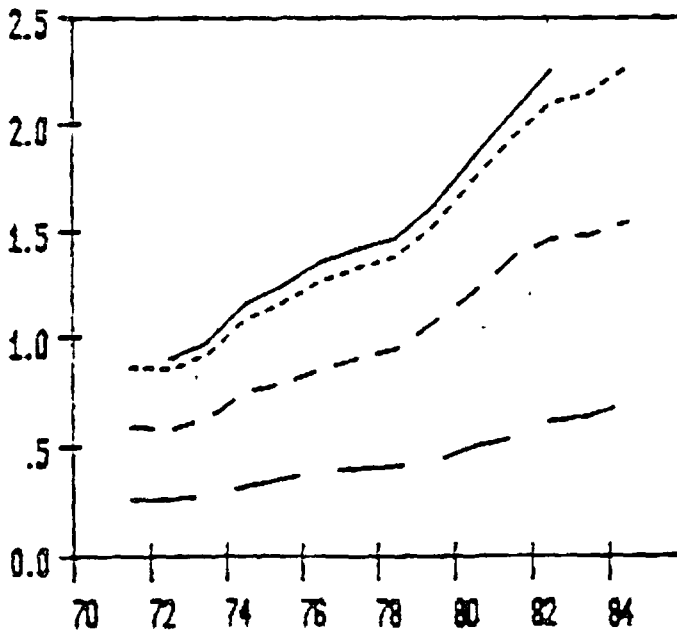


U.S. Inputs
 Taxes (Line)
 Int. (Dot) Depr. (Dash)



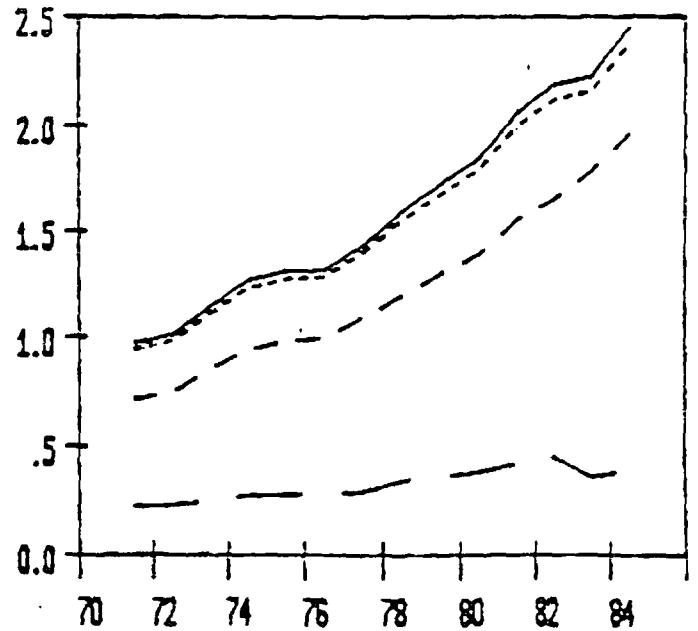
Can. Input Totals

Lab. (L Dash) Mat. (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)



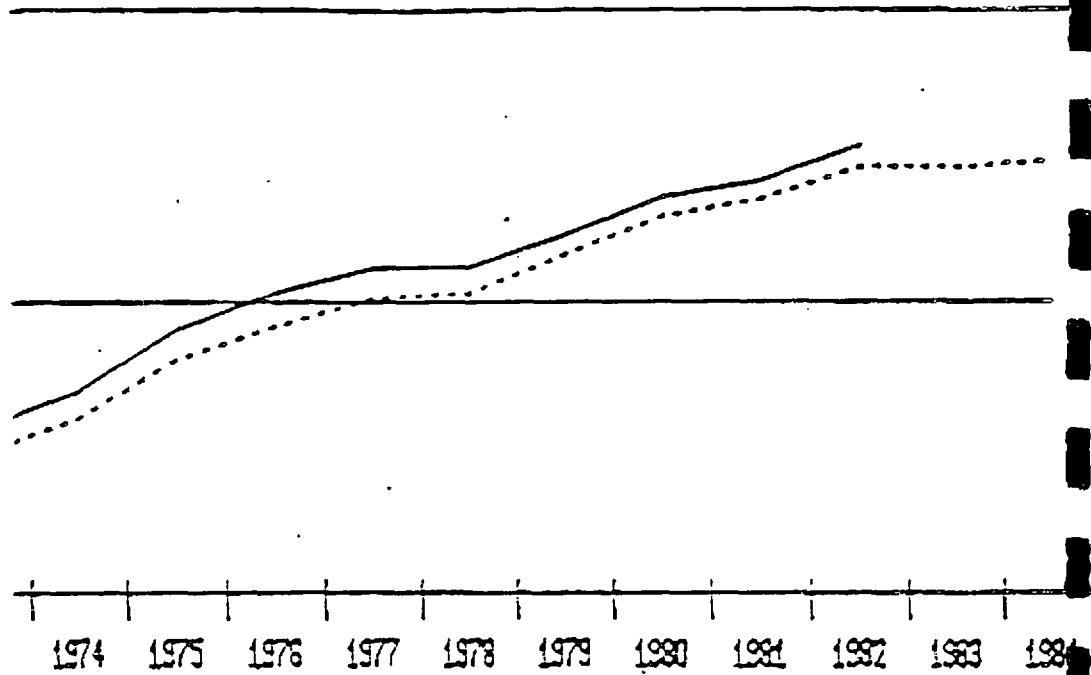
U.S. Input Totals

Lab. (L Dash) Mat. (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)



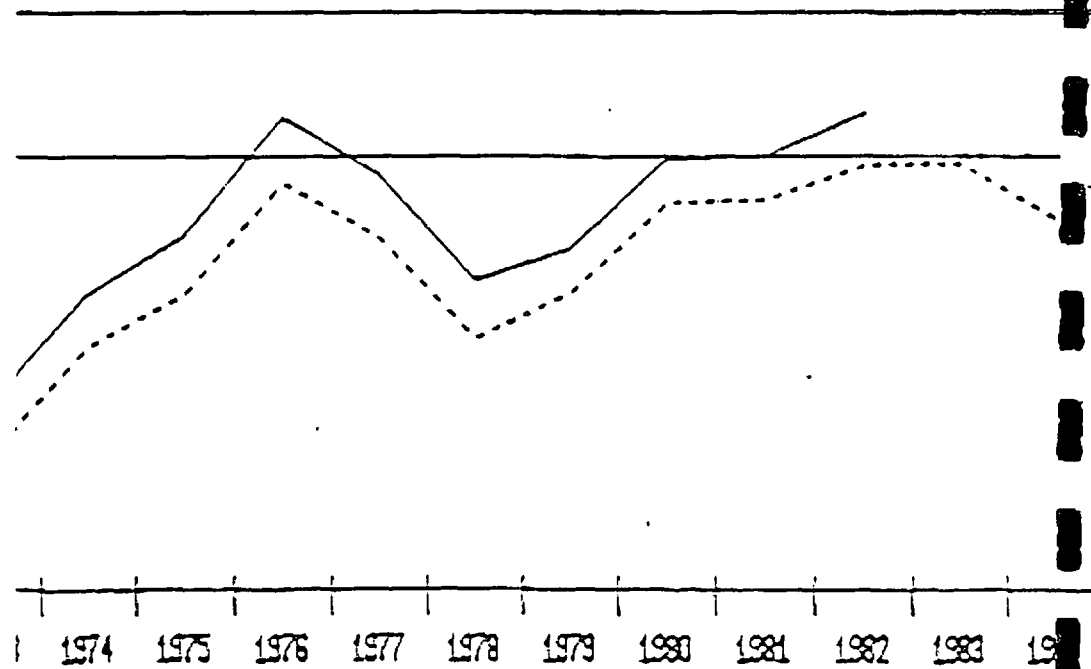
ence between Canada and U.S. Input Unit Costs Textile Industries

Pre-Exchange Rate Adjusted
Total (Line) Materials, Labour and Taxes (Dot)



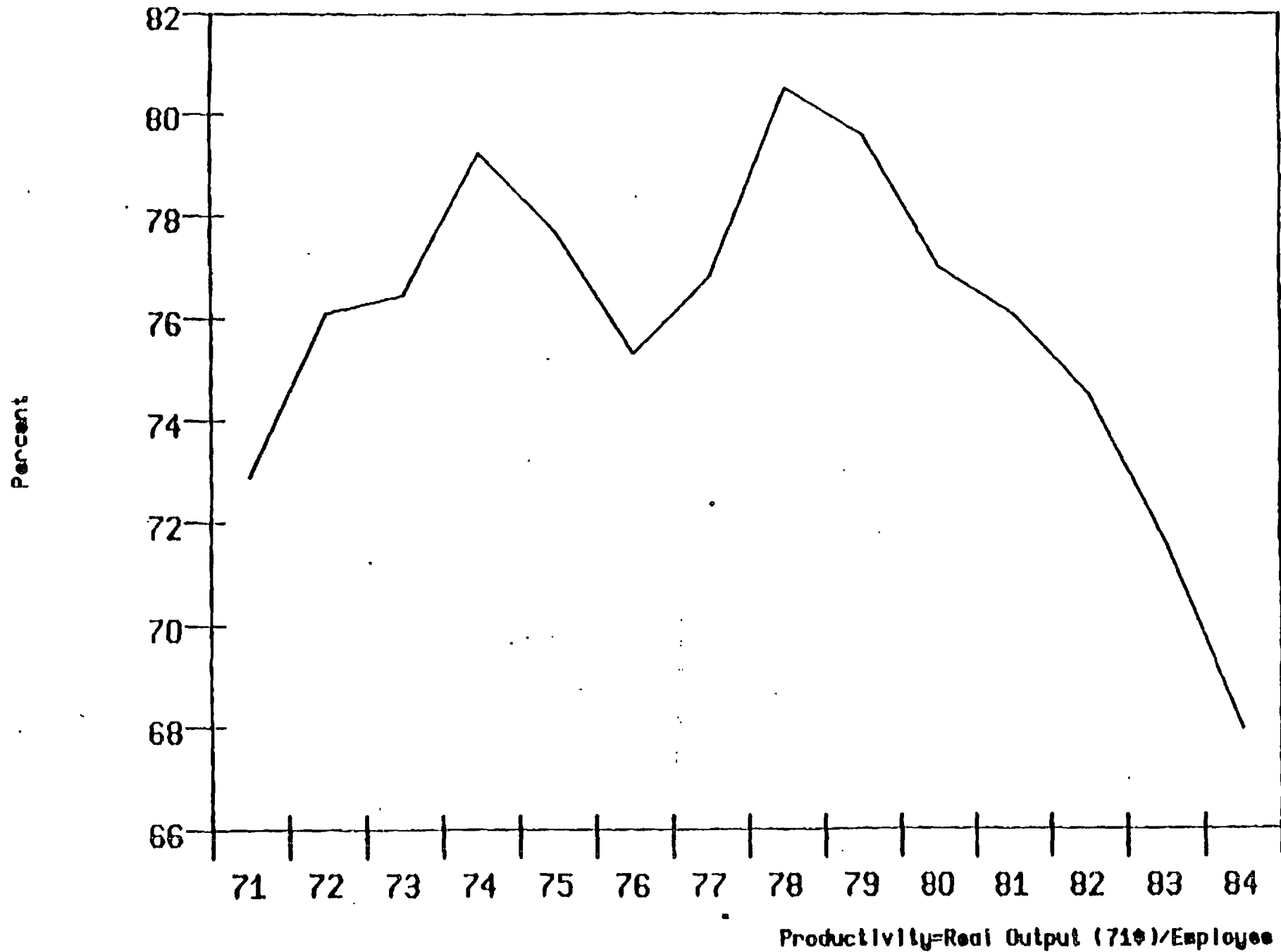
Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line

Exchange Rate Adjusted
Total (Line) Materials, Labour and Taxes (Dot)



Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line

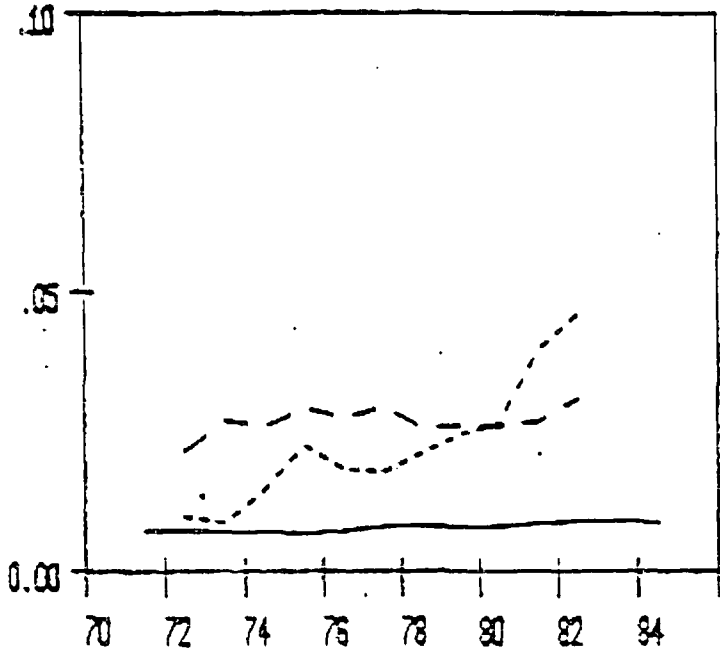
Productivity Ratio
Canadian Productivity as a % of U.S. Productivity
Textile Industries



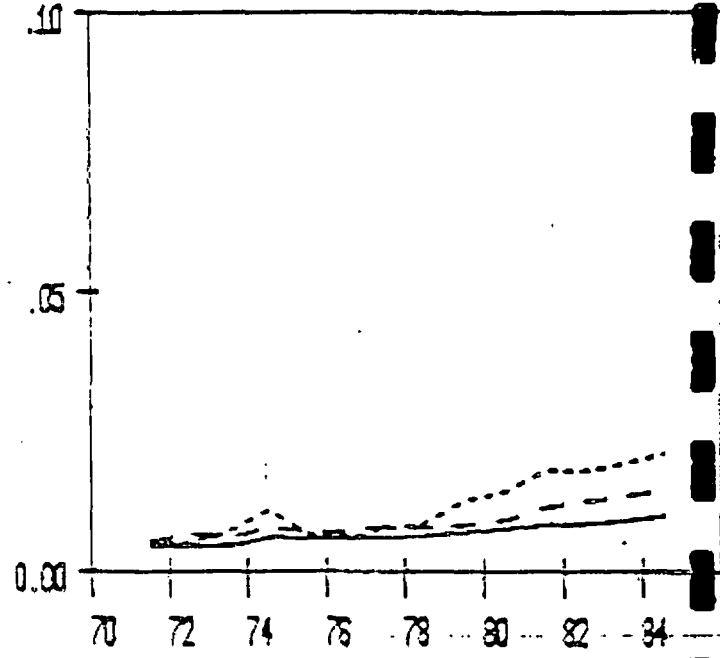
Unit Input Costs

Nominal Dollars per unit of Real (71\$) Output
Knitting Industries
Pre-Exchange Rate Adjusted

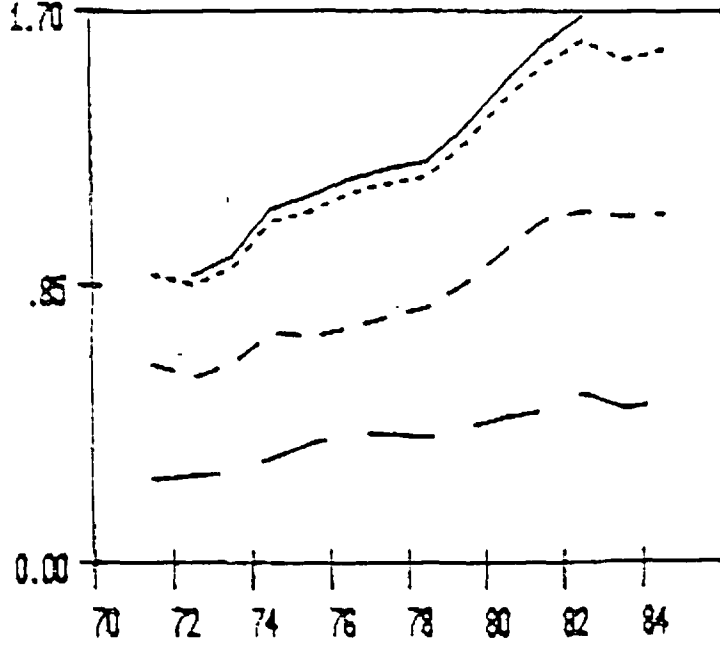
Can. Inputs
Taxes (Line)
Int. (Dot) Depr. (Dash)



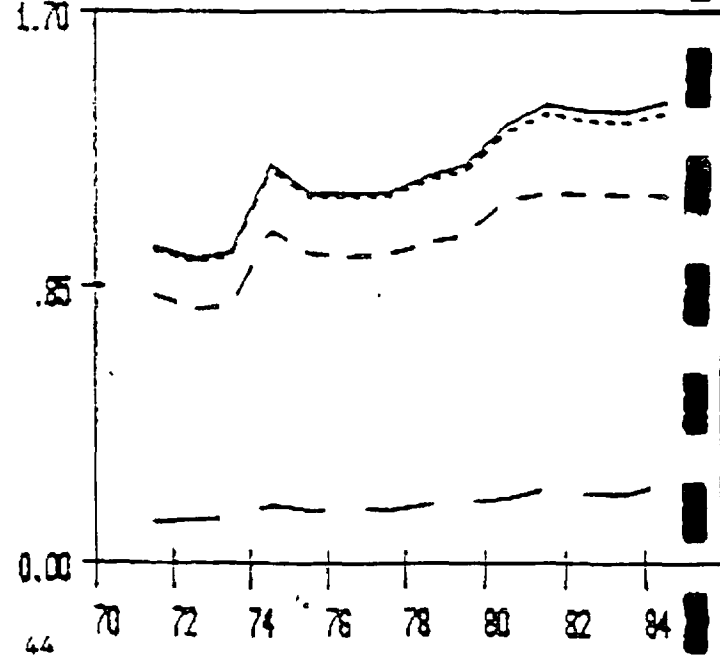
U.S. Inputs
Taxes (Line)
Int. (Dot) Depr. (Dash)



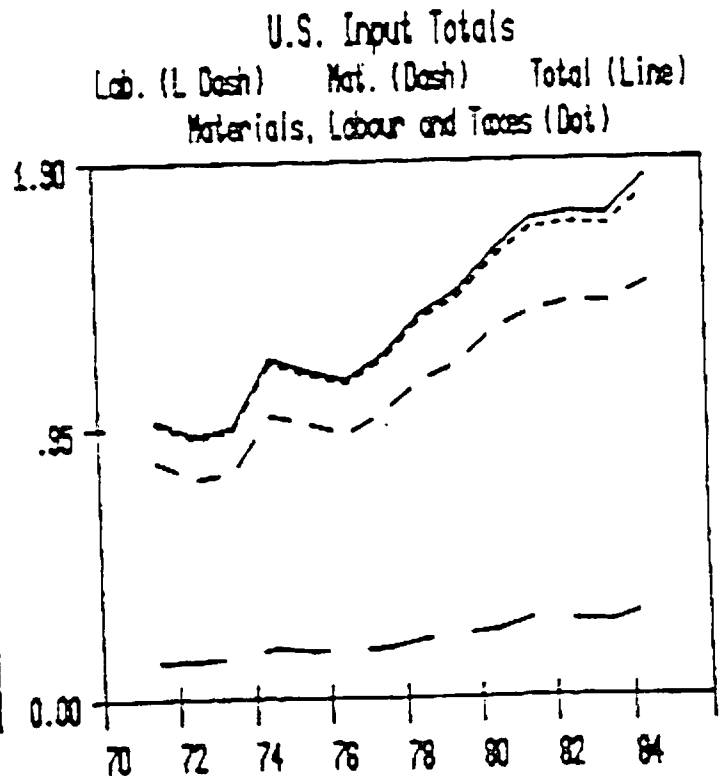
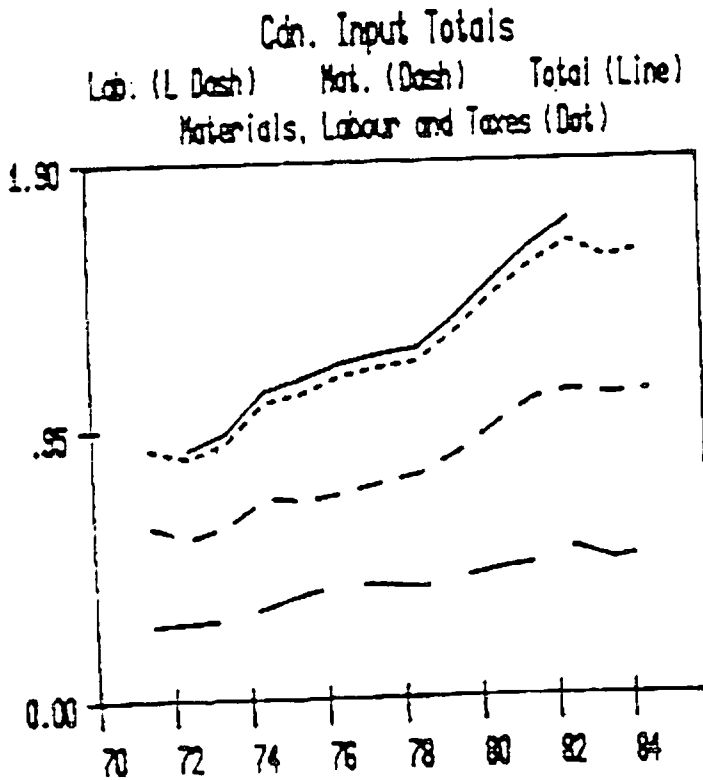
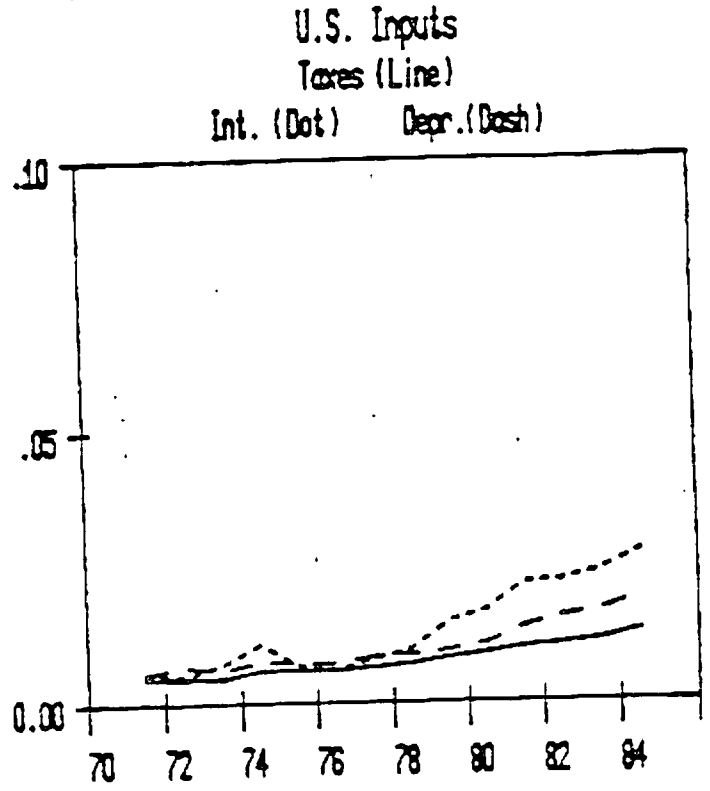
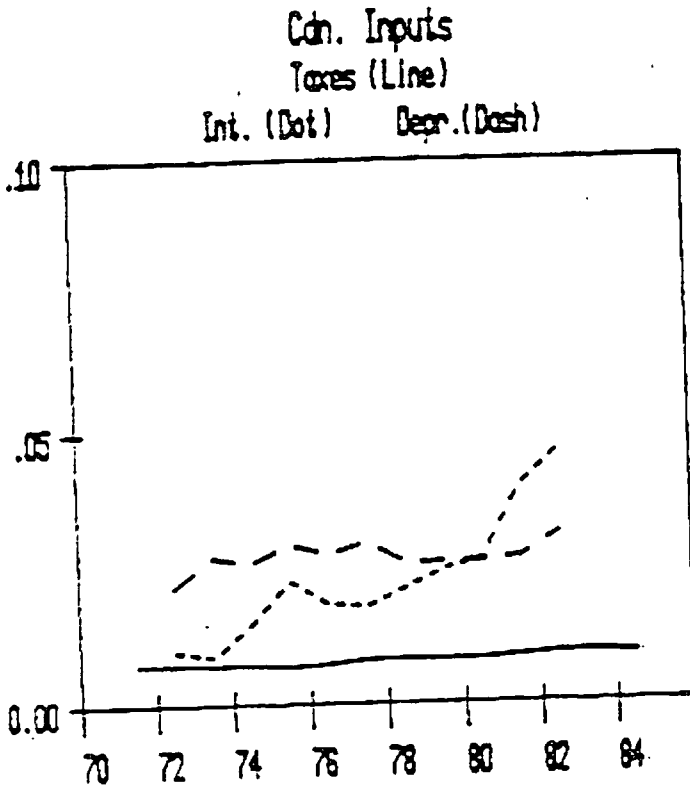
Can. Input Totals
Lab. (L Dash) Mat. (Dash) Total (Line)
Materials, Labour and Taxes (Dot)



U.S. Input Totals
Lab. (L Dash) Mat. (Dash) Total (Line)
Materials, Labour and Taxes (Dot)

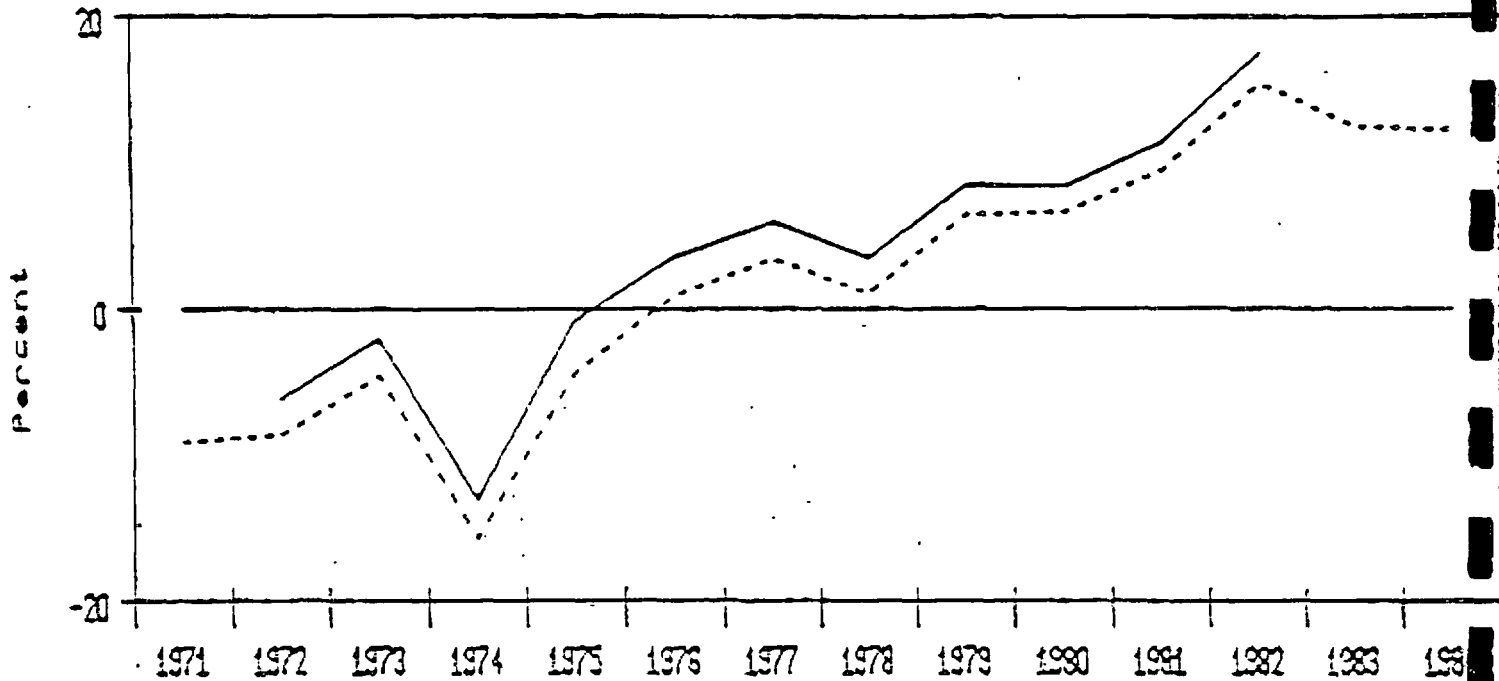


Unit Input Costs
 Nominal Dollars per unit of Real (71\$) Output
 Knitting Industries
 Exchange Rate Adjusted



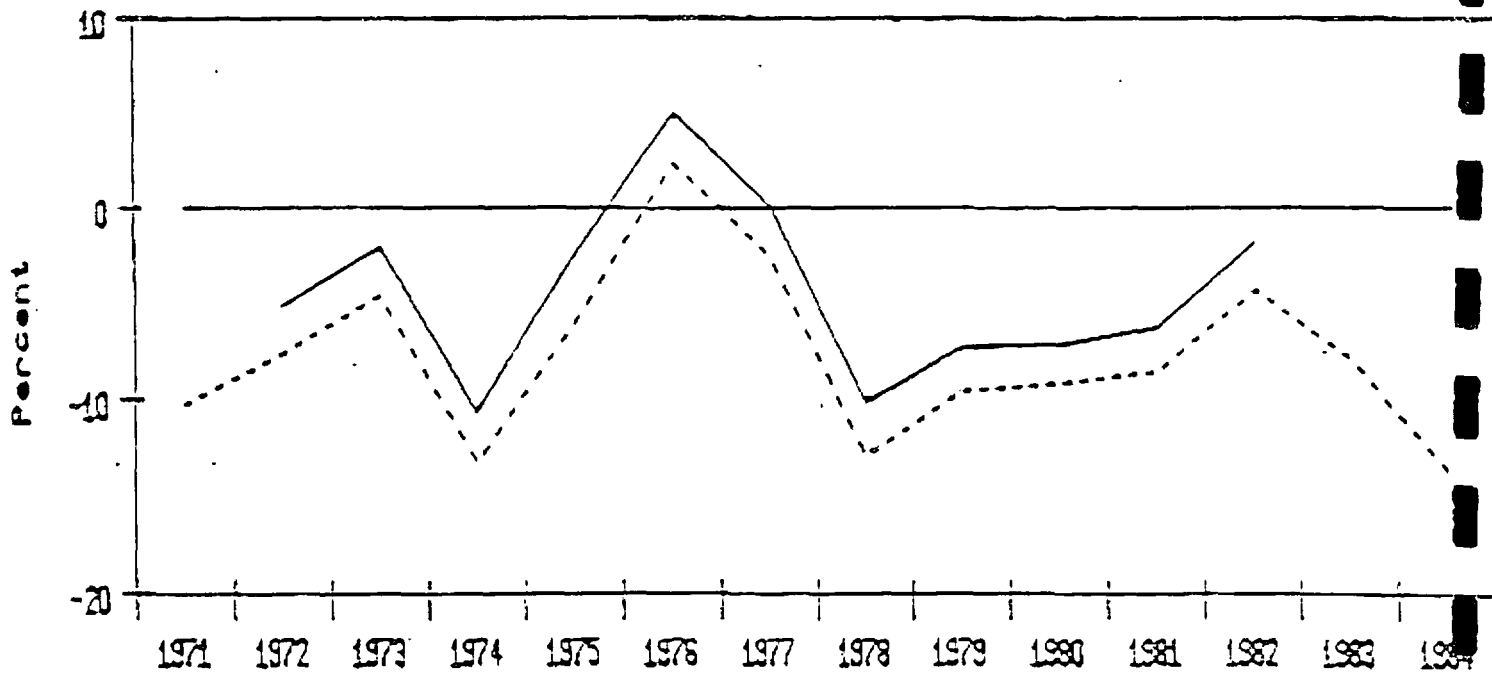
% Difference between Canada and U.S. Input Unit Costs Knitting Industries

Pre-Exchange Rate Adjusted
Total (Line) Materials, Labour and Taxes (Dot)



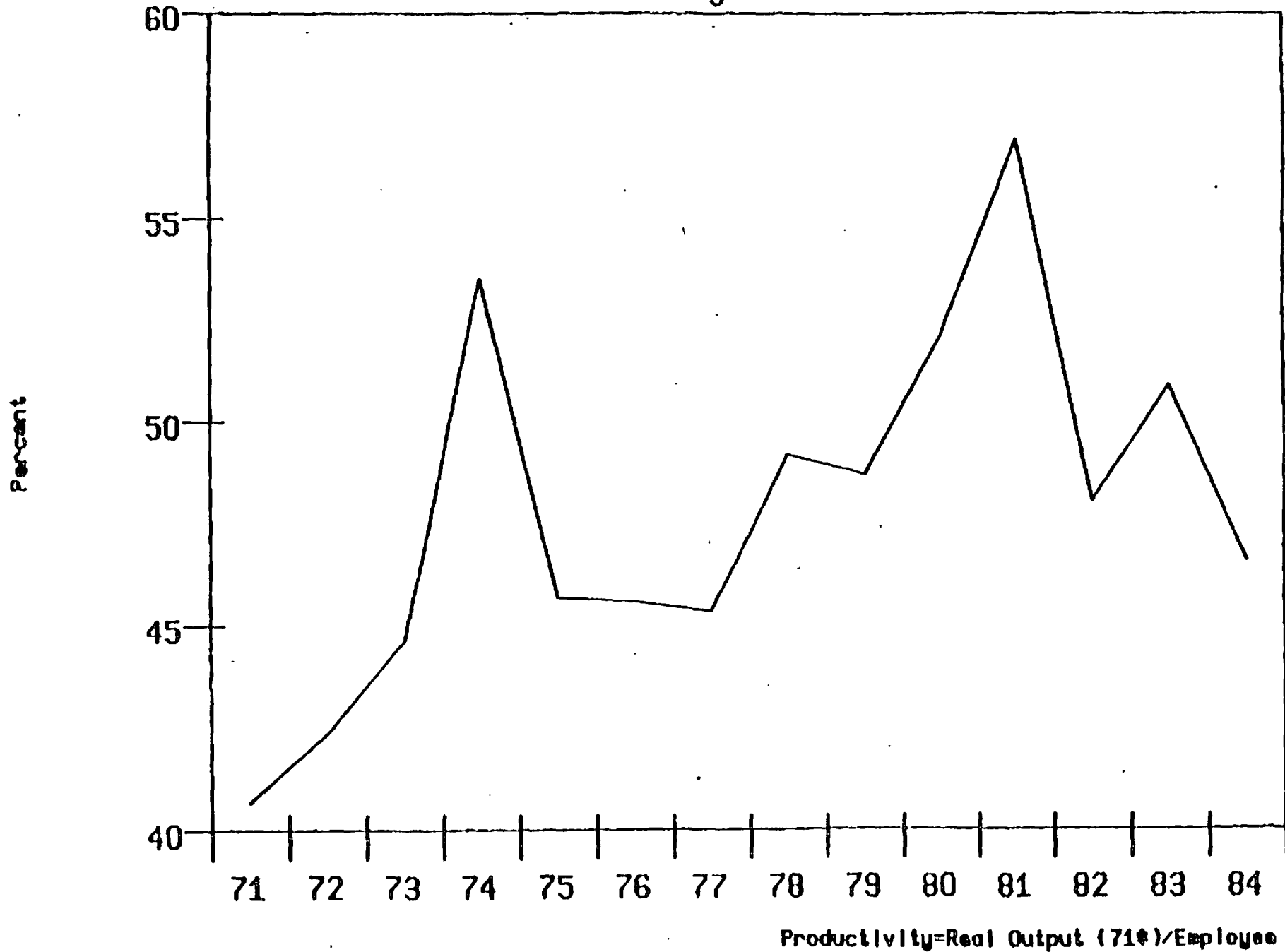
Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line

Exchange Rate Adjusted
Total (Line) Materials, Labour and Taxes (Dot)



Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line

Productivity Ratio
Canadian Productivity as a % of U.S. Productivity
Knitting Industries



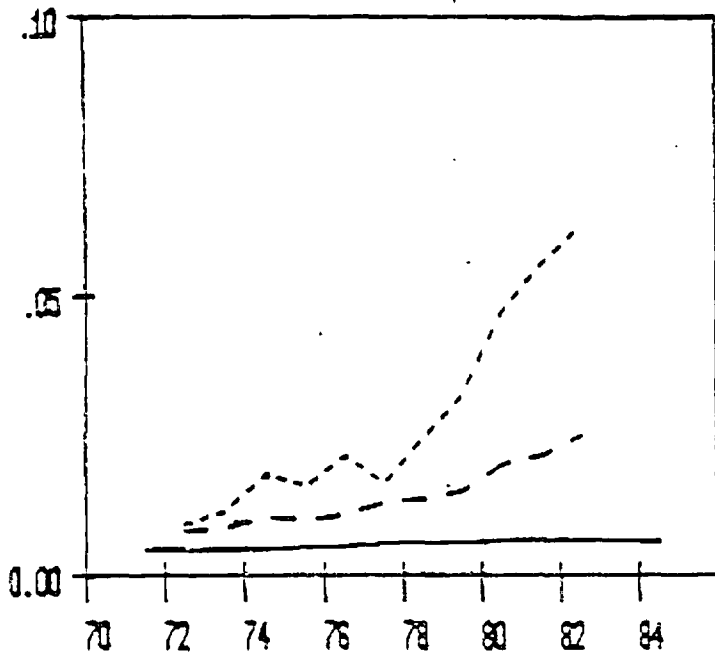
Unit Input Costs

Nominal Dollars per unit of Real (71\$) Output

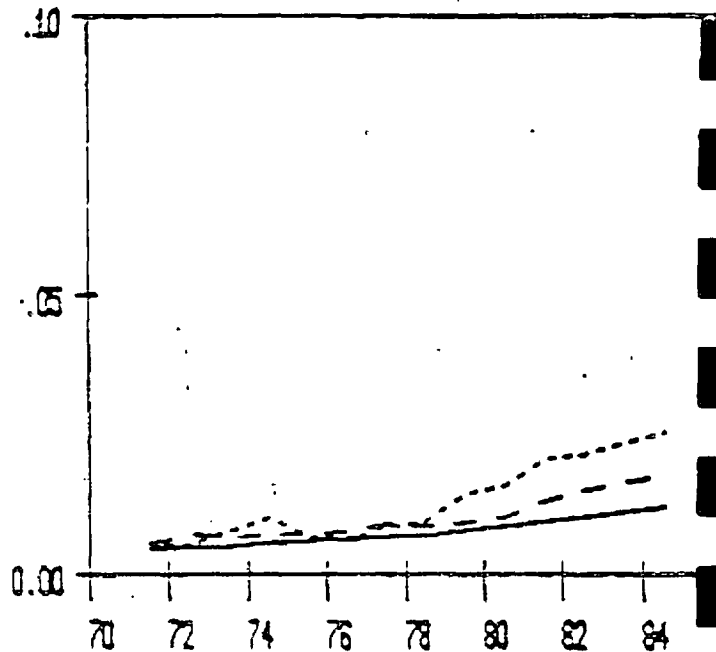
Clothing Industries

Pre-Exchange Rate Adjusted

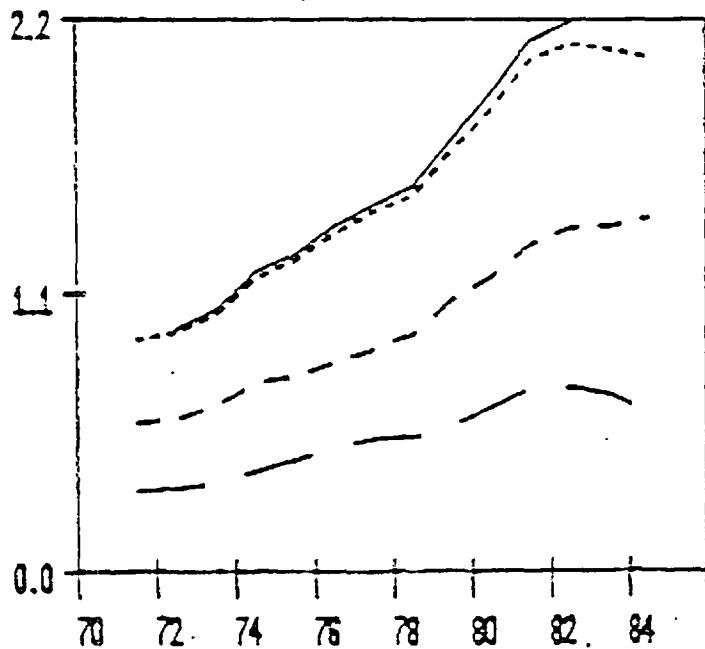
Cdn. Inputs
 Taxes (Line)
 Int. (Dot) Depr. (Dash)



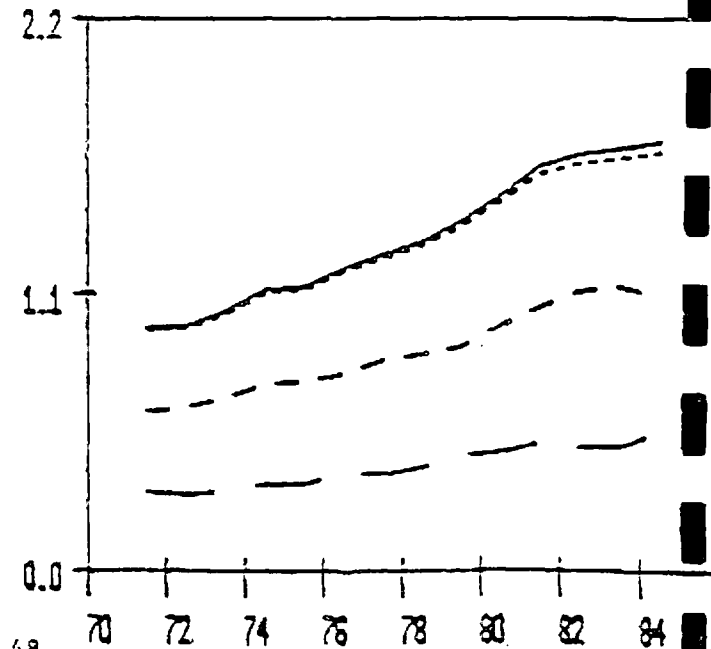
U.S. Inputs
 Taxes (Line)
 Int. (Dot) Depr. (Dash)



Cdn. Input Totals
 Lab. (L Dash) Mat. (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)

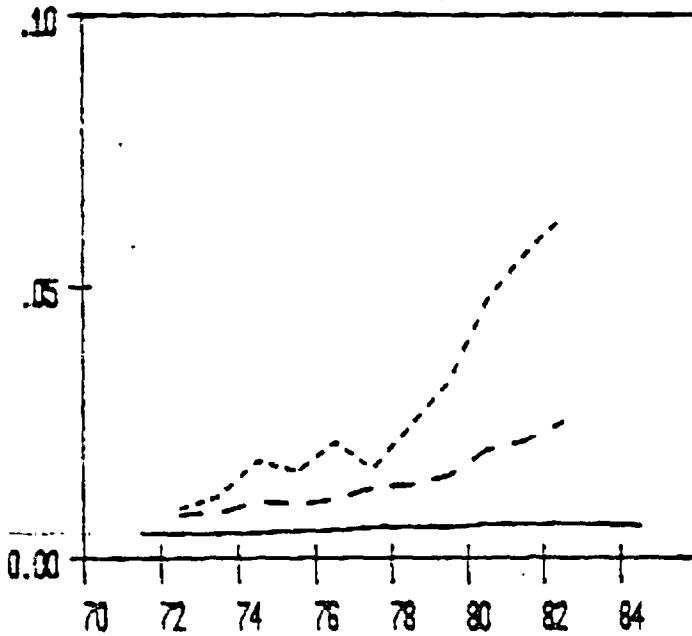


U.S. Input Totals
 Lab. (L Dash) Mat. (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)

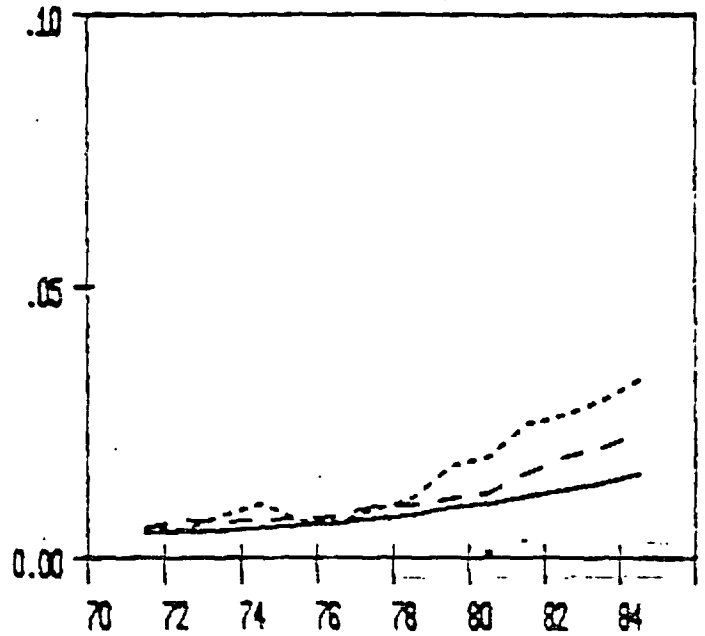


Unit Input Costs
 Nominal Dollars per unit of Real (71\$) Output
 Clothing Industries
 Exchange Rate Adjusted

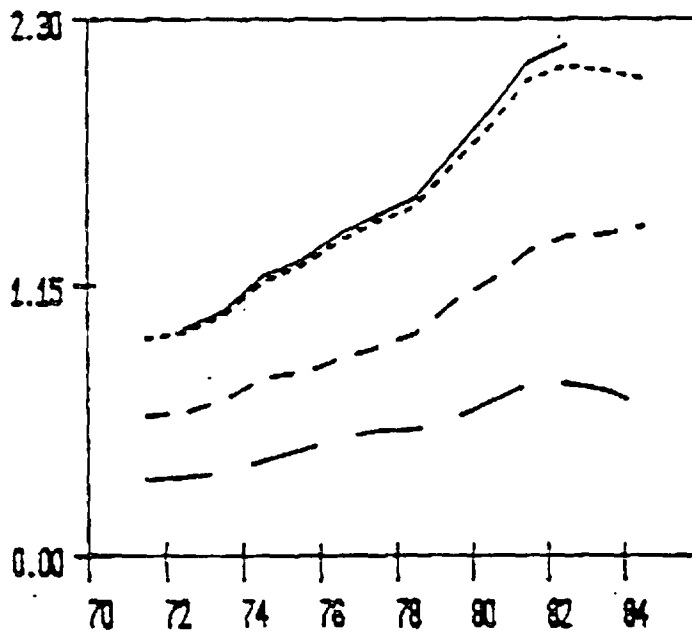
Can. Inputs
 Taxes (Line)
 Int. (Dot) Depr. (Dash)



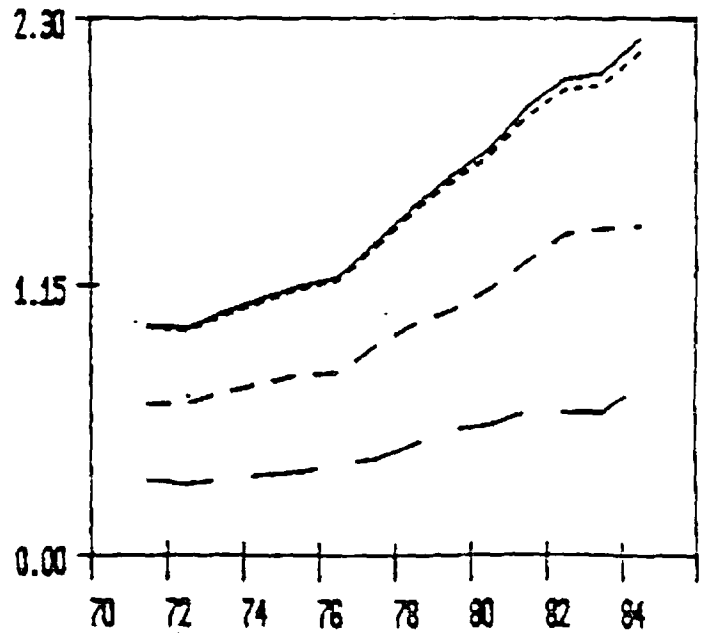
U.S. Inputs
 Taxes (Line)
 Int. (Dot) Depr. (Dash)



Can. Input Totals
 Lab. (L Dash) Mat. (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)

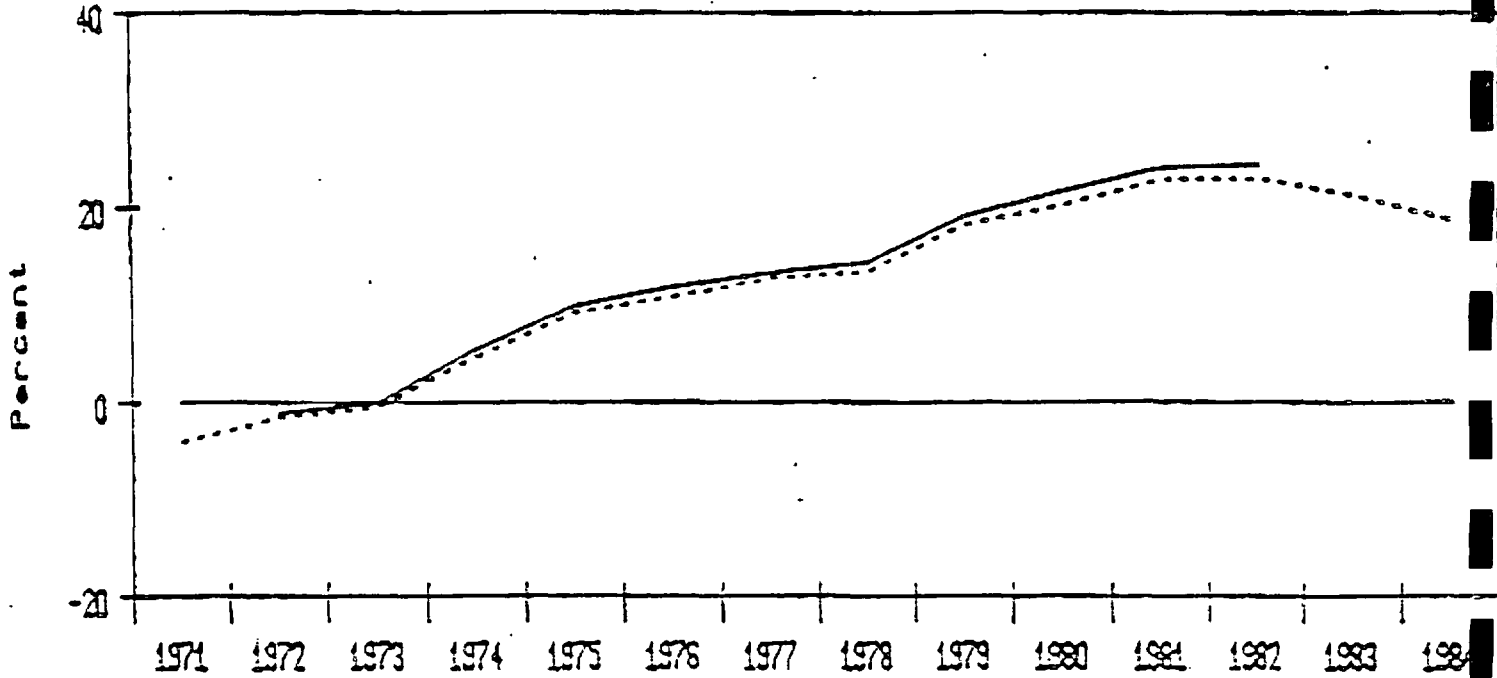


U.S. Input Totals
 Lab. (L Dash) Mat. (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)



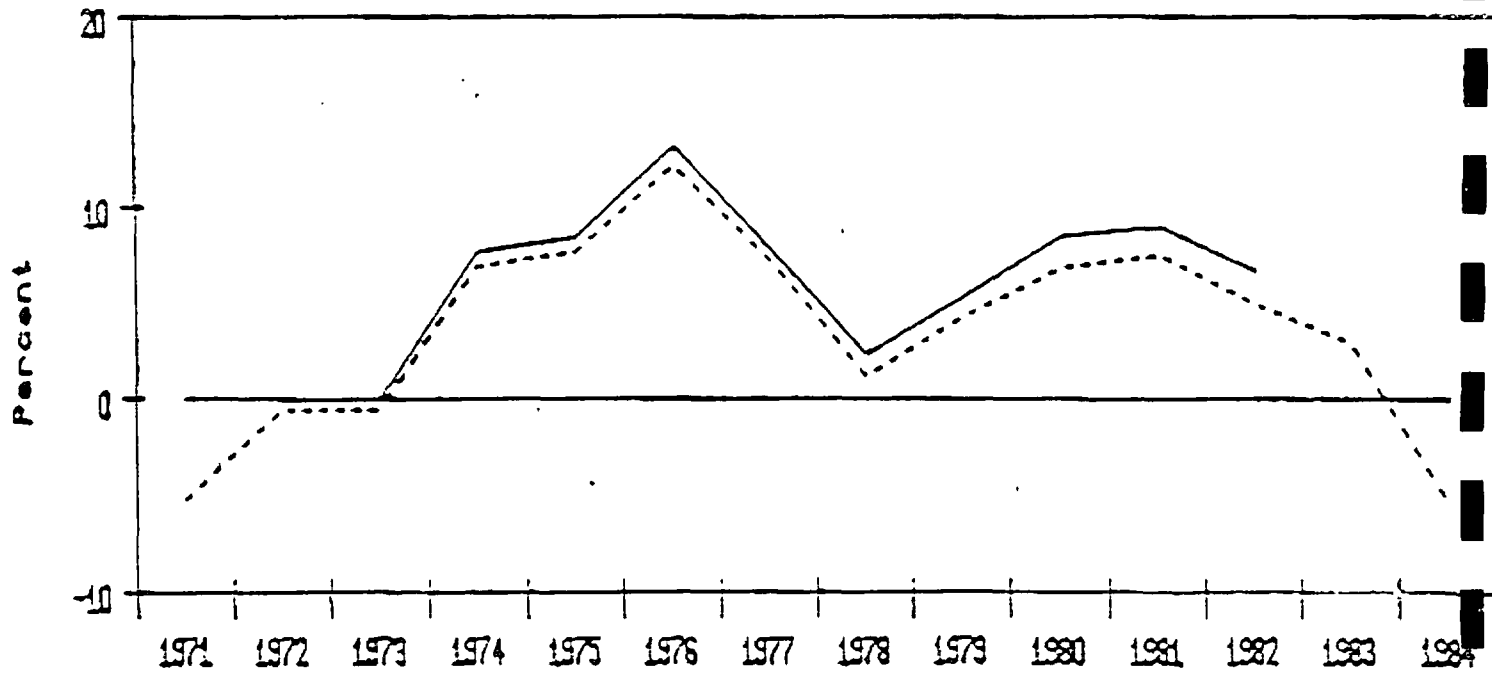
% Difference between Canada and U.S. Input Unit Costs Clothing Industries

Pre-Exchange Rate Adjusted
Total (Line) Materials, Labour and Taxes (Dot)



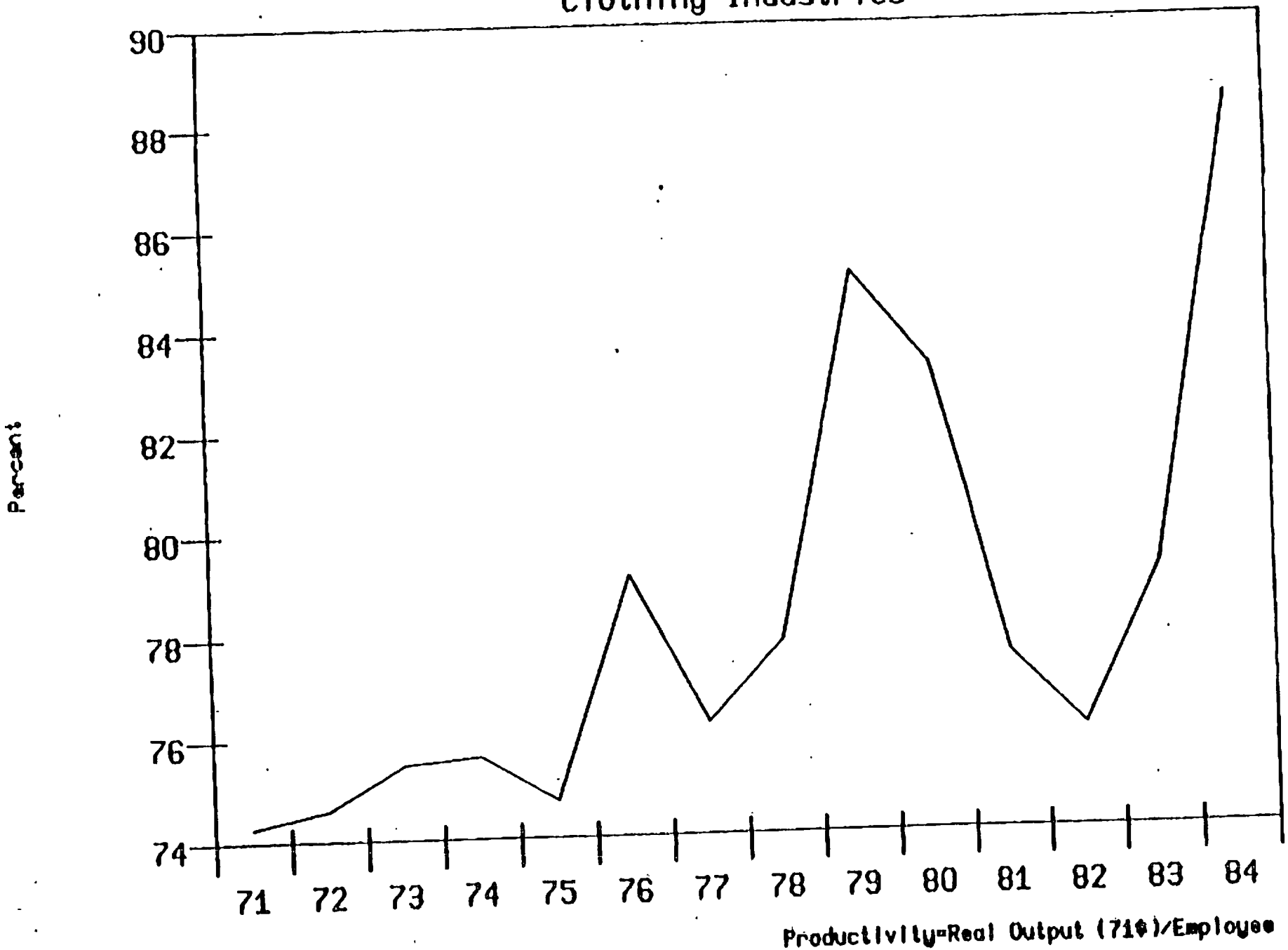
Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line

Exchange Rate Adjusted
Total (Line) Materials, Labour and Taxes (Dot)

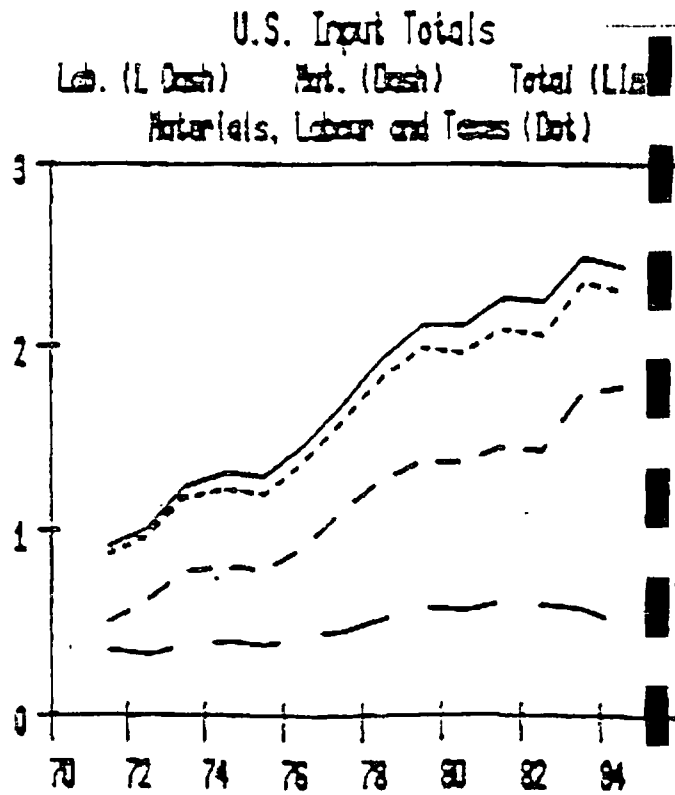
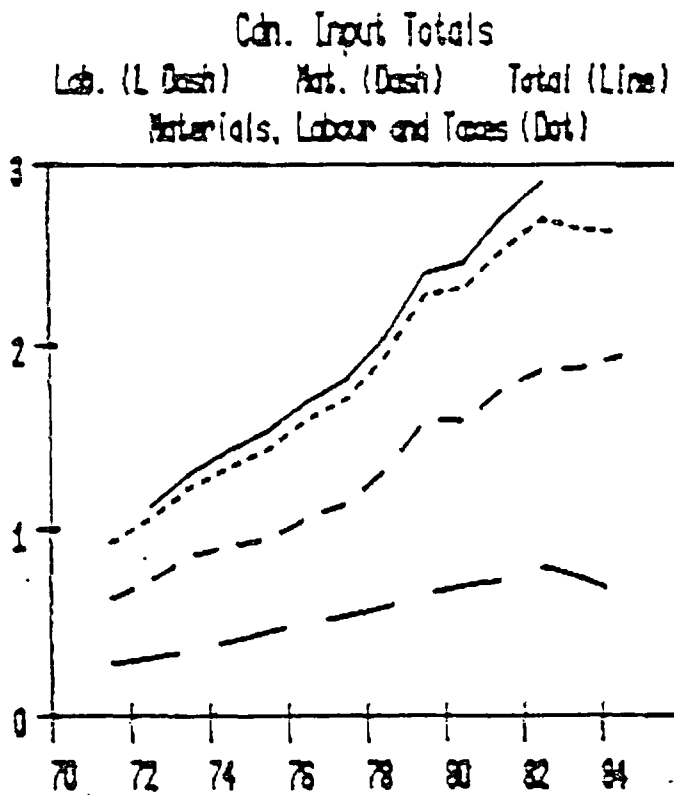
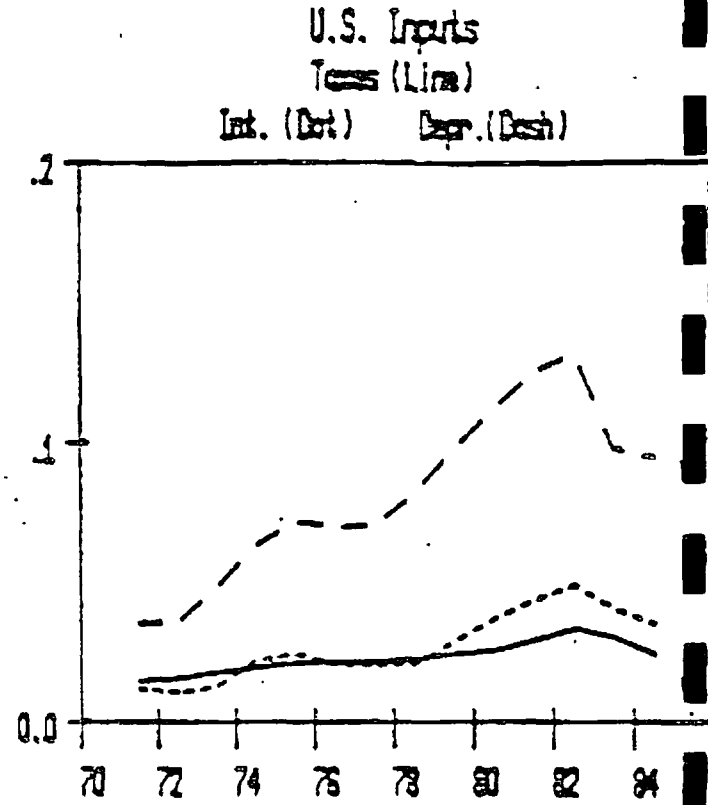
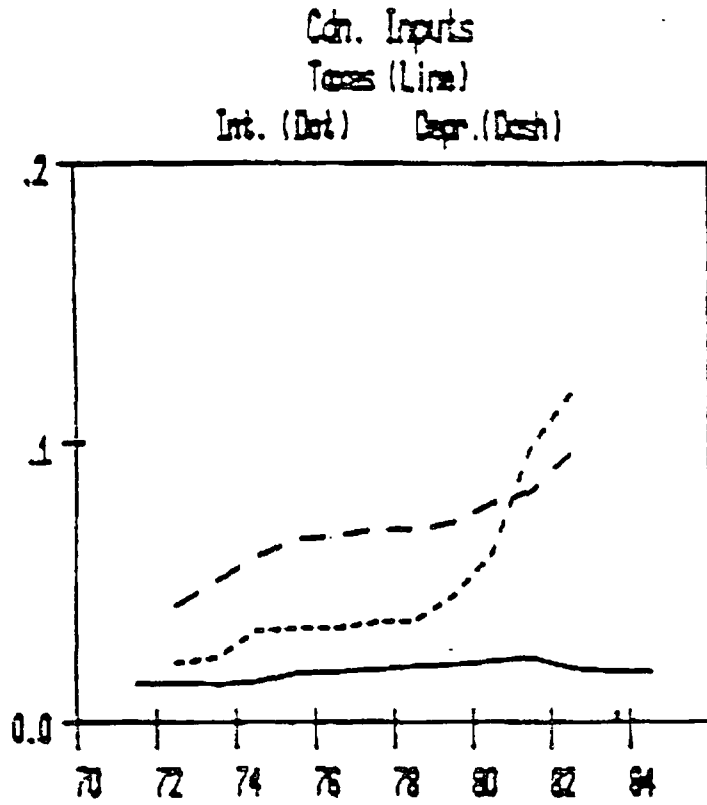


Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line

Productivity Ratio Canadian Productivity as a % of U.S. Productivity Clothing Industries

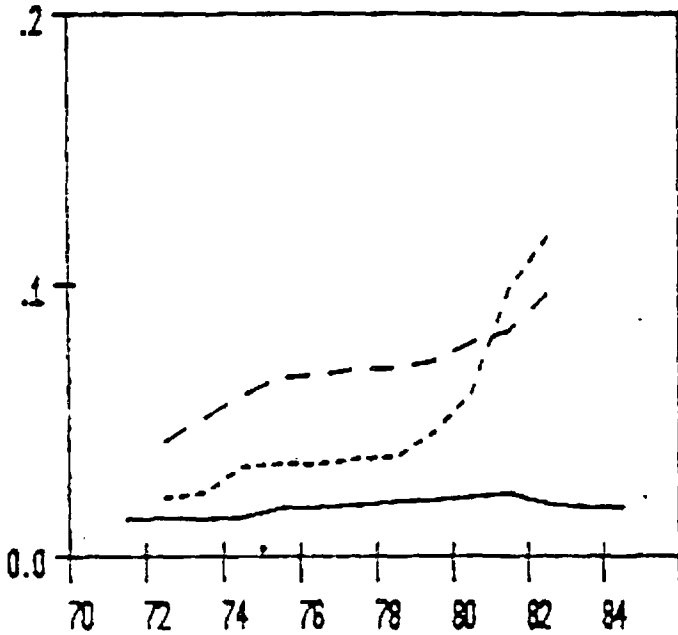


Unit Input Costs
 Nominal Dollars per unit of Real (71\$) Output
 Wood Industries
 Pre-Exchange Rate Adjusted

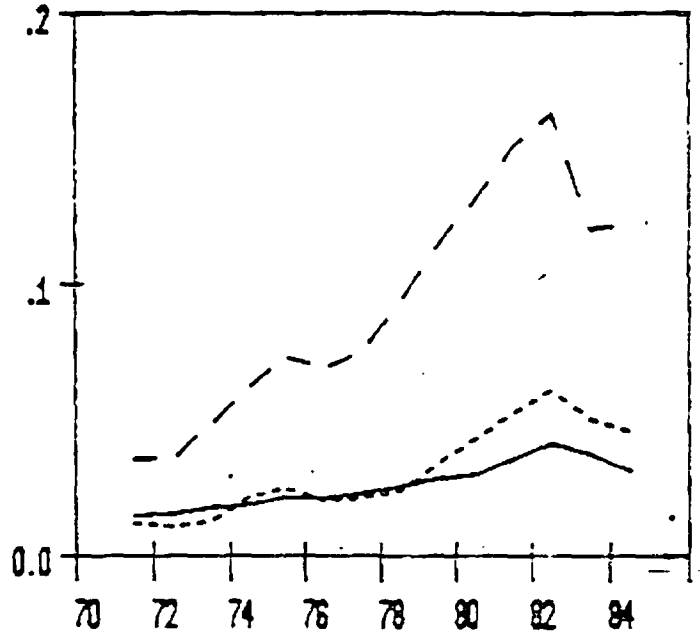


Unit Input Costs
 Nominal Dollars per unit of Real (71\$) Output
 Wood Industries
 Exchange Rate Adjusted

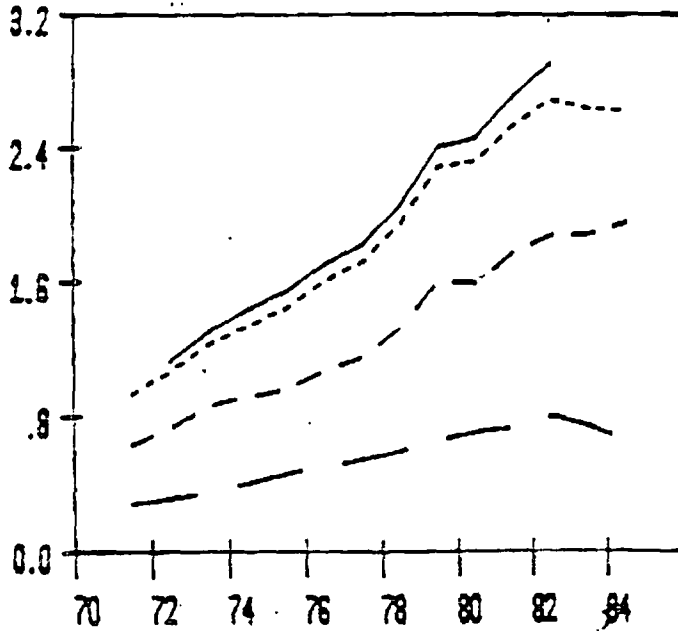
Can. Inputs
 Taxes (Line)
 Int. (Dot) Depr. (Dash)



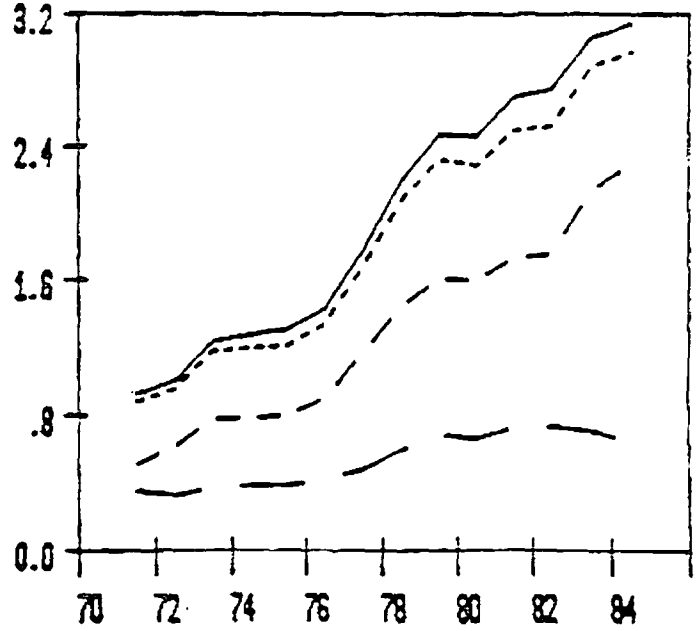
U.S. Inputs
 Taxes (Line)
 Int. (Dot) Depr. (Dash)



Can. Input Totals
 Lab. (L Dash) Mat. (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)



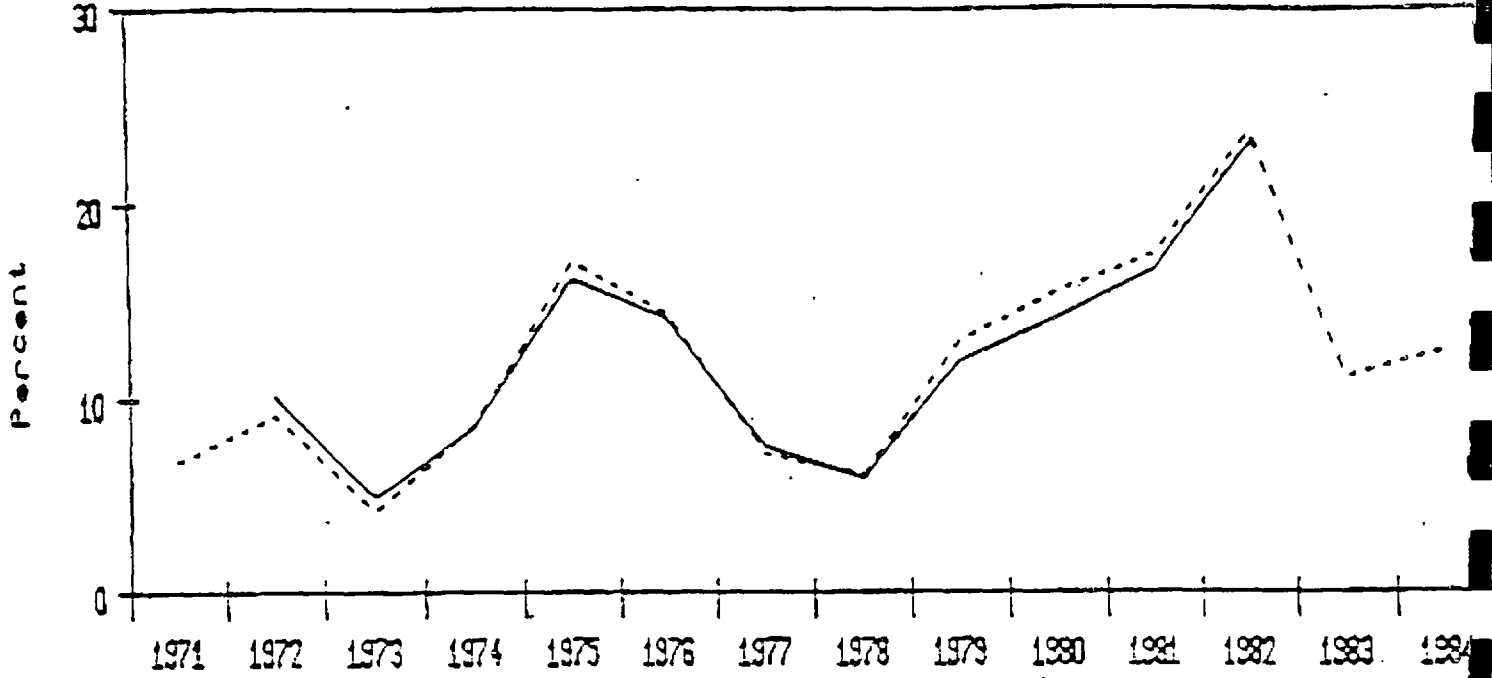
U.S. Input Totals
 Lab. (L Dash) Mat. (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)



% Difference between Canada and U.S. Input Unit Costs Wood Industries

Pre-Exchange Rate Adjusted

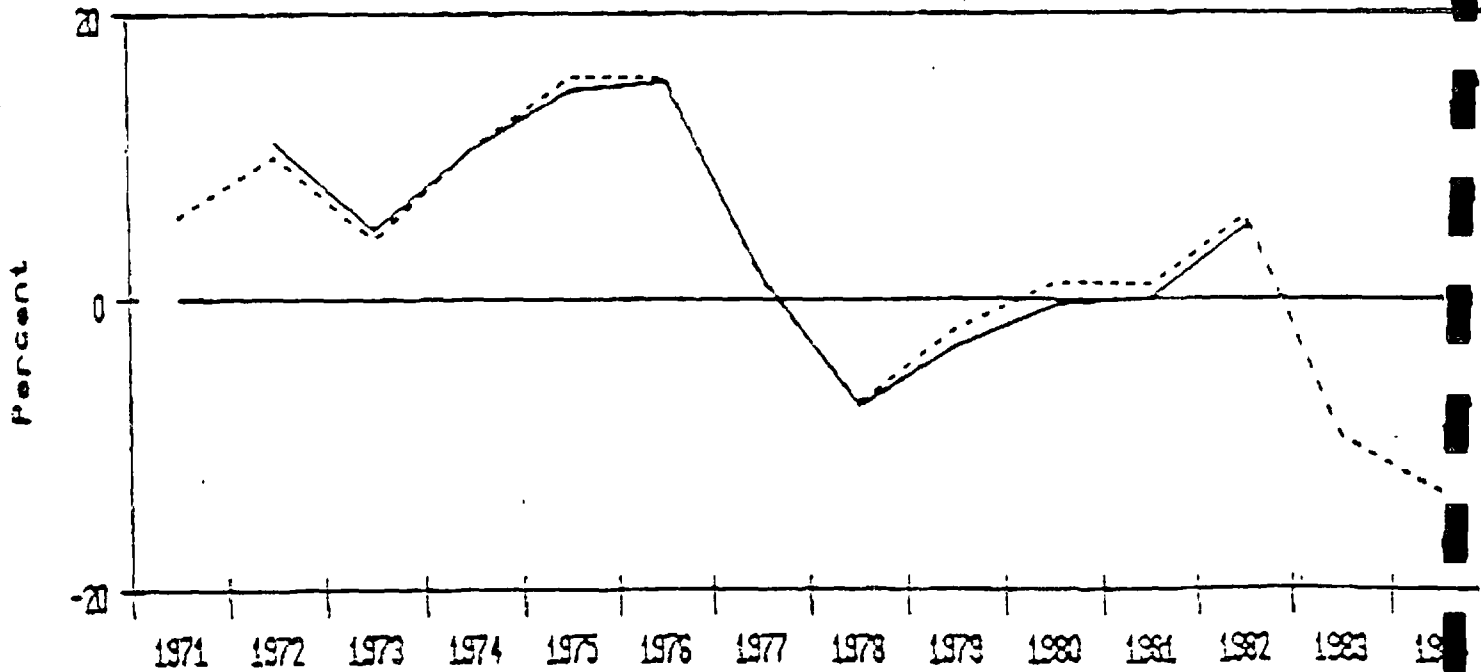
Total (Line) Materials, Labour and Taxes (Dot)



Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line

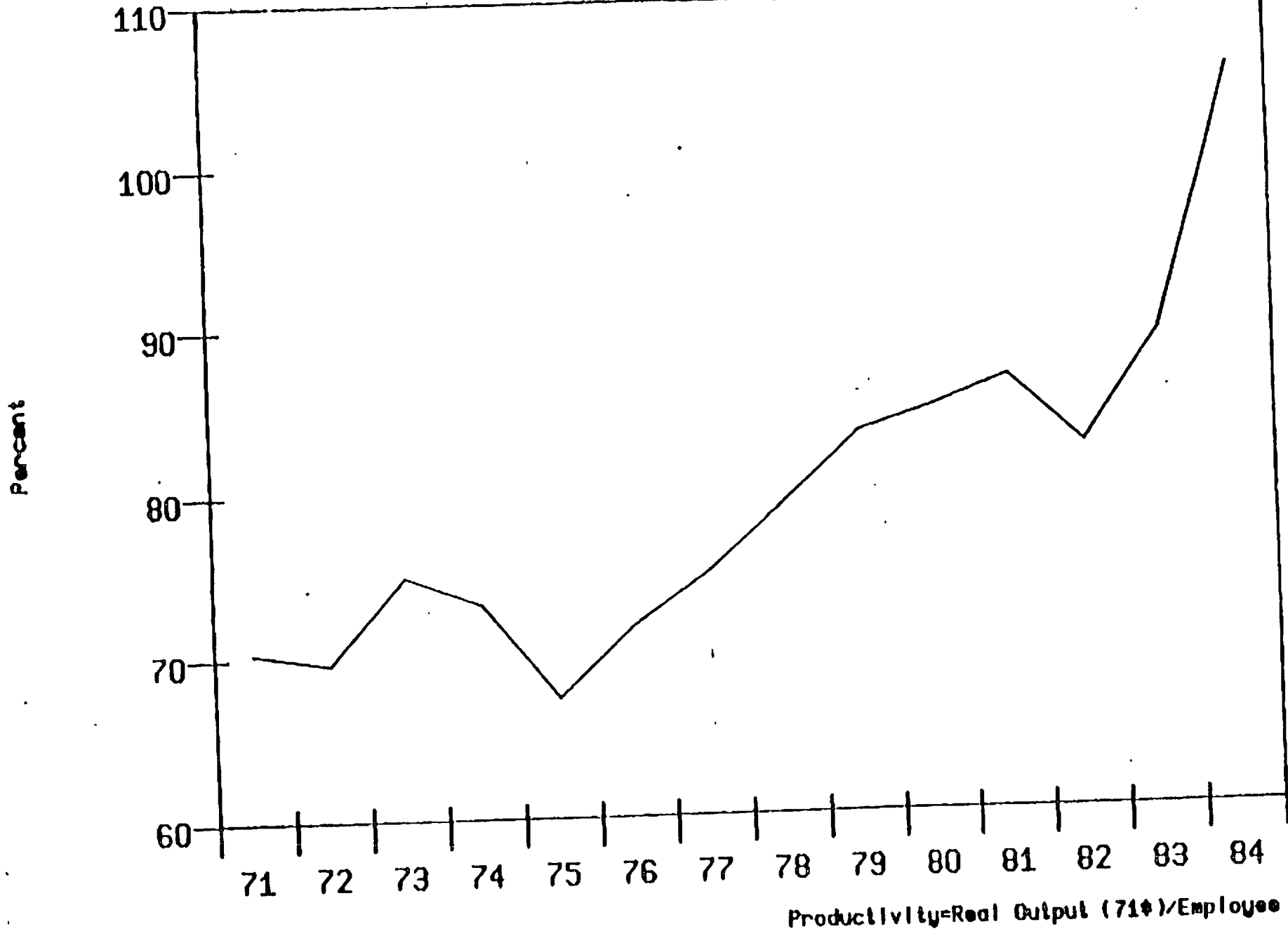
Exchange Rate Adjusted

Total (Line) Materials, Labour and Taxes (Dot)



Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line

Productivity Ratio Canadian Productivity as a % of U.S. Productivity Wood Industries



Unit Input Costs

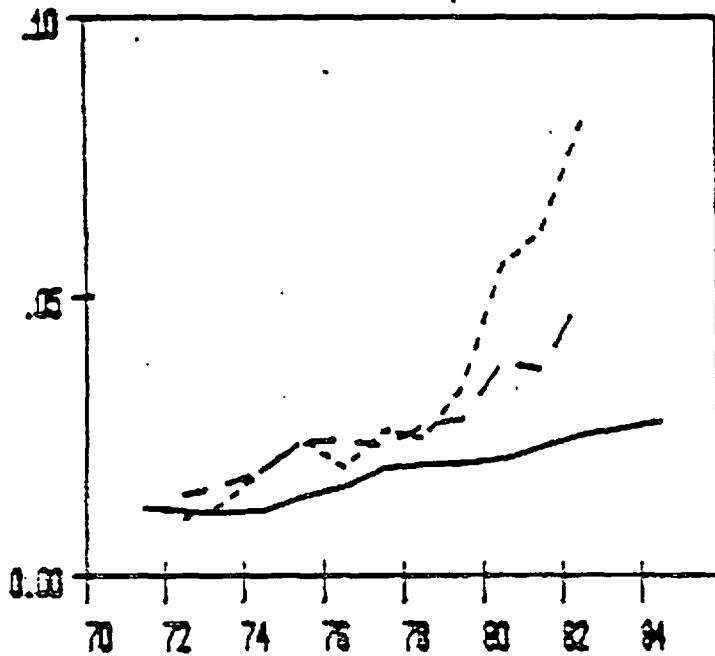
Nominal Dollars per unit of Real (71\$) Output
Furniture & Fixture Industries
Pre-Exchange Rate Adjusted

Can. Inputs

Taxes (Line)

Int. (Dot)

Depr. (Dash)

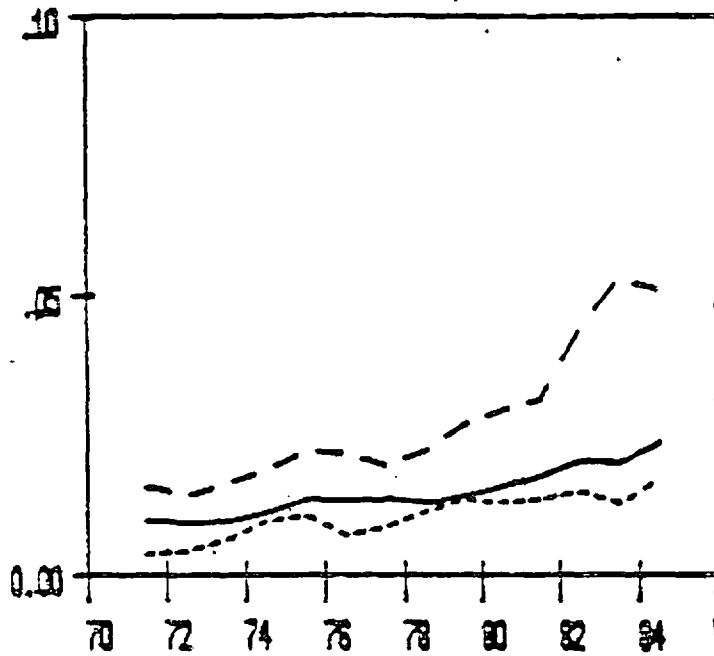


U.S. Inputs

Taxes (Line)

Int. (Dot)

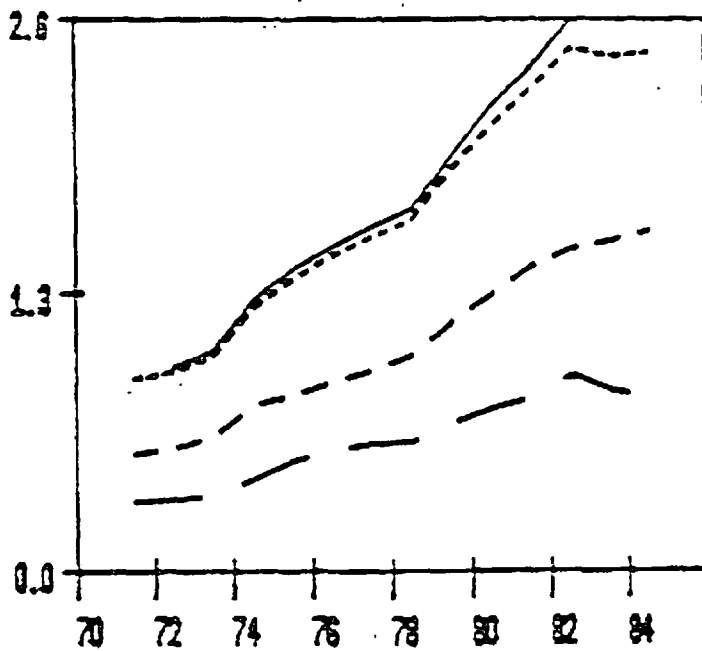
Depr. (Dash)



Can. Input Totals

Lab. (L Dash) Mat. (Dash) Total (Line)

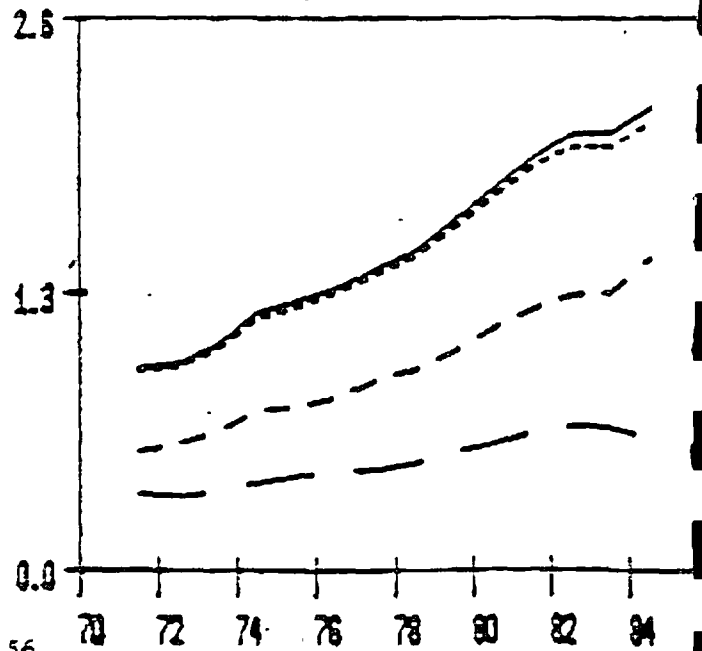
Materials, Labour and Taxes (Dot)



U.S. Input Totals

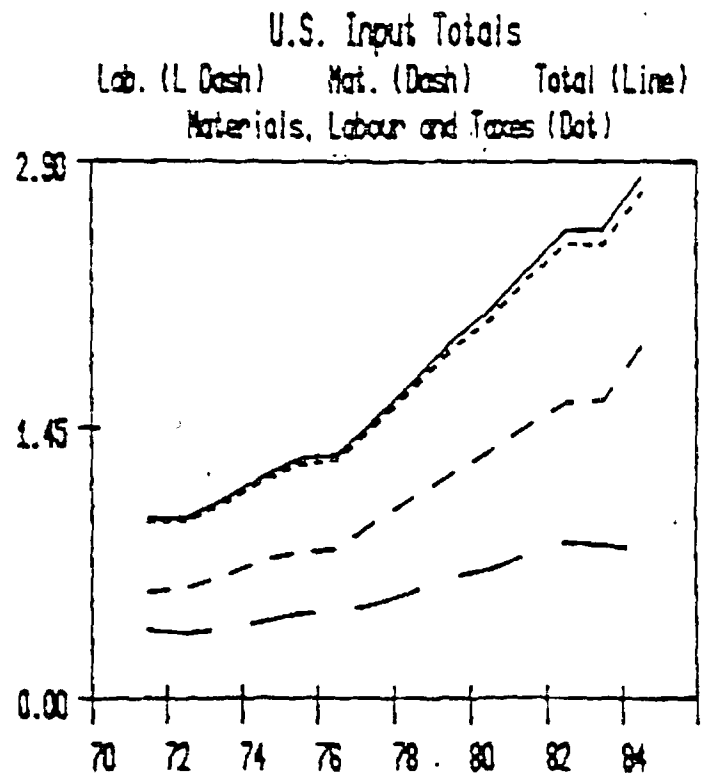
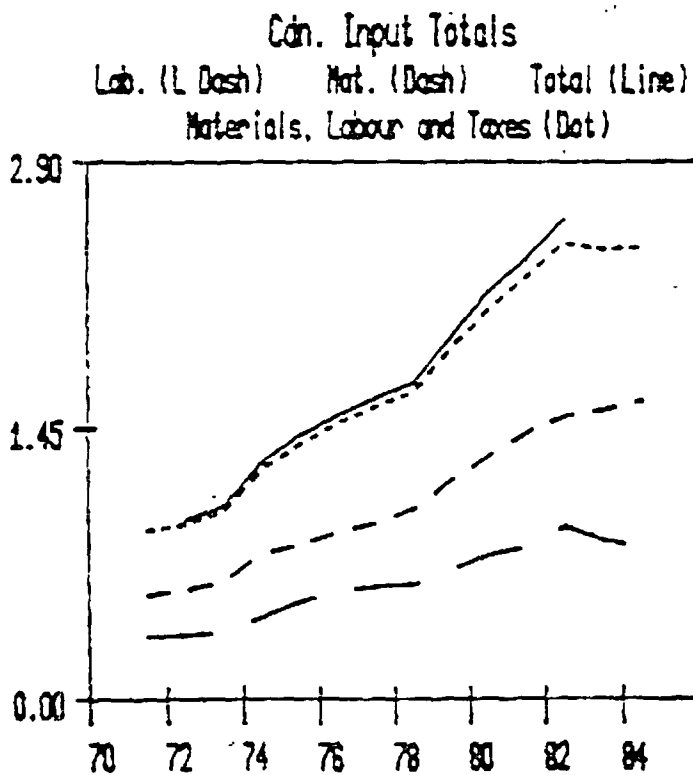
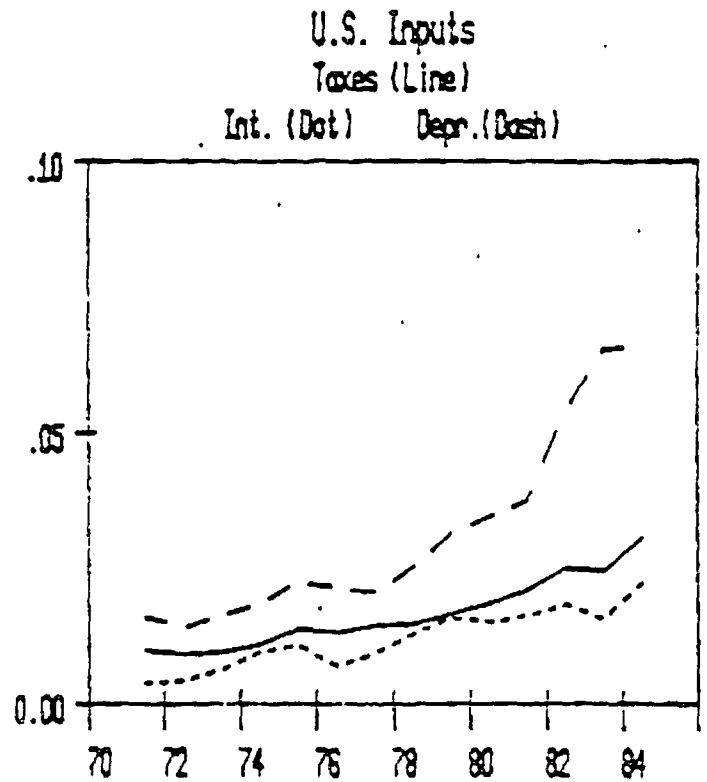
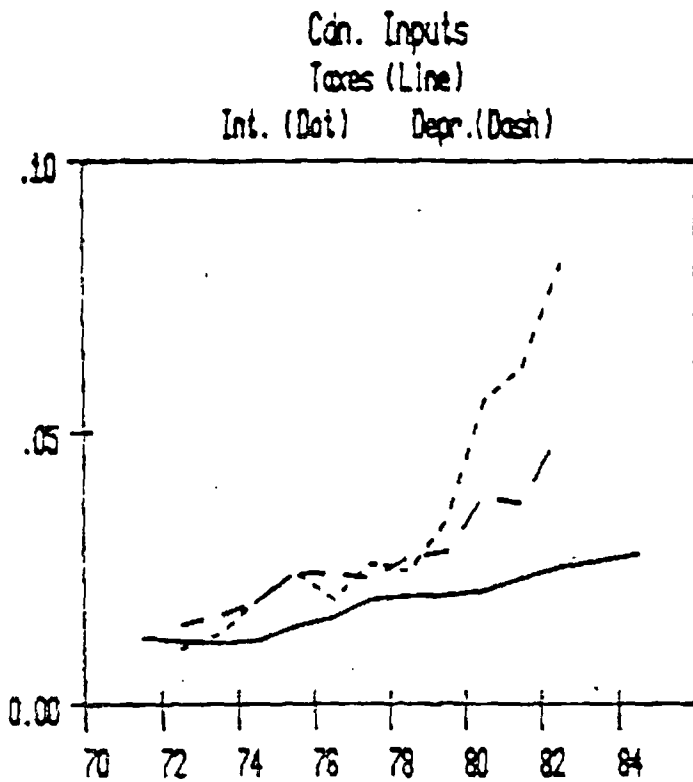
Lab. (L Dash) Mat. (Dash) Total (Line)

Materials, Labour and Taxes (Dot)



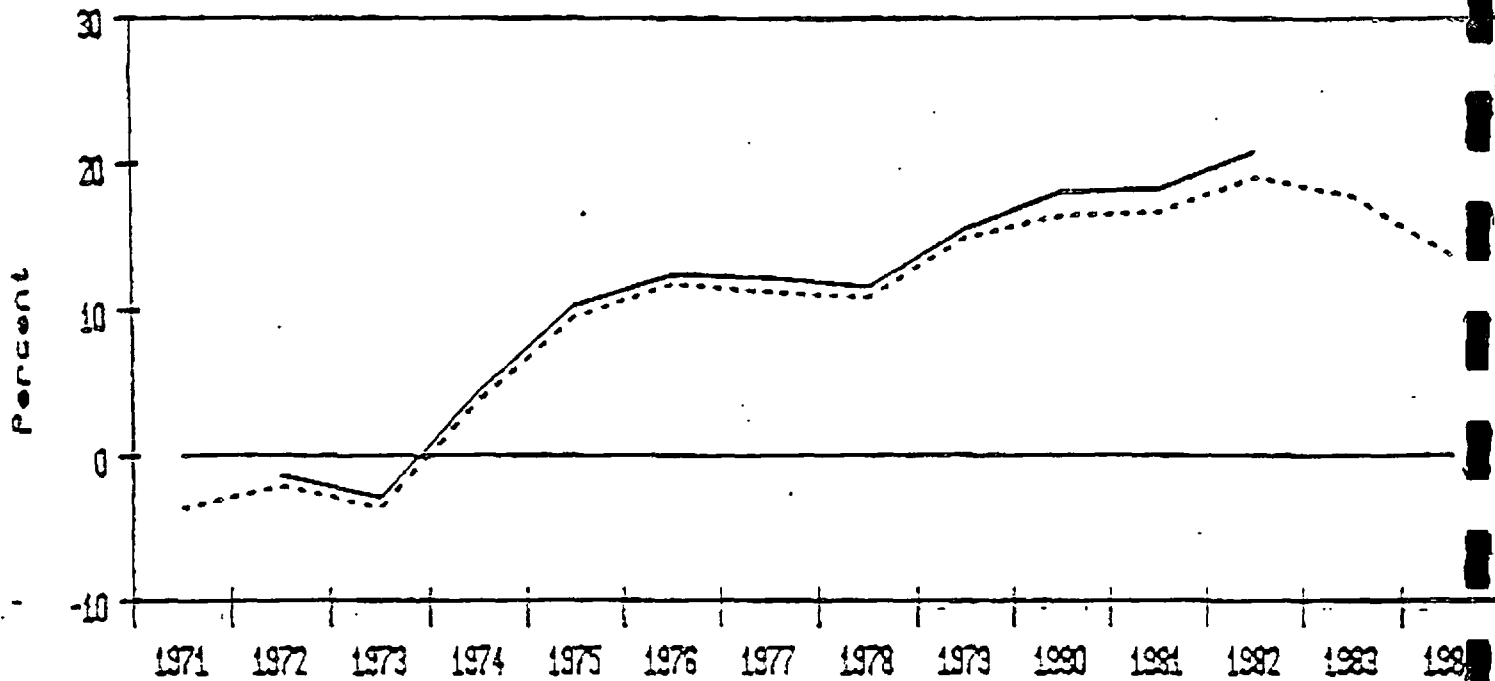
Unit Input Costs

Nominal Dollars per unit of Real (71\$) Output
Furniture & Fixture Industries
Exchange Rate Adjusted



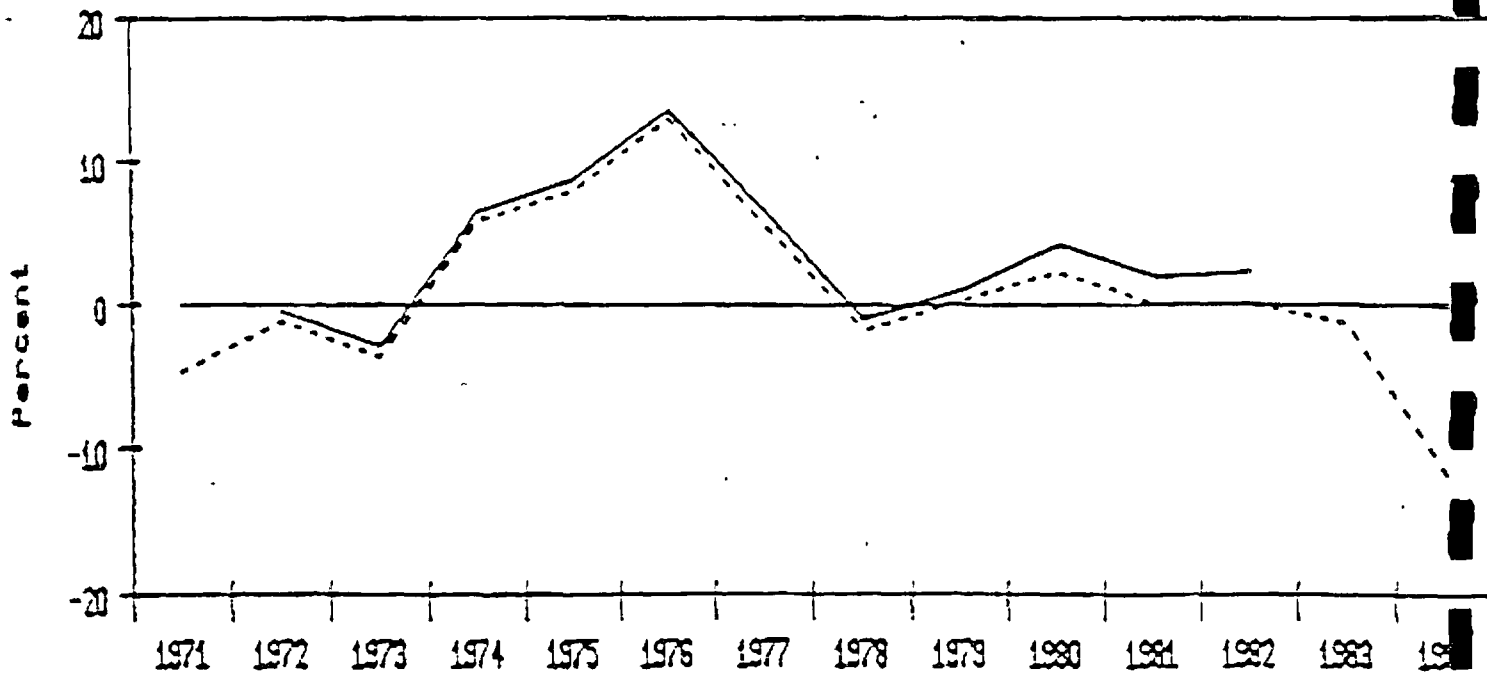
% Difference between Canada and U.S. Input Unit Costs Furniture & Fixture Industries

Pre-Exchange Rate Adjusted
Total (Line) Materials, Labour and Taxes (Dot)



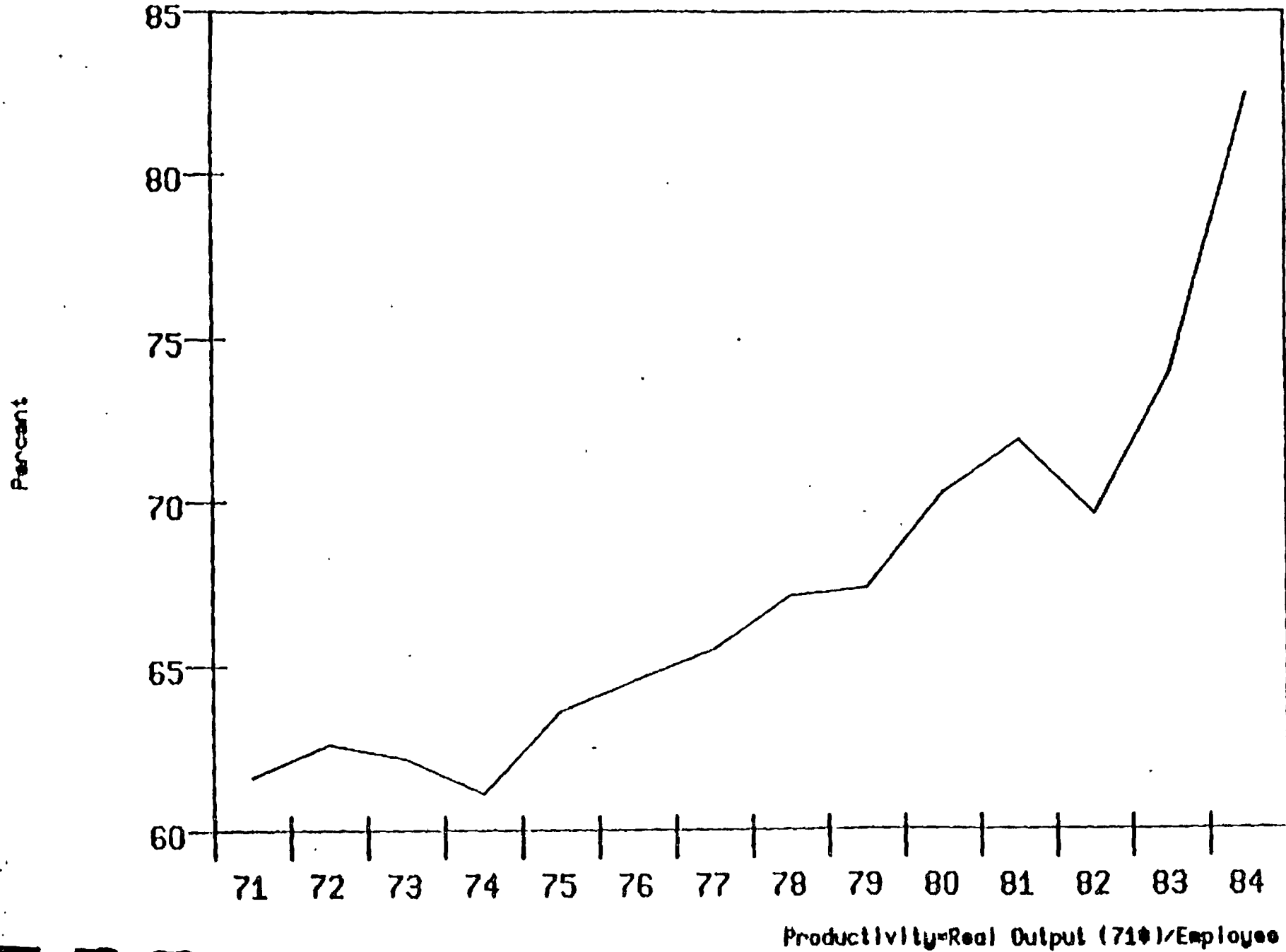
Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line

Exchange Rate Adjusted
Total (Line) Materials, Labour and Taxes (Dot)



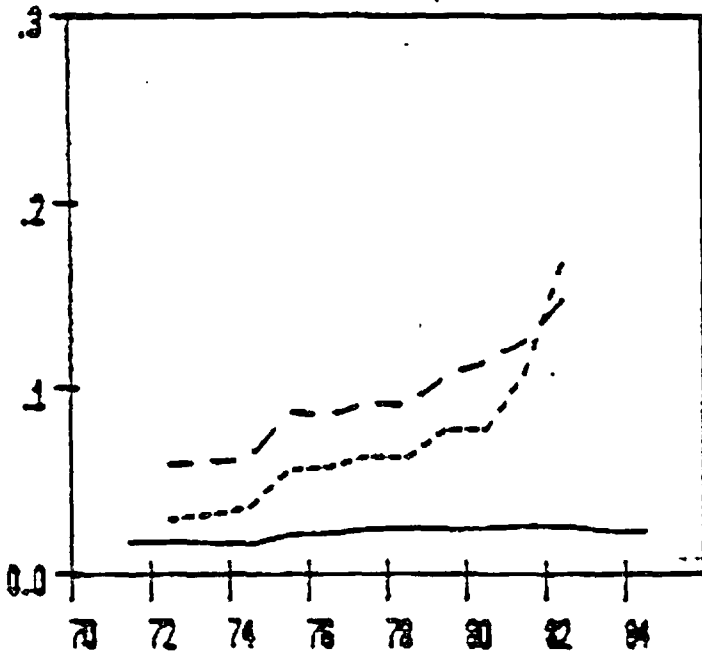
Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line

Productivity Ratio
Canadian Productivity as a % of U.S. Productivity
Furniture & Fixture Industries

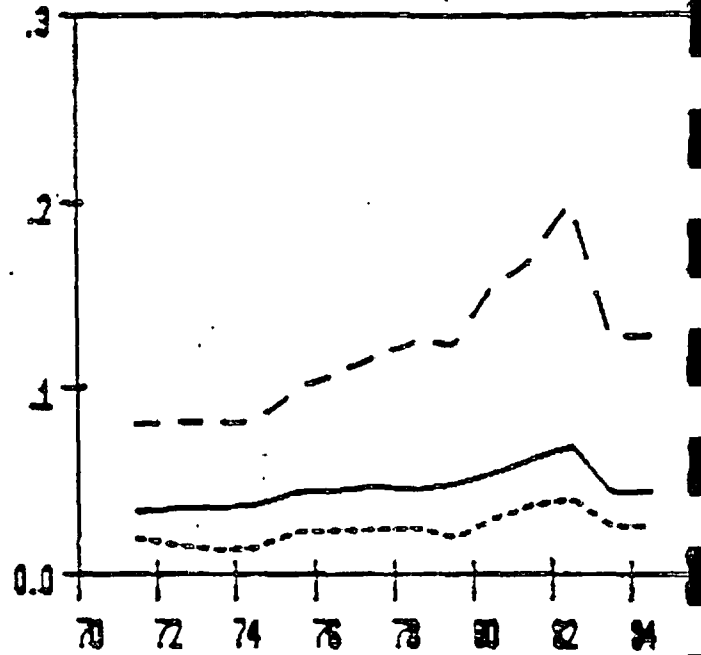


Unit Input Costs
 Nominal Dollars per unit of Real (71\$) Output
 Paper & Allied Industries
 Pre-Exchange Rate Adjusted

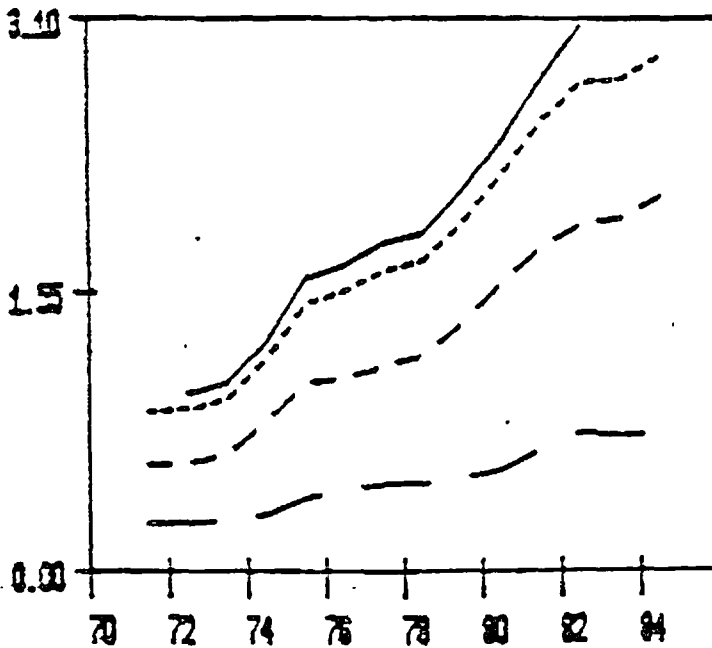
Can. Inputs
 Taxes (Line)
 Int. (Dot) Depr. (Dash)



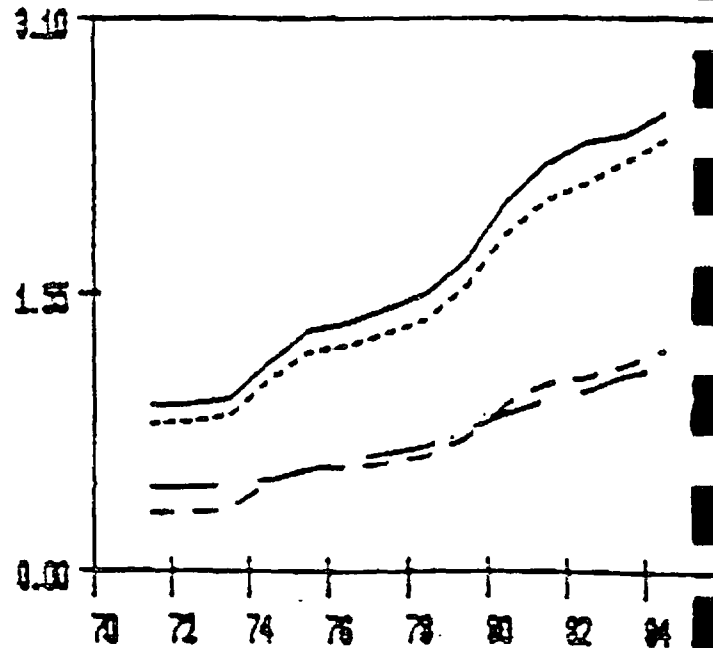
U.S. Inputs
 Taxes (Line)
 Int. (Dot) Depr. (Dash)



Can. Input Totals
 Lab. (L Dash) Mat. (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)

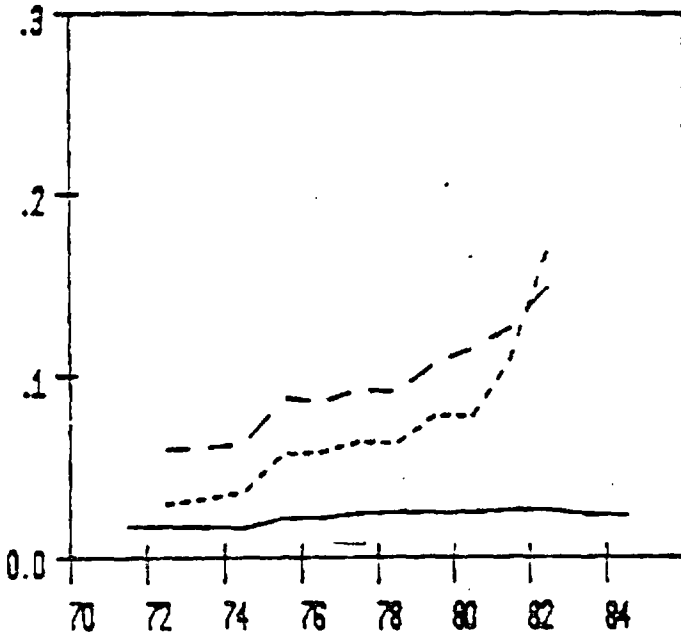


U.S. Input Totals
 Lab. (L Dash) Mat. (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)

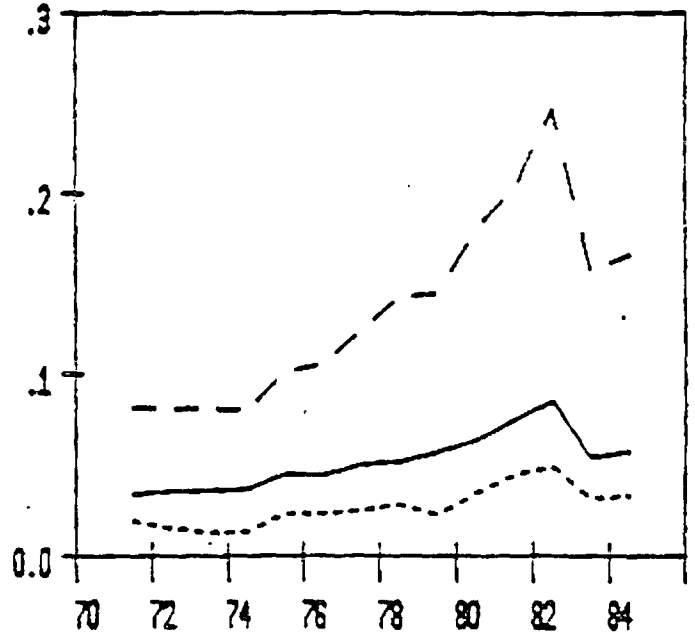


Unit Input Costs
 Nominal Dollars per unit of Real (71\$) Output
 Paper & Allied Industries
 Exchange Rate Adjusted

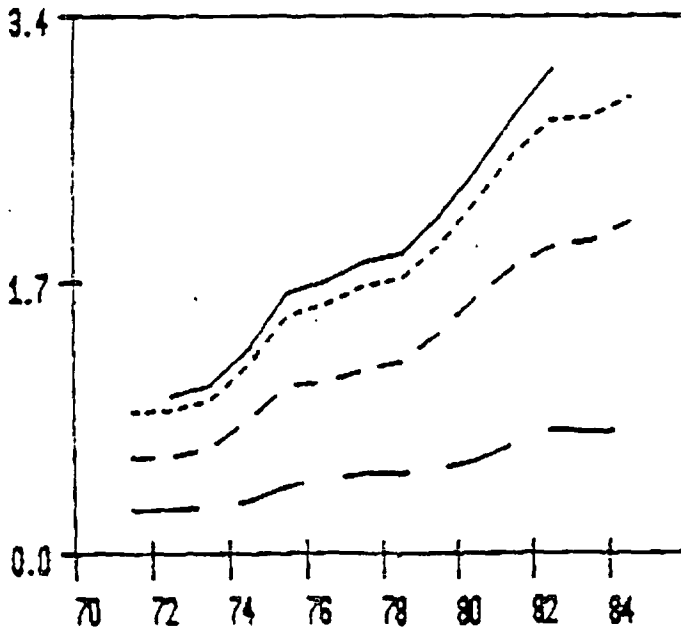
Can. Inputs
 Taxes (Line)
 Int. (Dot) Depr. (Dash)



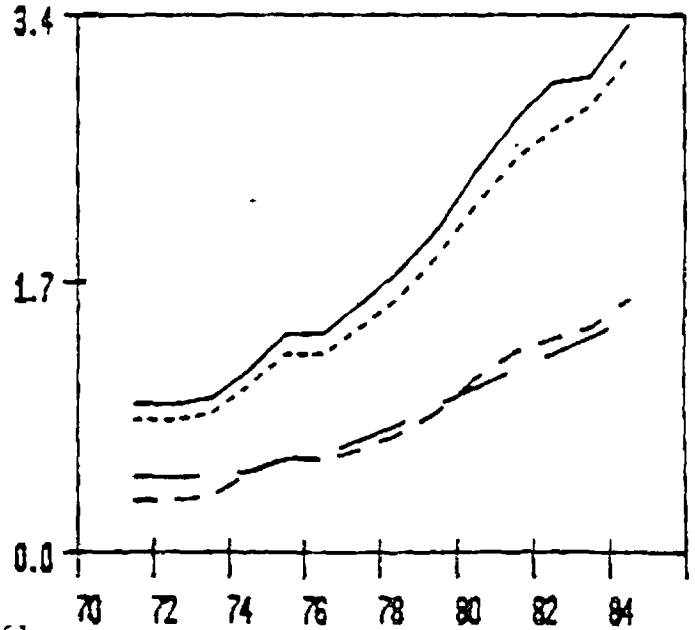
U.S. Inputs
 Taxes (Line)
 Int. (Dot) Depr. (Dash)



Can. Input Totals
 Lab. (L Dash) Mat. (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)

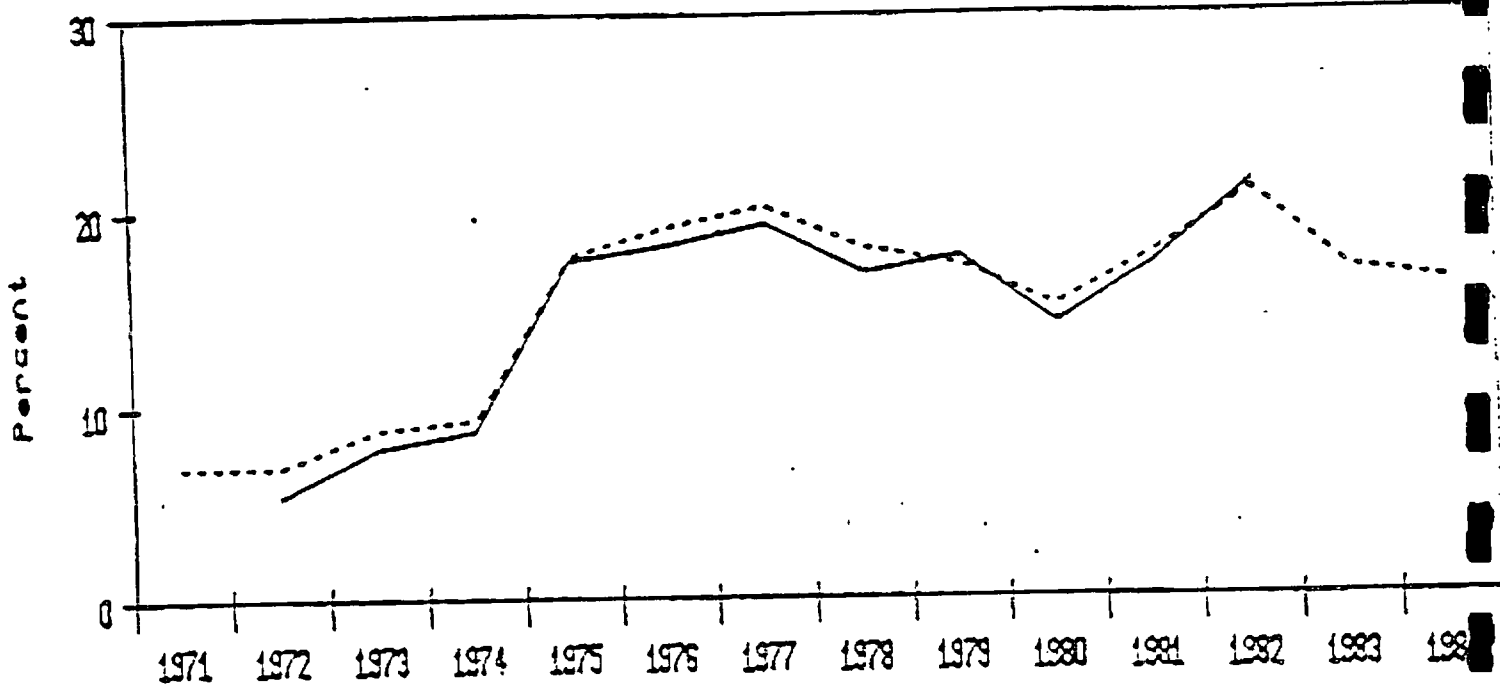


U.S. Input Totals
 Lab. (L Dash) Mat. (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)



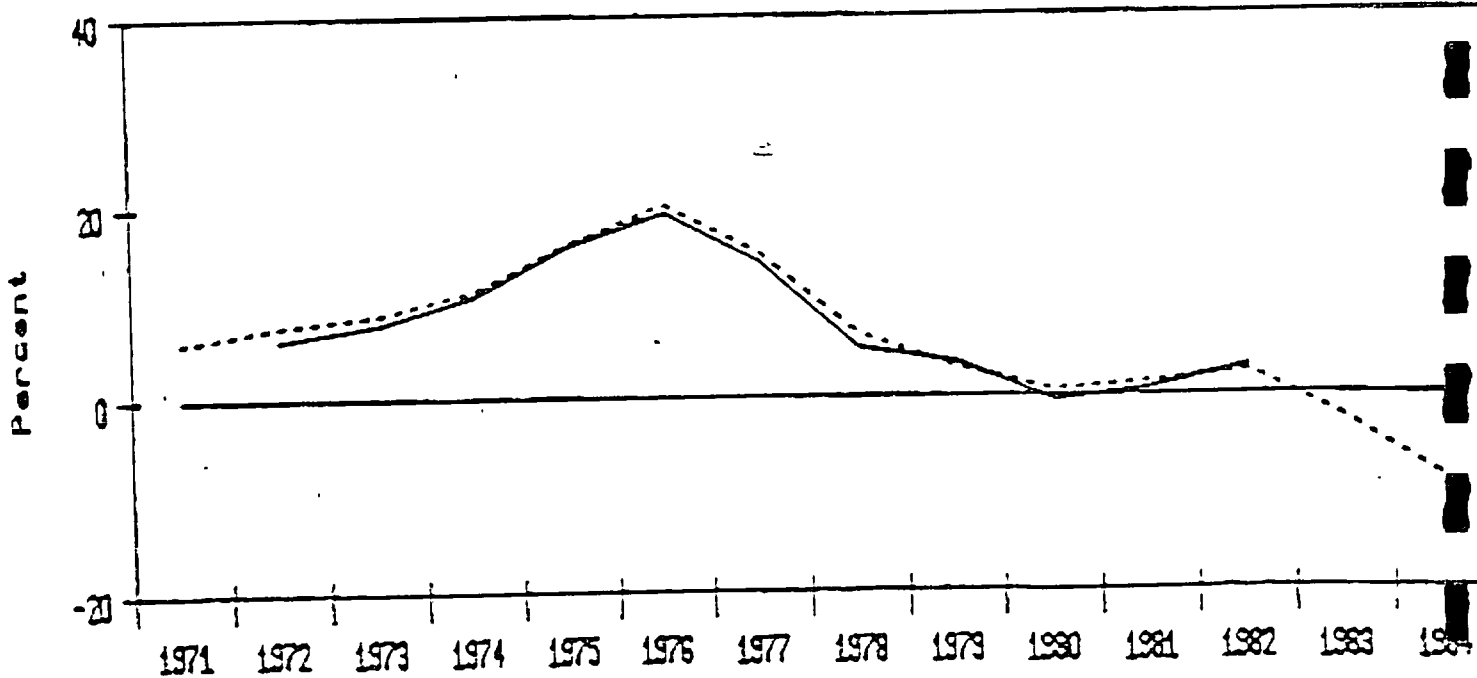
% Difference between Canada and U.S. Input Unit Costs Paper & Allied Industries

Pre-Exchange Rate Adjusted
Total (Line) Materials, Labour and Taxes (Dot)



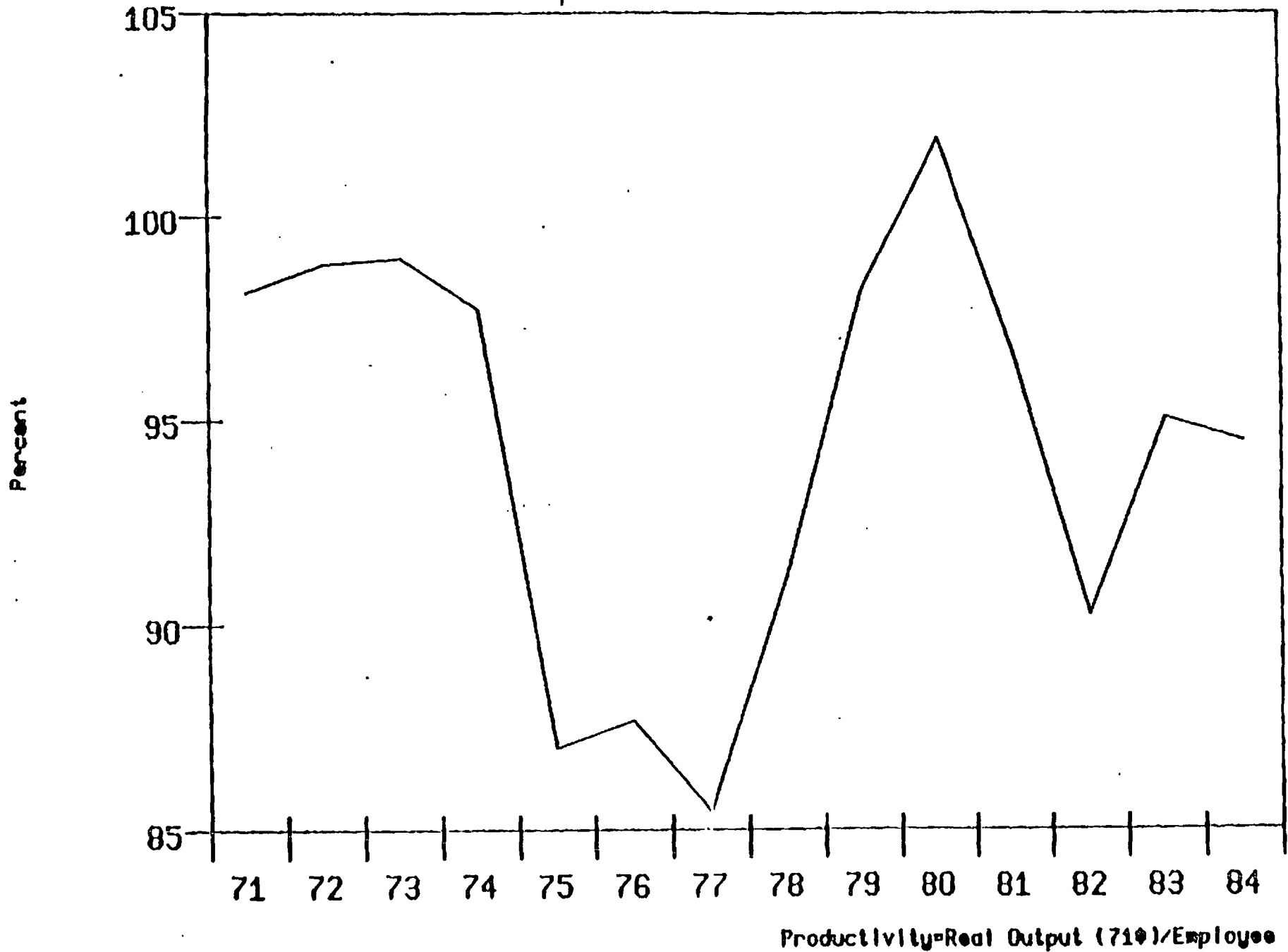
Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line

Exchange Rate Adjusted
Total (Line) Materials, Labour and Taxes (Dot)



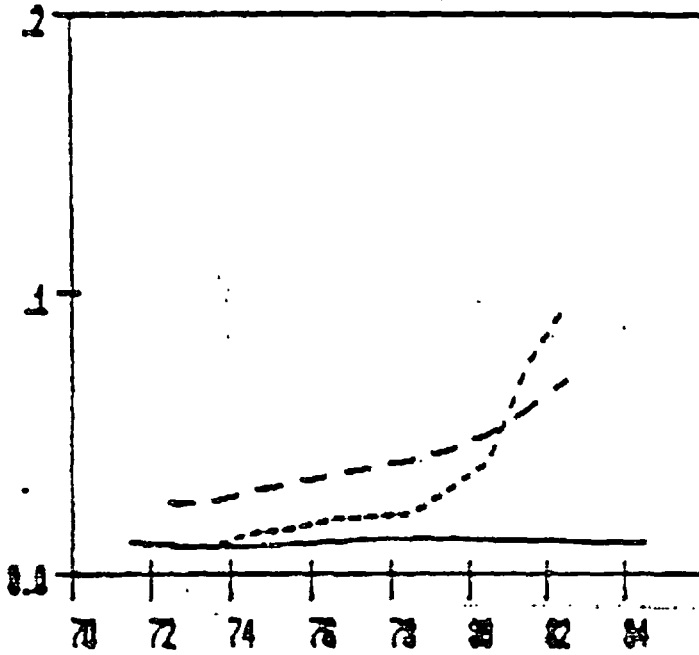
Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line

Productivity Ratio
Canadian Productivity as a % of U.S. Productivity
Paper & Allied Industries

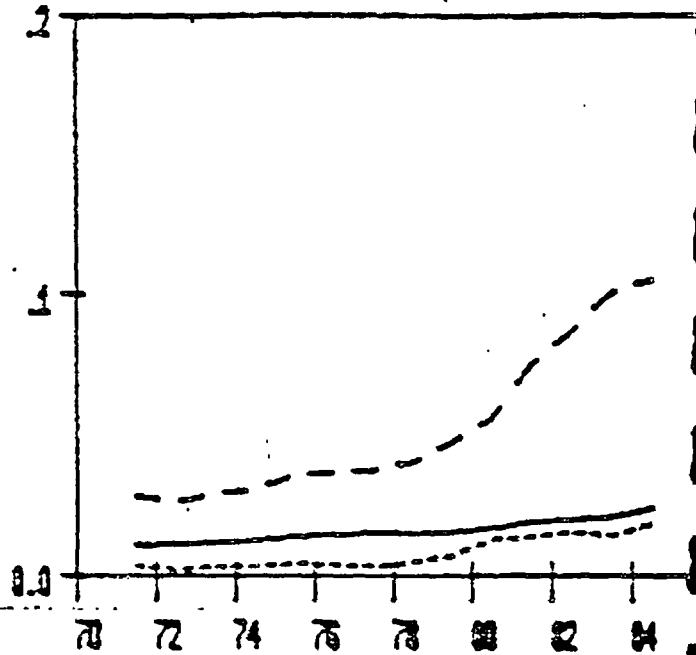


Unit Input Costs
 Nominal Dollars per unit of Real (71\$) Output
 Printing & Publishing
 Pre-Exchange Rate Adjusted

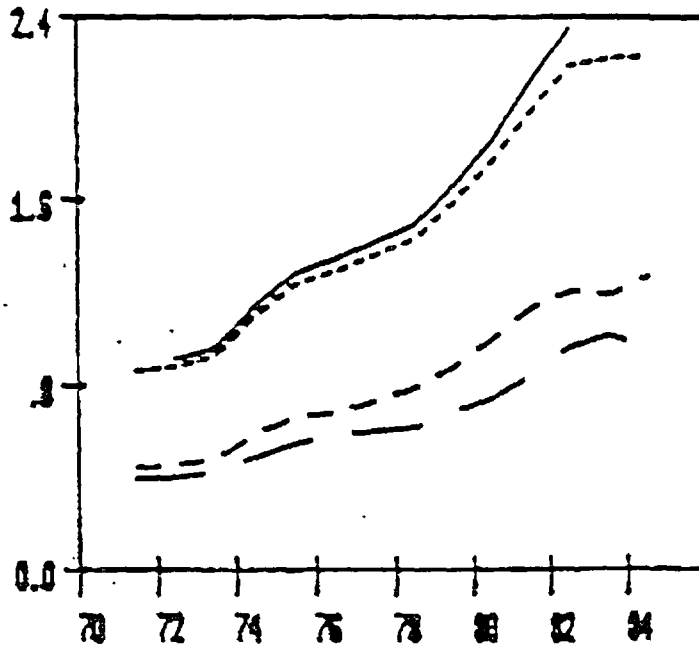
Can. Inputs
 Taxes (Line)
 Int. (Dot) Depn. (Dash)



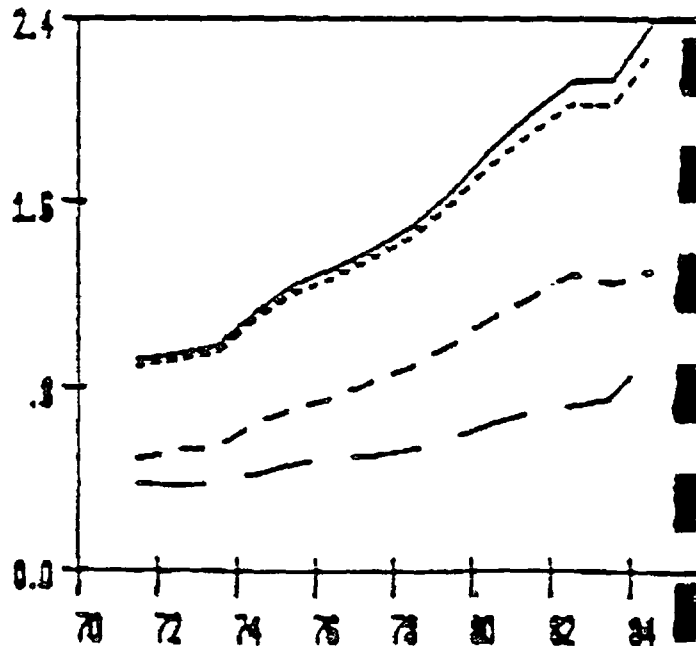
U.S. Inputs
 Taxes (Line)
 Int. (Dot) Depn. (Dash)



Can. Input Totals
 Lab. (L Dash) Mat. (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)

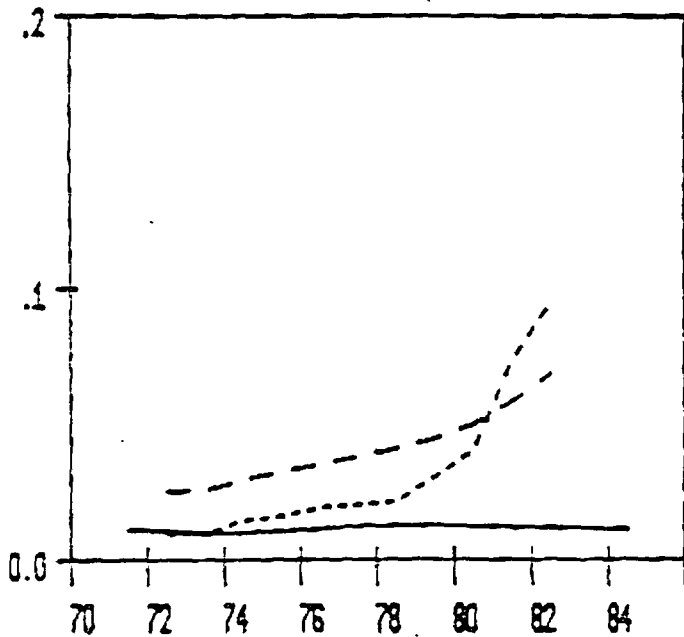


U.S. Input Totals
 Lab. (L Dash) Mat. (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)

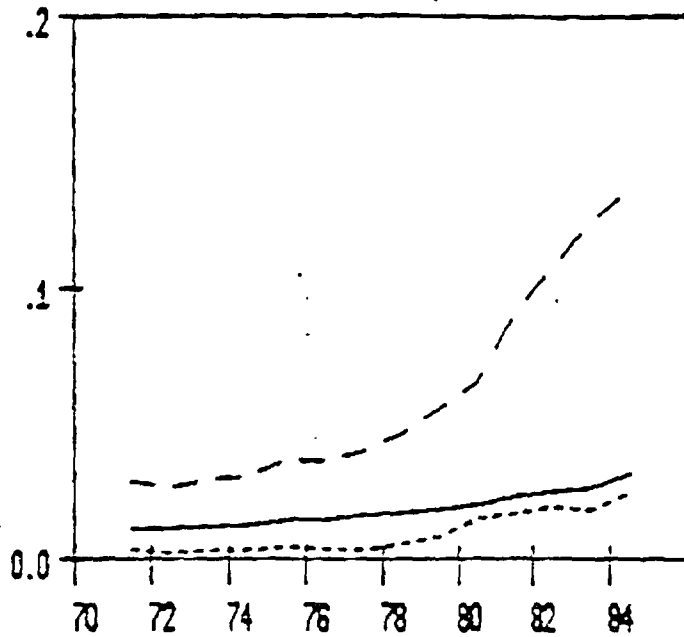


Unit Input Costs
 Nominal Dollars per unit of Real (71\$) Output
 Printing & Publishing
 Exchange Rate Adjusted

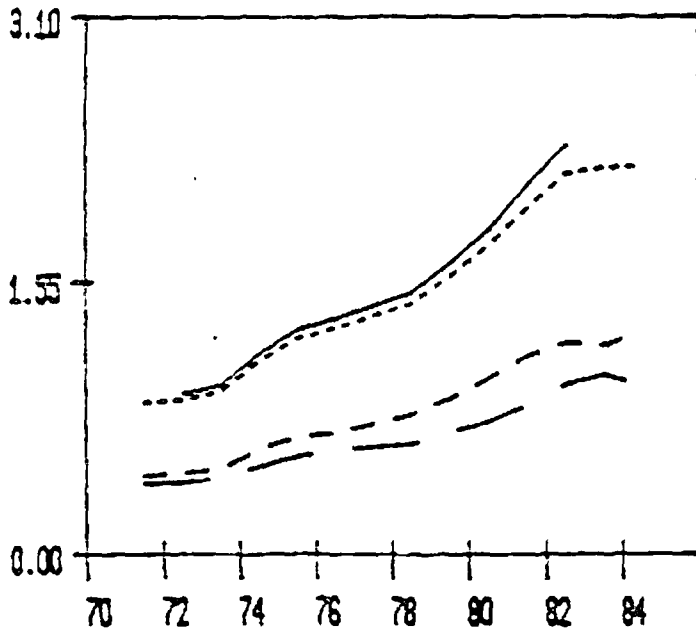
Can. Inputs
 Taxes (Line)
 Int. (Dot) Depr. (Dash)



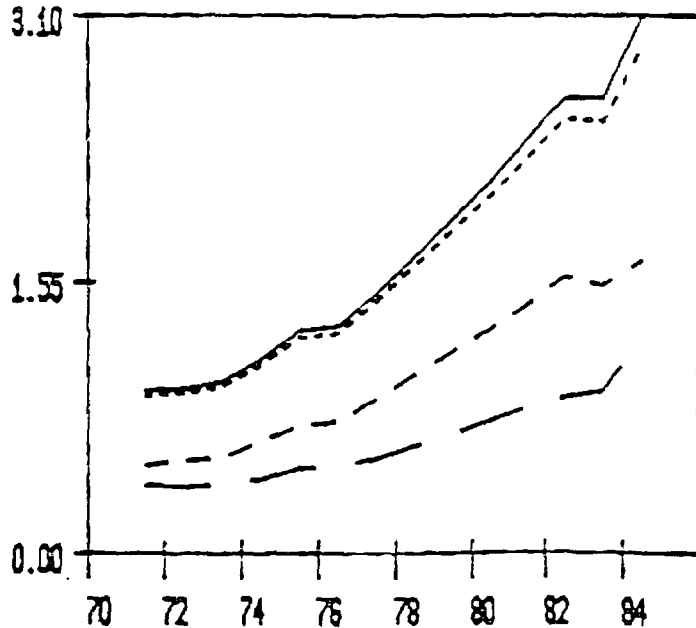
U.S. Inputs
 Taxes (Line)
 Int. (Dot) Depr. (Dash)



Can. Input Totals
 Lab. (L Dash) Mat. (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)

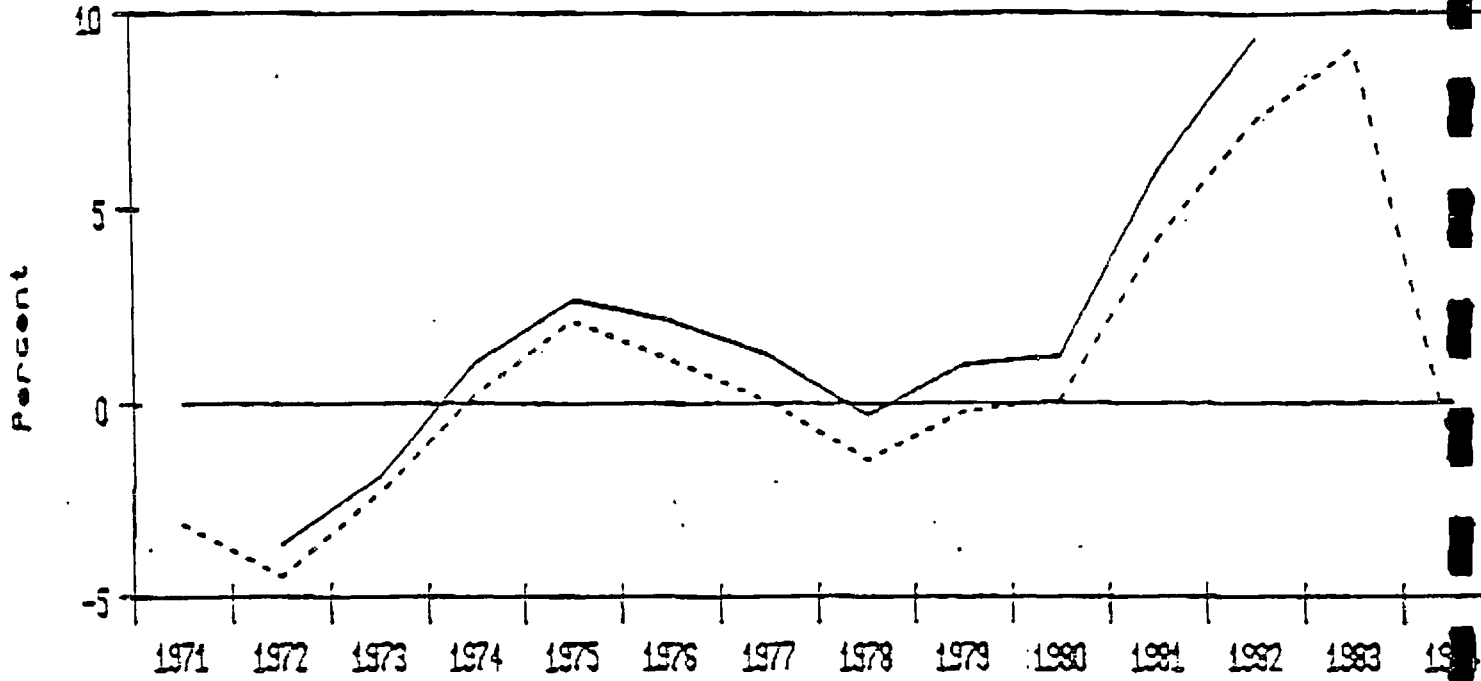


U.S. Input Totals
 Lab. (L Dash) Mat. (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)



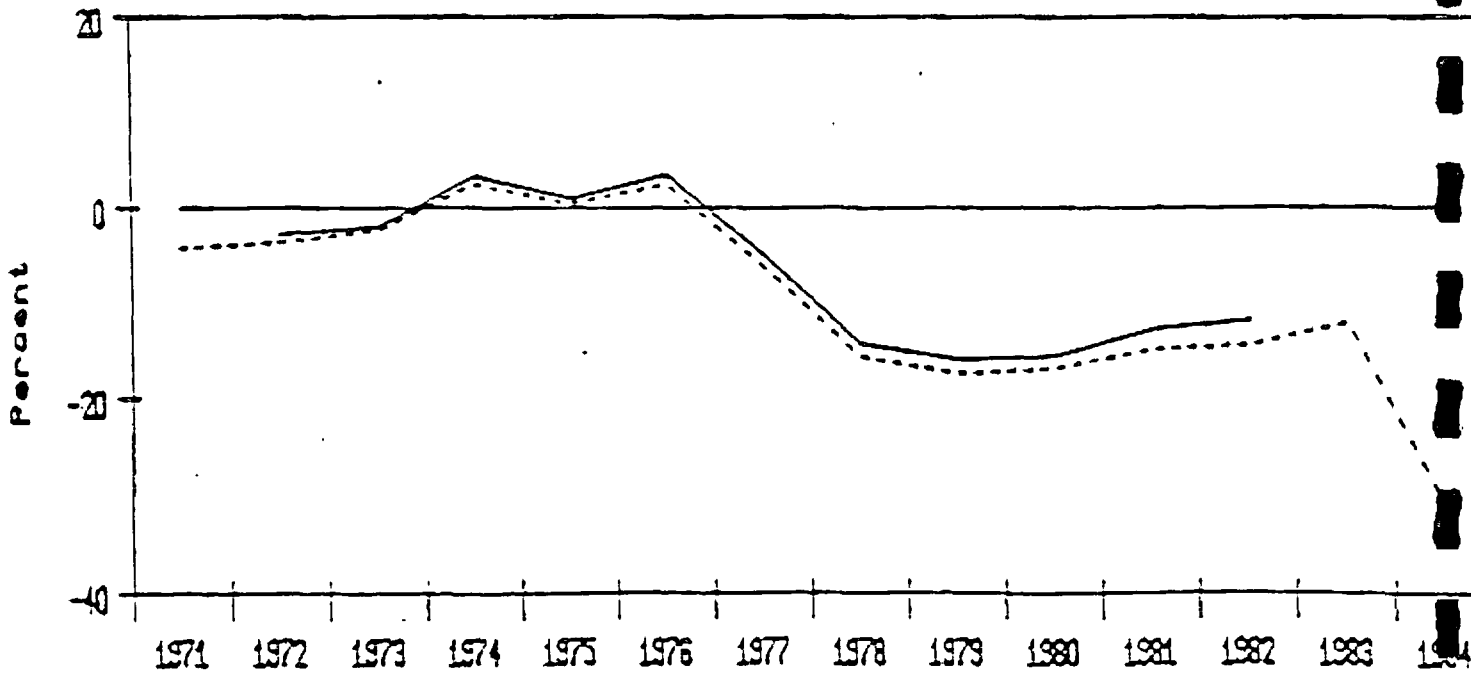
% Difference between Canada and U.S. Input Unit Costs Printing & Publishing

Pre-Exchange Rate Adjusted
Total (Line) Materials, Labour and Taxes (Dot)



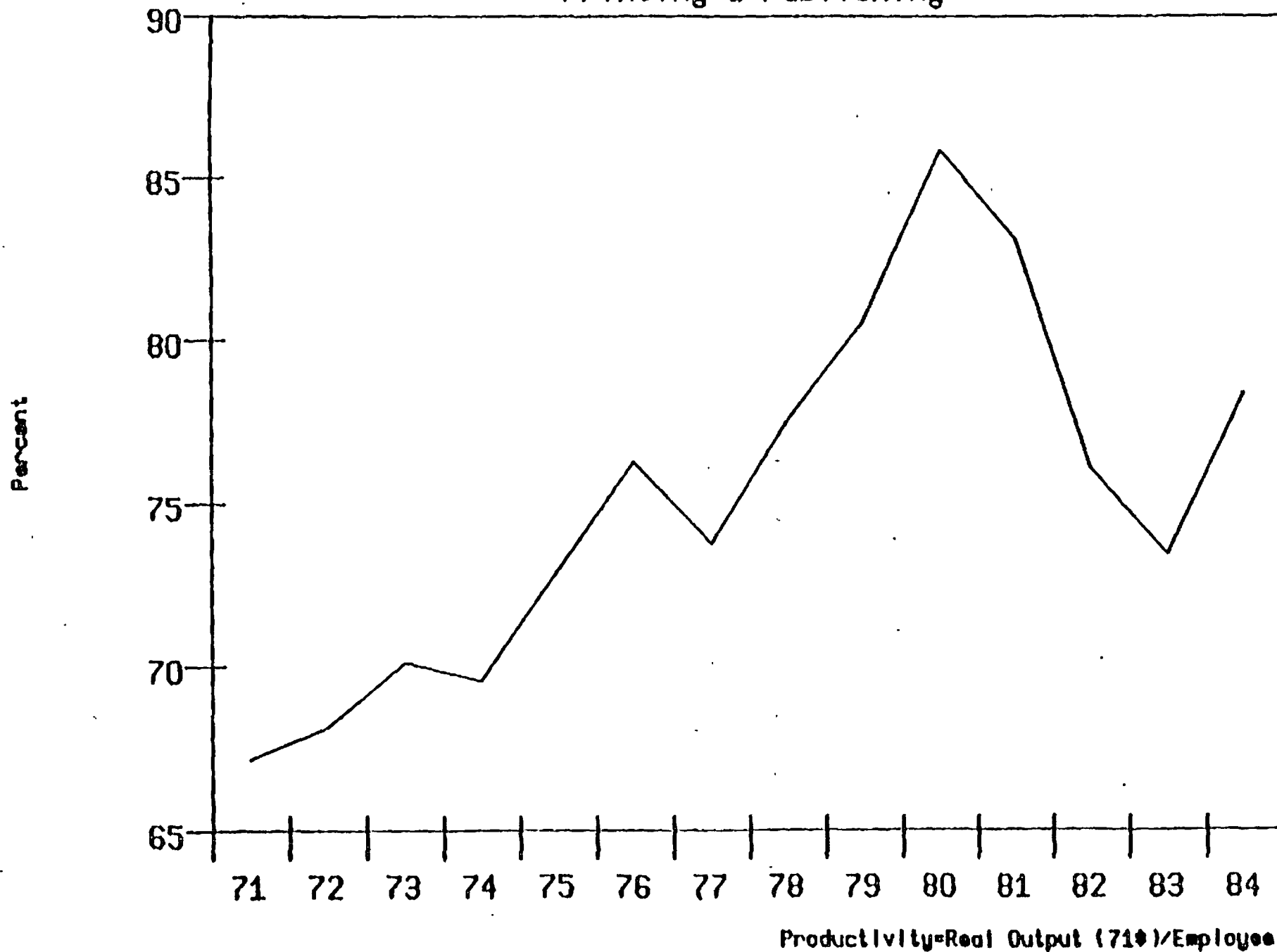
Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line

Exchange Rate Adjusted
Total (Line) Materials, Labour and Taxes (Dot)



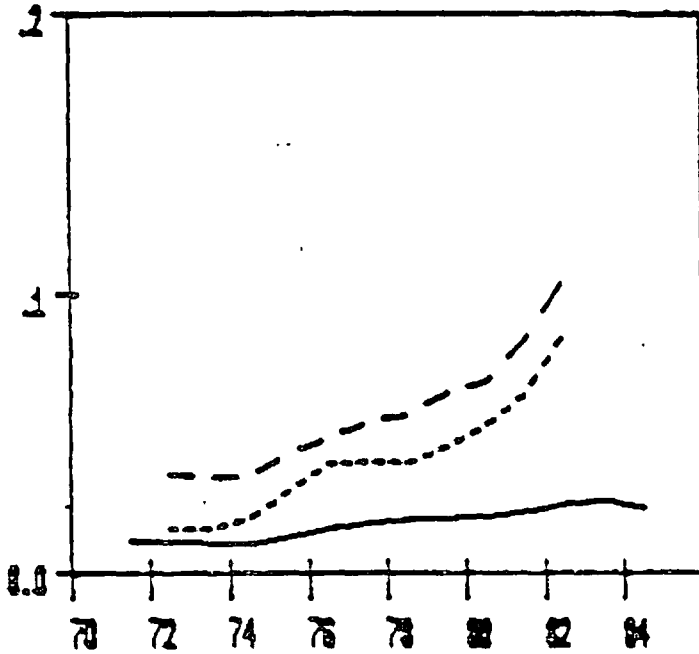
Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line

Productivity Ratio
Canadian Productivity as a % of U.S. Productivity
Printing & Publishing

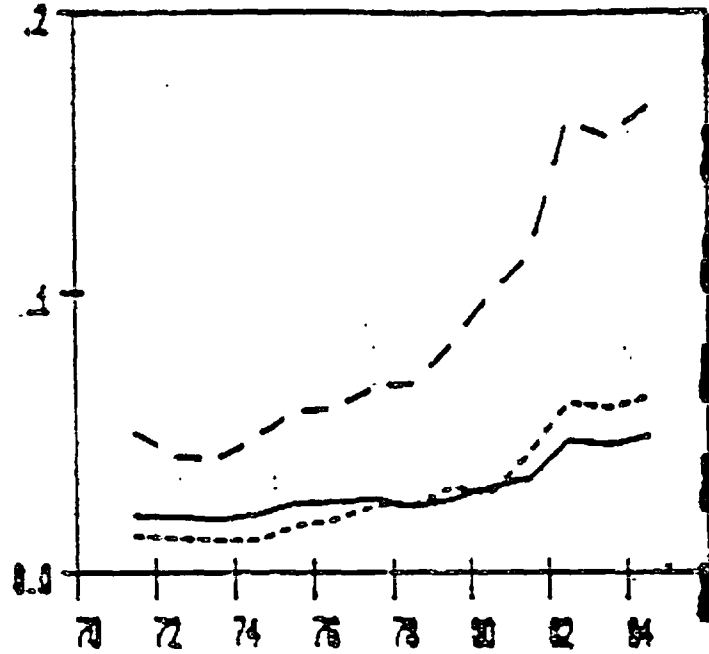


Unit Input Costs
 Nominal Dollars per unit of Real (71\$) Output
 Primary Metal Industries
 Pre-Exchange Rate Adjusted

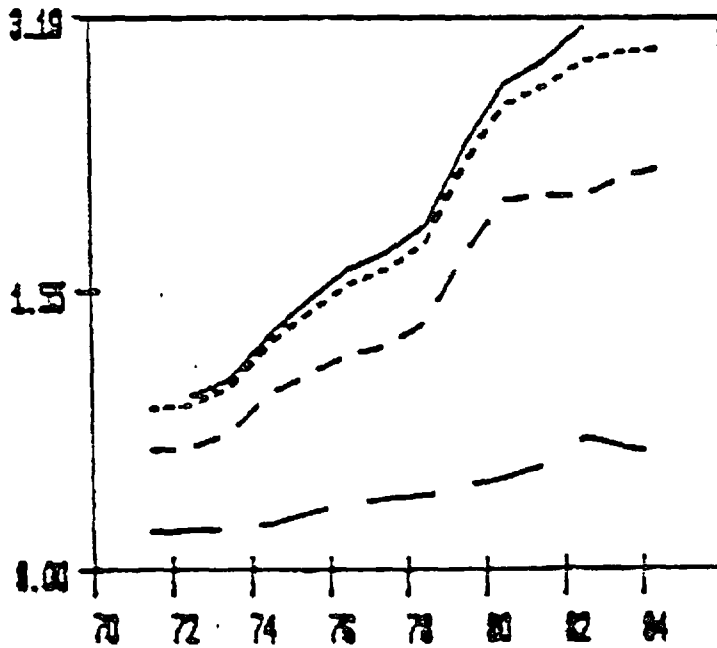
Can. Inputs
 Taxes (Line)
 Int. (Dot) Dep. (Dash)



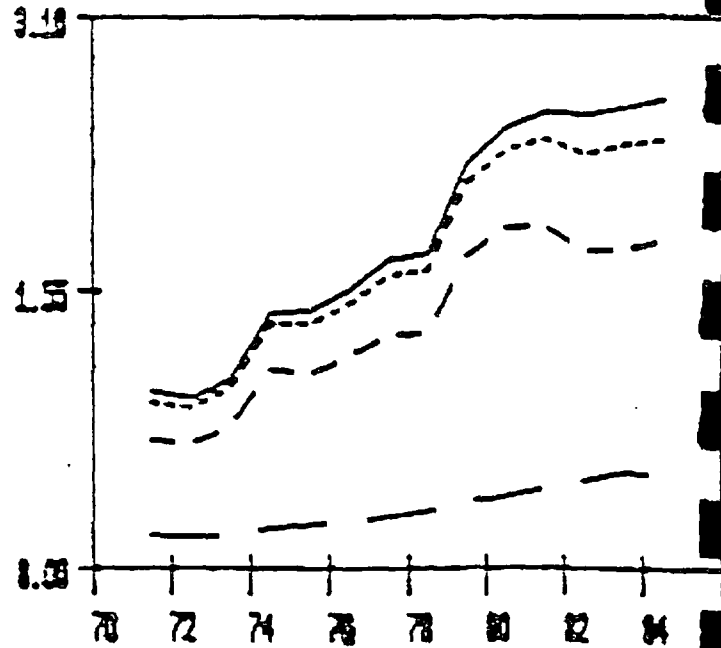
U.S. Inputs
 Taxes (Line)
 Int. (Dot) Dep. (Dash)



Can. Input Totals
 Lab. (L Dash) Mat. (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)

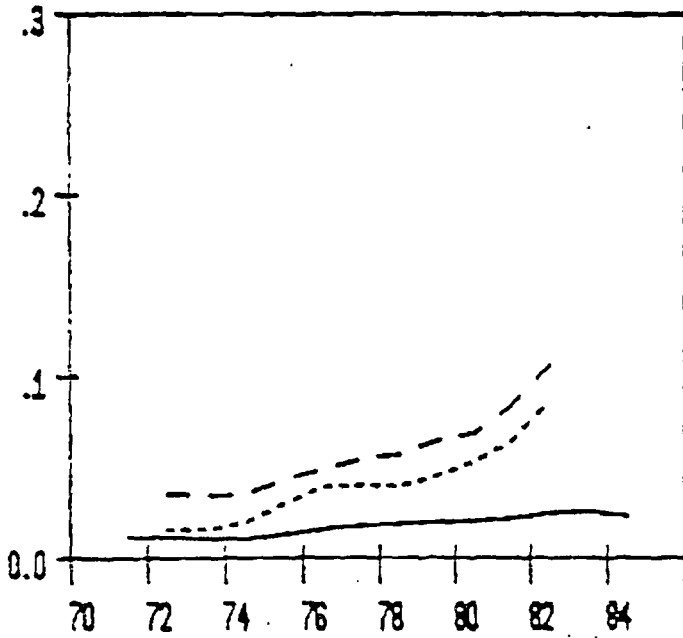


U.S. Input Totals
 Lab. (L Dash) Mat. (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)

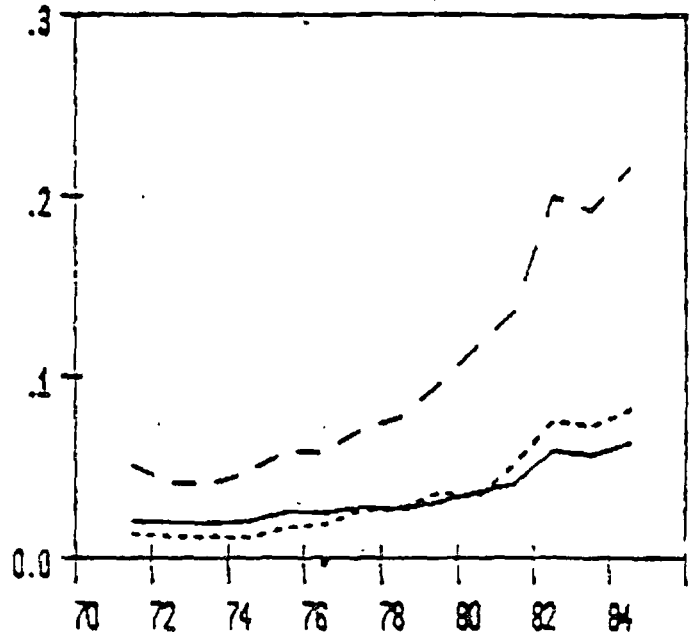


Unit Input Costs
 Nominal Dollars per unit of Real (71\$) Output
 Primary Metal Industries
 Exchange Rate Adjusted

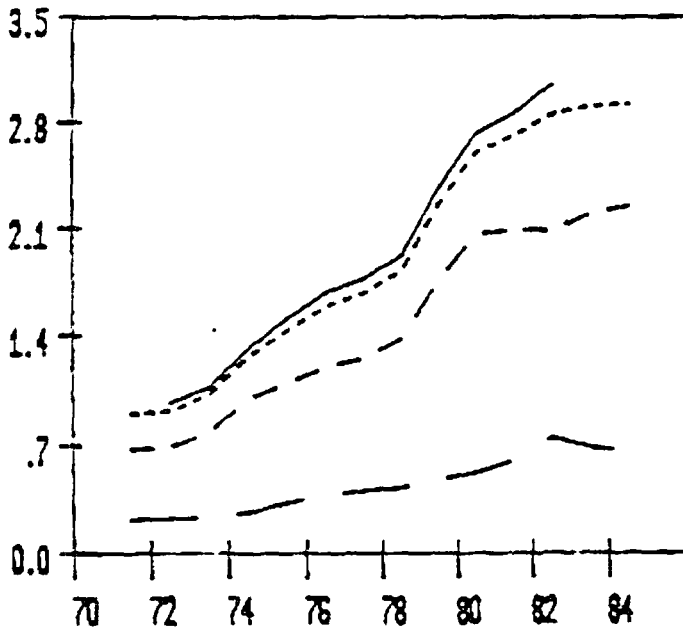
Can. Inputs
 Taxes (Line)
 Int. (Dot) Depr. (Dash)



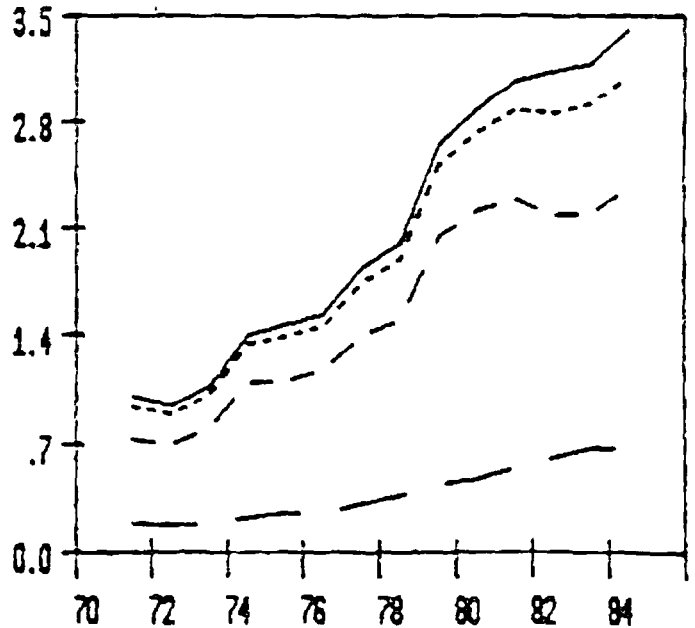
U.S. Inputs
 Taxes (Line)
 Int. (Dot) Depr. (Dash)



Can. Input Totals
 Lab. (L Dash) Mat. (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)



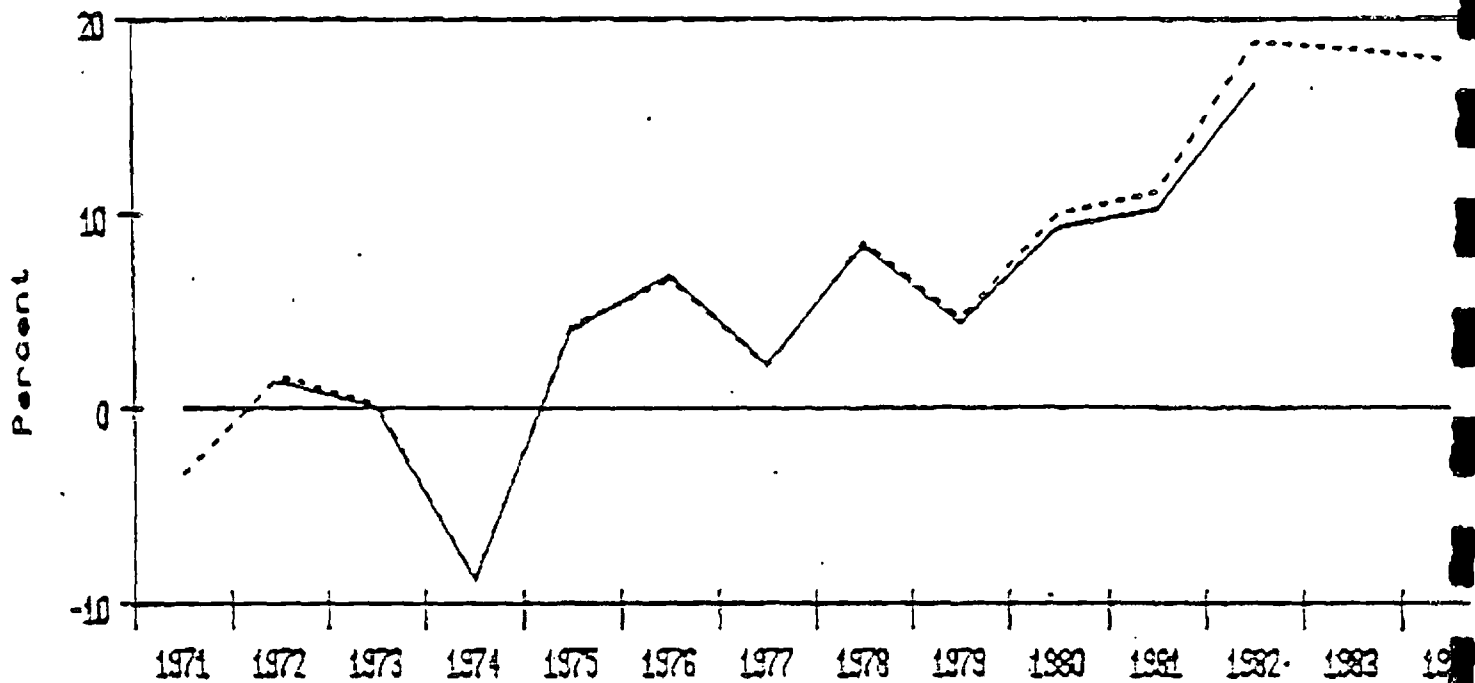
U.S. Input Totals
 Lab. (L Dash) Mat. (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)



% Difference between Canada and U.S. Input Unit Costs Primary Metal Industries

Pre-Exchange Rate Adjusted

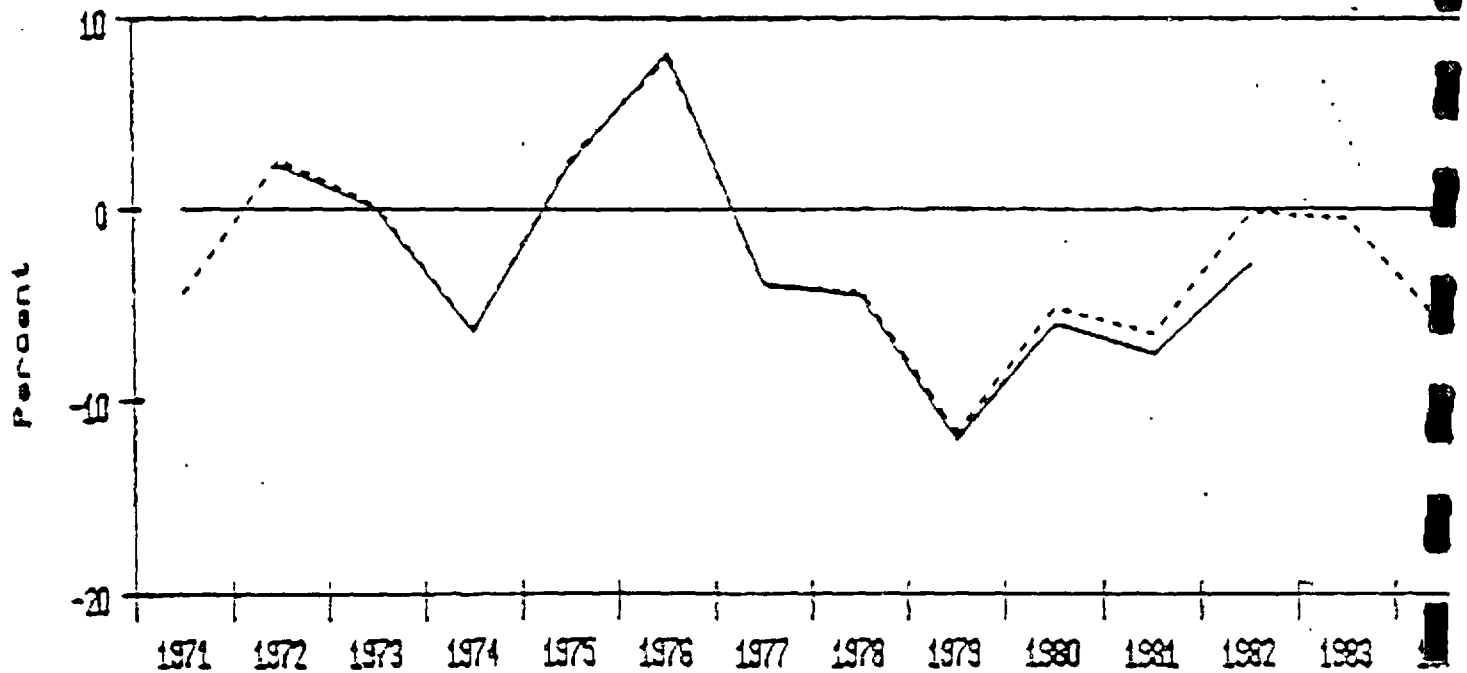
Total (Line) Materials, Labour and Taxes (Dot)



Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line

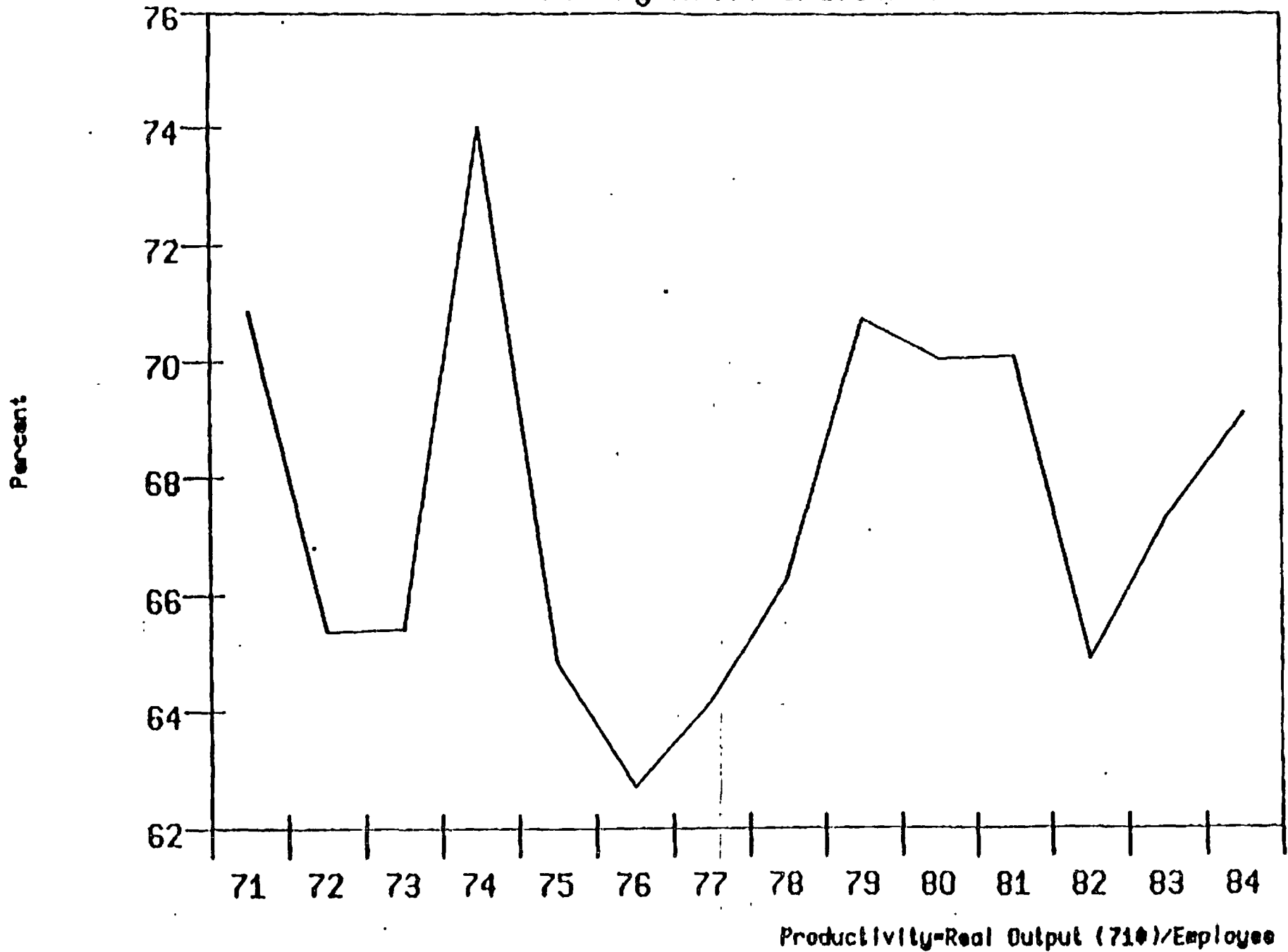
Exchange Rate Adjusted

Total (Line) Materials, Labour and Taxes (Dot)



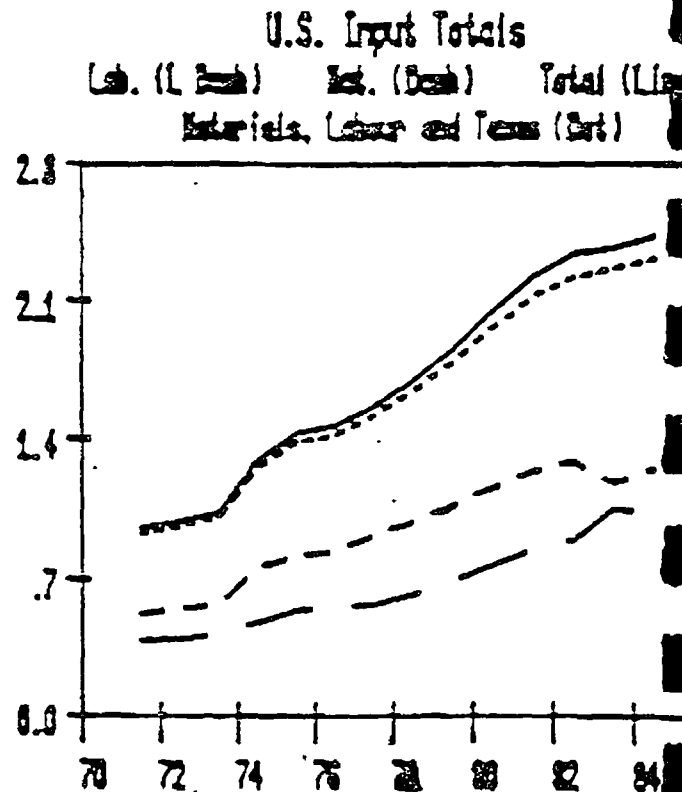
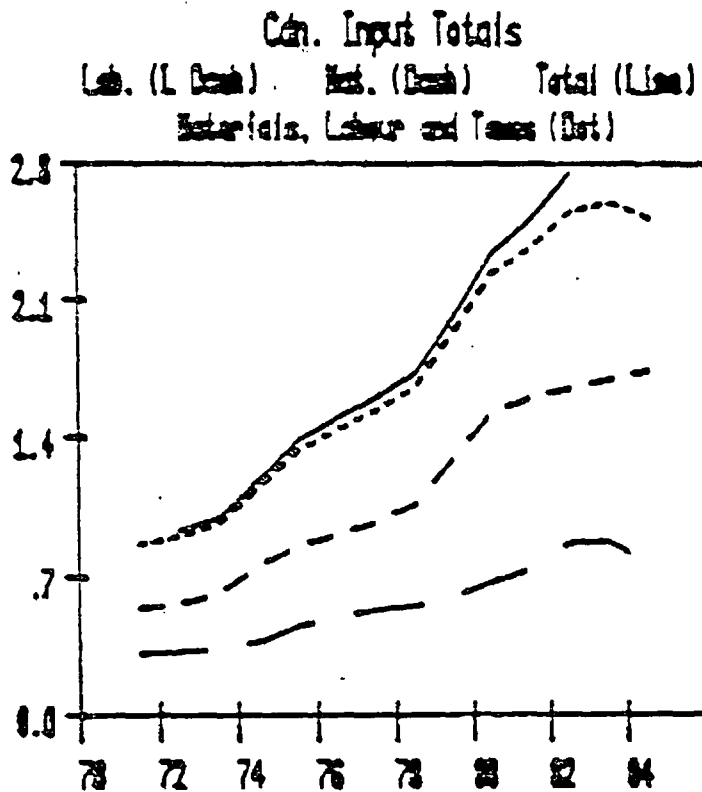
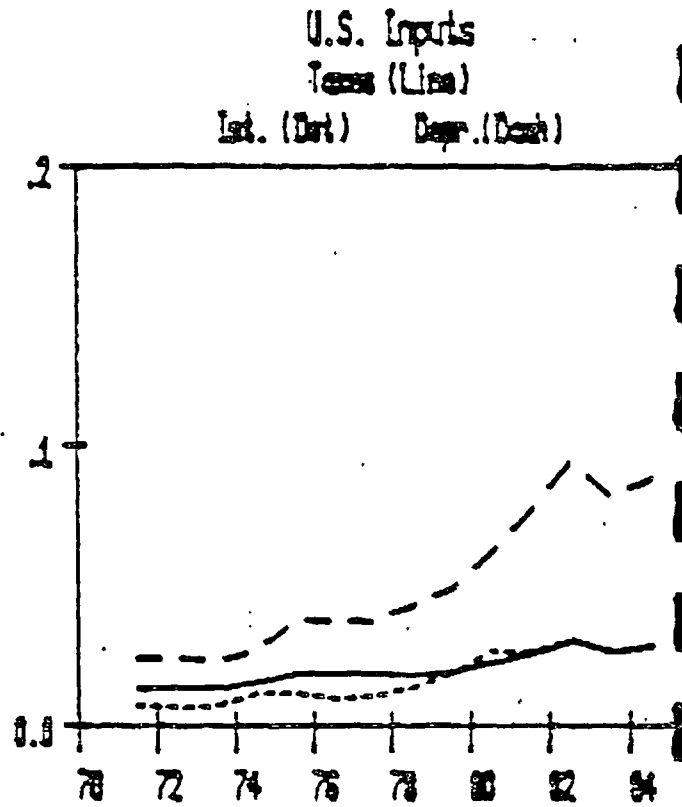
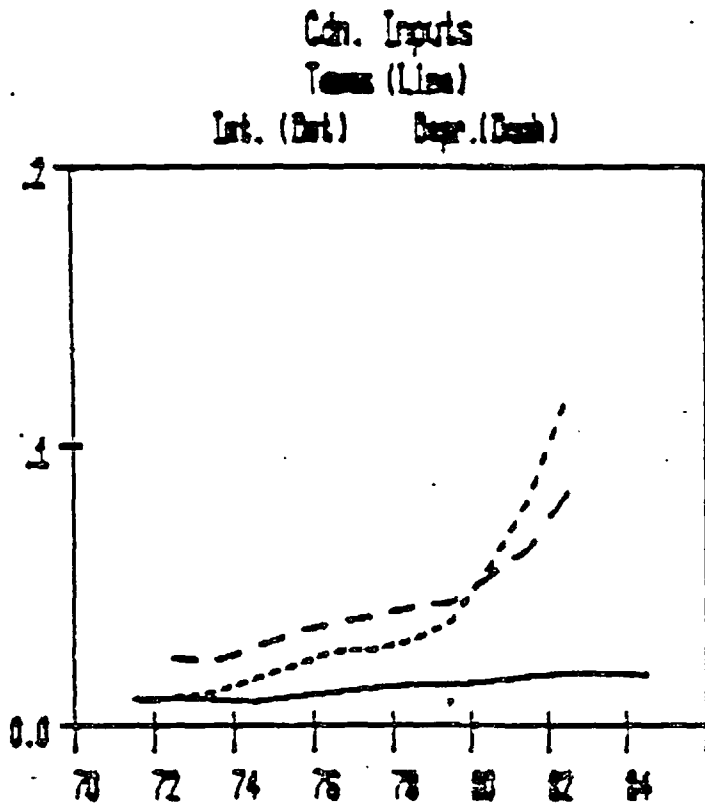
Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line

Productivity Ratio
Canadian Productivity as a % of U.S. Productivity
Primary Metal Industries

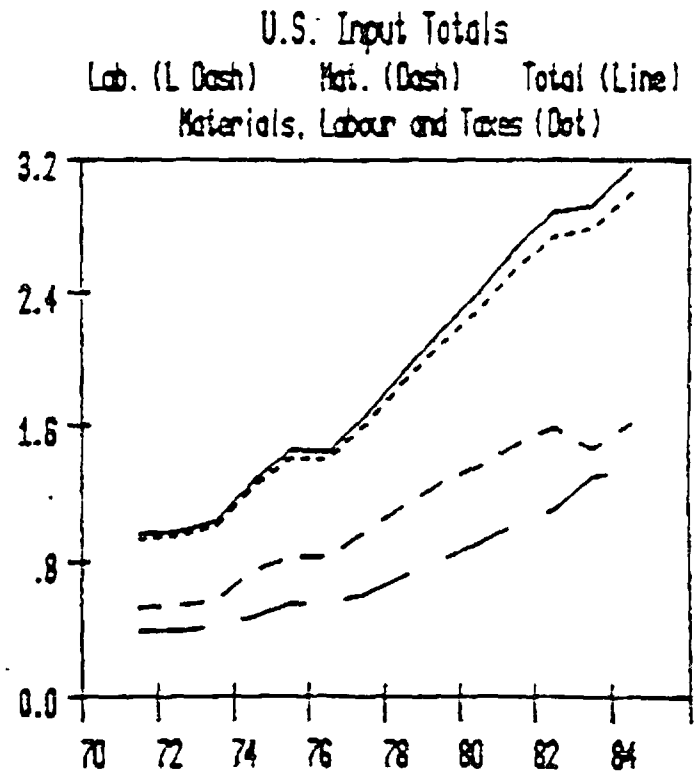
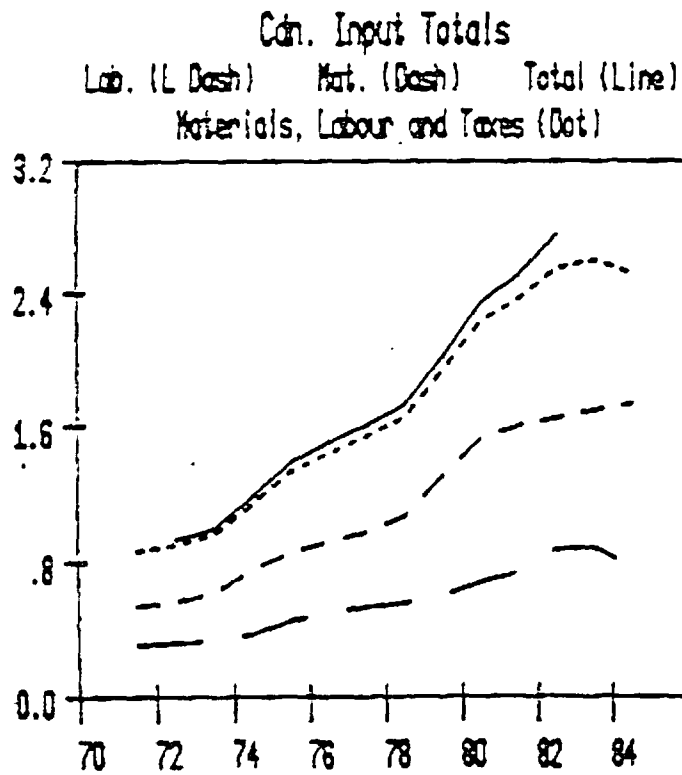
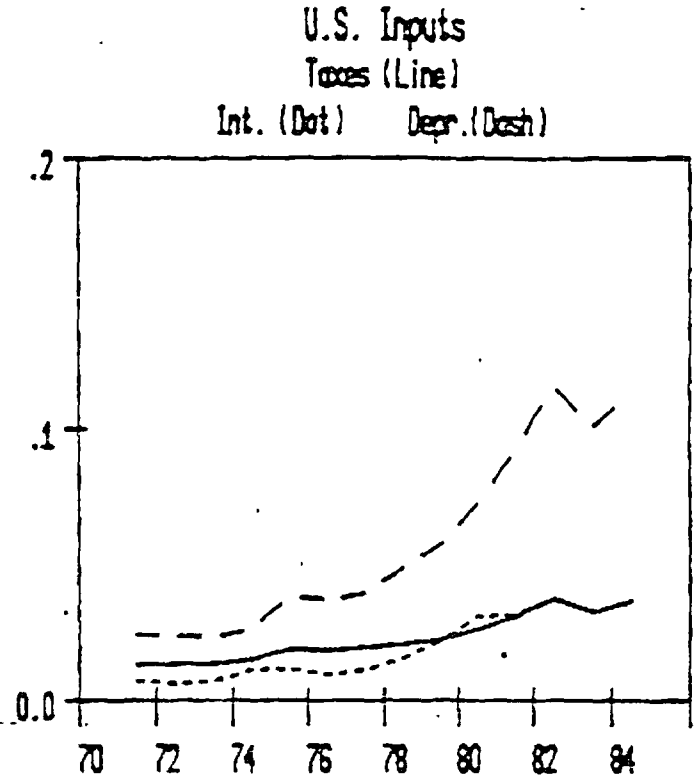
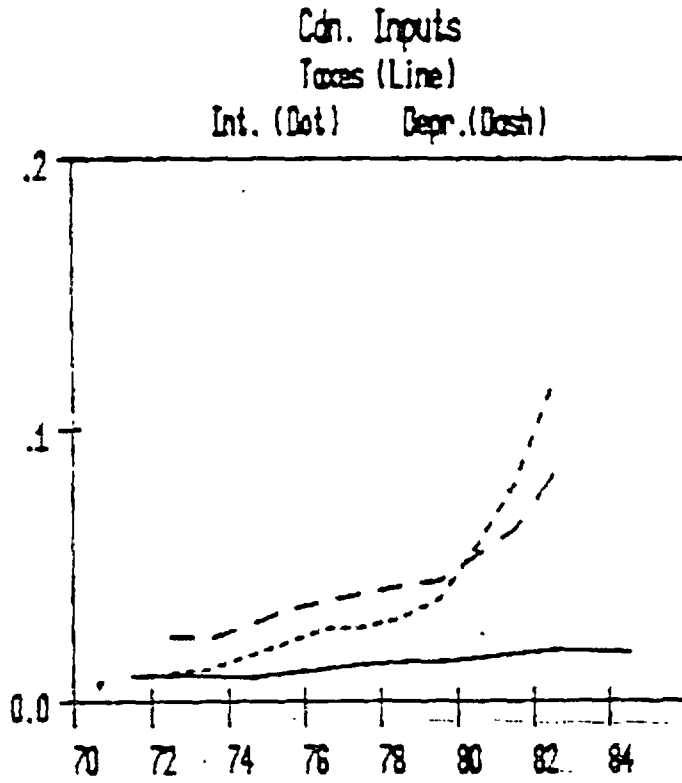


Unit Input Costs

Nominal Dollars per unit of Real (71\$) Output
Metal Fabricating Industries
Pre-Exchange Rate Adjusted

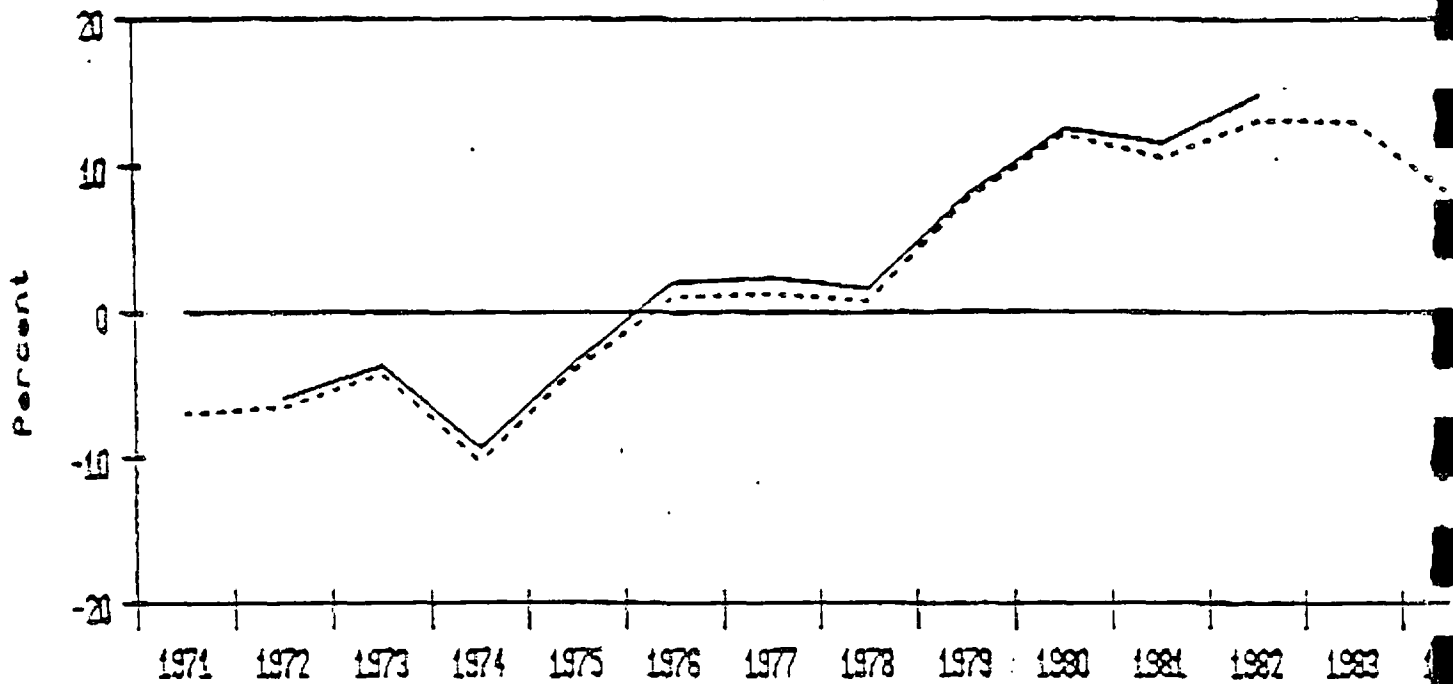


Unit Input Costs
 Nominal Dollars per unit of Real (71\$) Output
 Metal Fabricating Industries
 Exchange Rate Adjusted



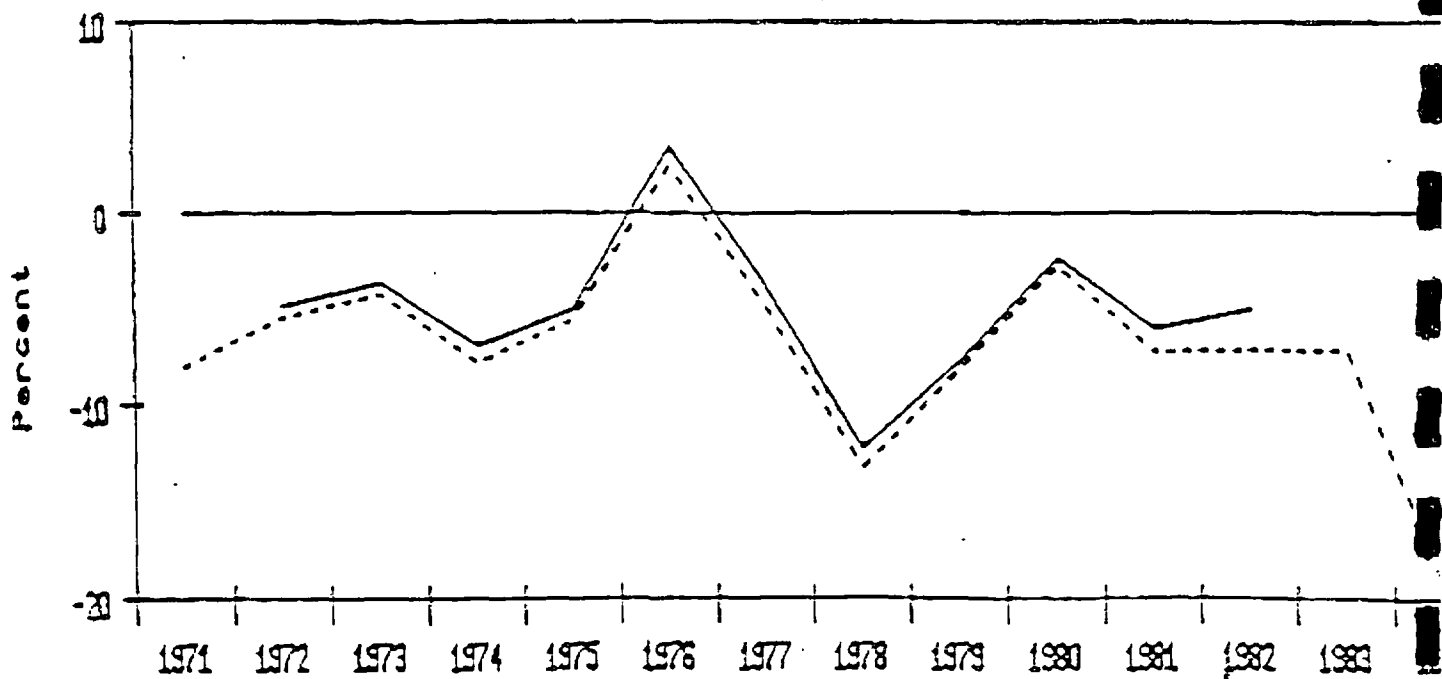
% Difference between Canada and U.S. Input Unit Costs Metal Fabricating Industries

Pre-Exchange Rate Adjusted
Total (Line) Materials, Labour and Taxes (Dot)



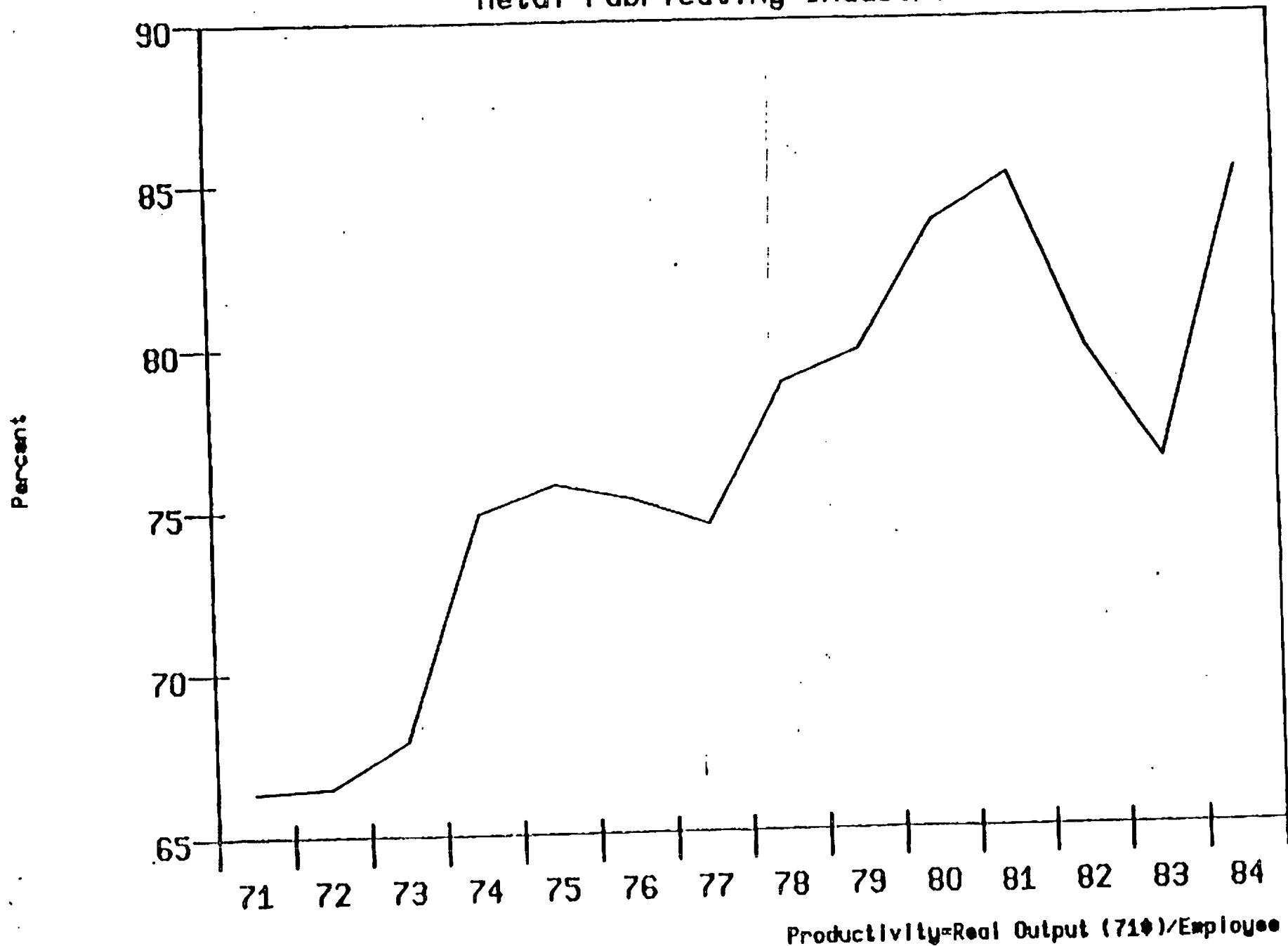
Note: Can. cost advantage below 0 line, U.S. cost advantage above 0

Exchange Rate Adjusted
Total (Line) Materials, Labour and Taxes (Dot)



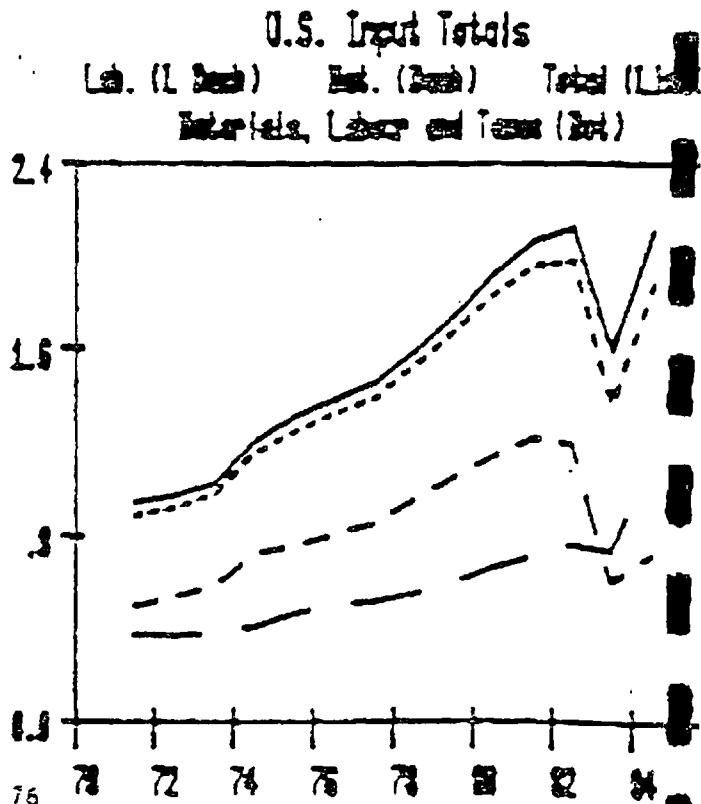
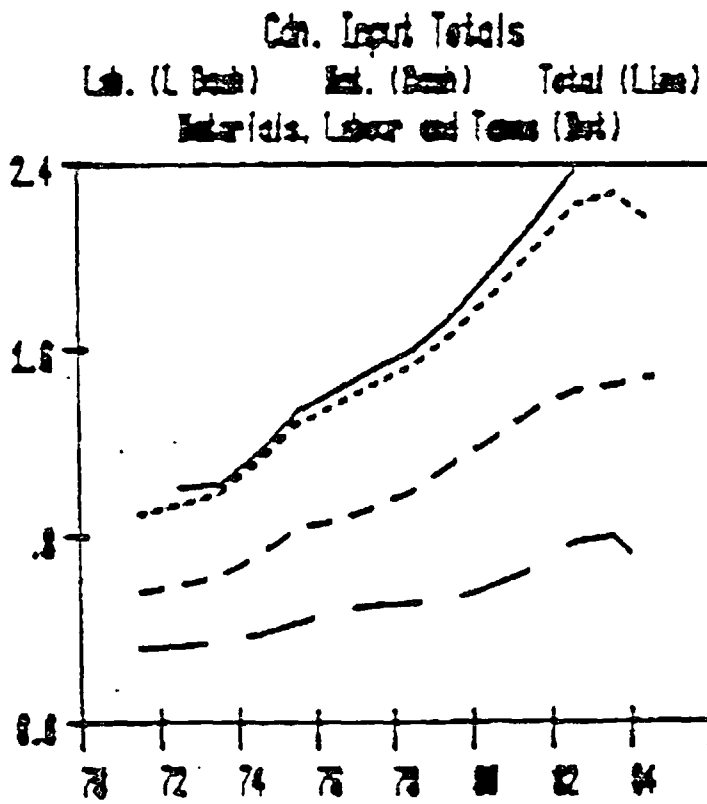
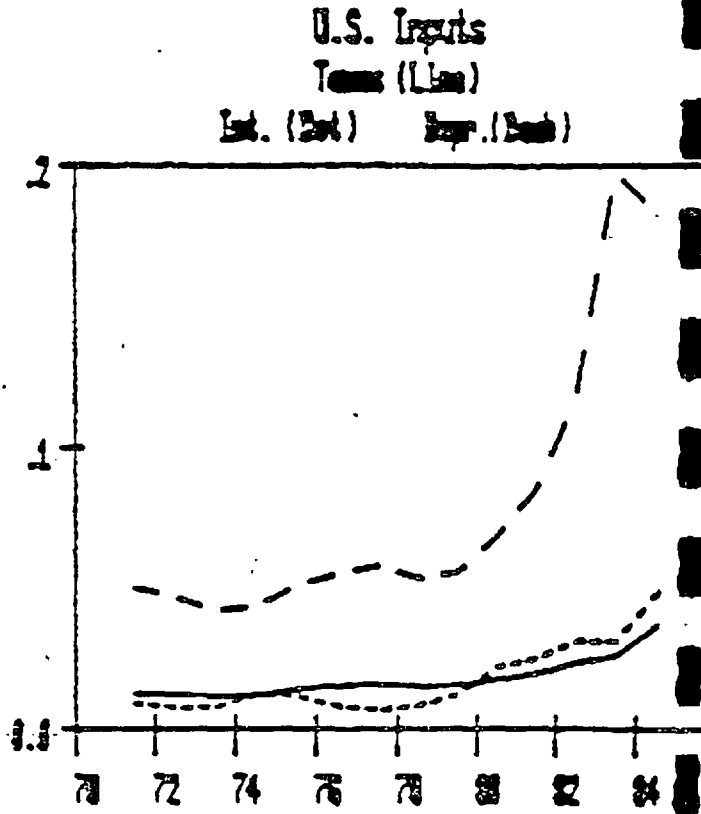
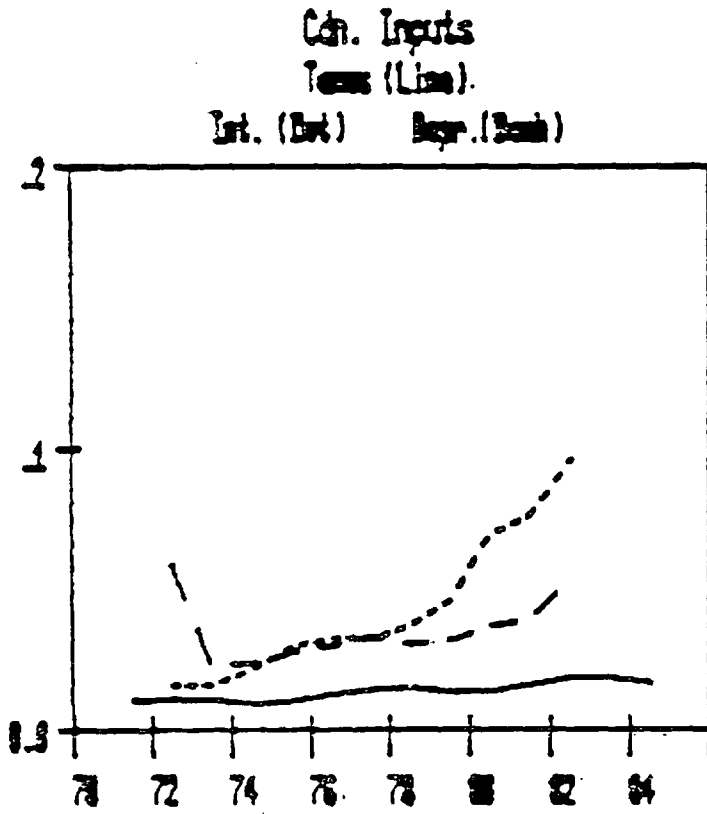
Note: Can. cost advantage below 0 line, U.S. cost advantage above 0

Productivity Ratio
Canadian Productivity as a % of U.S. Productivity
Metal Fabricating Industries



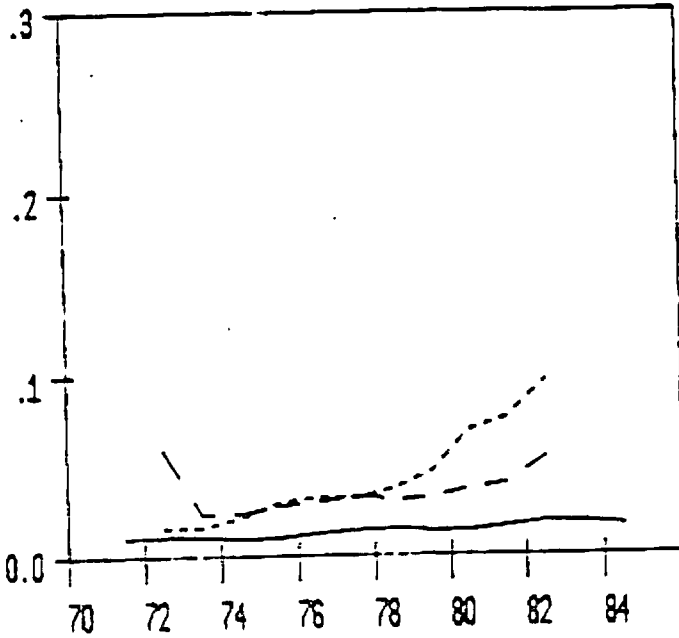
75

Unit Input Costs
 Nominal Dollars per unit of Real (71\$) Output
 Machinery Industries
 Pre-Exchange Rate Adjusted

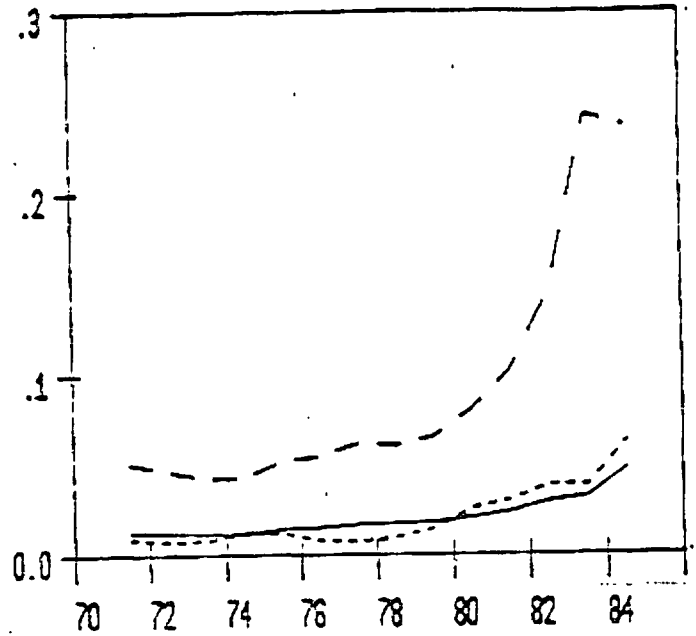


Unit Input Costs
 Nominal Dollars per unit of Real (71\$) Output
 Machinery Industries
 Exchange Rate Adjusted

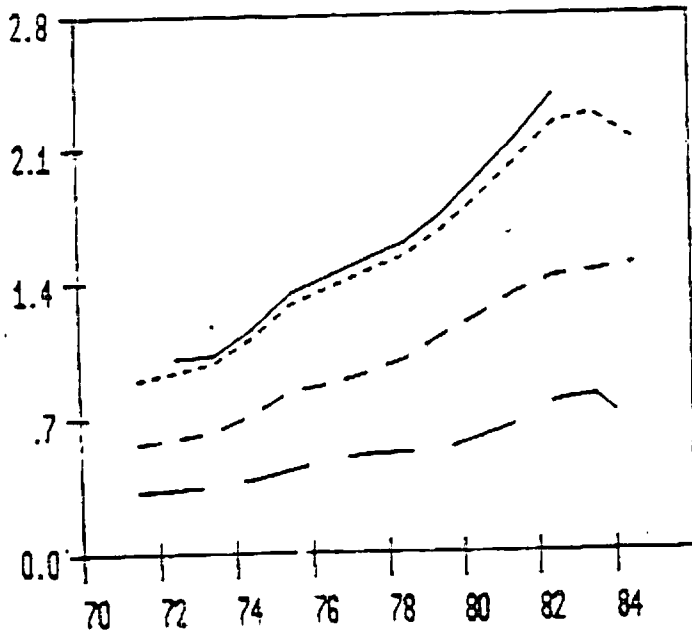
Cdn. Inputs
 Taxes (Line)
 Int. (Dot) Depr. (Dash)



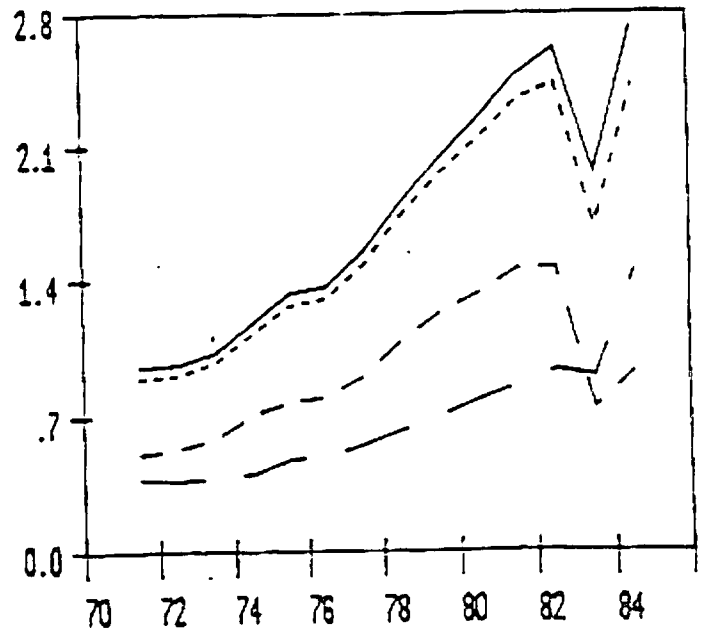
U.S. Inputs
 Taxes (Line)
 Int. (Dot) Depr. (Dash)



Cdn. Input Totals
 Lab. (L Dash) Mat. (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)

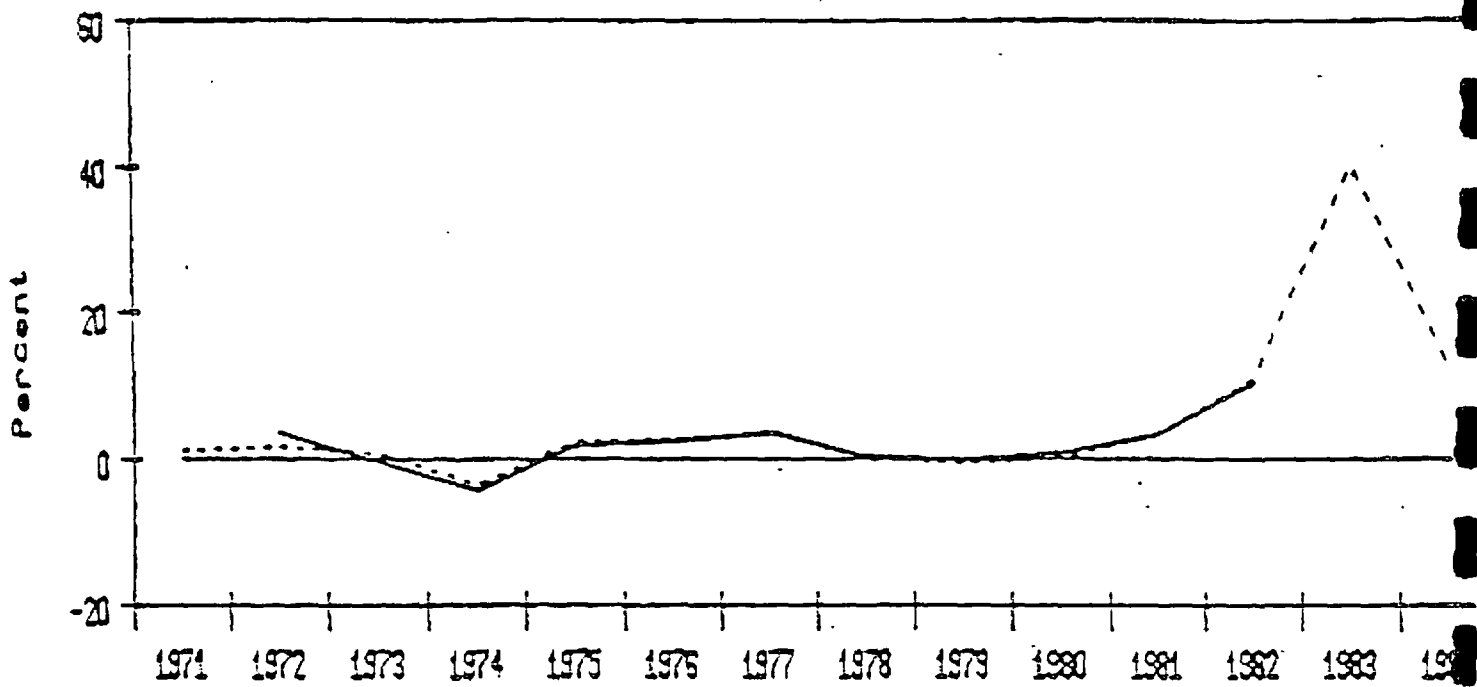


U.S. Input Totals
 Lab. (L Dash) Mat. (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)



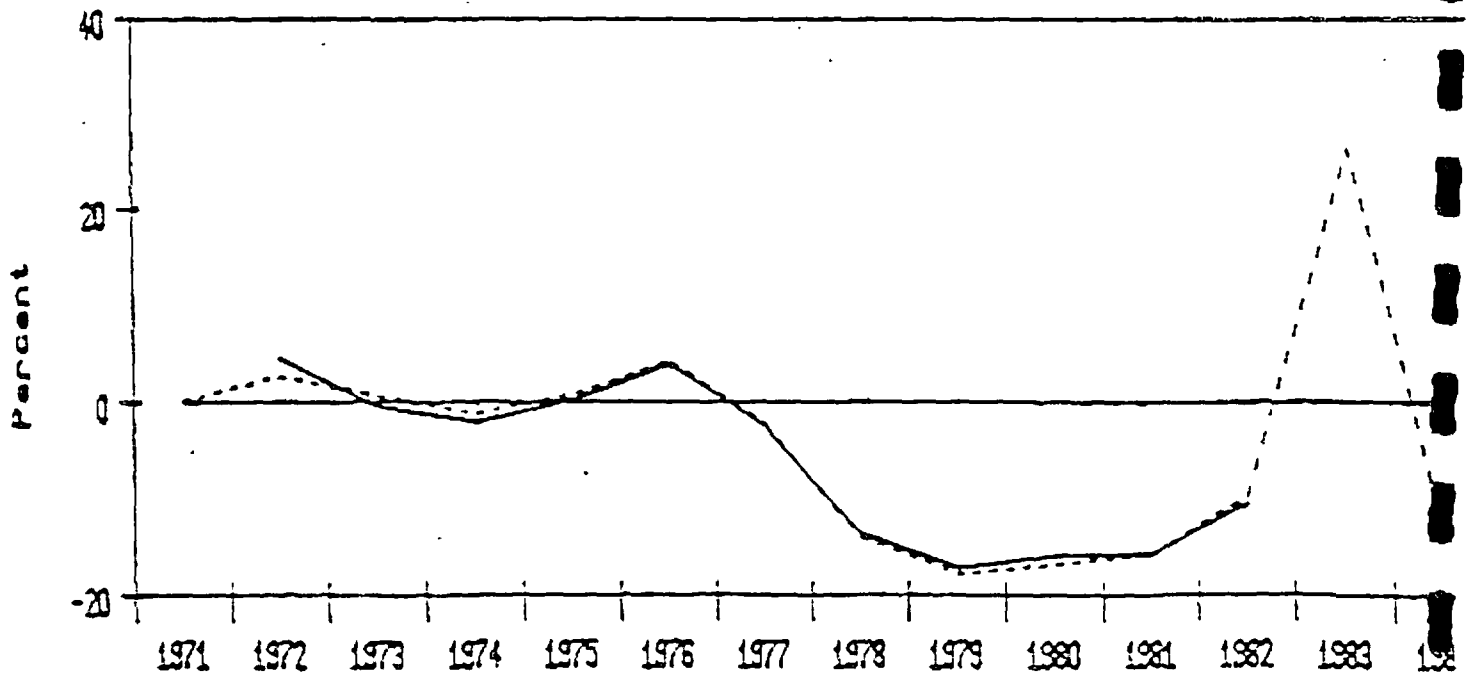
% Difference between Canada and U.S. Input Unit Costs Machinery Industries

Pre-Exchange Rate Adjusted
Total (Line) Materials, Labour and Taxes (Dot)



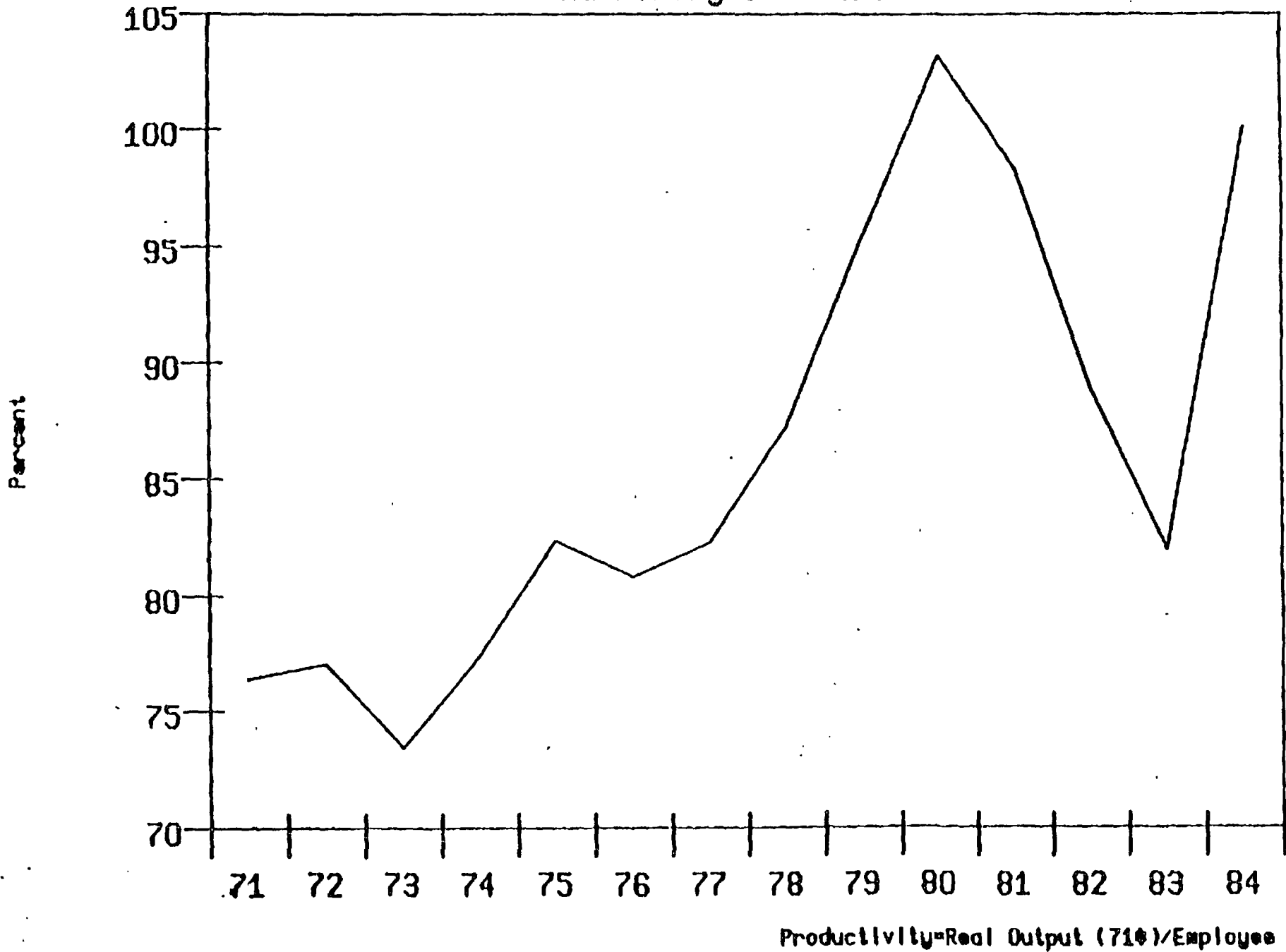
Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line

Exchange Rate Adjusted
Total (Line) Materials, Labour and Taxes (Dot)



Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line

Productivity Ratio
Canadian Productivity as a % of U.S. Productivity
Machinery Industries



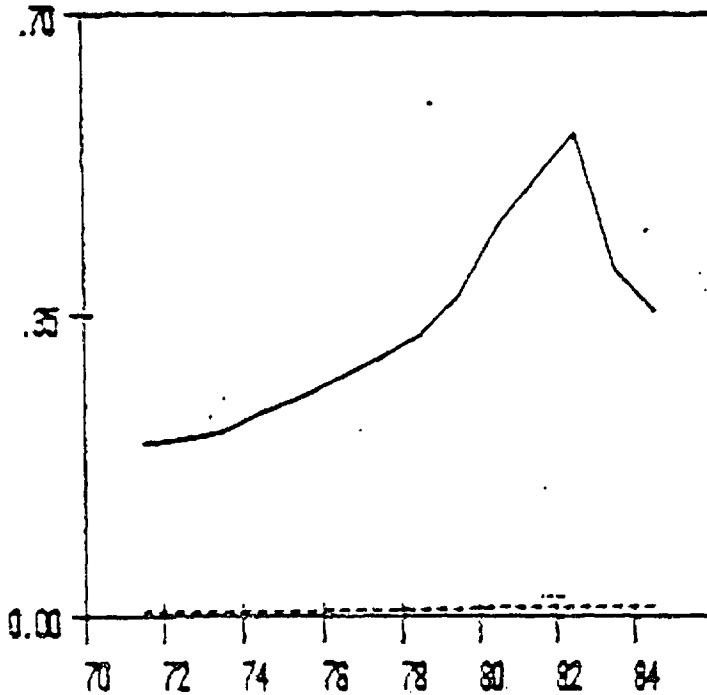
79

Productivity=Real Output (71\$)/Employee

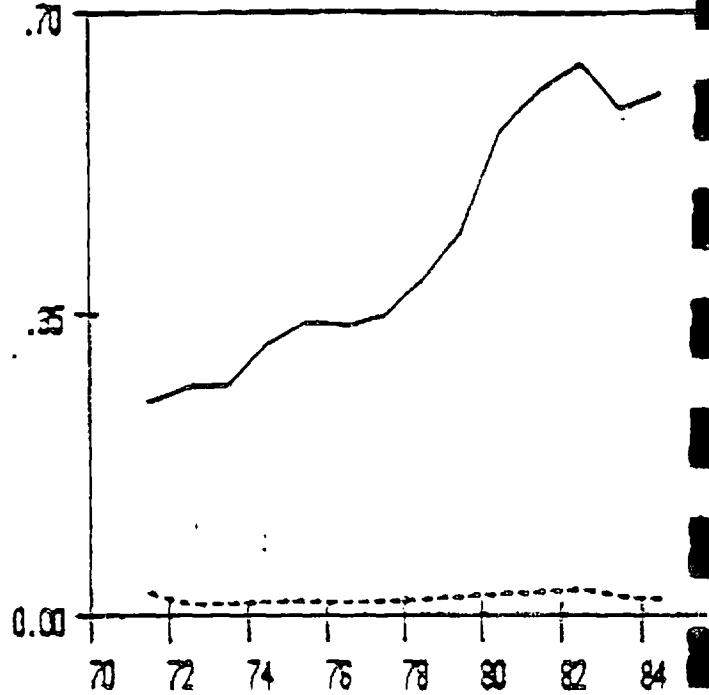
Unit Input Costs

Nominal Dollars per unit of Real (71\$) Output
 Transportation Equipment Industries
 Pre-Exchange Rate Adjusted

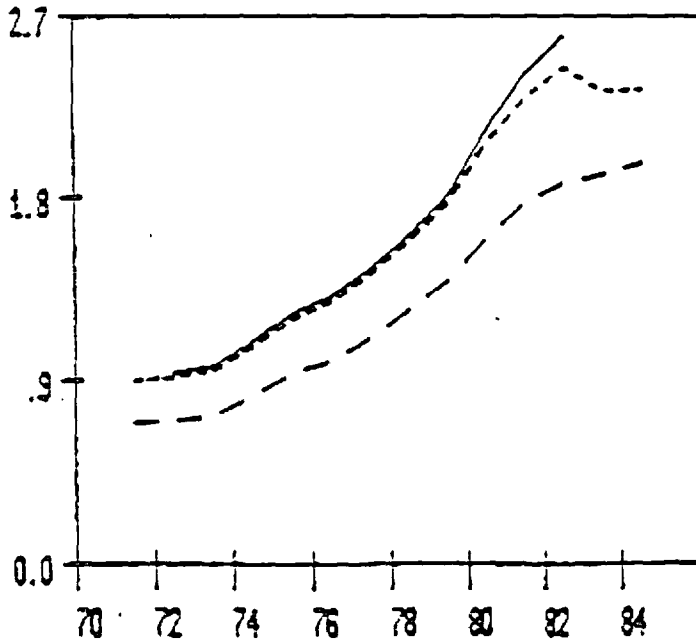
Can. Inputs
 Labour (Line) Taxes (Dot)



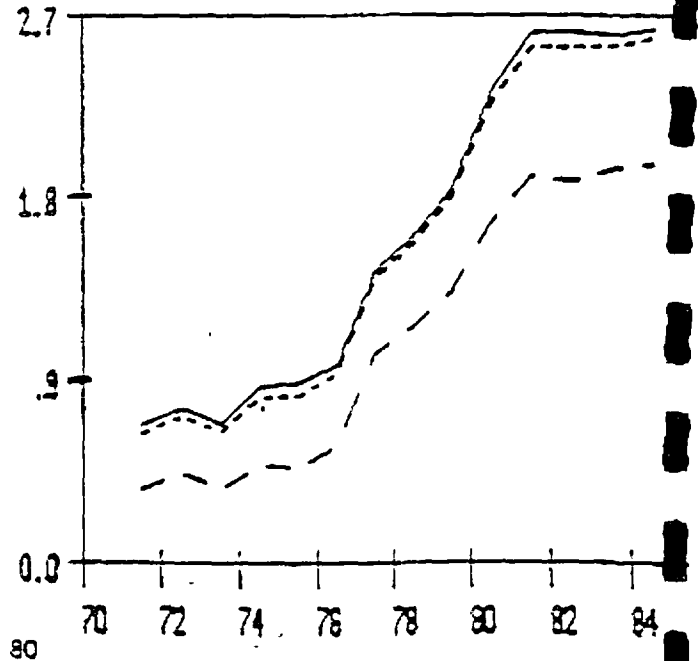
U.S. Inputs
 Labour (Line) Taxes (Dot)



Can. Input Totals
 Materials (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)

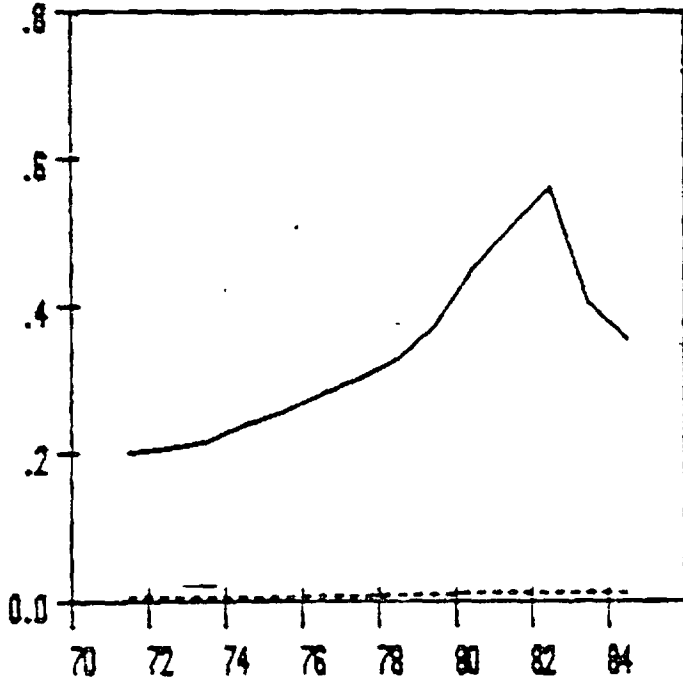


U.S. Input Totals
 Materials (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)

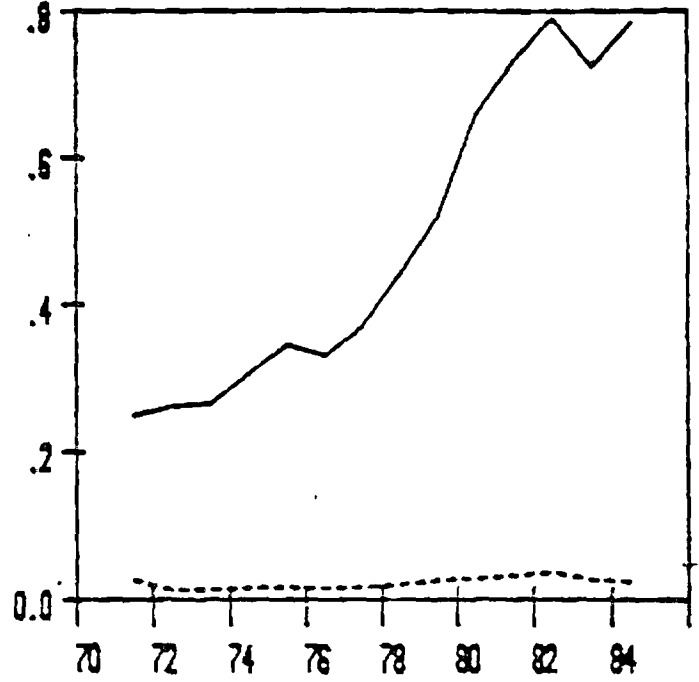


Unit Input Costs
 Nominal Dollars per unit of Real (71\$) Output
 Transportation Equipment Industries
 Exchange Rate Adjusted

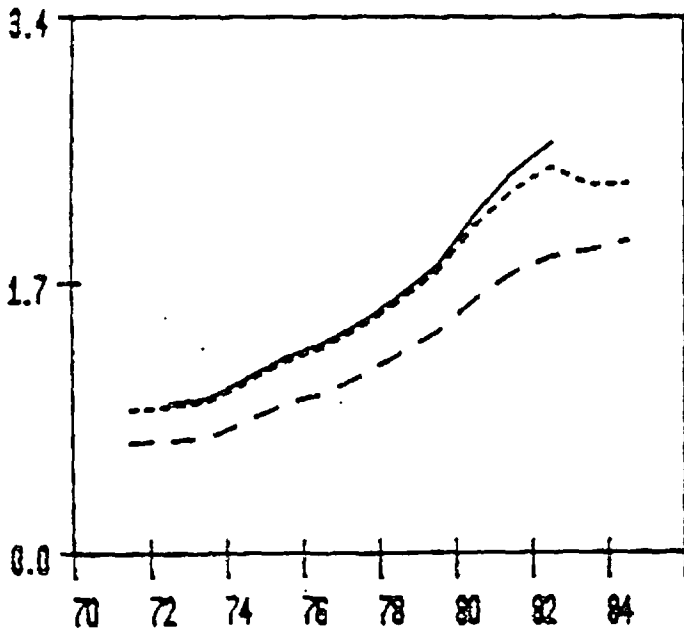
Can. Inputs
 Labour (Line) Taxes (Dot)



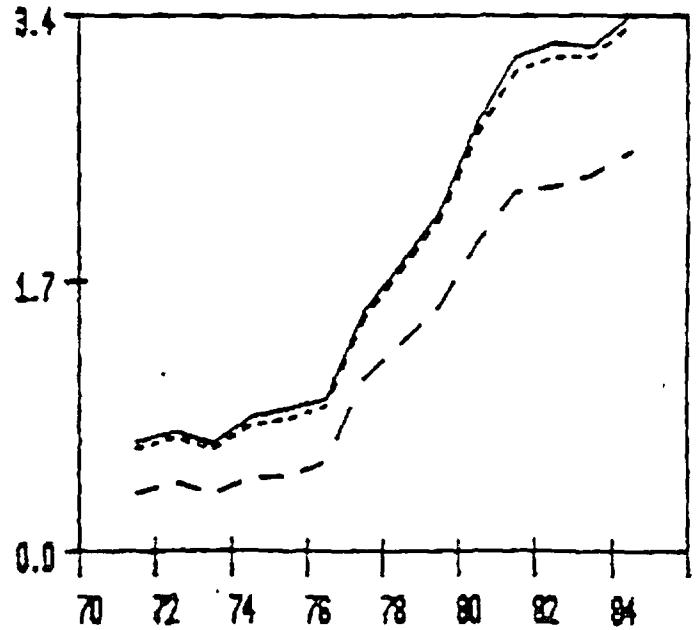
U.S. Inputs
 Labour (Line) Taxes (Dot)



Can. Input Totals
 Materials (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)



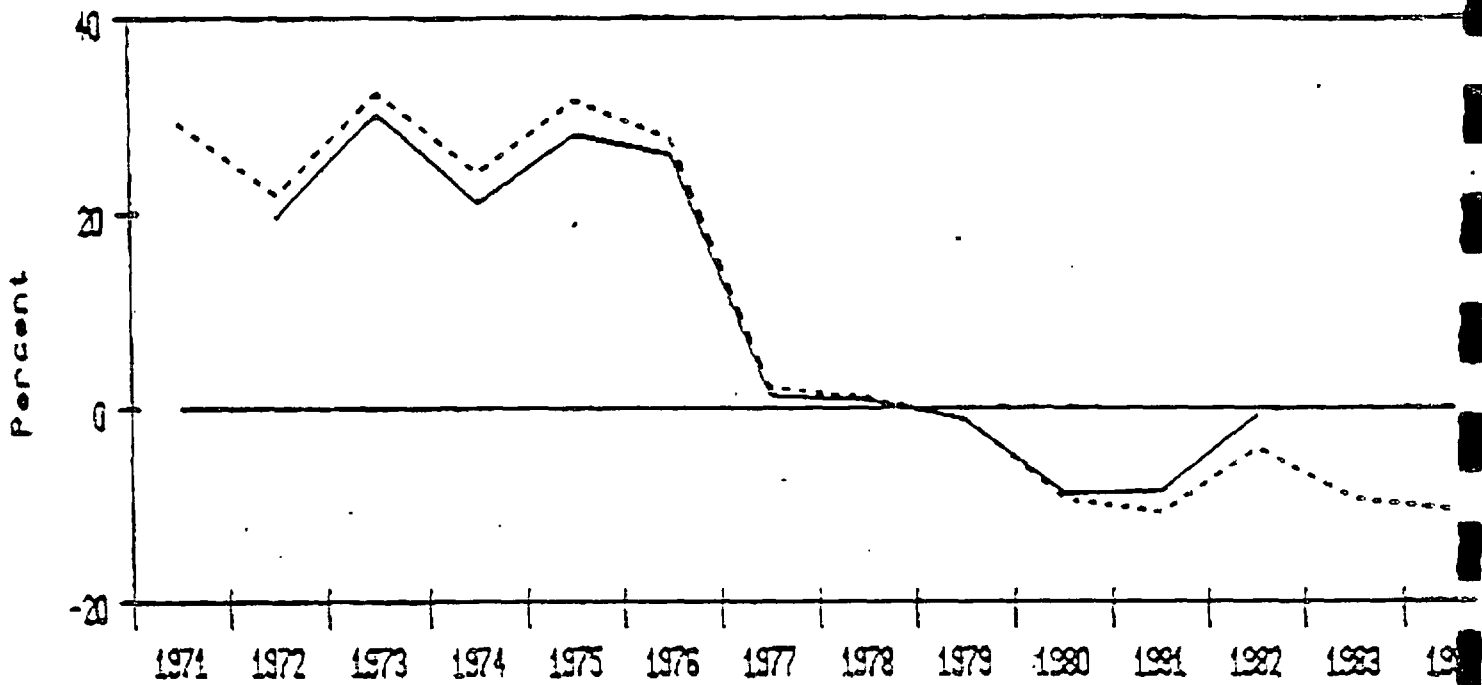
U.S. Input Totals
 Materials (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)



% Difference between Canada and U.S. Input Unit Costs Transportation Equipment Industries

Pre-Exchange Rate Adjusted

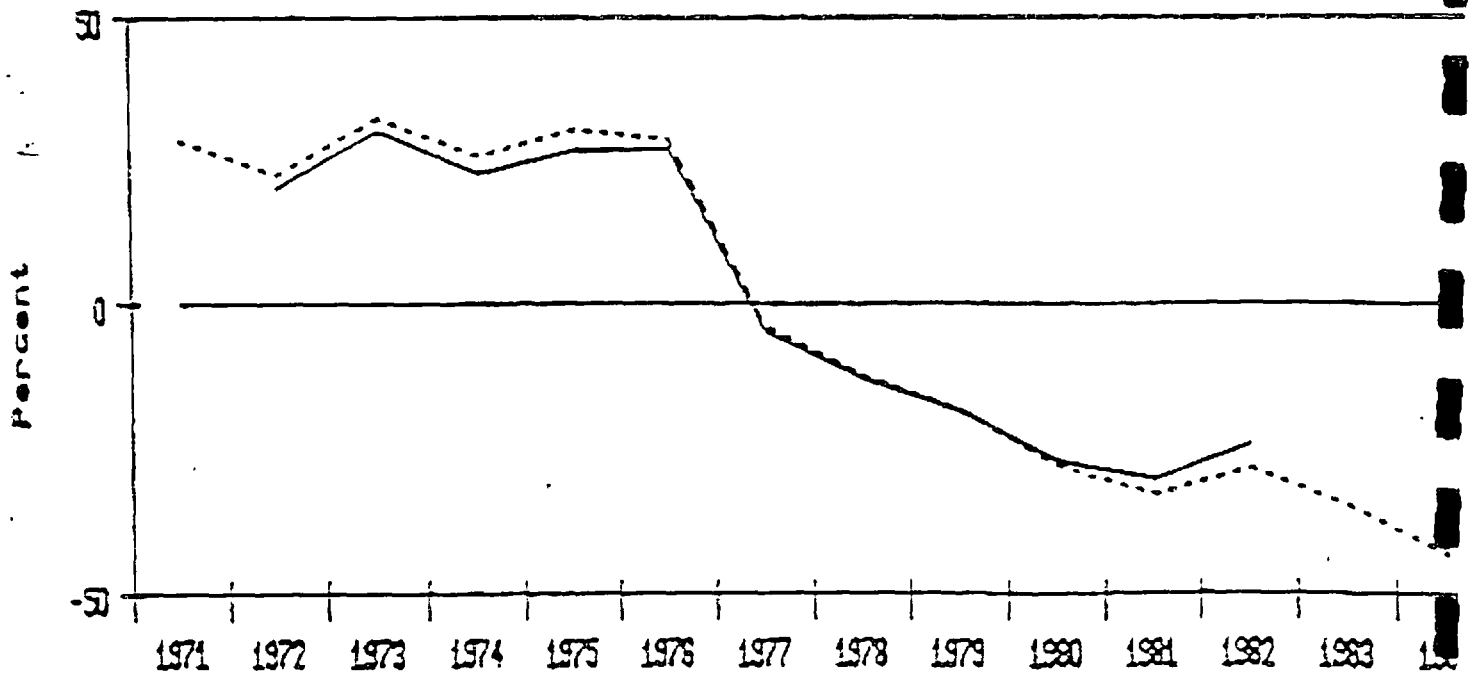
Total (Line) Materials, Labour and Taxes (Dot)



Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line

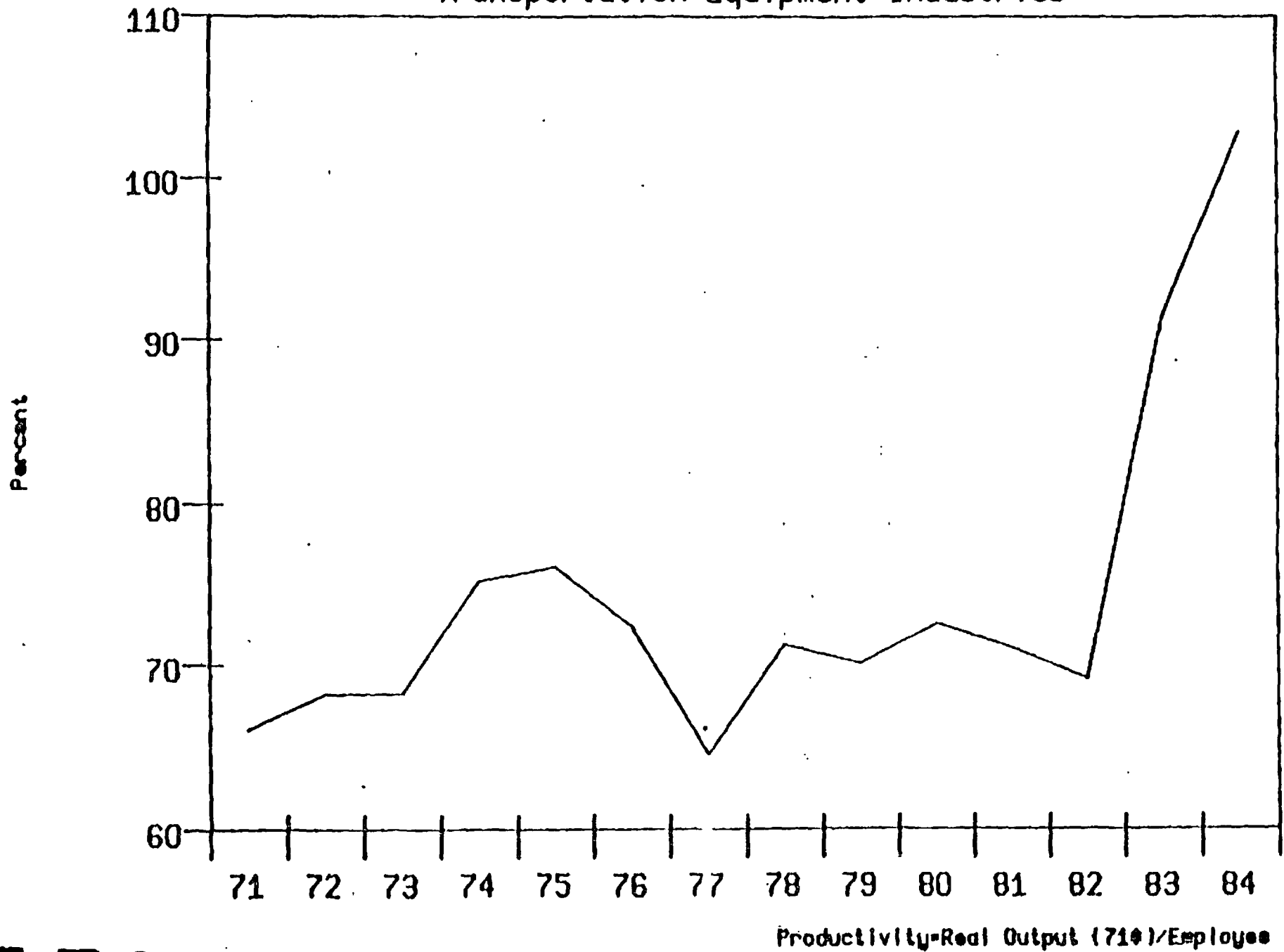
Exchange Rate Adjusted

Total (Line) Materials, Labour and Taxes (Dot)

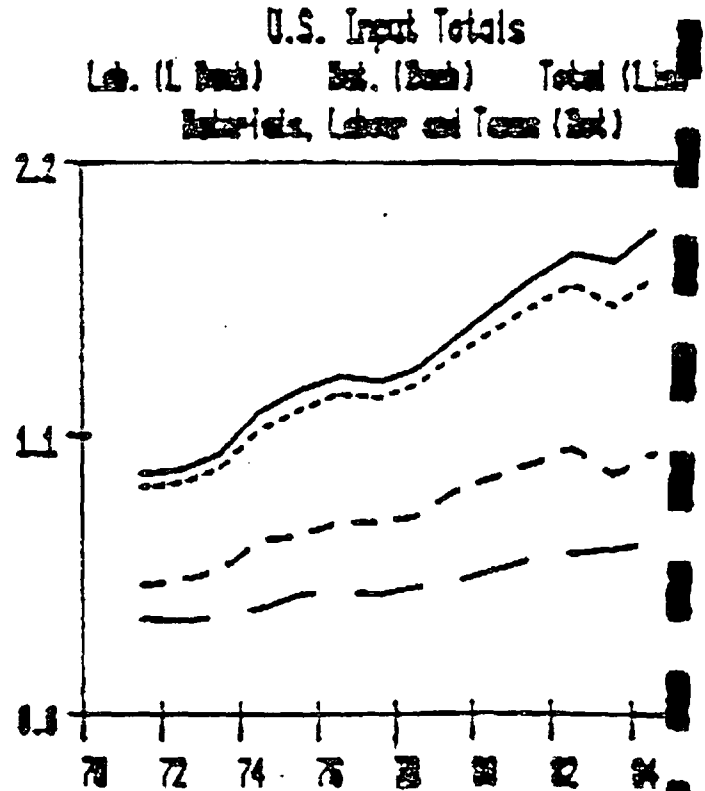
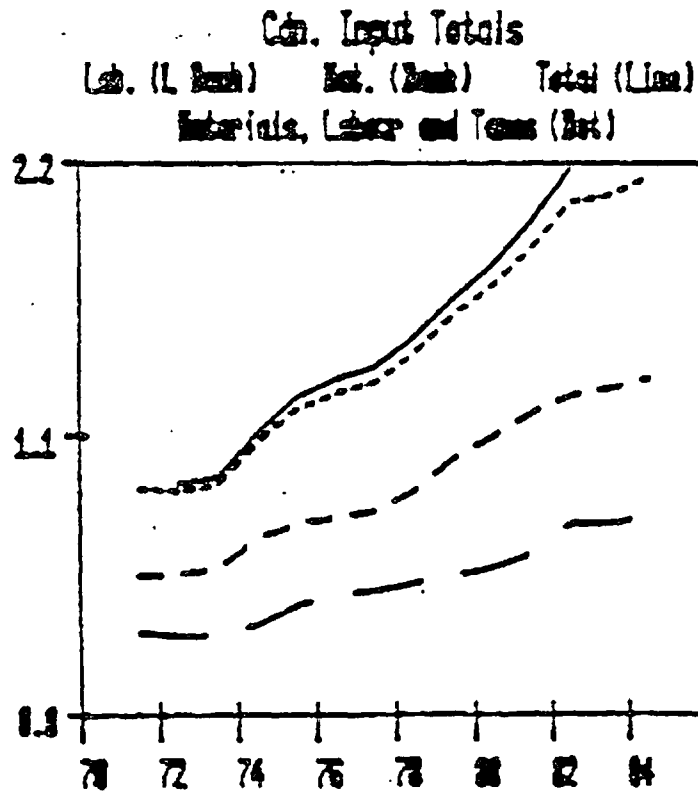
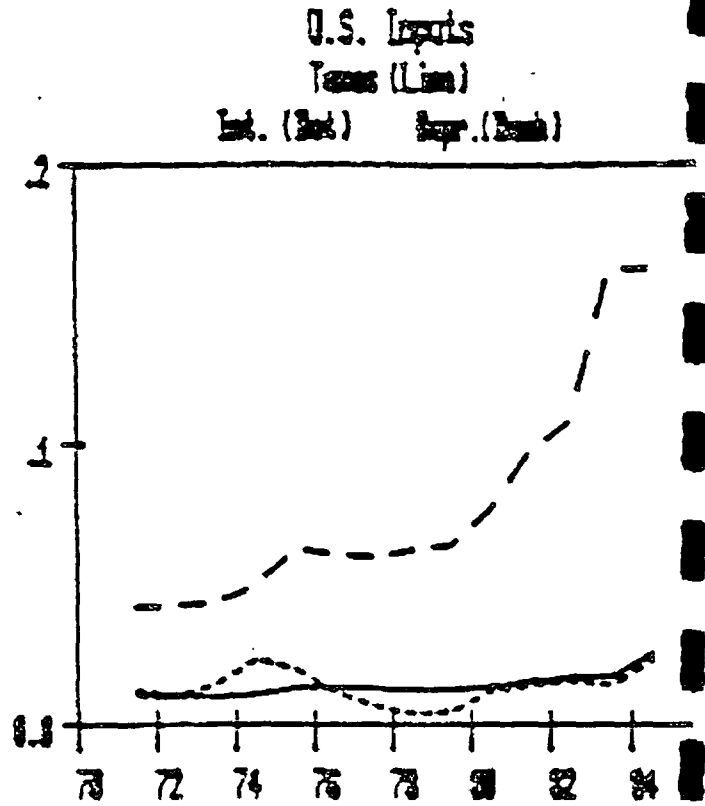
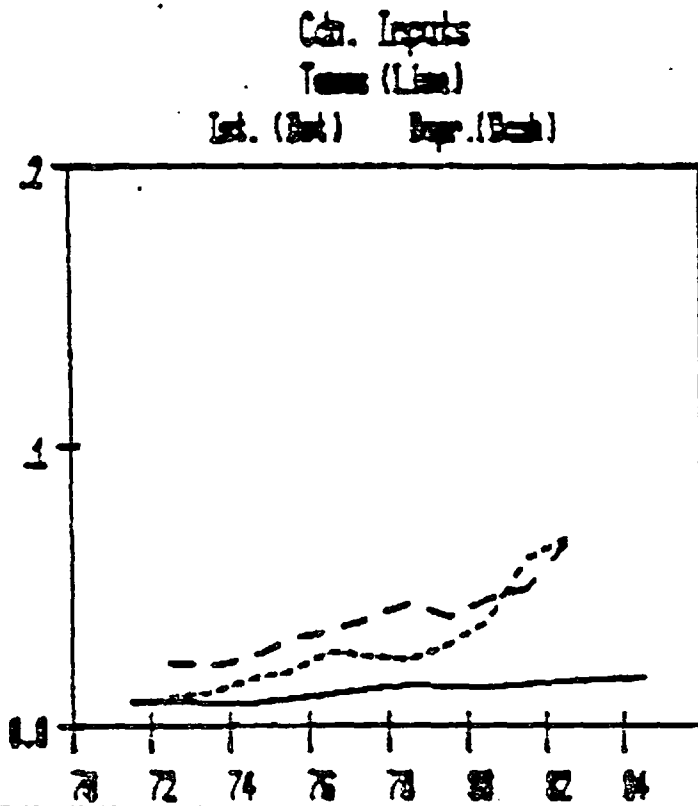


Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line

Productivity Ratio
Canadian Productivity as a % of U.S. Productivity
Transportation Equipment Industries



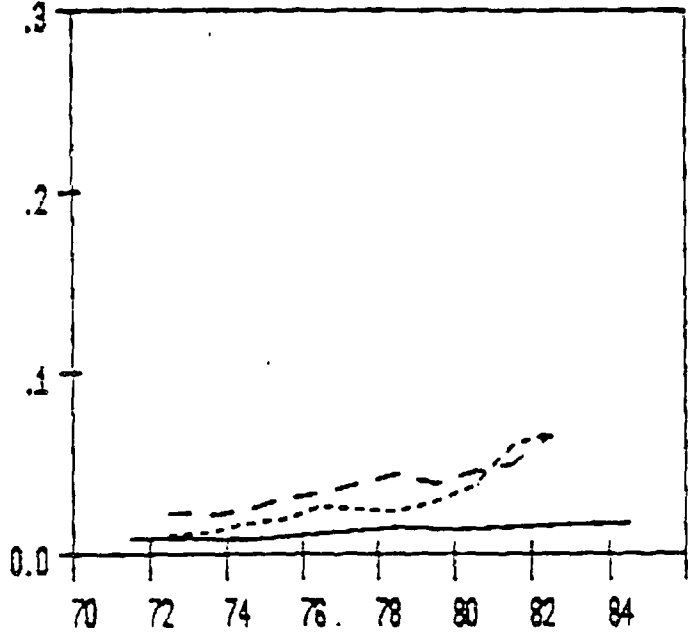
Unit Input Costs
 Nominal Dollars per unit of Real (71\$) Output
 Electrical Products Industries
 Pre-Exchange Rate Adjusted



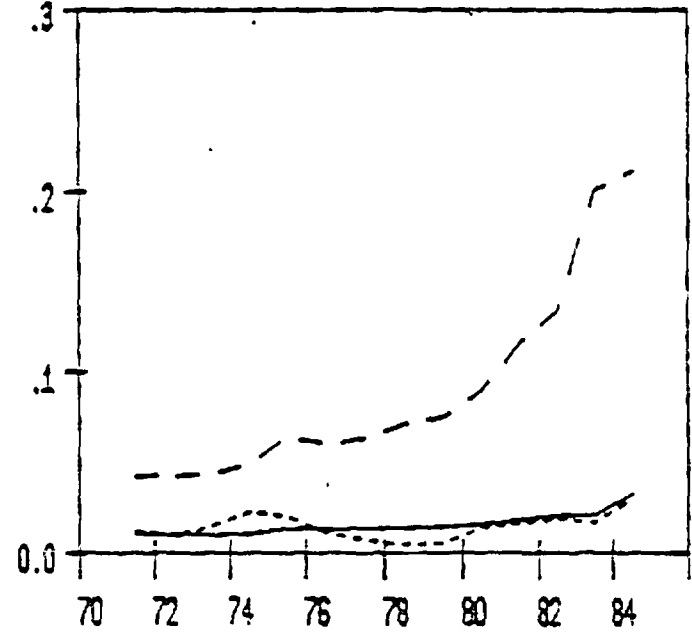
Unit Input Costs

Nominal Dollars per unit of Real (71\$) Output
Electrical Products Industries
Exchange Rate Adjusted

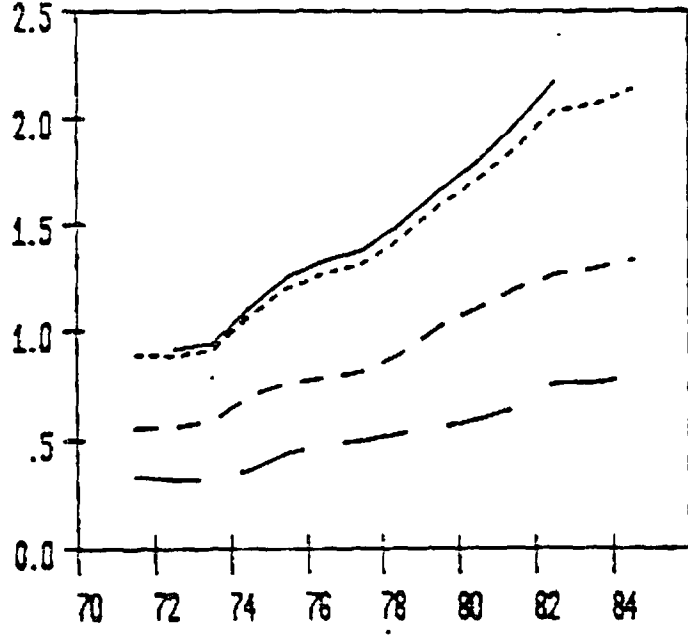
Cdn. Inputs
Taxes (Line)
Int. (Dot) Depr. (Dash)



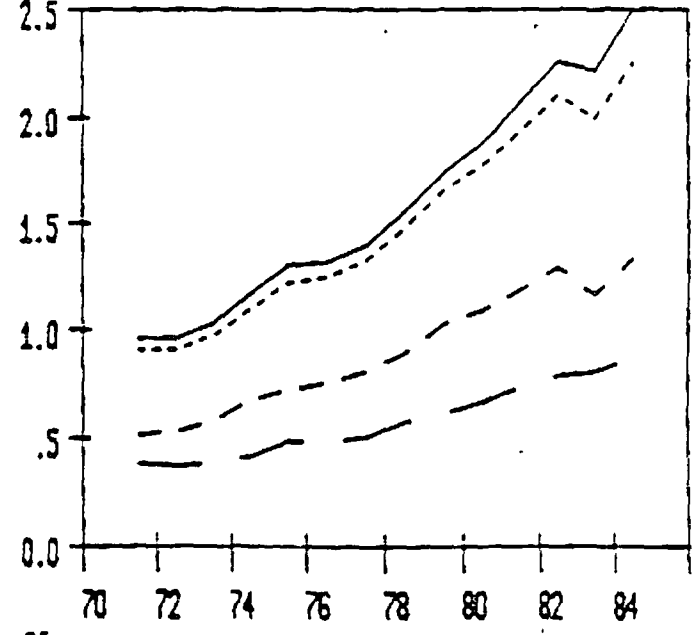
U.S. Inputs
Taxes (Line)
Int. (Dot) Depr. (Dash)



Cdn. Input Totals
Lab. (L Dash) Mat. (Dash) Total (Line)
Materials, Labour and Taxes (Dot)



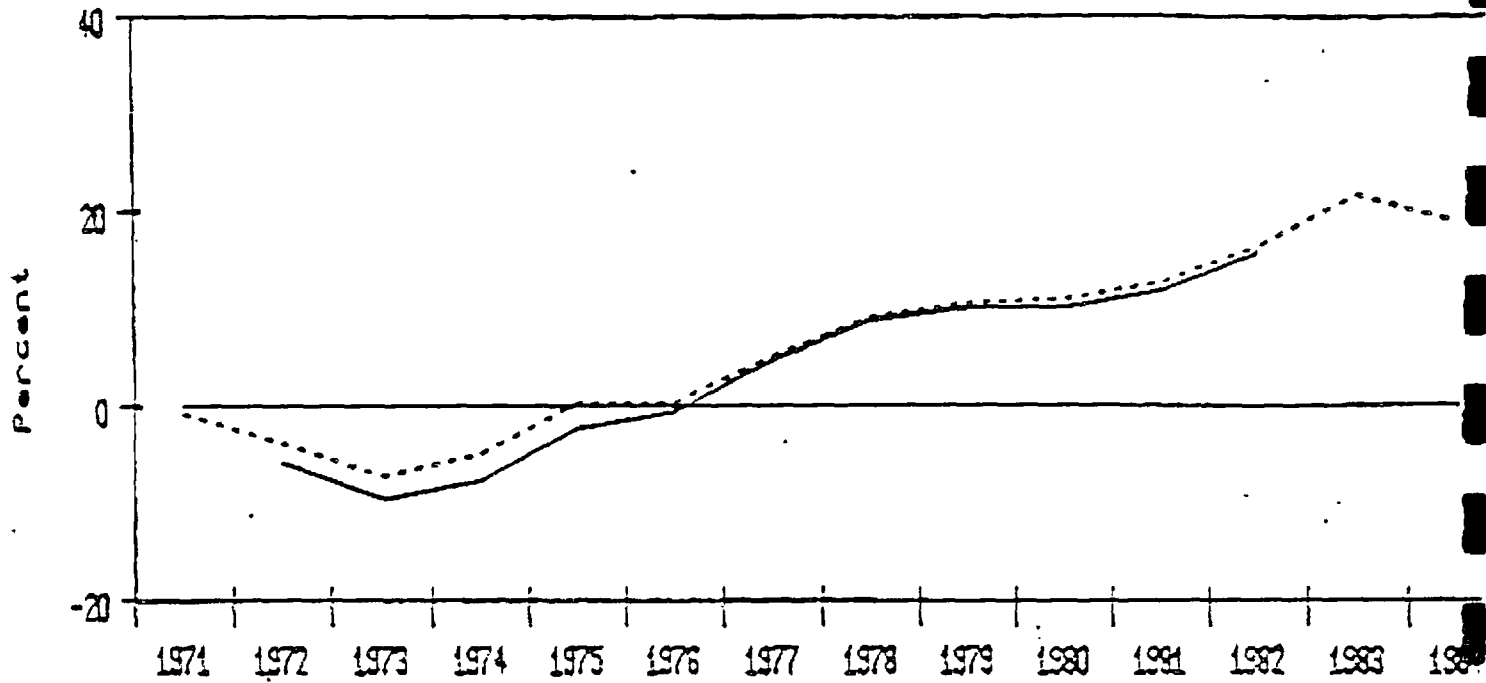
U.S. Input Totals
Lab. (L Dash) Mat. (Dash) Total (Line)
Materials, Labour and Taxes (Dot)



% Difference between Canada and U.S. Input Unit Costs Electrical Products Industries

Pre-Exchange Rate Adjusted

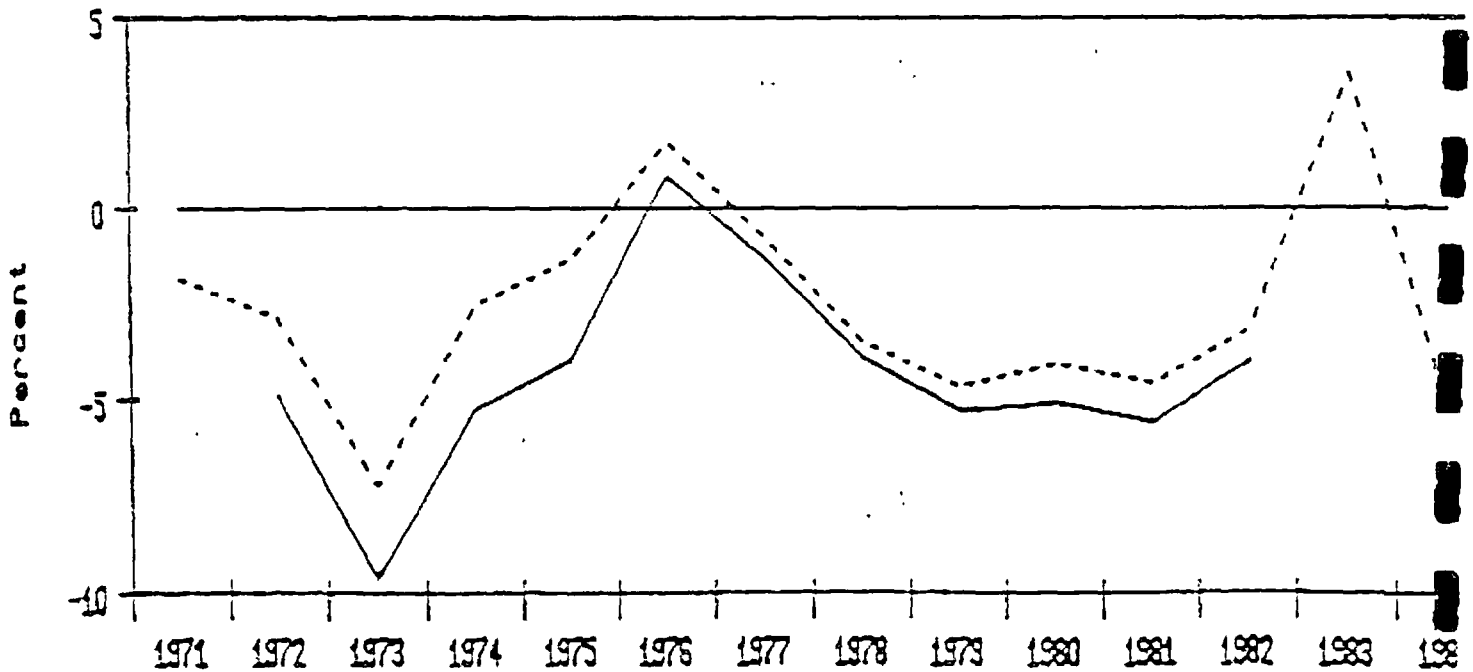
Total (Line) Materials, Labour and Taxes (Dot)



Note: Can. cost advantage below 0 line, U.S. cost advantage above 0

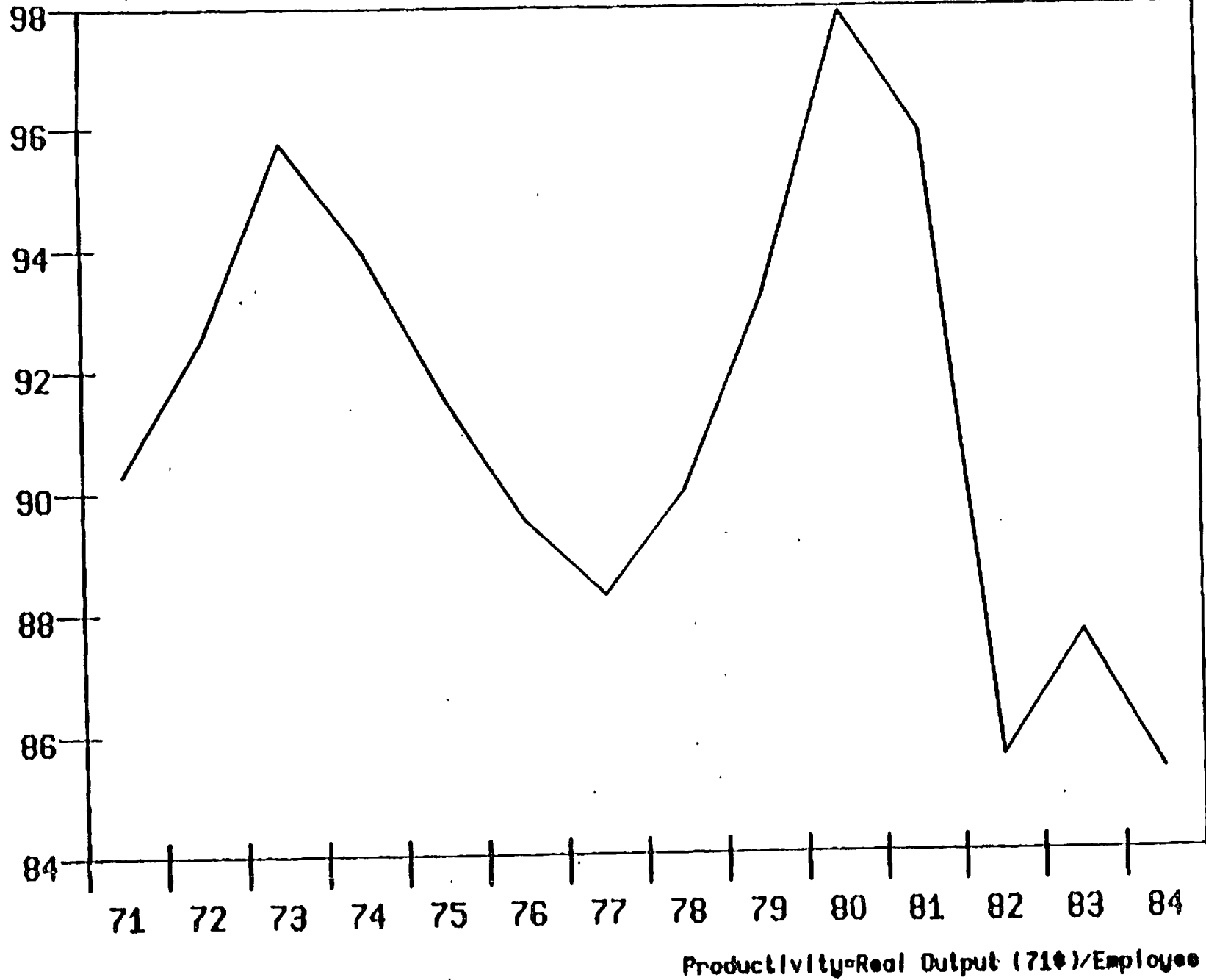
Exchange Rate Adjusted

Total (Line) Materials, Labour and Taxes (Dot)

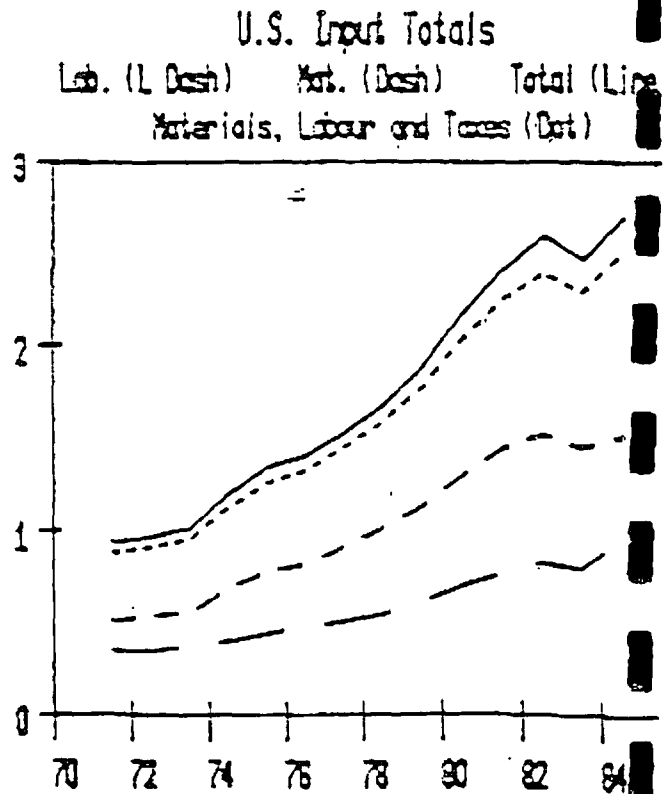
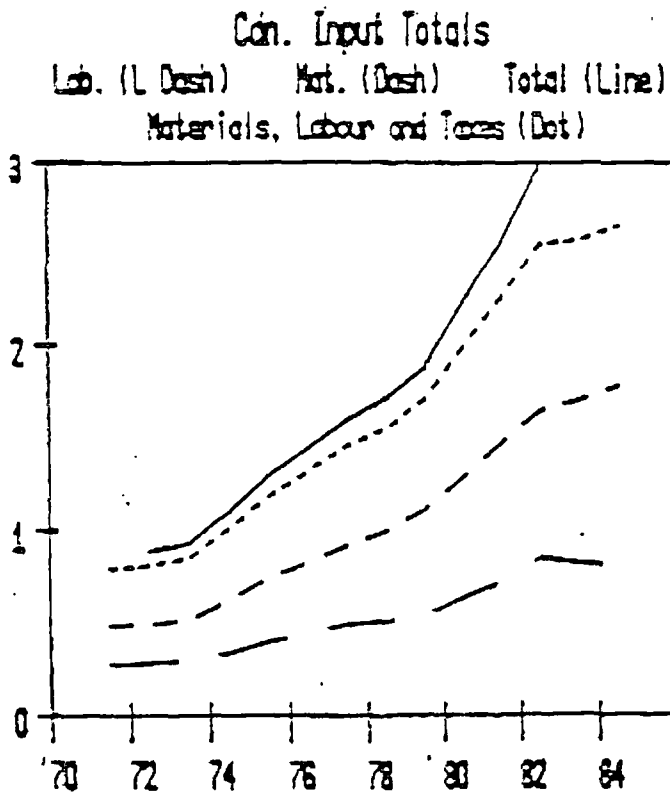
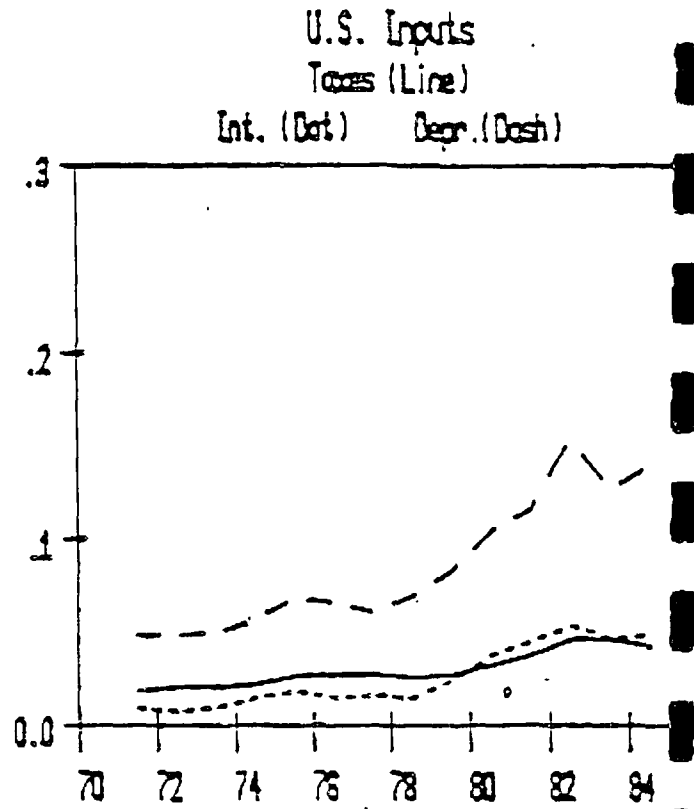
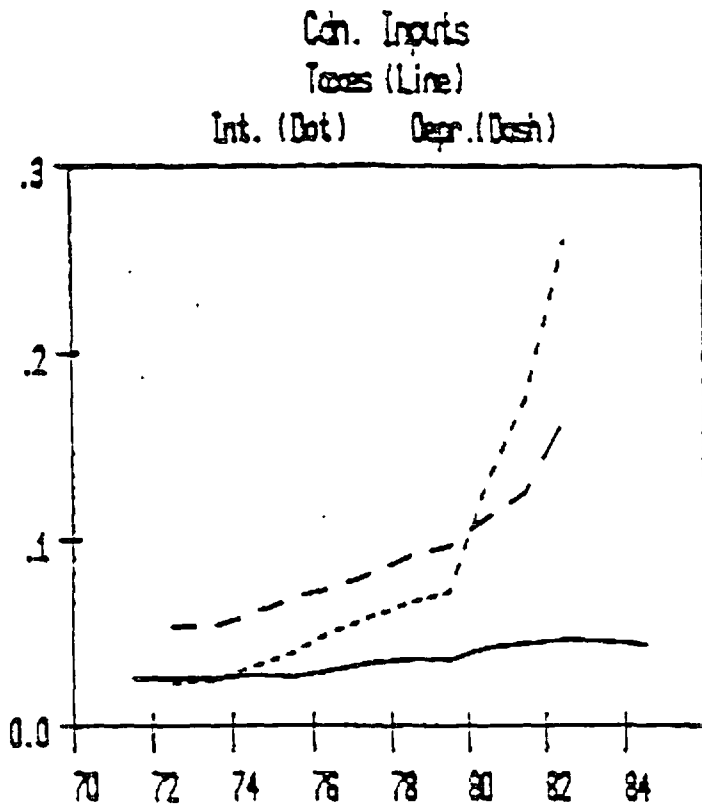


Note: Can. cost advantage below 0 line, U.S. cost advantage above 0

Productivity Ratio
Canadian Productivity as a % of U.S. Productivity
Electrical Products Industries

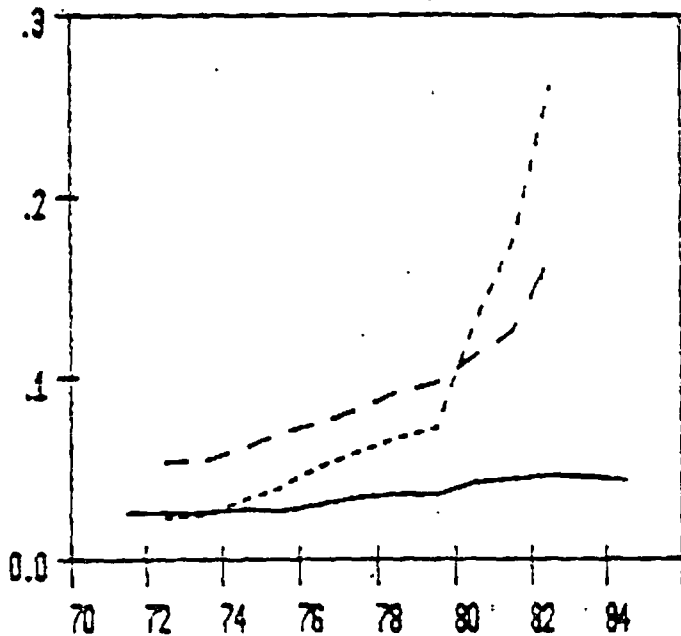


Unit Input Costs
 Nominal Dollars per unit of Real (71\$) Output
 Non-Metallic Mineral Products Industries
 Pre-Exchange Rate Adjusted

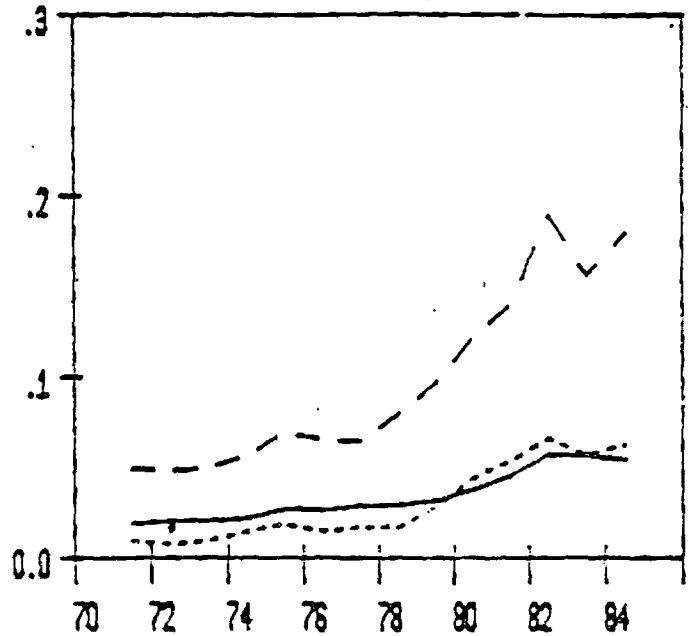


Unit Input Costs
 Nominal Dollars per unit of Real (71\$) Output
 Non-Metallic Mineral Products Industries
 Exchange Rate Adjusted

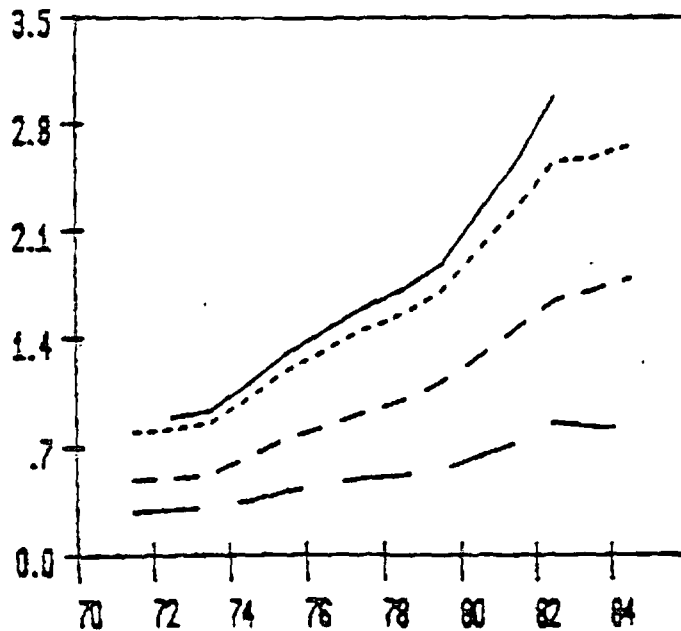
Cdn. Inputs
 Taxes (Line)
 Int. (Dot) Depr. (Dash)



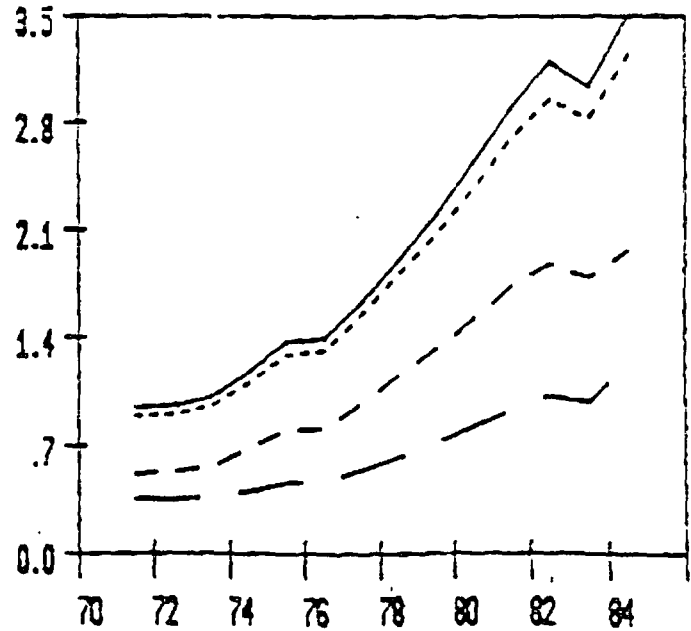
U.S. Inputs
 Taxes (Line)
 Int. (Dot) Depr. (Dash)



Cdn. Input Totals
 Lab. (L Dash) Mat. (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)

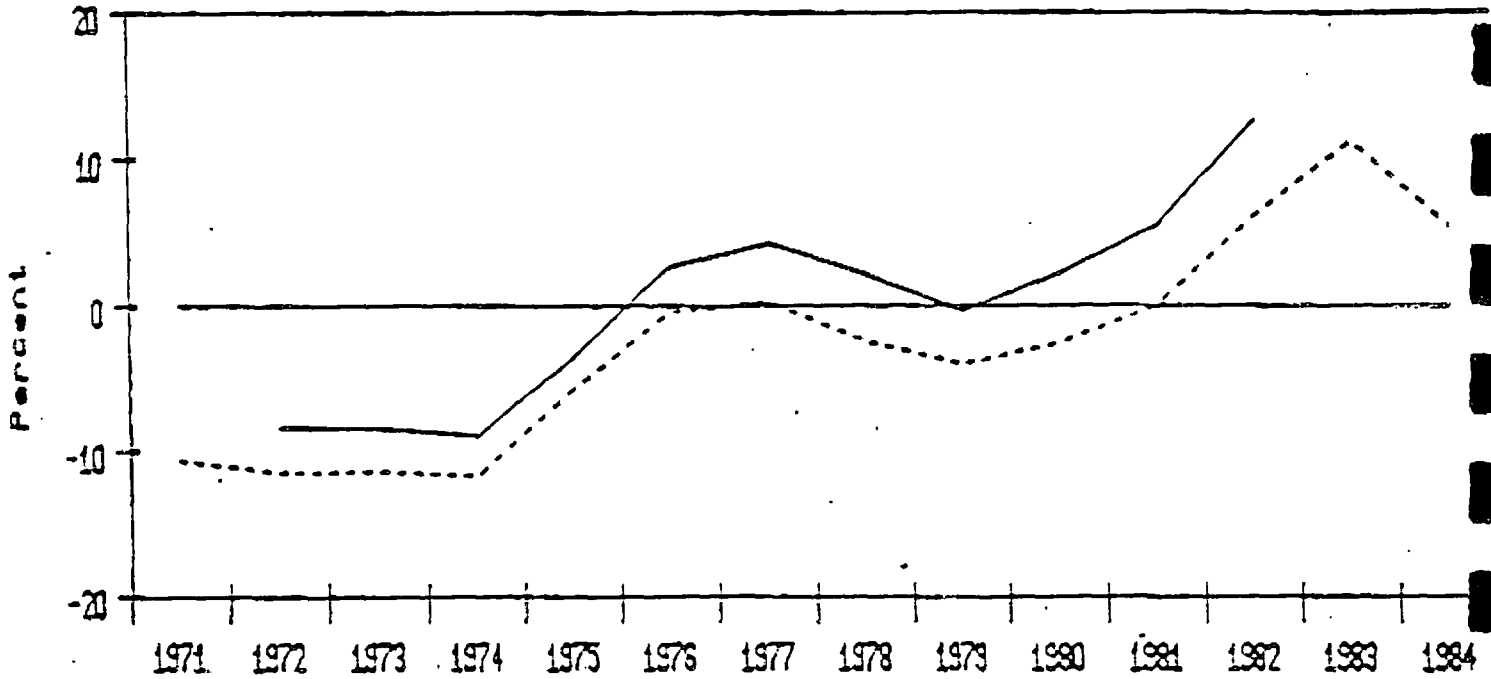


U.S. Input Totals
 Lab. (L Dash) Mat. (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)



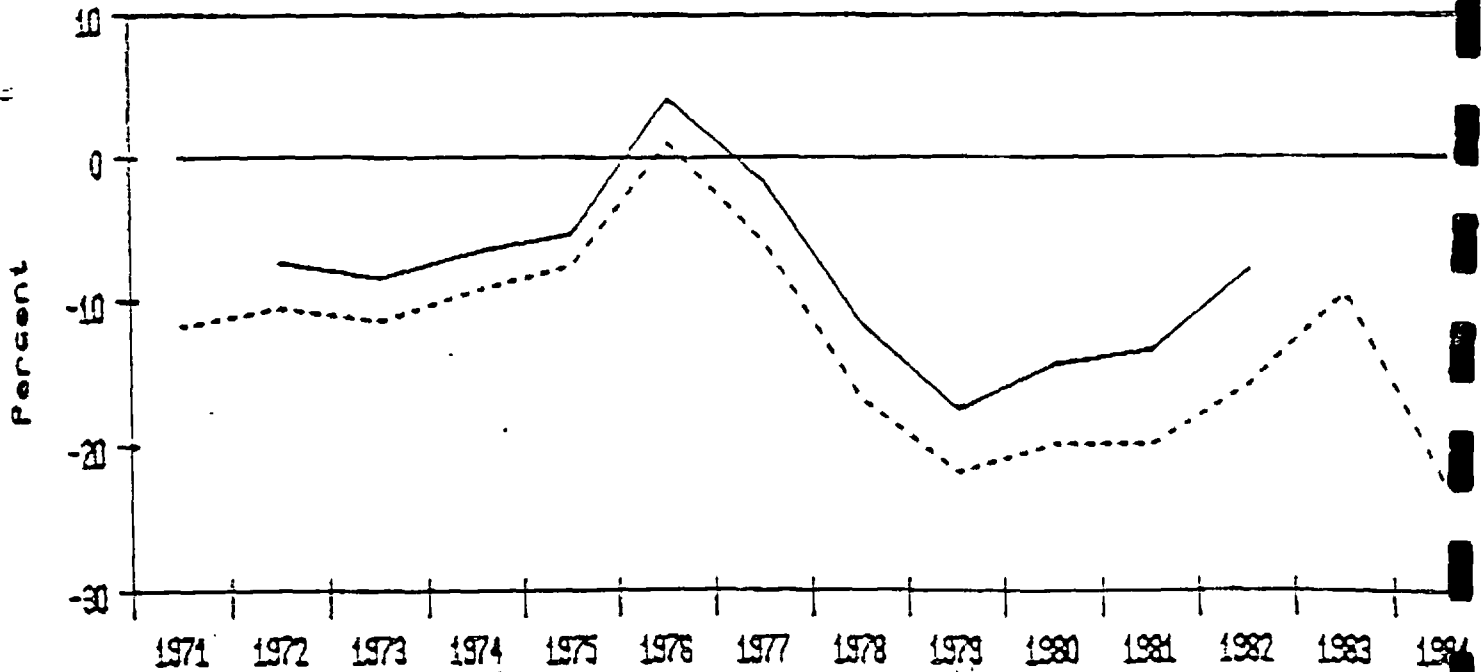
% Difference between Canada and U.S. Input Unit Costs Non-Metallic Mineral Products Industries

Pre-Exchange Rate Adjusted
Total (Line) Materials, Labour and Taxes (Dot)



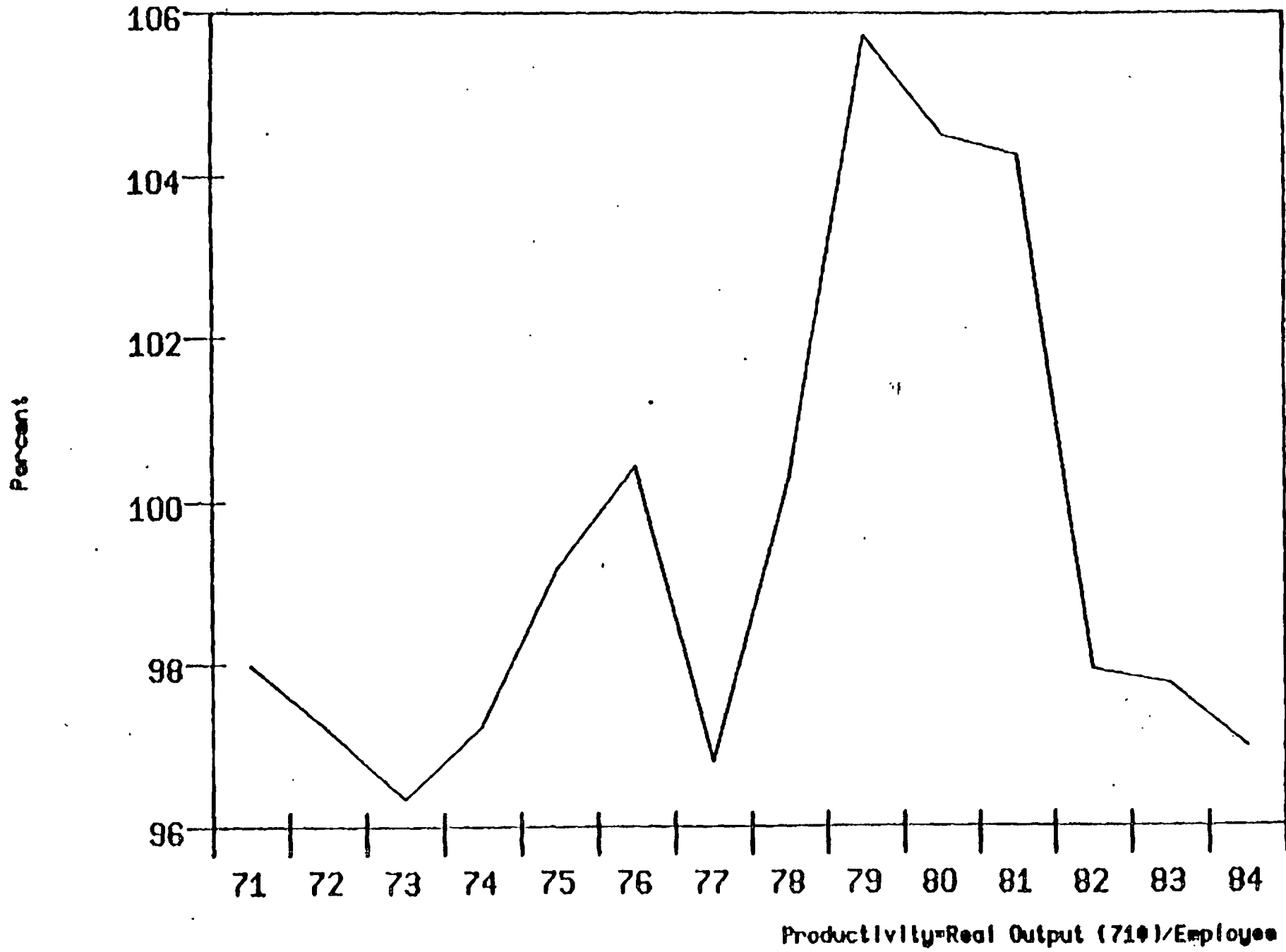
Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line

Exchange Rate Adjusted
Total (Line) Materials, Labour and Taxes (Dot)



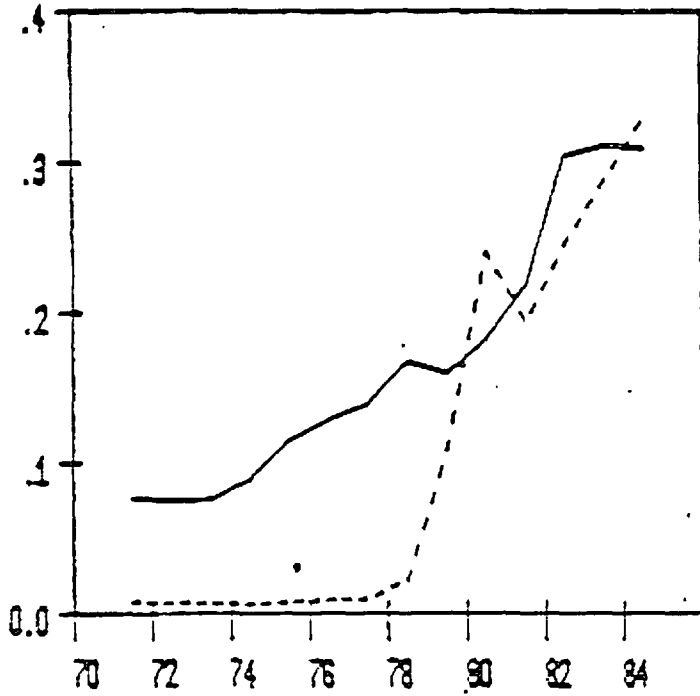
Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line

Productivity Ratio
Canadian Productivity as a % of U.S. Productivity
Non-Metallic Mineral Products Industries

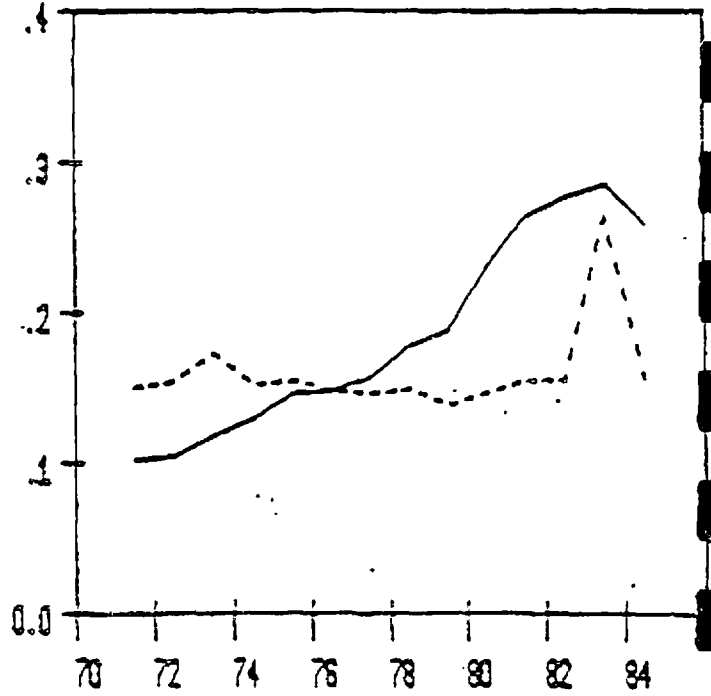


Unit Input Costs
 Nominal Dollars per unit of Real (71\$) Output
 Petroleum & Coal Products Industries
 Pre-Exchange Rate Adjusted

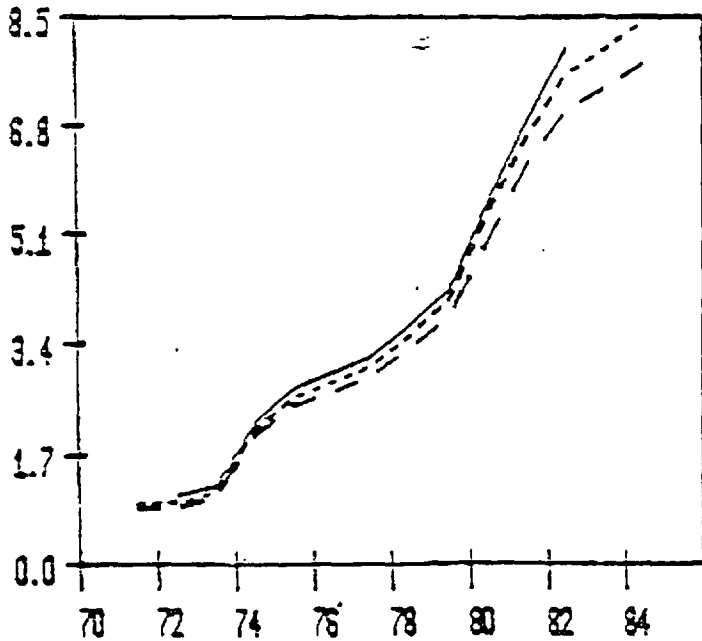
Can. Inputs
 Labour (Line) Taxes (Dot)



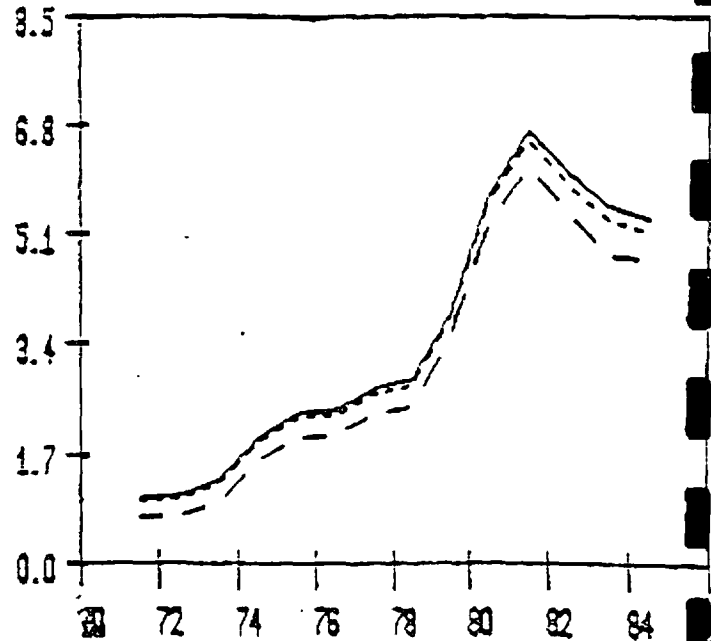
U.S. Inputs
 Labour (Line) Taxes (Dot)



Can. Input Totals
 Materials (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)

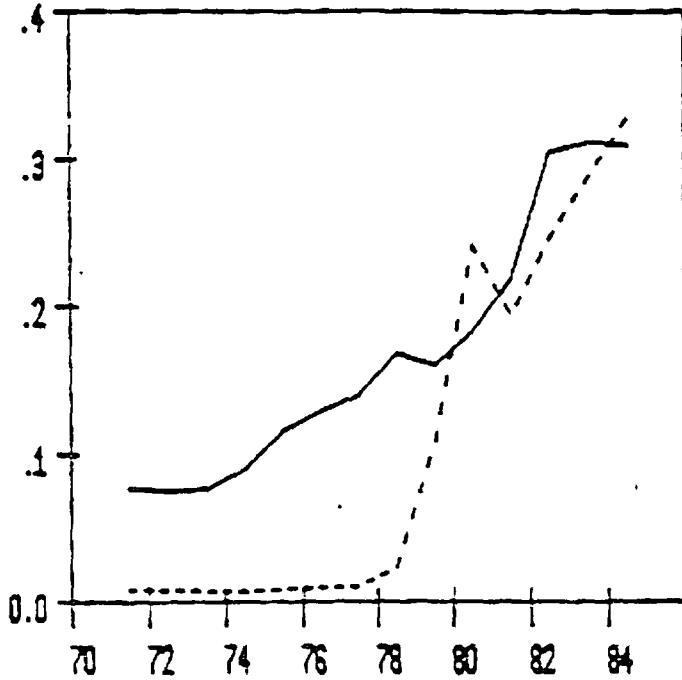


U.S. Input Totals
 Materials (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)

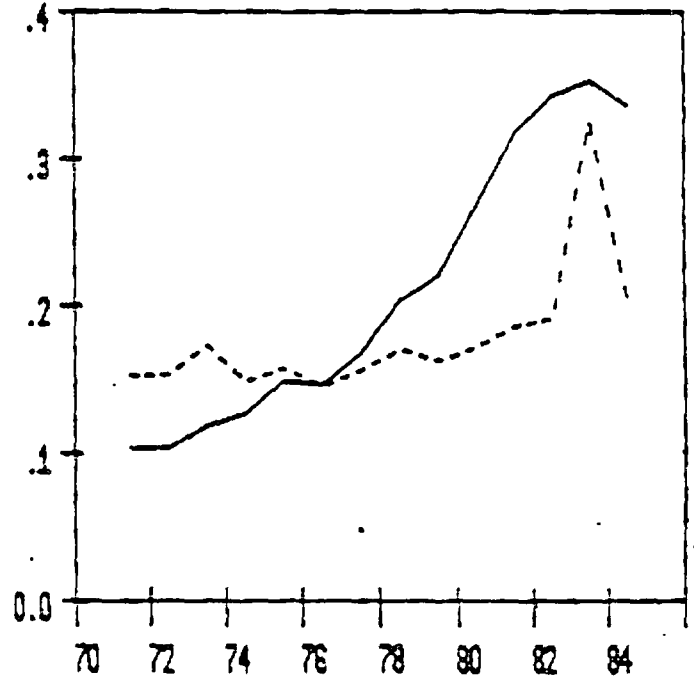


Unit Input Costs
 Nominal Dollars per unit of Real (71\$) Output
 Petroleum & Coal Products Industries
 Exchange Rate Adjusted

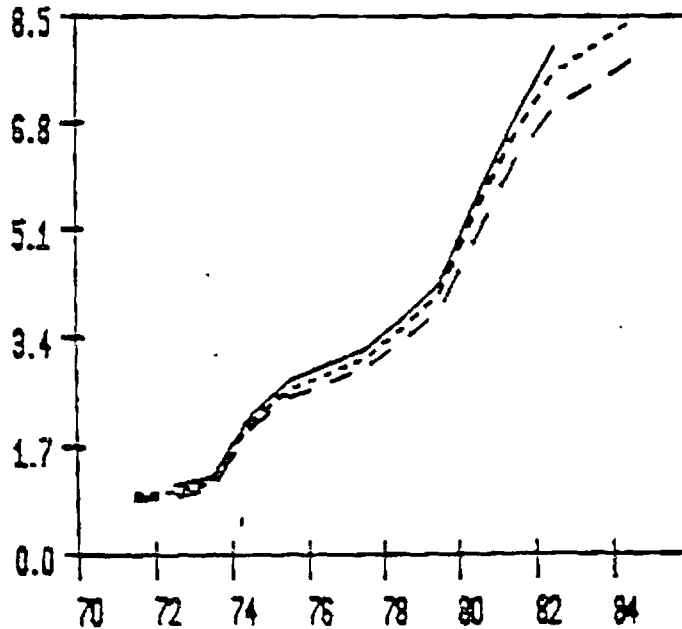
Cdn. Inputs
 Labour (Line) Taxes (Dot)



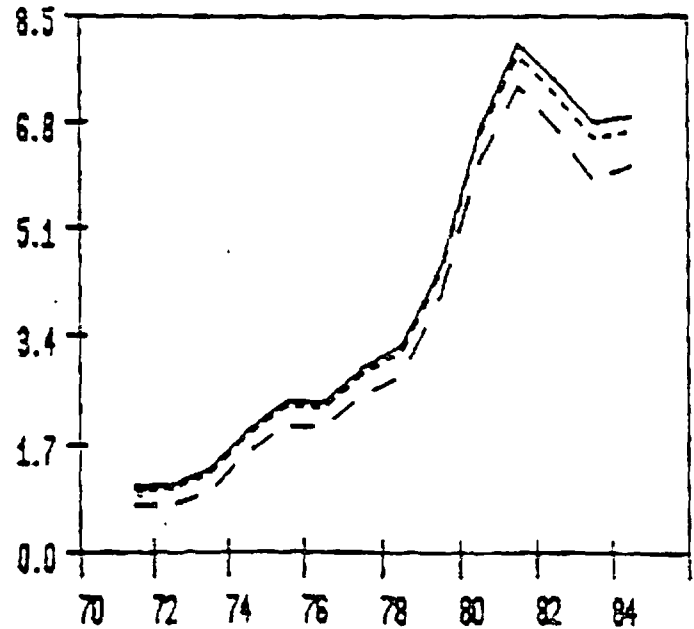
U.S. Inputs
 Labour (Line) Taxes (Dot)



Cdn. Input Totals
 Materials (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)

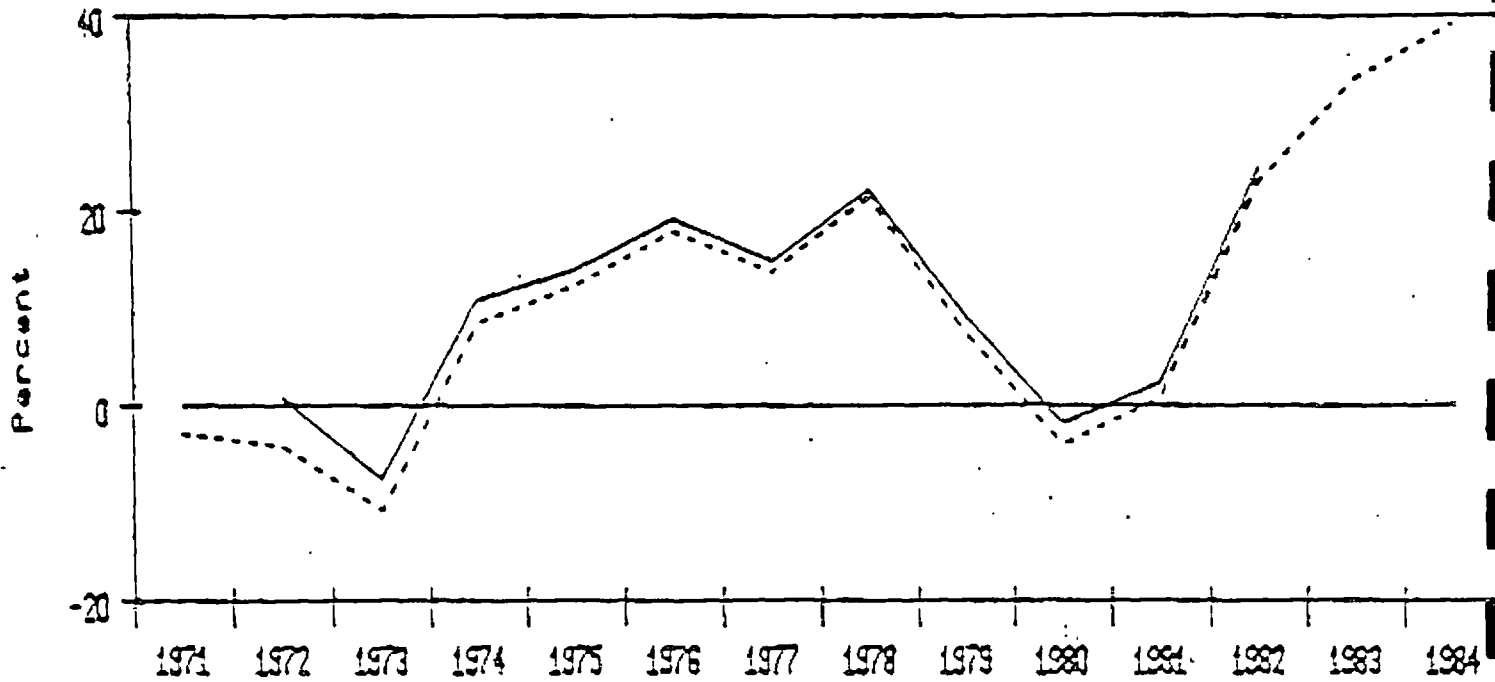


U.S. Input Totals
 Materials (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)



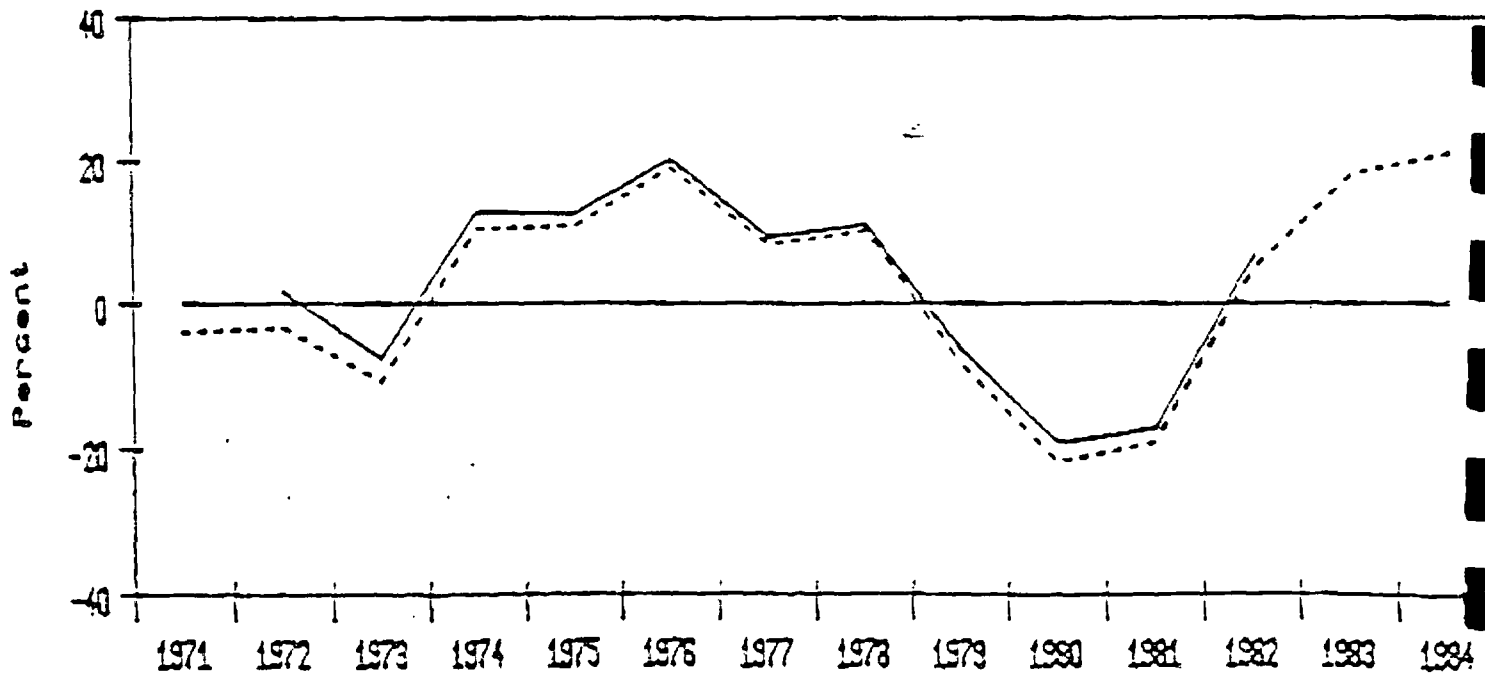
% Difference between Canada and U.S. Input Unit Costs Petroleum & Coal Products Industries

Pre-Exchange Rate Adjusted
Total (Line) Materials, Labour and Taxes (Dot)



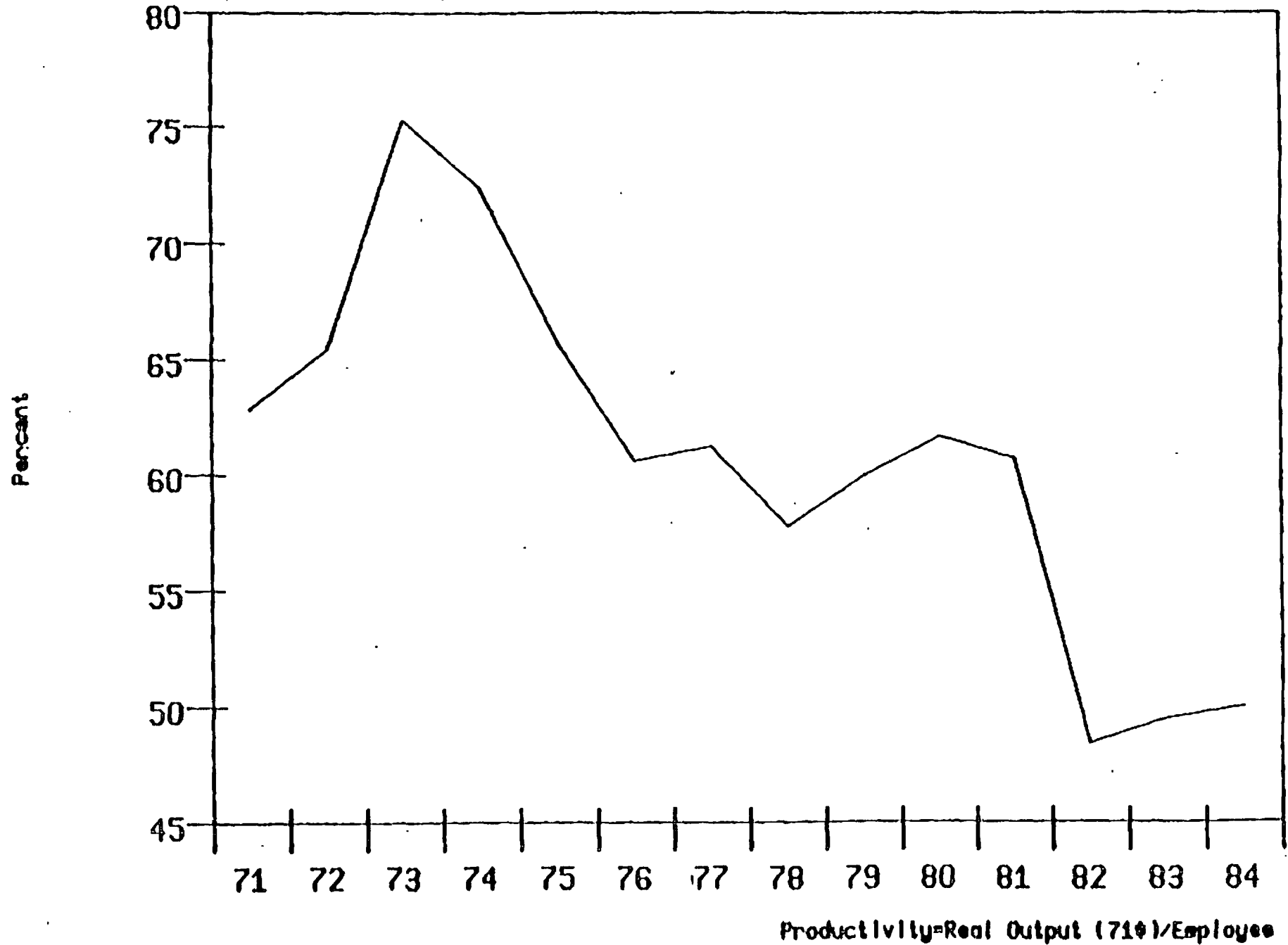
Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line

Exchange Rate Adjusted
Total (Line) Materials, Labour and Taxes (Dot)

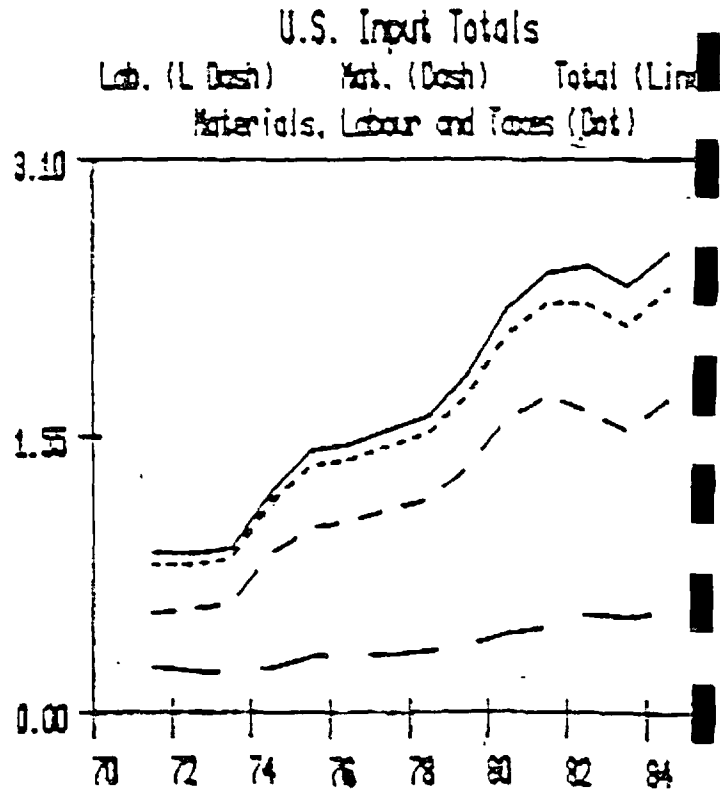
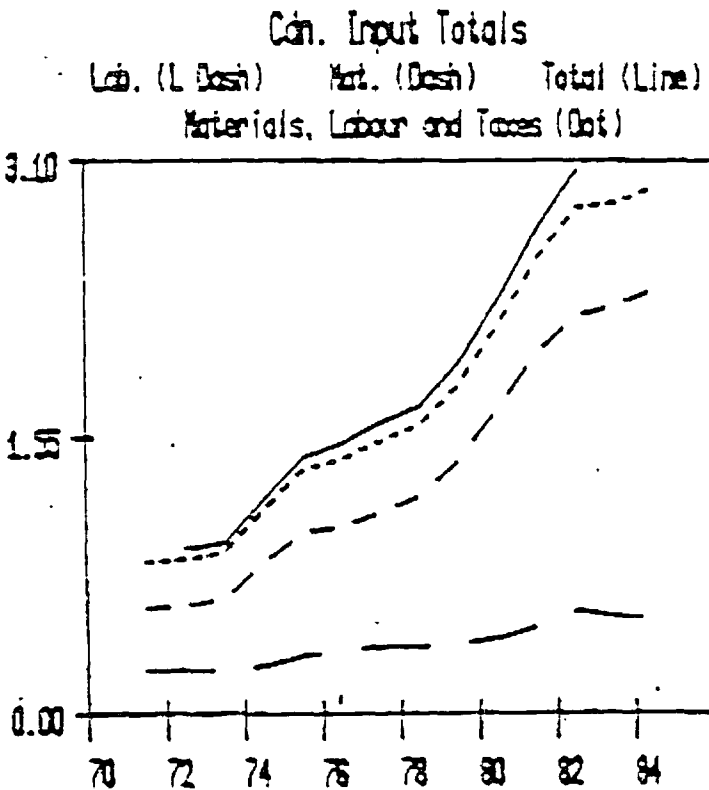
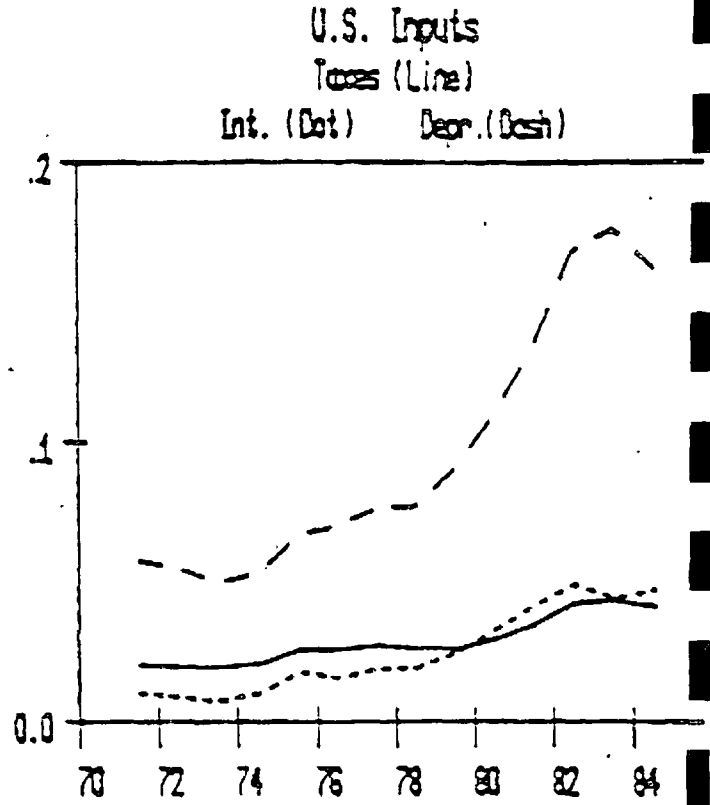
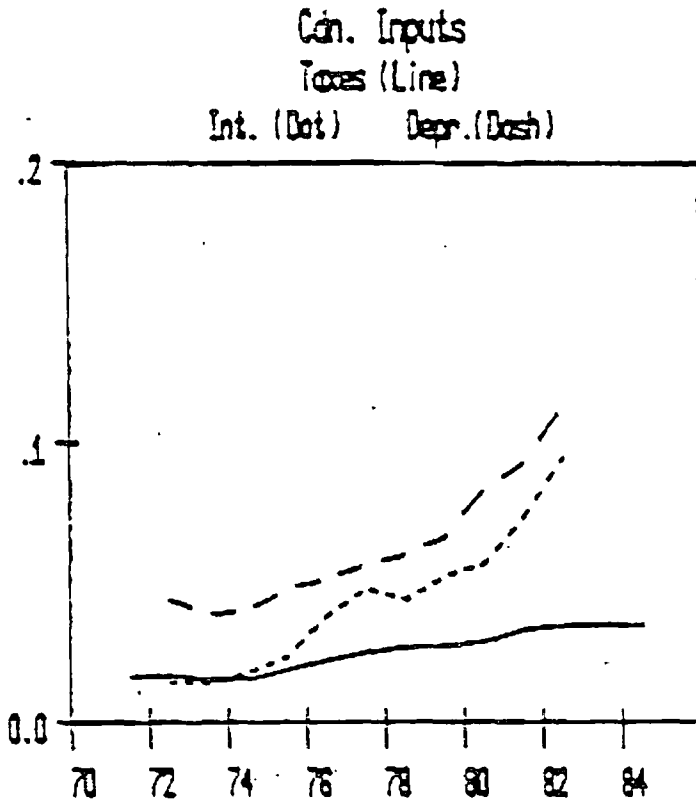


Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line

Productivity Ratio
Canadian Productivity as a % of U.S. Productivity
Petroleum & Coal Products Industries



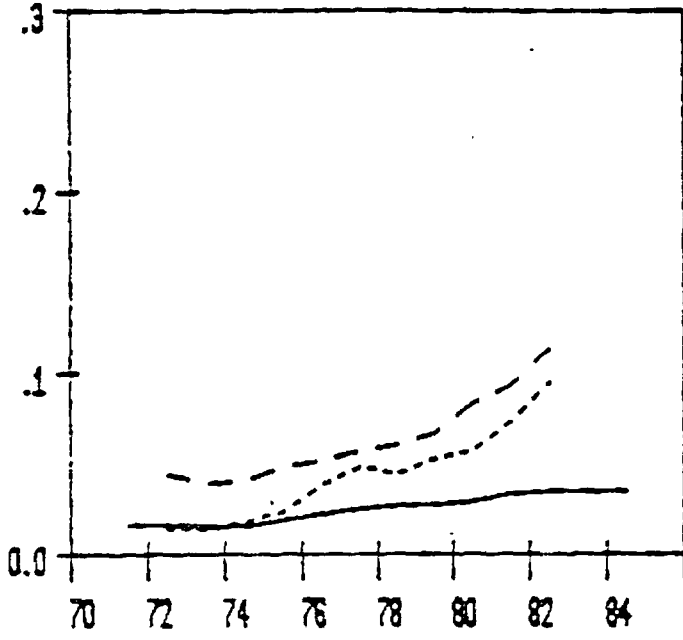
Unit Input Costs
 Nominal Dollars per unit of Real (71\$) Output
 Chemical & Chemical Products Industries
 Pre-Exchange Rate Adjusted



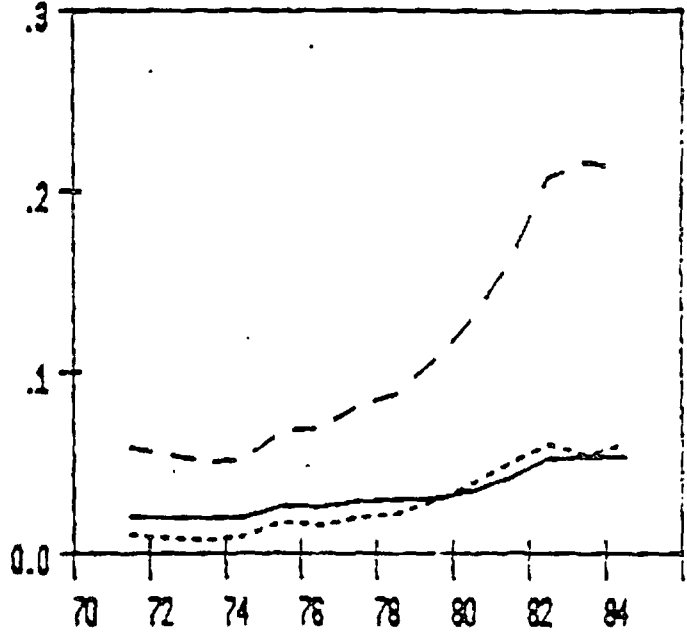
Unit Input Costs

Nominal Dollars per unit of Real (71\$) Output
Chemical & Chemical Products Industries
Exchange Rate Adjusted

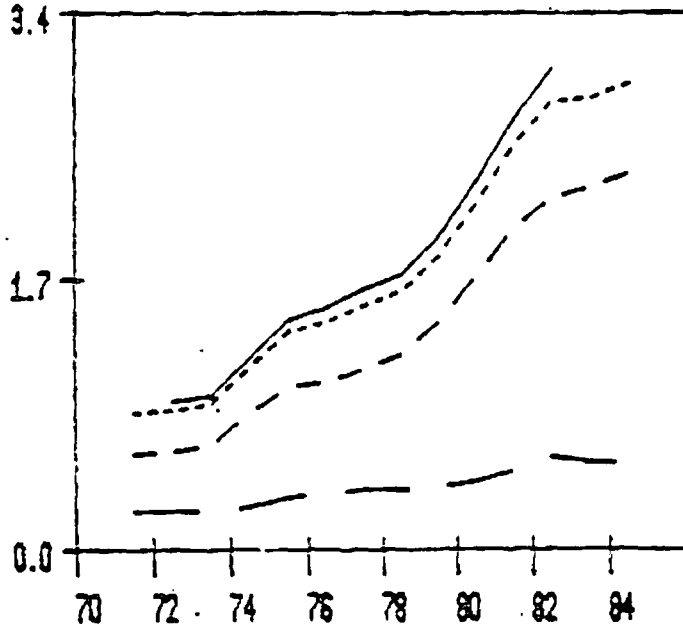
Cdn. Inputs
Taxes (Line)
Int. (Dot) Depr. (Dash)



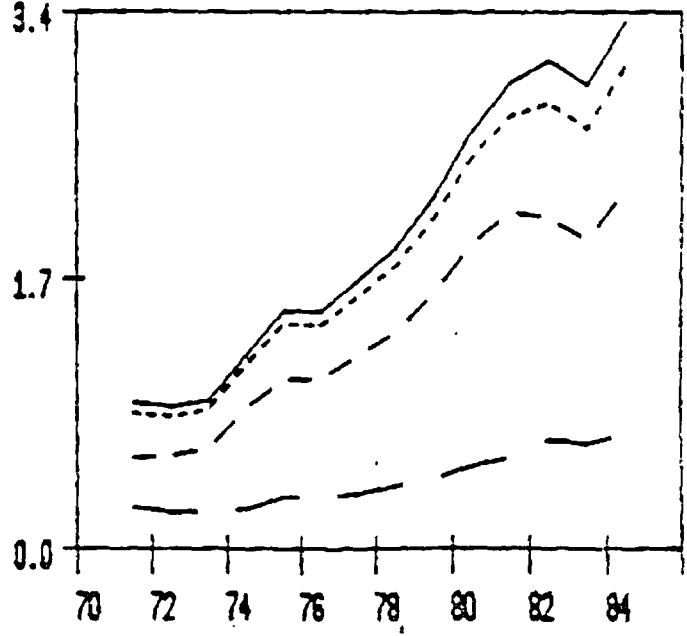
U.S. Inputs
Taxes (Line)
Int. (Dot) Depr. (Dash)



Cdn. Input Totals
Lab. (L Dash) Mat. (Dash) Total (Line)
Materials, Labour and Taxes (Dot)

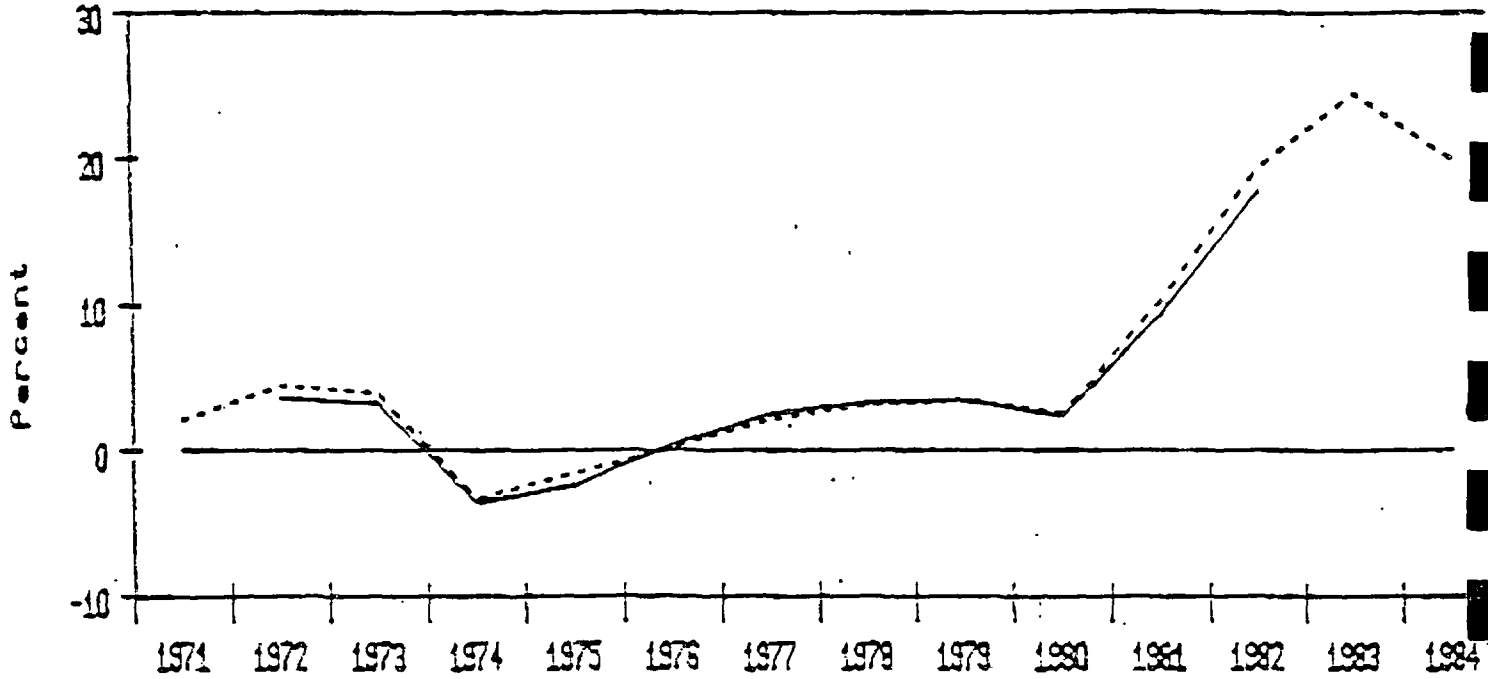


U.S. Input Totals
Lab. (L Dash) Mat. (Dash) Total (Line)
Materials, Labour and Taxes (Dot)



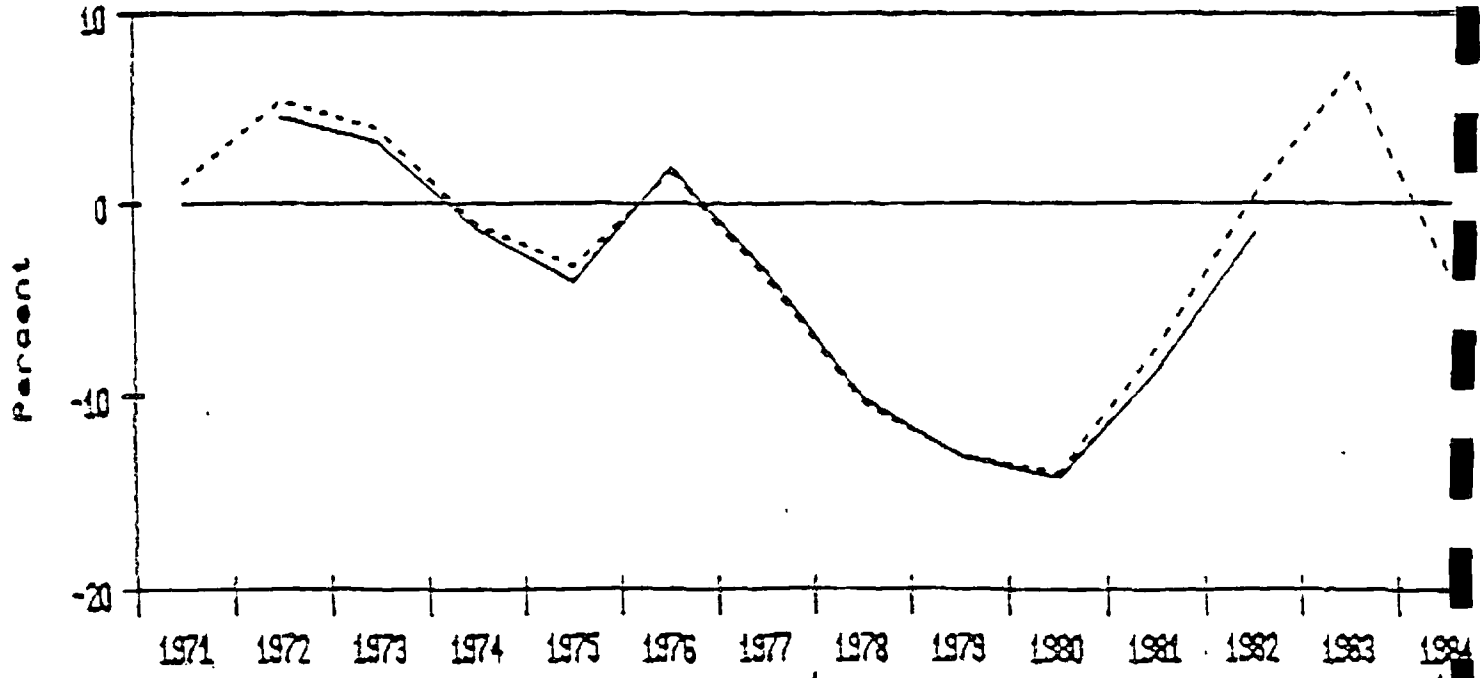
% Difference between Canada and U.S. Input Unit Costs Chemical & Chemical Products Industries

Pre-Exchange Rate Adjusted
Total (Line) Materials, Labour and Taxes (Dot)



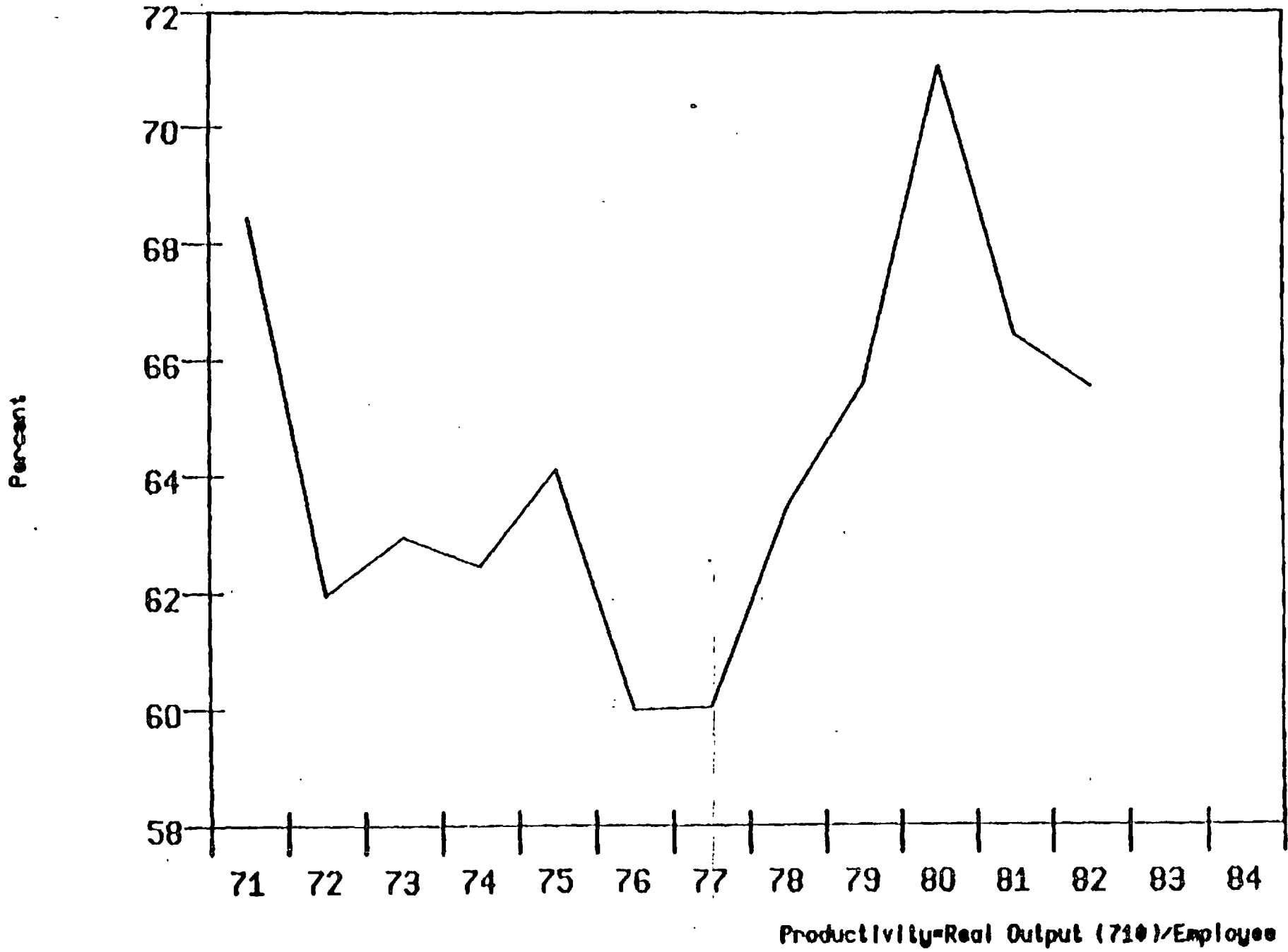
Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line

Exchange Rate Adjusted
Total (Line) Materials, Labour and Taxes (Dot)



Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line

Productivity Ratio
Canadian Productivity as a % of U.S. Productivity
Chemical & Chemical Products Industries

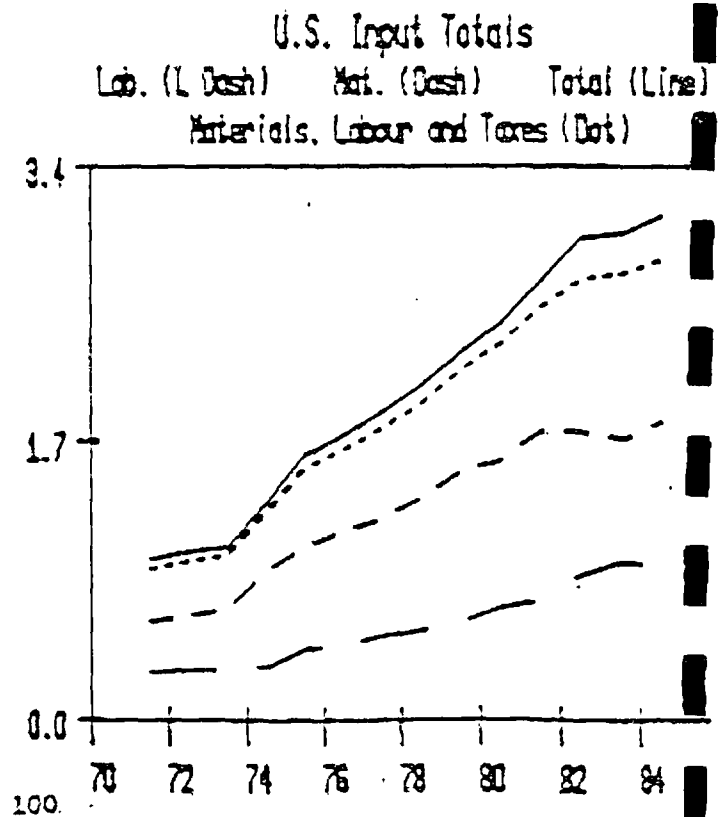
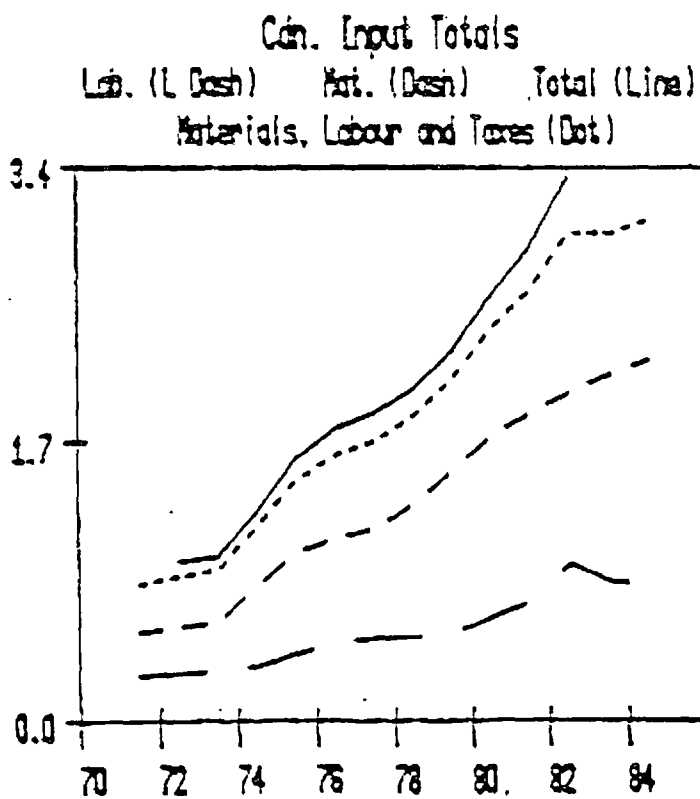
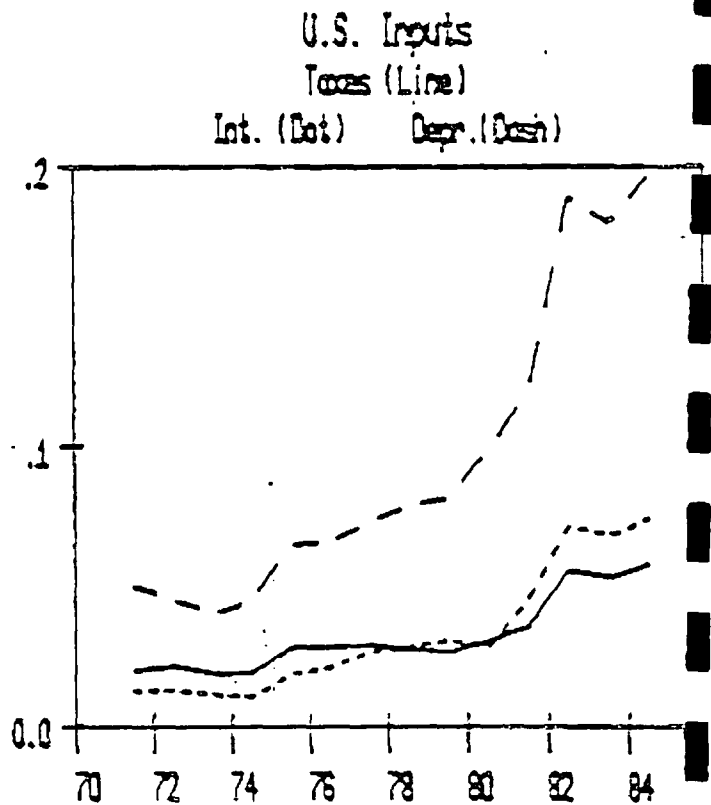
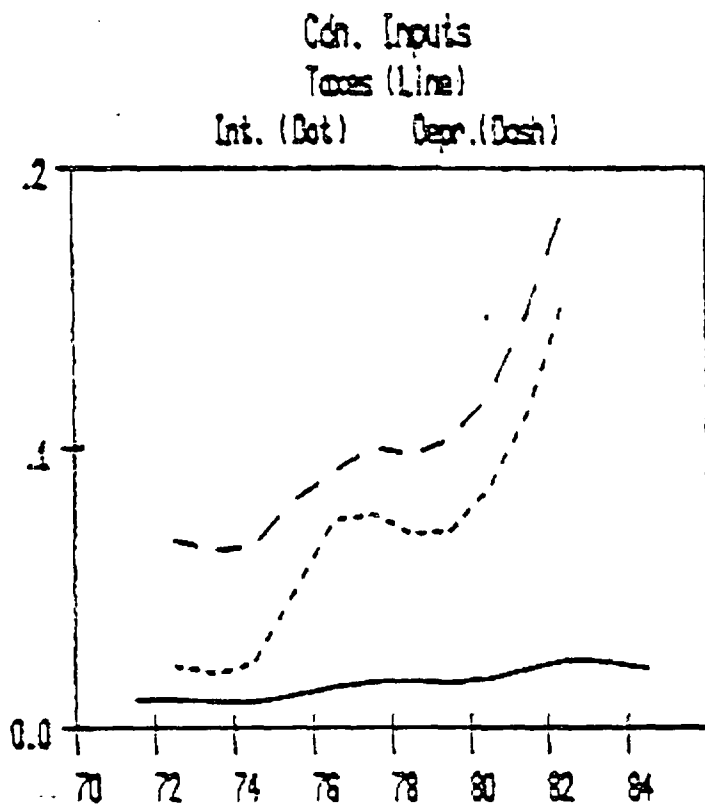


Unit Input Costs

Nominal Dollars per unit of Real (71\$) Output

Iron and Steel

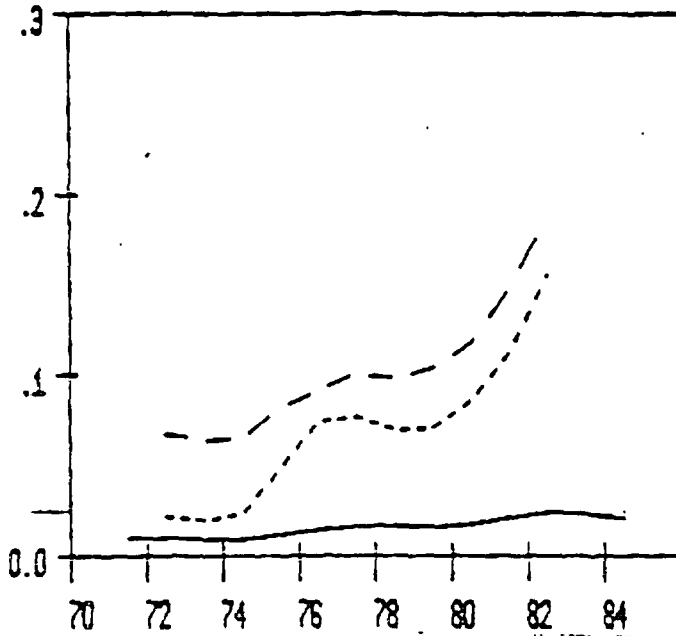
Pre-Exchange Rate Adjusted



Unit Input Costs
 Nominal Dollars per unit of Real (71\$) Output
 Iron and Steel
 Exchange Rate Adjusted

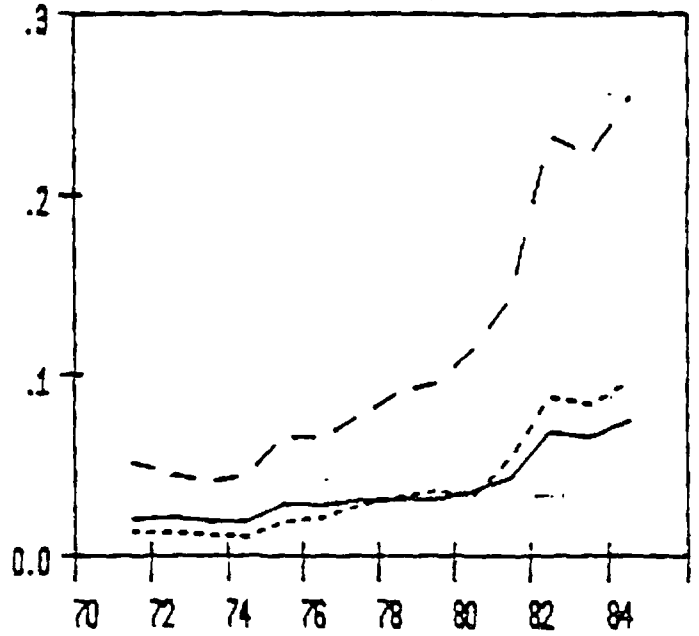
Cdn. Inputs
 Taxes (Line)

Int. (Dot) Depr. (Dash)



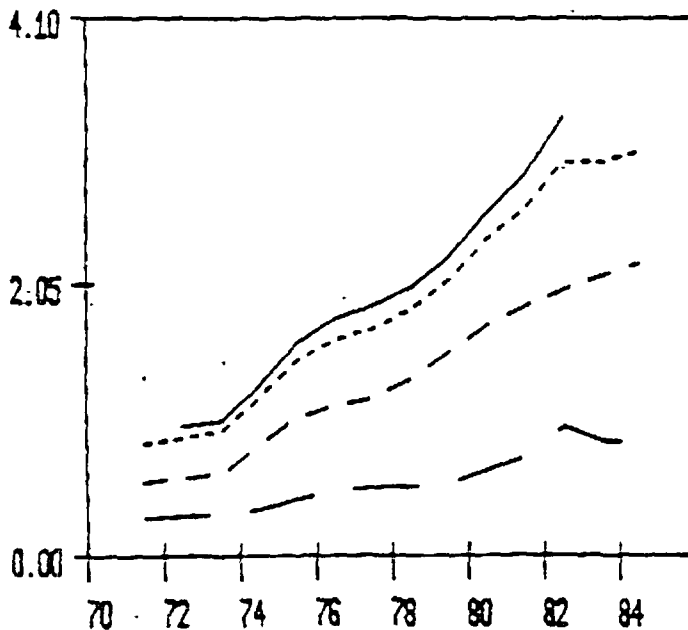
U.S. Inputs
 Taxes (Line)

Int. (Dot) Depr. (Dash)



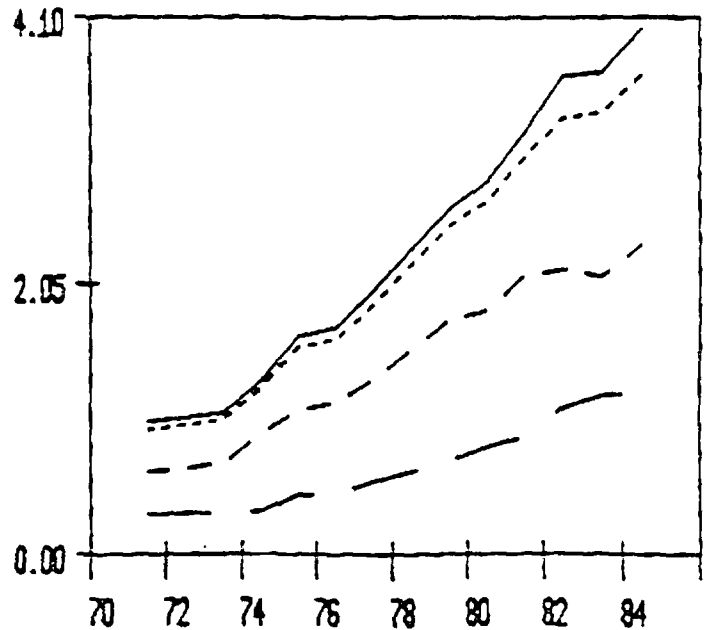
Cdn. Input Totals

Lab. (L Dash) Mat. (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)



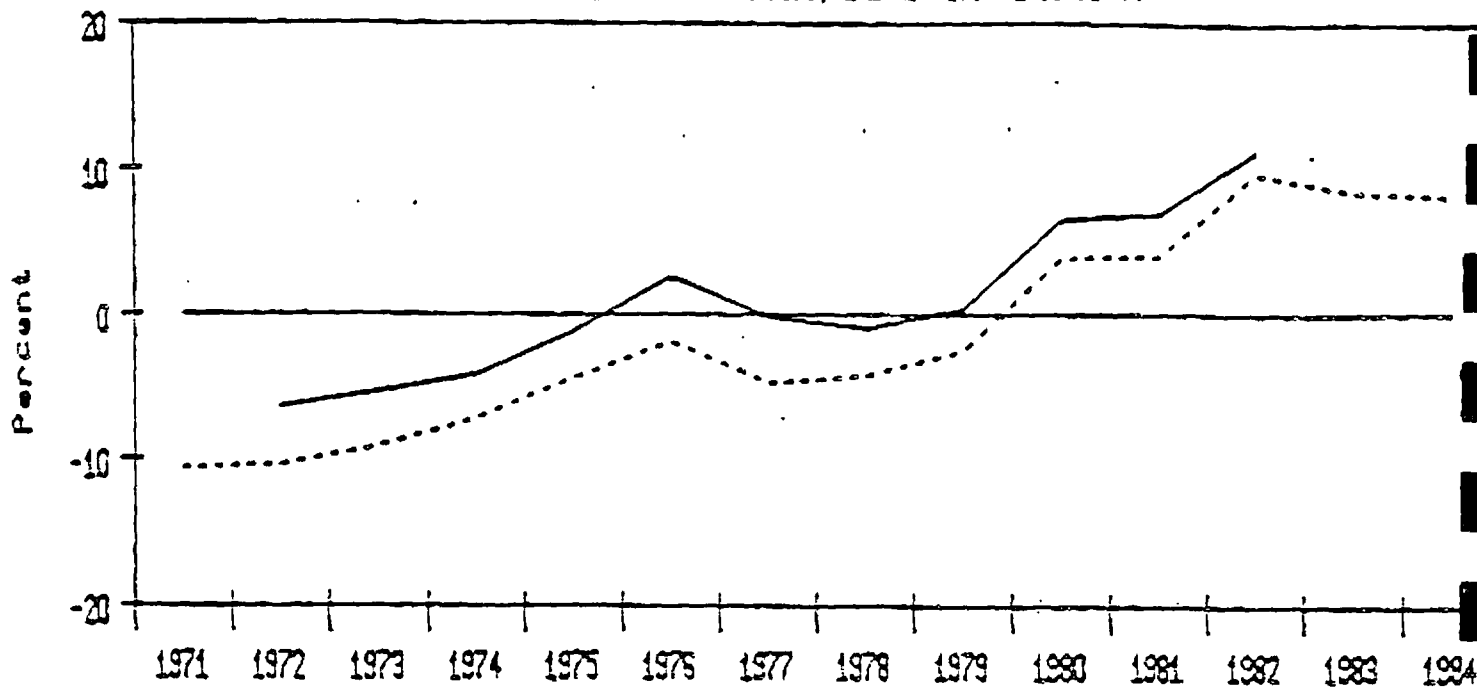
U.S. Input Totals

Lab. (L Dash) Mat. (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)



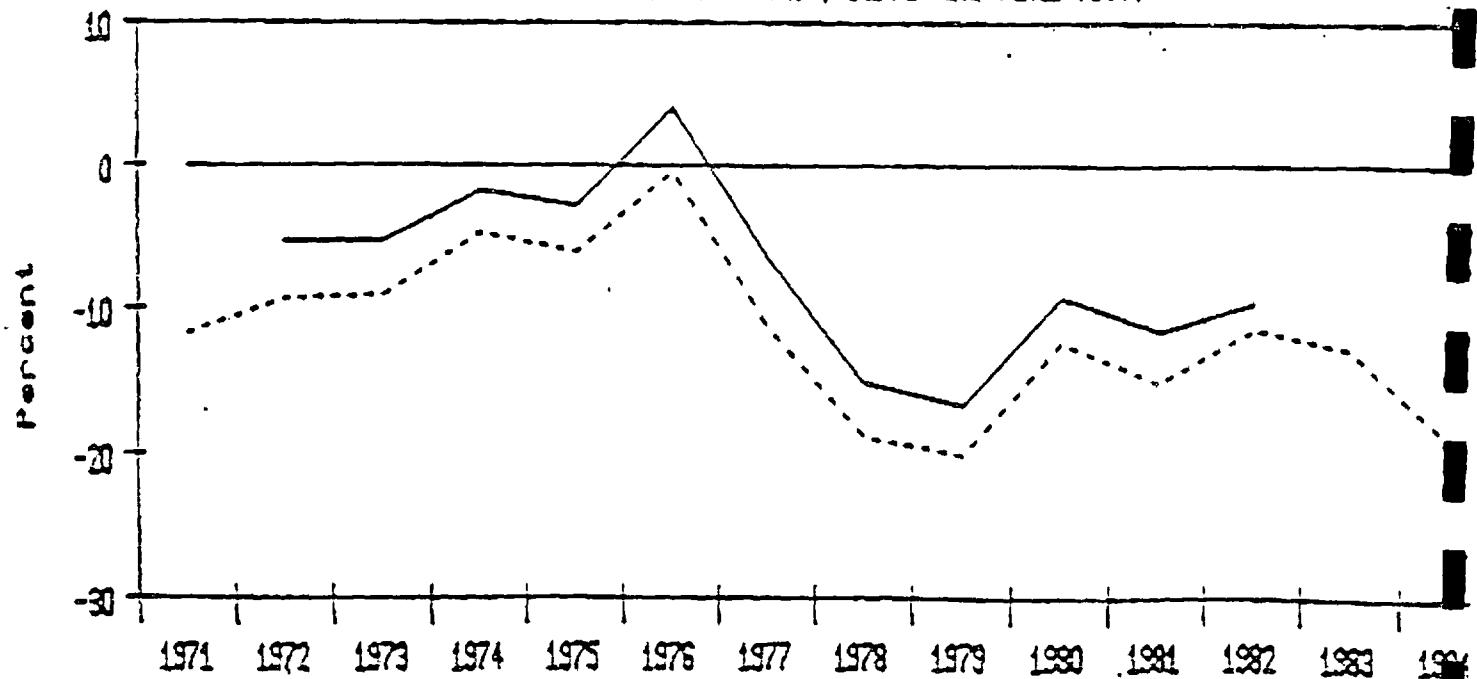
% Difference between Canada and U.S. Input Unit Costs Iron and Steel

Pre-Exchange Rate Adjusted
Total (Line) Materials, Labour and Taxes (Dot)



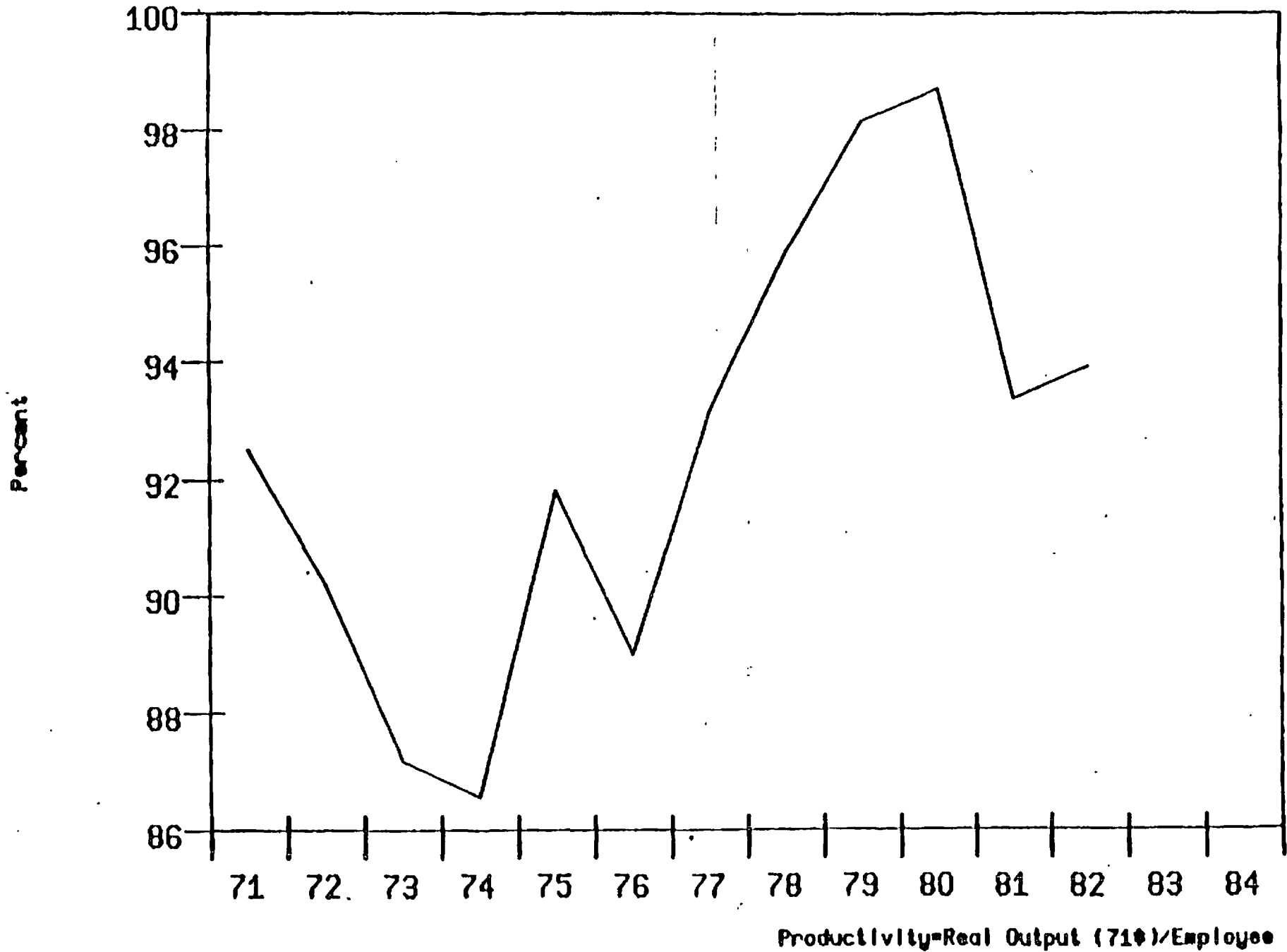
Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line.

Exchange Rate Adjusted
Total (Line) Materials, Labour and Taxes (Dot)

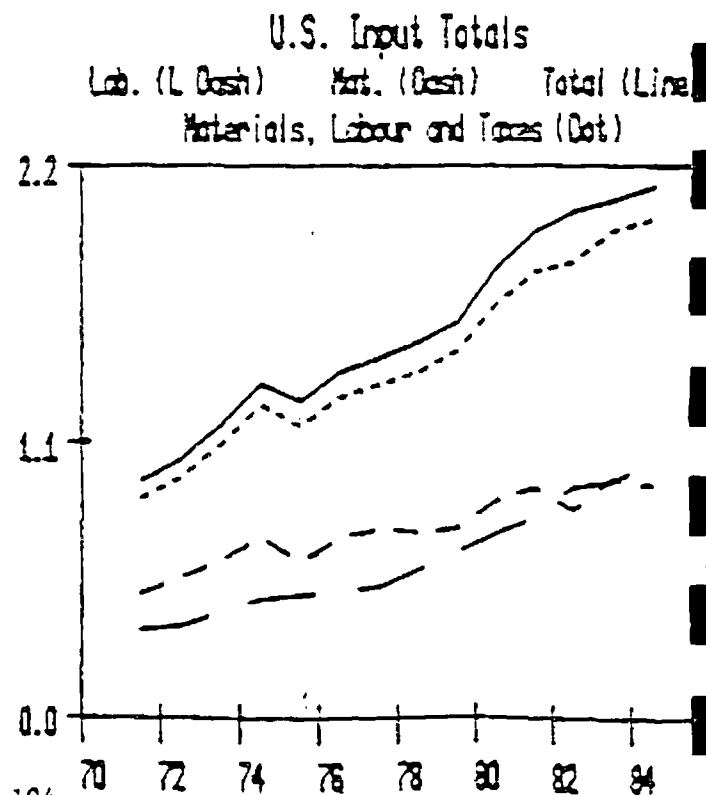
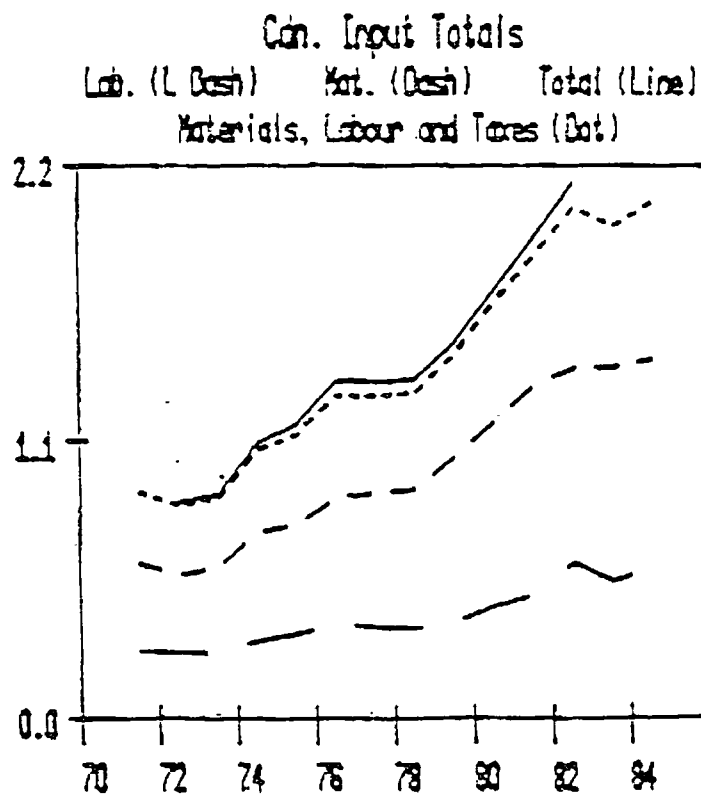
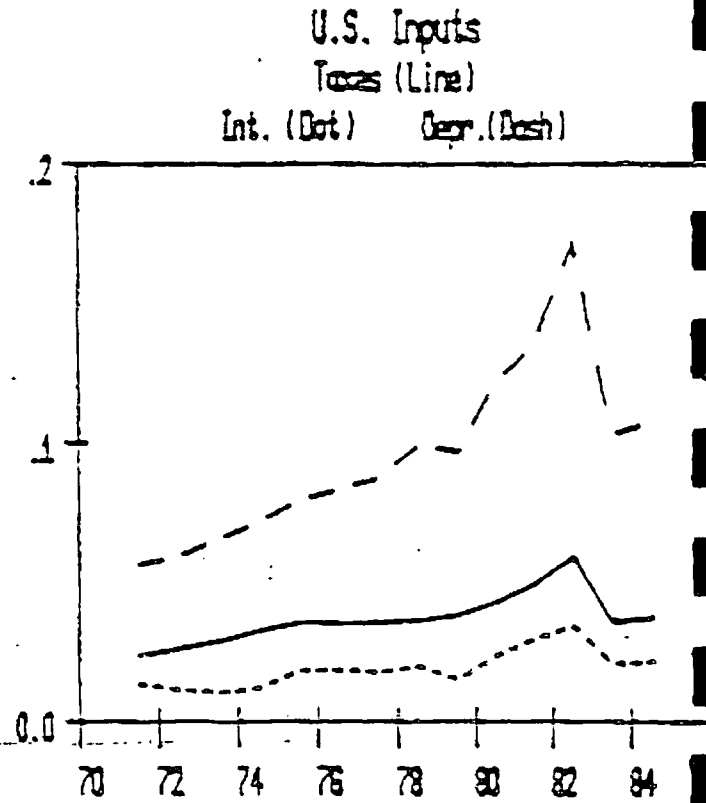
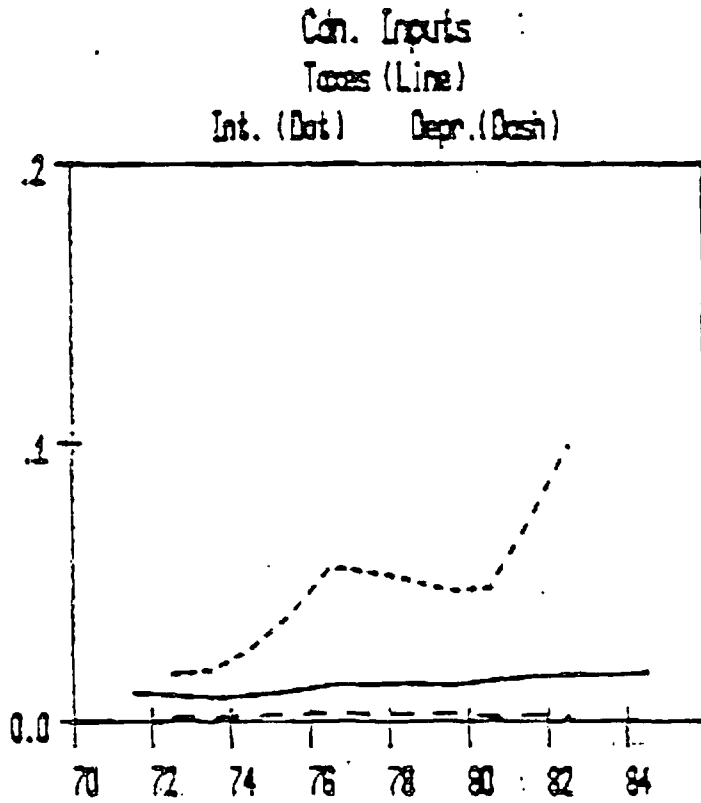


Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line.

Productivity Ratio
Canadian Productivity as a % of U.S. Productivity
Iron and Steel



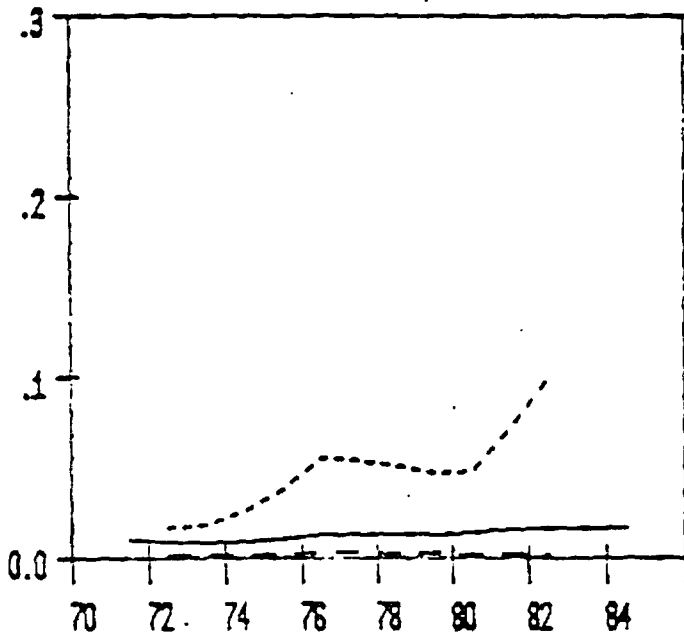
Unit Input Costs
 Nominal Dollars per unit of Real (71\$) Output
 Synthetic Textiles
 Pre-Exchange Rate Adjusted



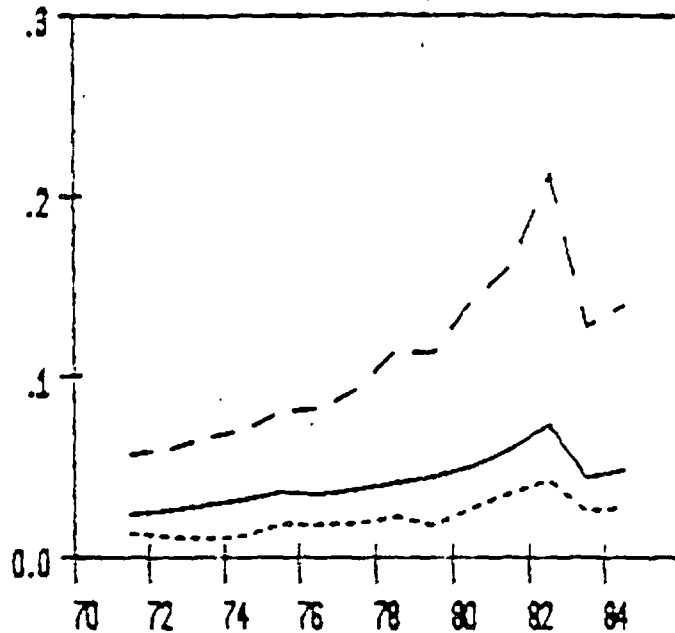
Unit Input Costs

Nominal Dollars per unit of Real (71\$) Output
Synthetic Textiles
Exchange Rate Adjusted

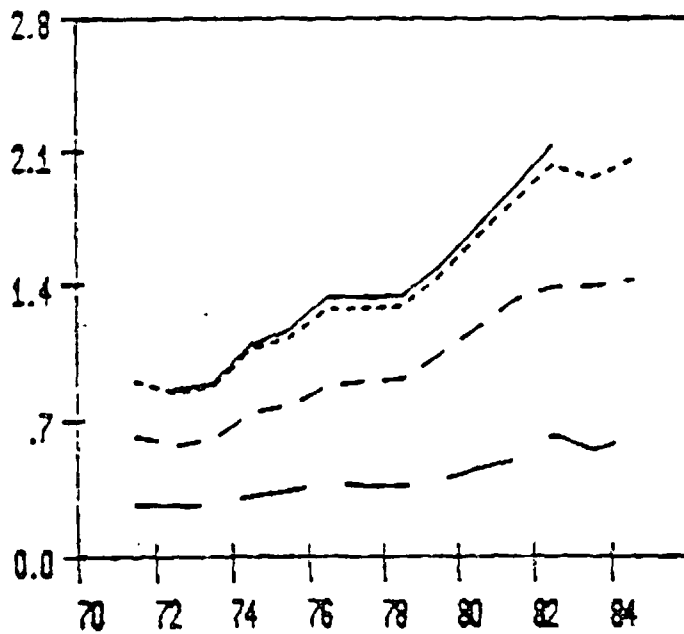
Cdn. Inputs
Taxes (Line)
Int. (Dot) Depr. (Dash)



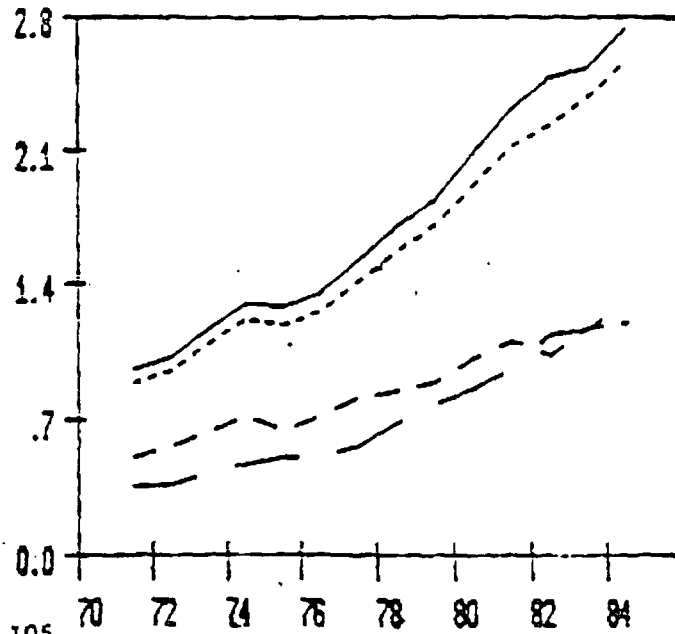
U.S. Inputs
Taxes (Line)
Int. (Dot) Depr. (Dash)



Cdn. Input Totals
Lab. (L Dash) Mat. (Dash) Total (Line)
Materials, Labour and Taxes (Dot)

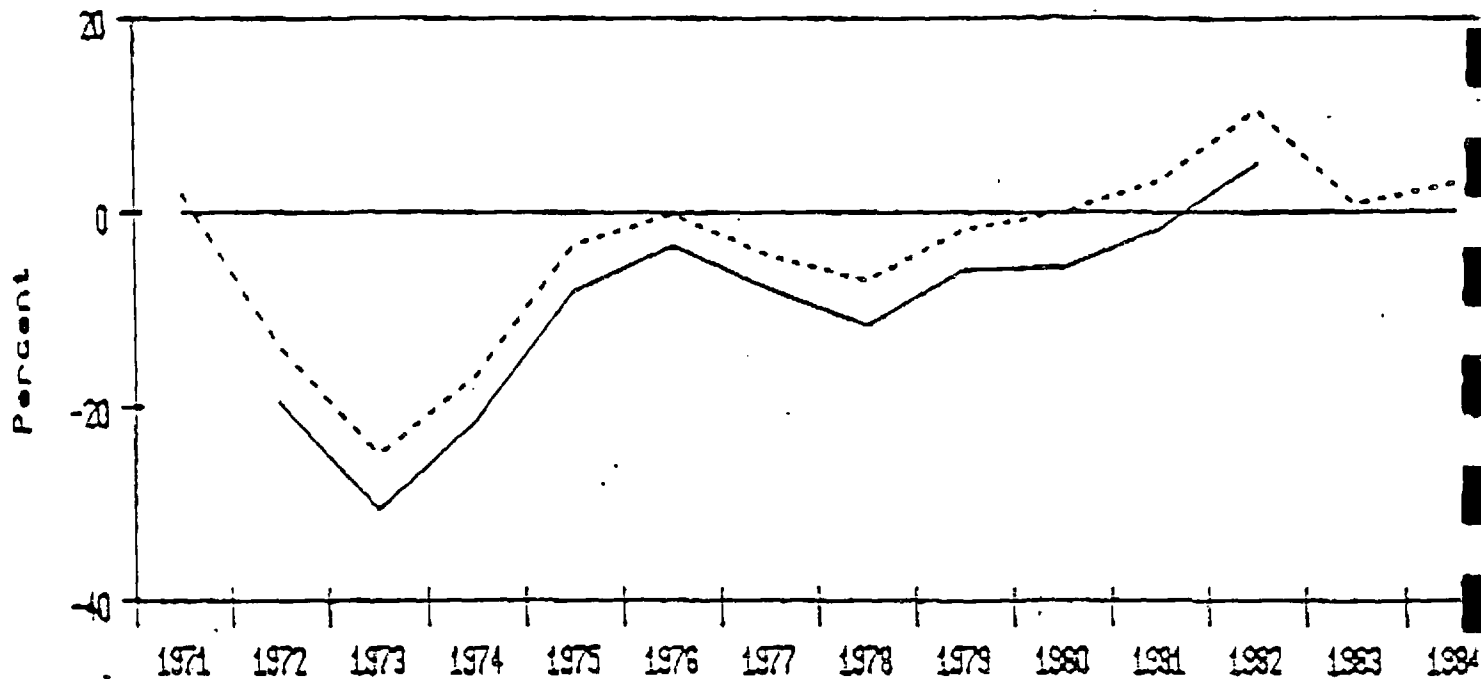


U.S. Input Totals
Lab. (L Dash) Mat. (Dash) Total (Line)
Materials, Labour and Taxes (Dot)



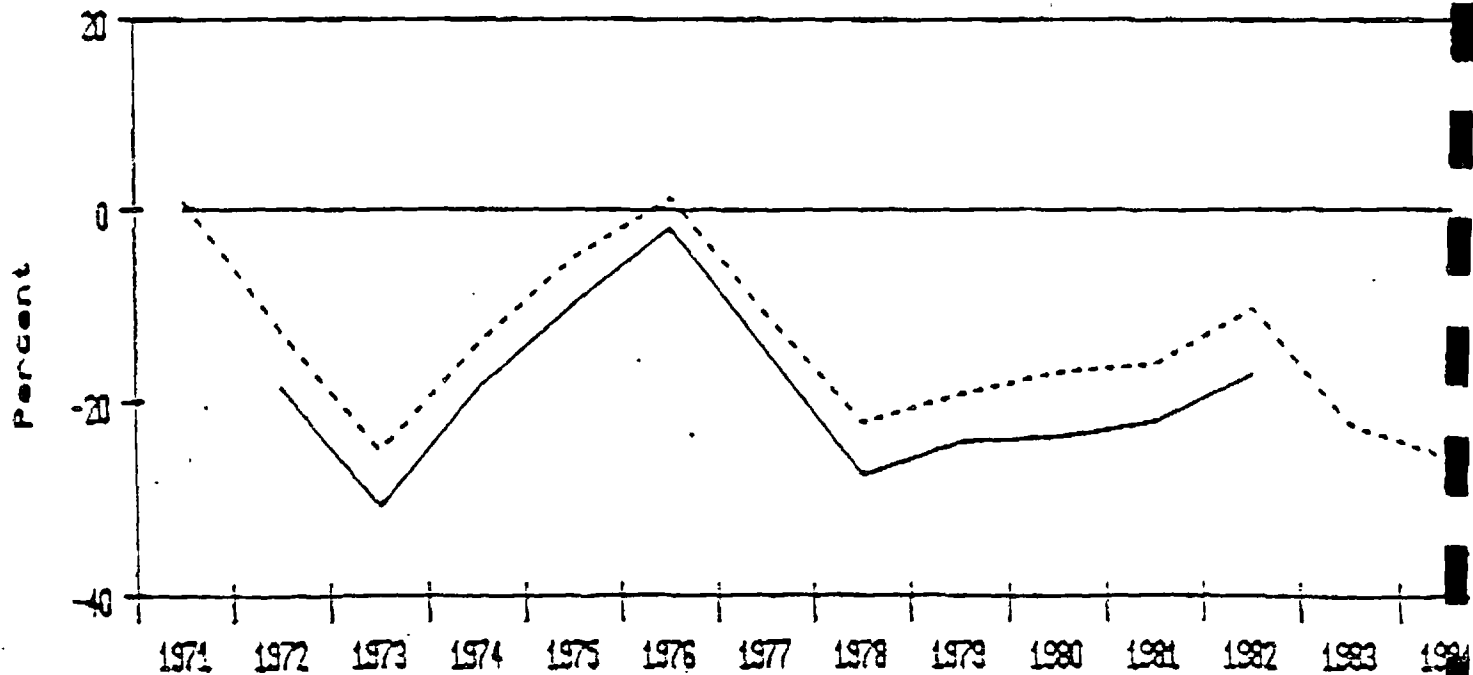
% Difference between Canada and U.S. Input Unit Costs Synthetic Textiles

Pre-Exchange Rate Adjusted
Total (Line) Materials, Labour and Taxes (Dot)



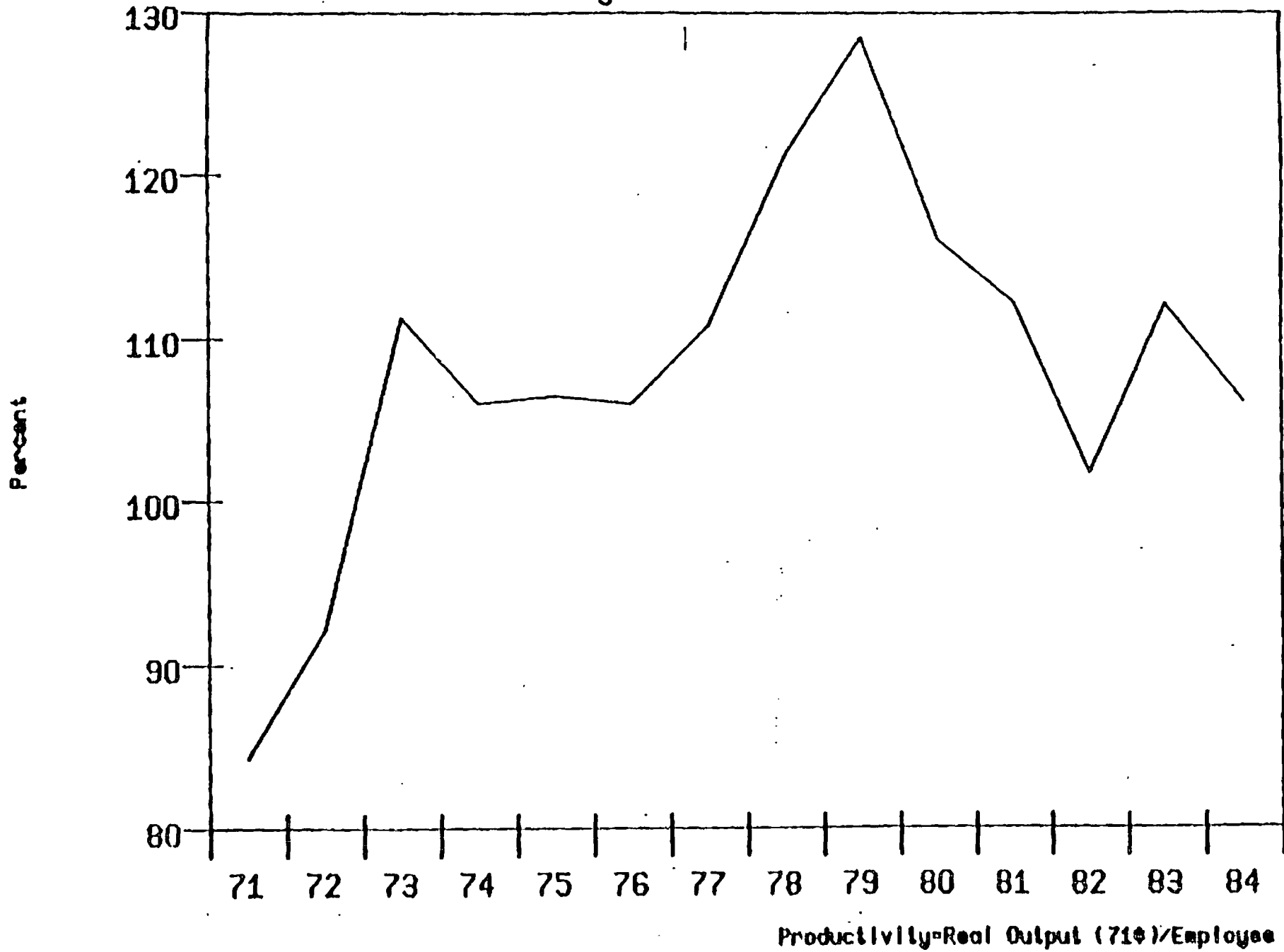
Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line.

Exchange Rate Adjusted
Total (Line) Materials, Labour and Taxes (Dot)



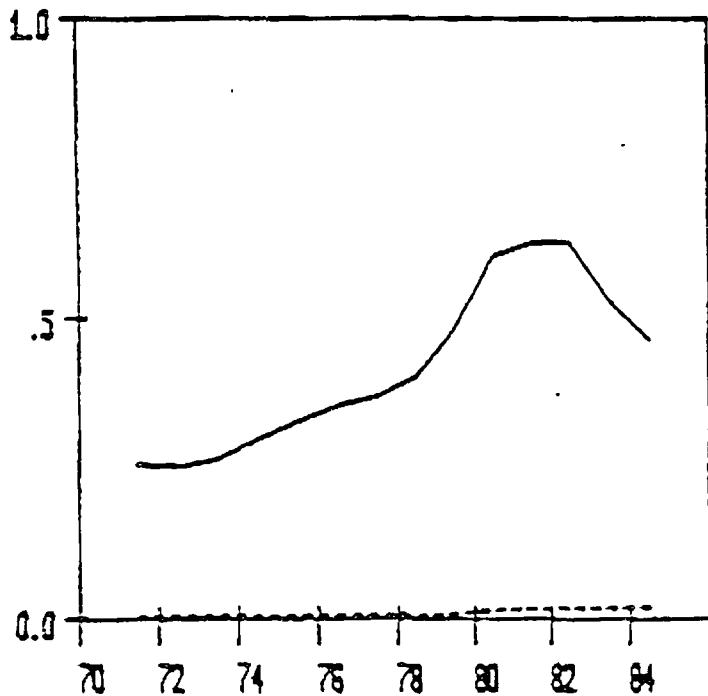
Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line.

Productivity Ratio
Canadian Productivity as a % of U.S. Productivity
Synthetic Textiles

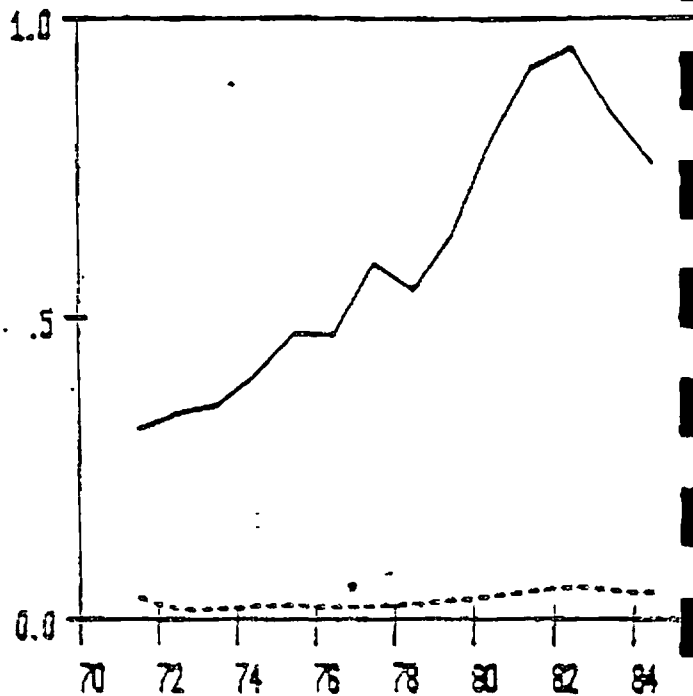


Unit Input Costs
 Nominal Dollars per unit of Real (71\$) Output
 Motor Vehicles Parts and Accessories
 Pre-Exchange Rate Adjusted

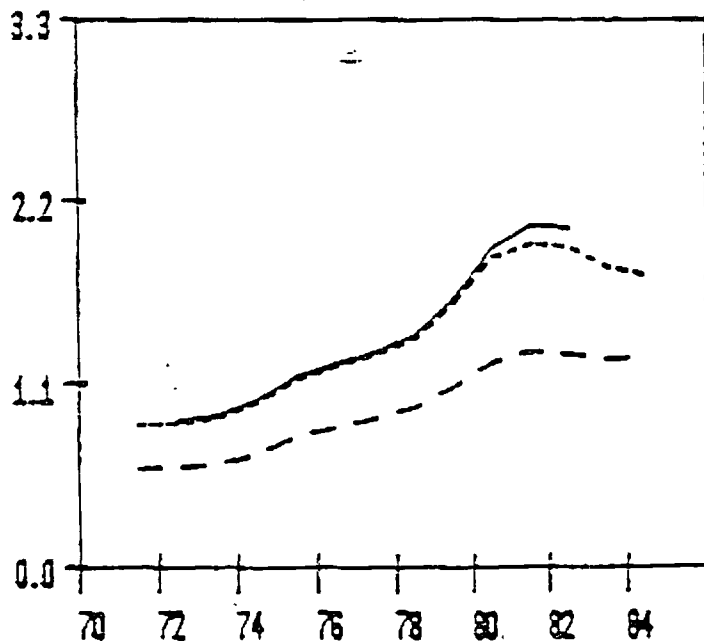
Can. Inputs
 Labour (Line) Taxes (Dot)



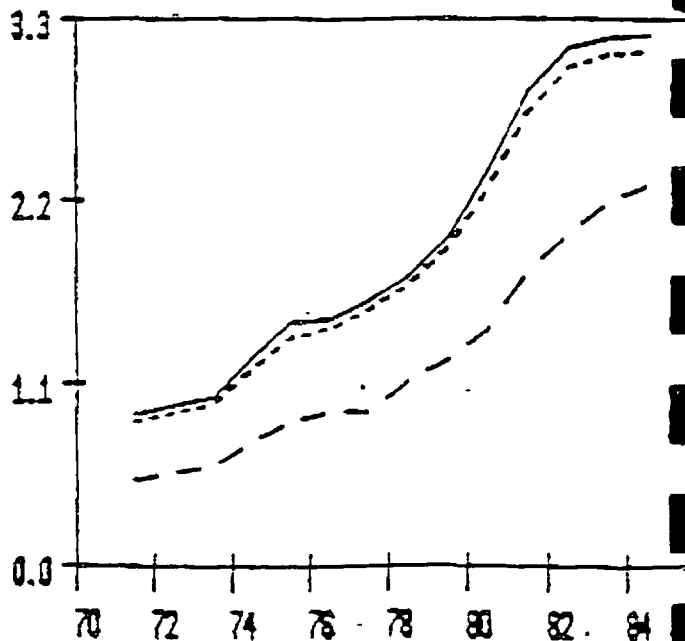
U.S. Inputs
 Labour (Line) Taxes (Dot)



Can. Input Totals
 Materials (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)

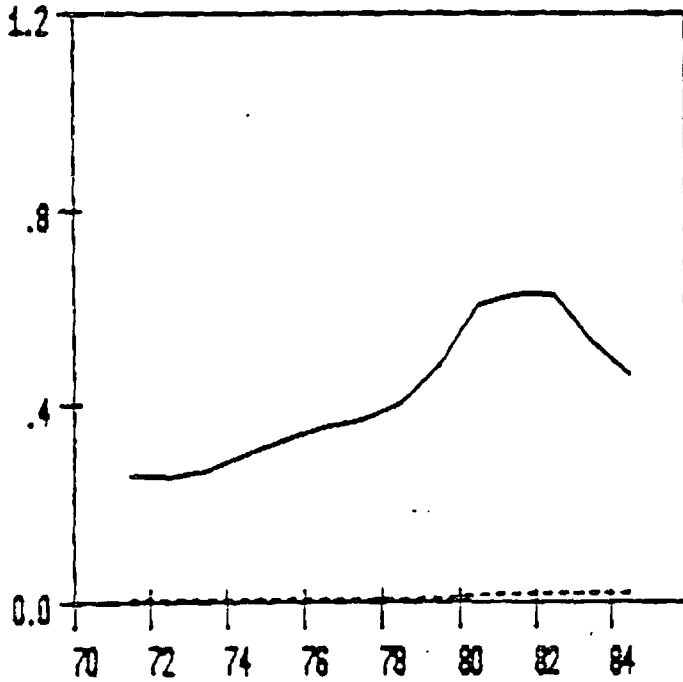


U.S. Input Totals
 Materials (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)

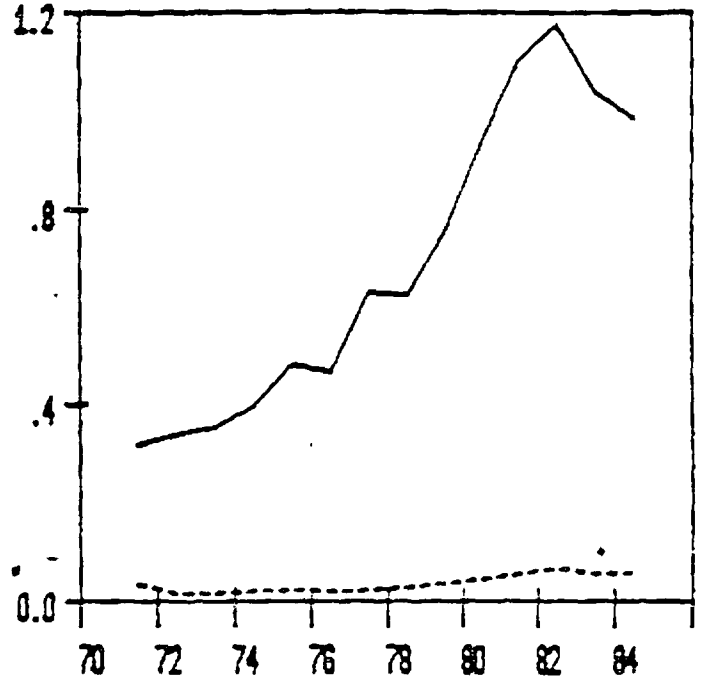


Unit Input Costs
 Nominal Dollars per unit of Real (71\$) Output
 Motor Vehicles Parts and Accessories
 Exchange Rate Adjusted

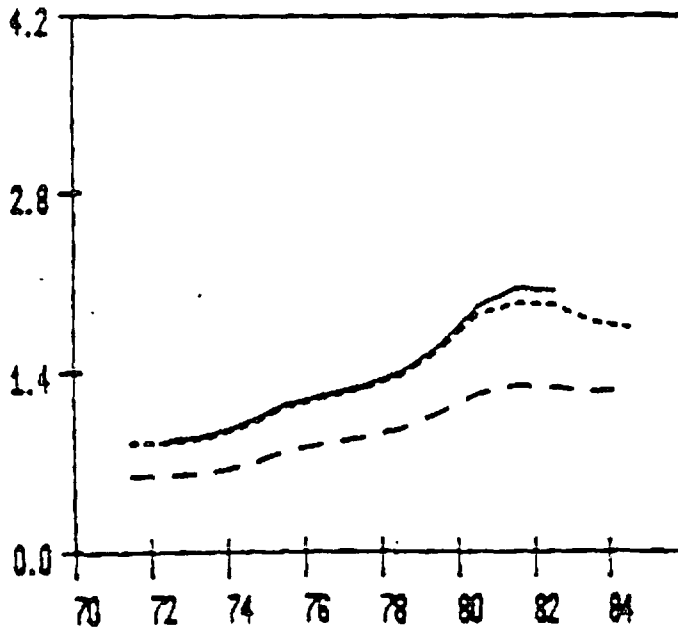
Can. Inputs
 Labour (Line) Taxes (Dot)



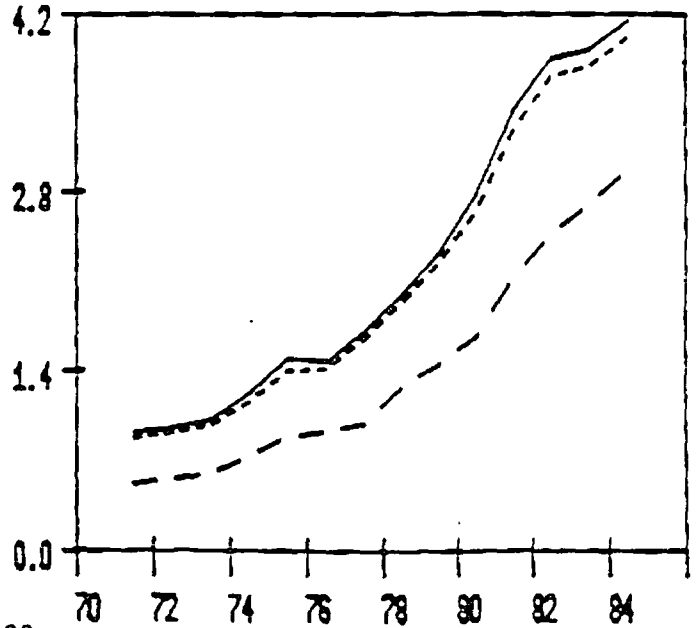
U.S. Inputs
 Labour (Line) Taxes (Dot)



Can. Input Totals
 Materials (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)

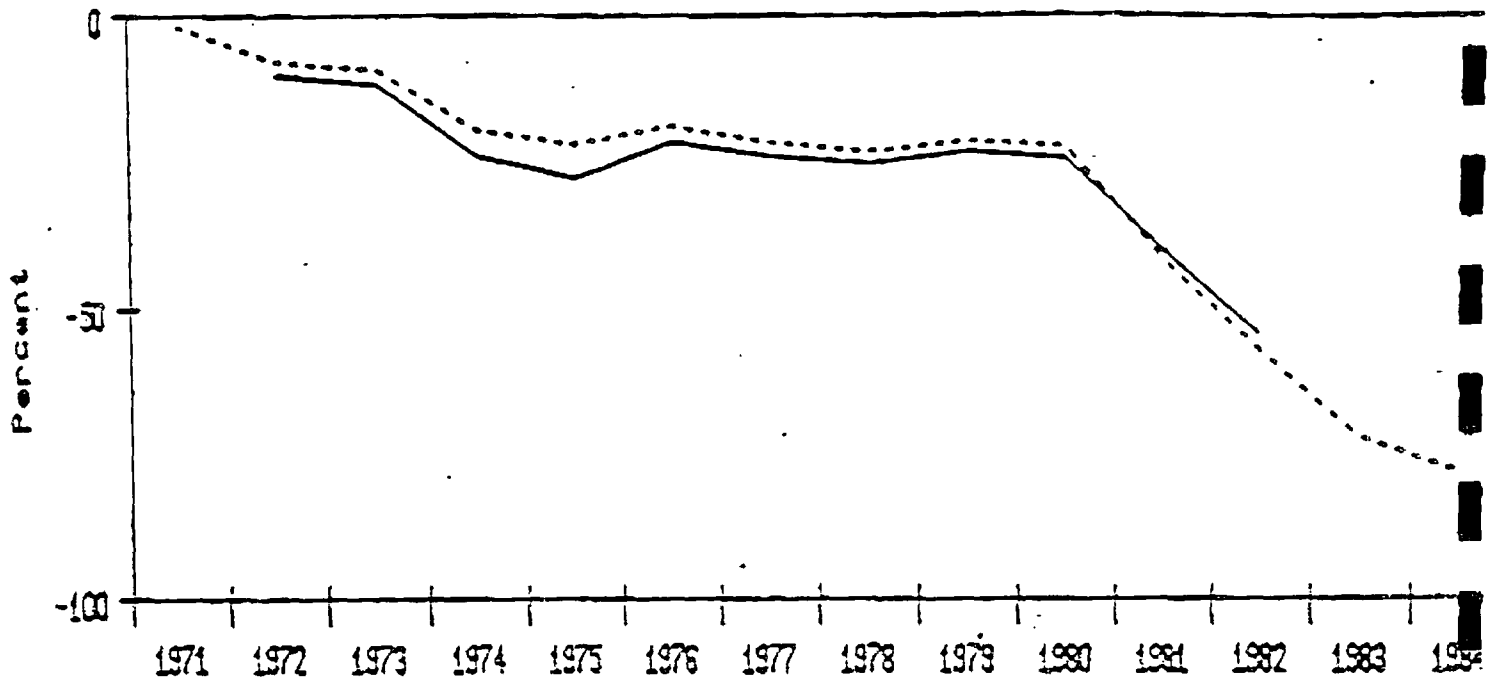


U.S. Input Totals
 Materials (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)



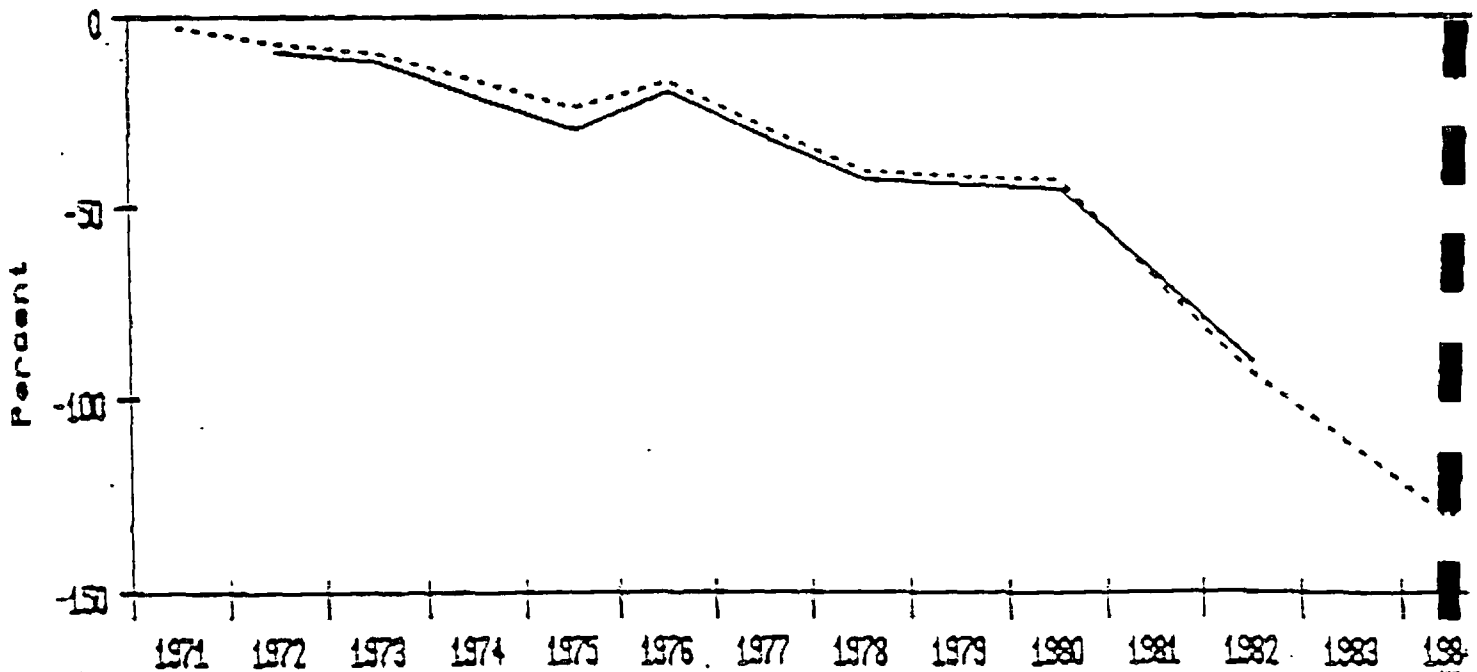
% Difference between Canada and U.S. Input Unit Costs Motor Vehicles Parts and Accessories

Pre-Exchange Rate Adjusted
Total (Line) Materials, Labour and Taxes (Dot)



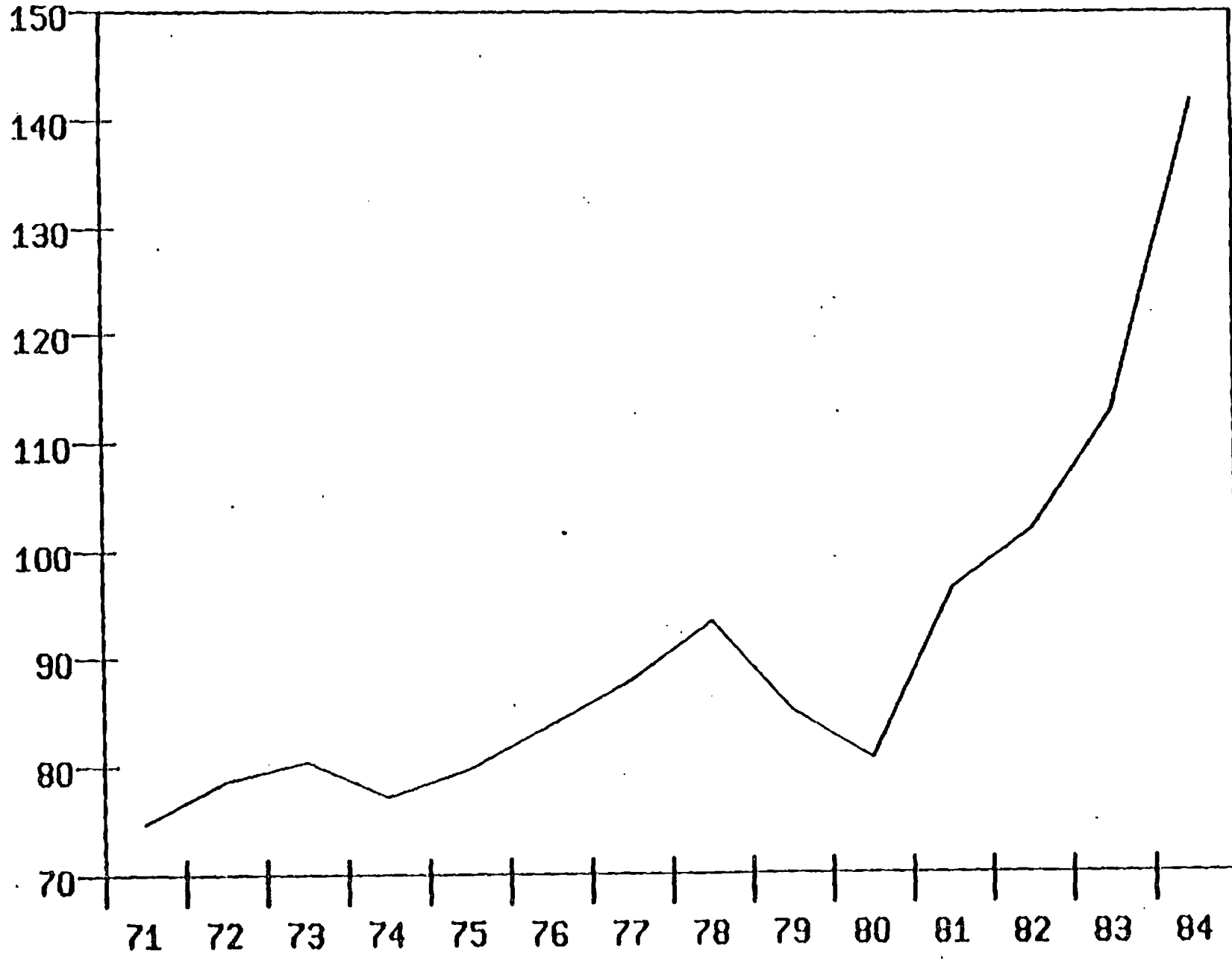
Note: Can. cost advantage below 0 line, U.S. cost advantage above 0

Exchange Rate Adjusted
Total (Line) Materials, Labour and Taxes (Dot)



Note: Can. cost advantage below 0 line, U.S. cost advantage above 0

Productivity Ratio
Canadian Productivity as a % of U.S. Productivity
Motor Vehicles Parts and Accessories

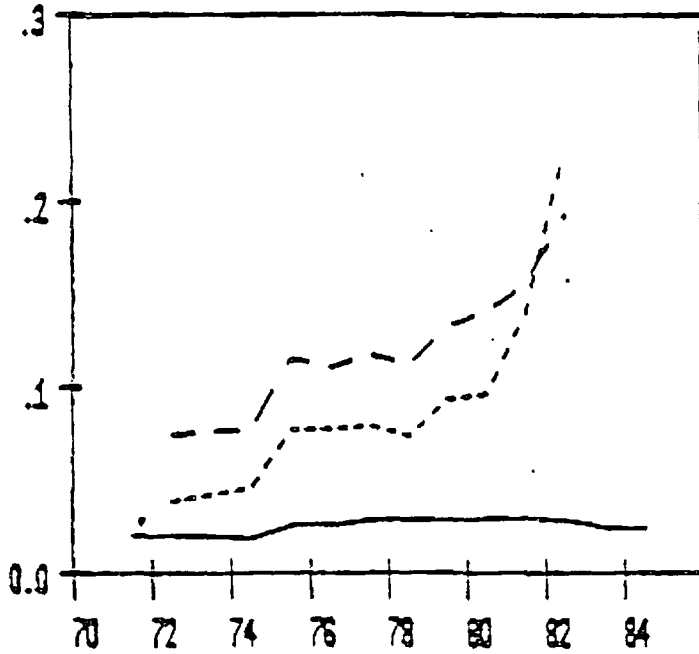


Productivity=Real Output (710)/Employee

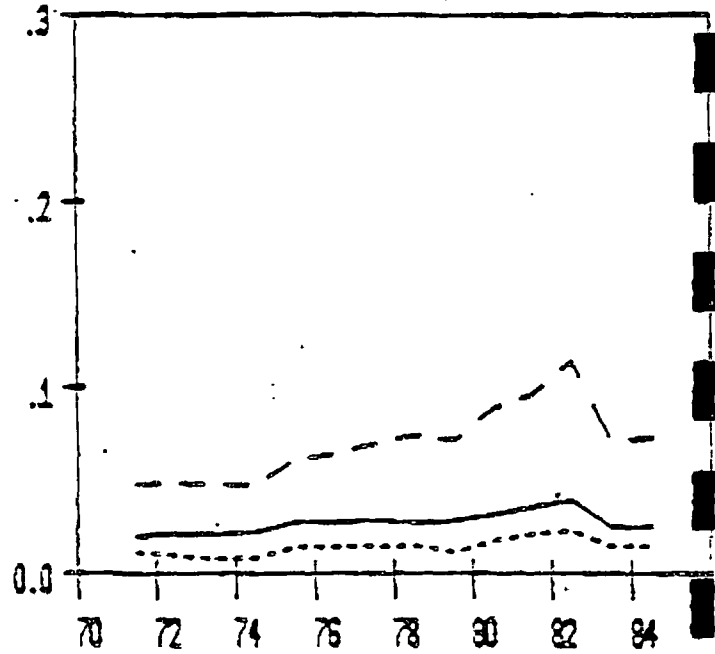
111

Unit Input Costs
 Nominal Dollars per unit of Real (71\$) Output
 Pulp and Paper
 Pre-Exchange Rate Adjusted

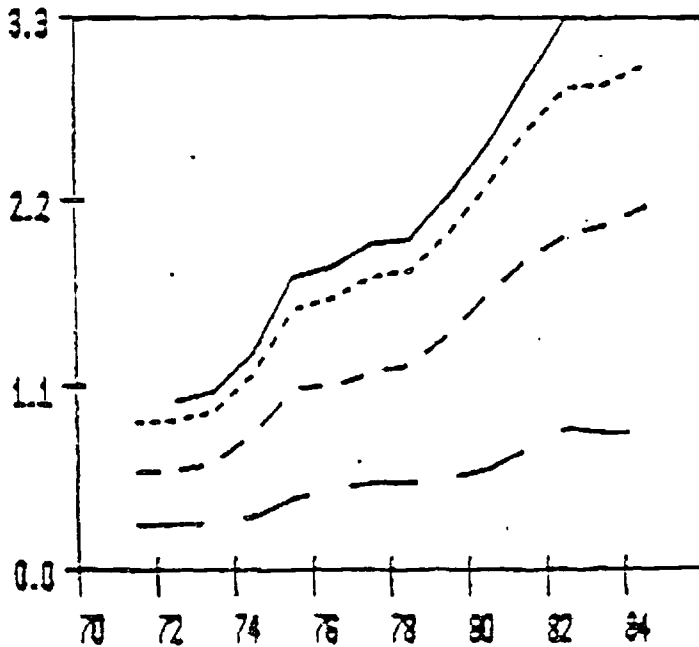
Can. Inputs
 Taxes (Line)
 Int. (Dot) Depr. (Dash)



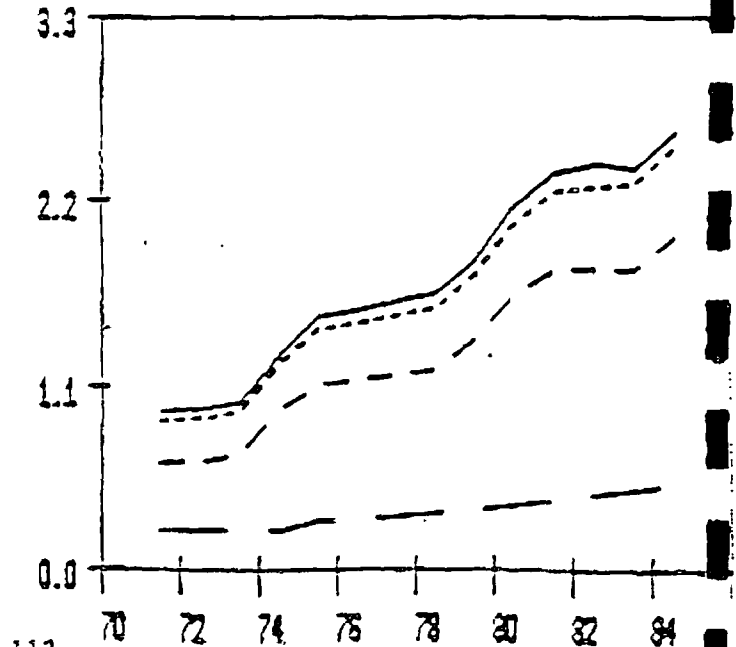
U.S. Inputs
 Taxes (Line)
 Int. (Dot) Depr. (Dash)



Can. Input Totals
 Lab. (L Dash) Mat. (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)

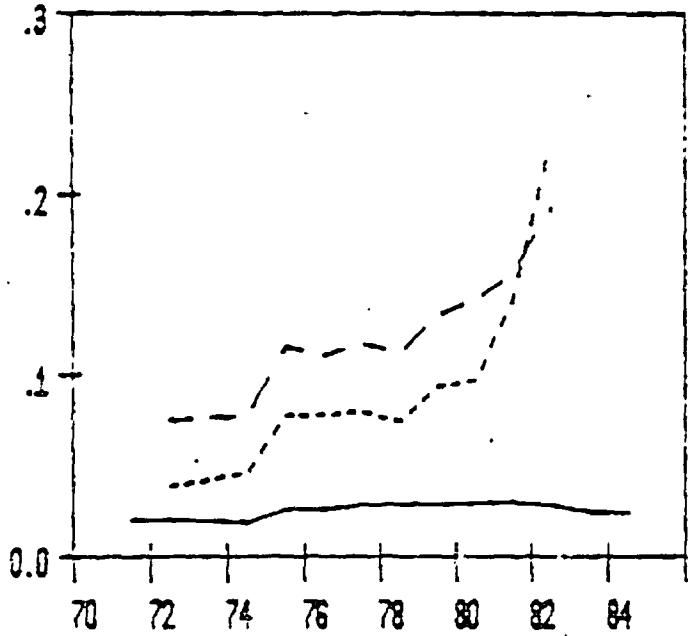


U.S. Input Totals
 Lab. (L Dash) Mat. (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)

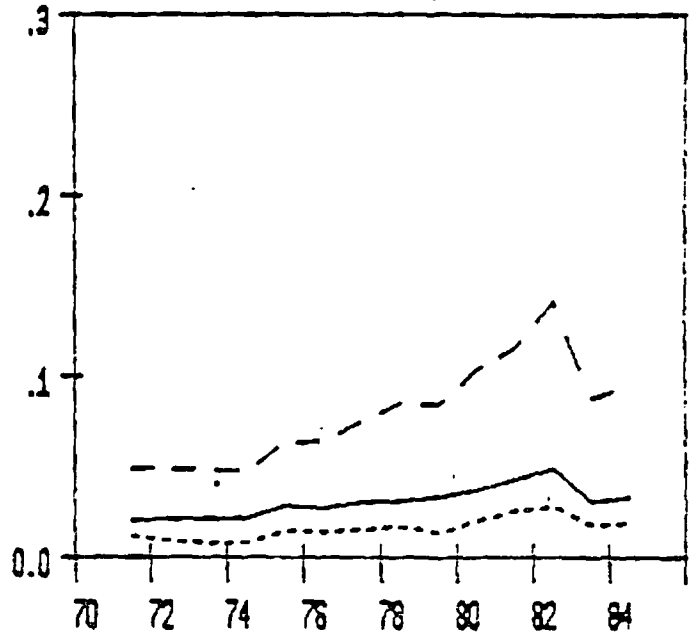


Unit Input Costs
 Nominal Dollars per unit of Real (71\$) Output
 Pulp and Paper
 Exchange Rate Adjusted

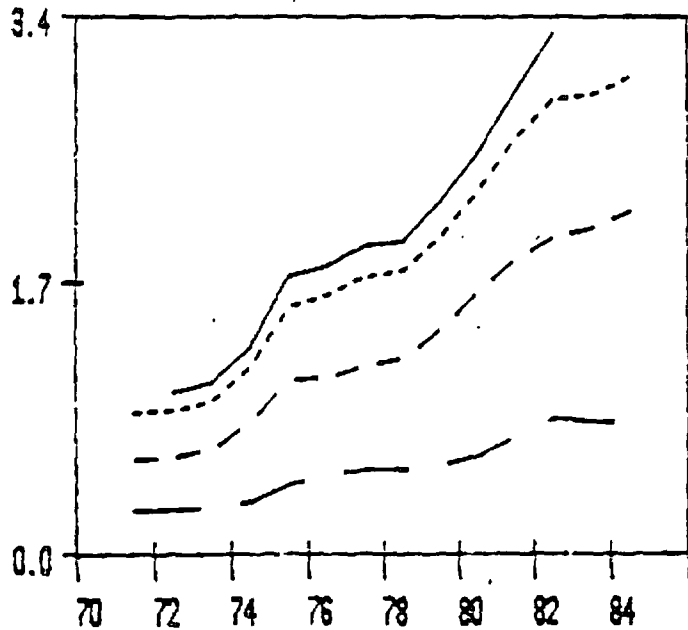
Can. Inputs
 Taxes (Line)
 Int. (Dot) Depr. (Dash)



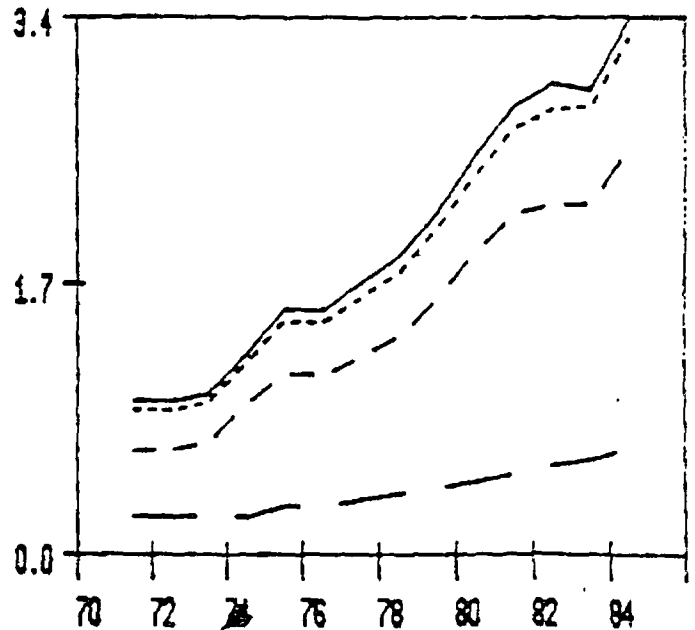
U.S. Inputs
 Taxes (Line)
 Int. (Dot) Depr. (Dash)



Can. Input Totals
 Lab. (L Dash) Mat. (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)



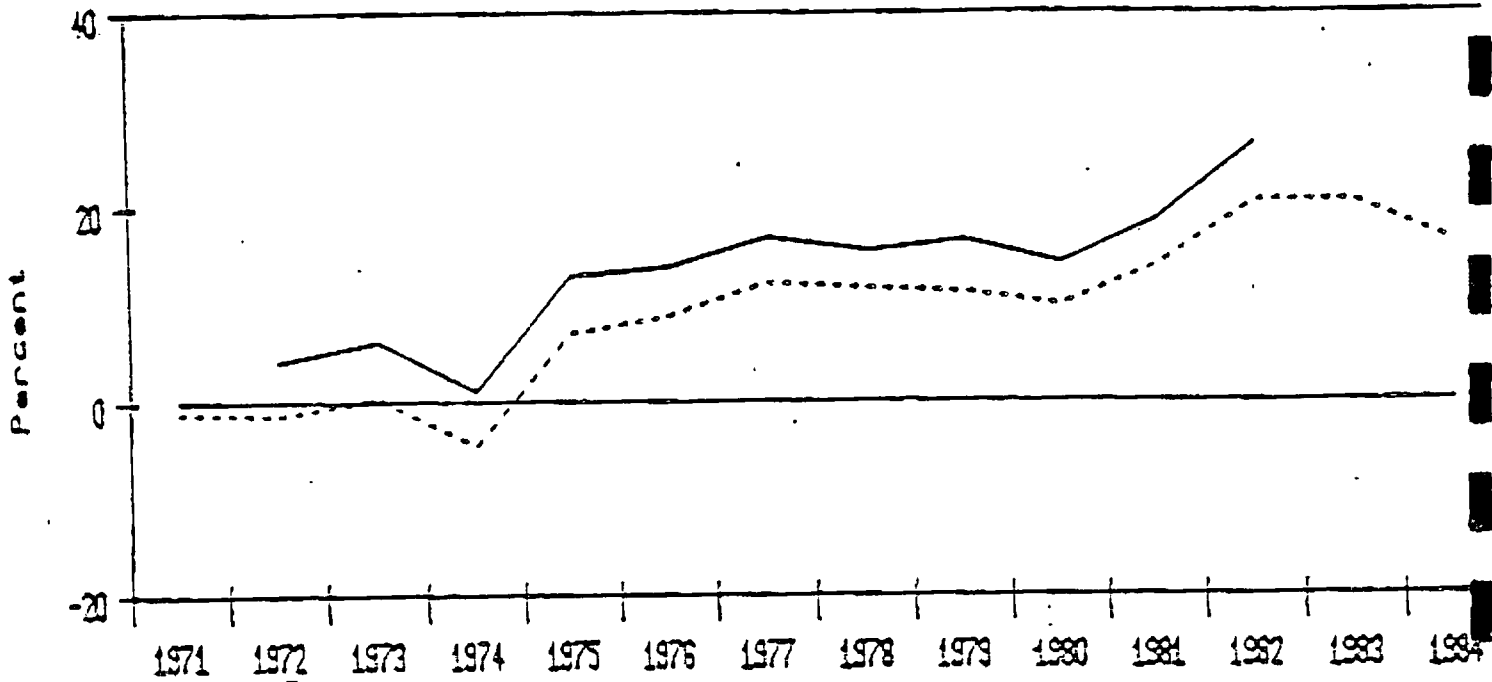
U.S. Input Totals
 Lab. (L Dash) Mat. (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)



% Difference between Canada and U.S. Input Unit Costs Pulp and Paper

Pre-Exchange Rate Adjusted

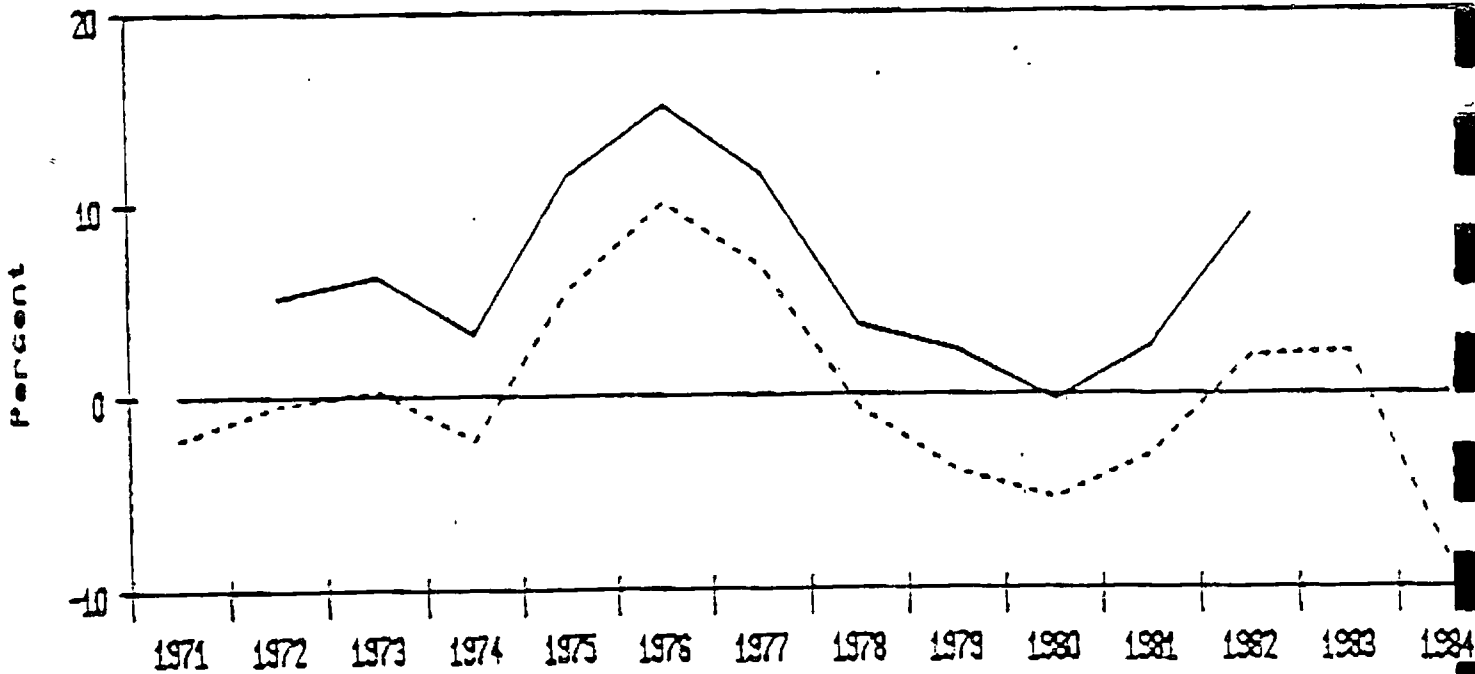
Total (Line) Materials, Labour and Taxes (Dot)



Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line

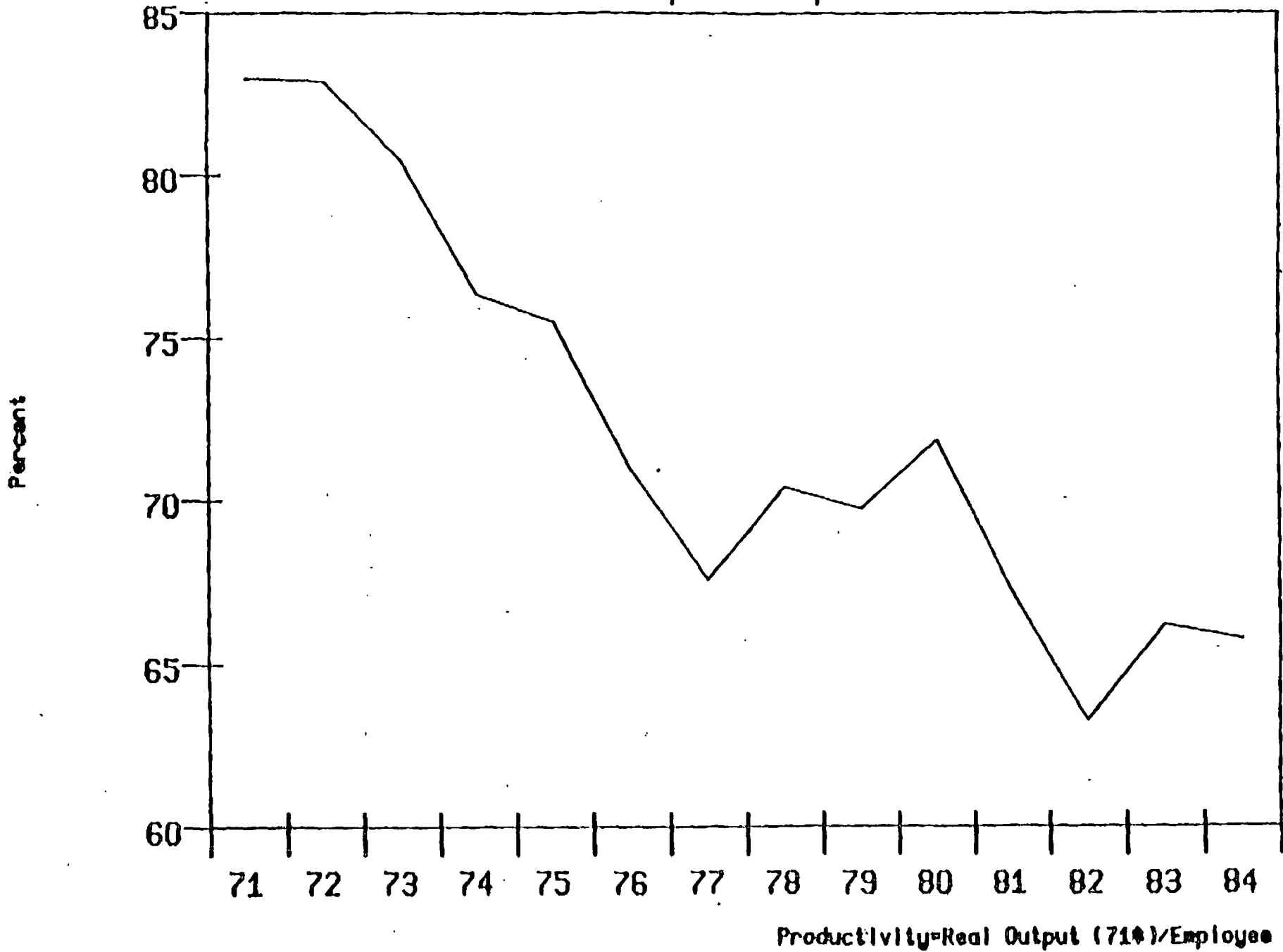
Exchange Rate Adjusted

Total (Line) Materials, Labour and Taxes (Dot)



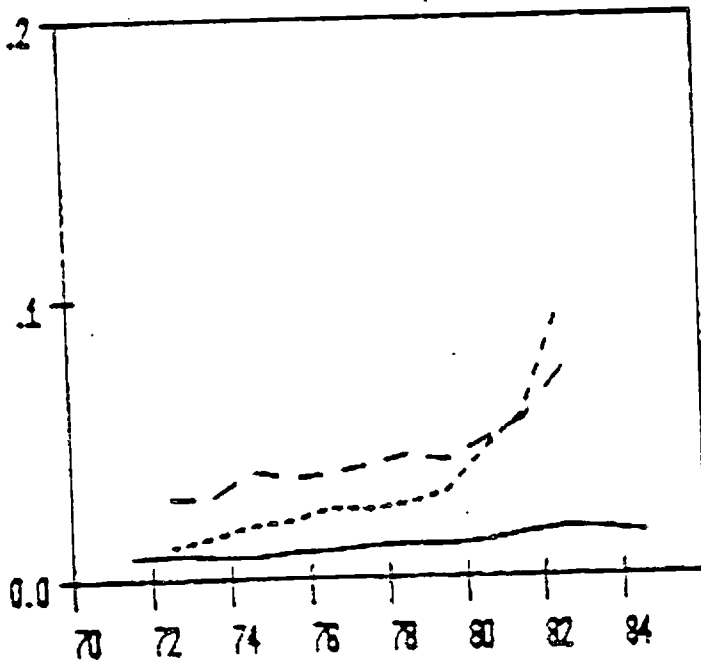
Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line

Productivity Ratio
Canadian Productivity as a % of U.S. Productivity
Pulp and Paper

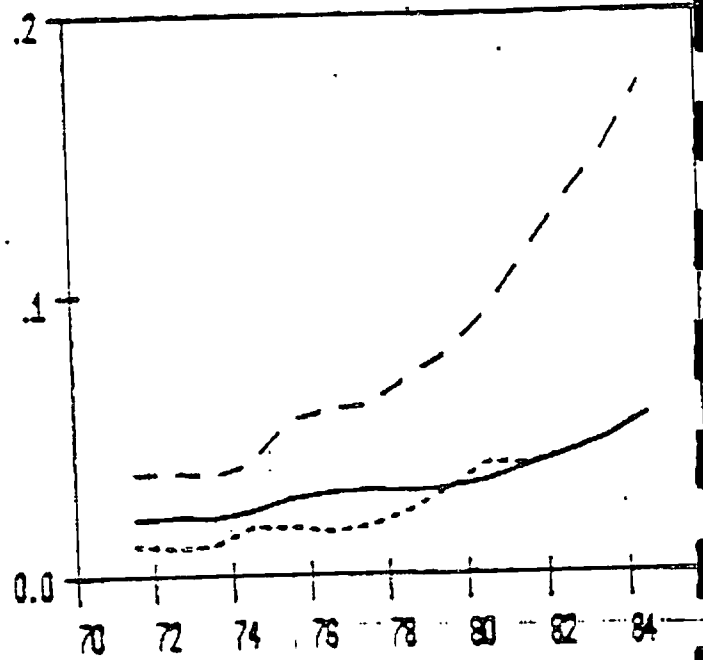


Unit Input Costs
 Nominal Dollars per unit of Real (71\$) Output
 Metal Stamping Industries
 Pre-Exchange Rate Adjusted

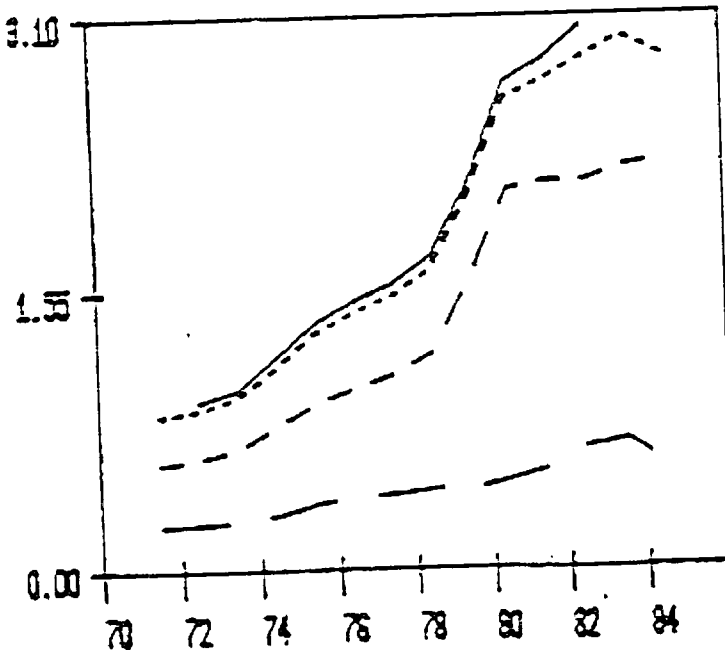
Can. Inputs
 Taxes (Line)
 Int. (Dot) Depr. (Dash)



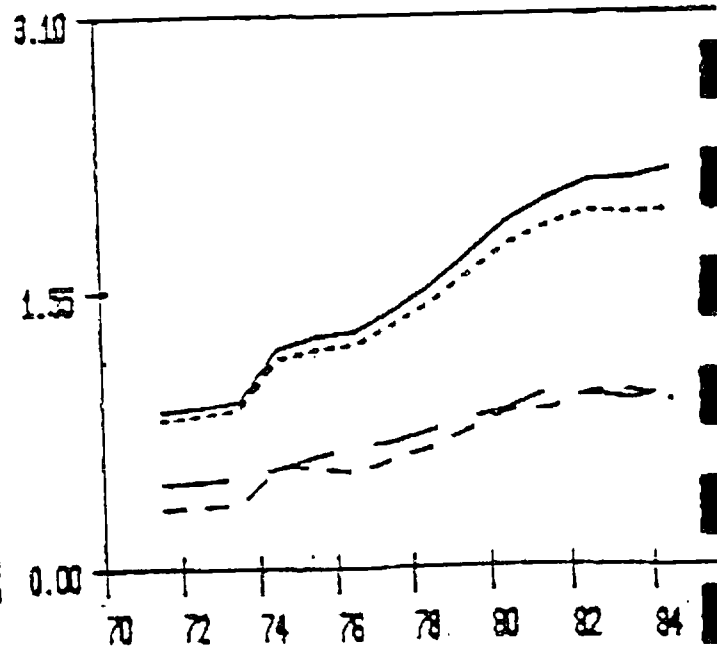
U.S. Inputs
 Taxes (Line)
 Int. (Dot) Depr. (Dash)



Can. Input Totals
 Lab. (L Dash) Mat. (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)

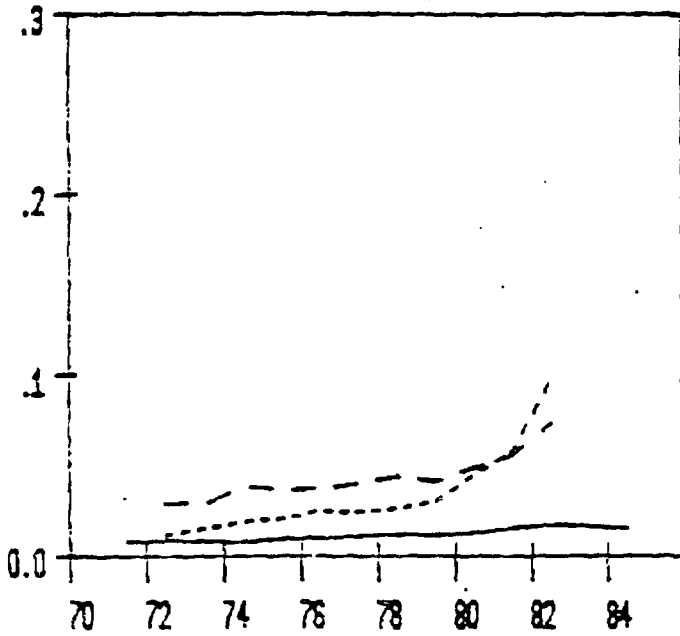


U.S. Input Totals
 Lab. (L Dash) Mat. (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)

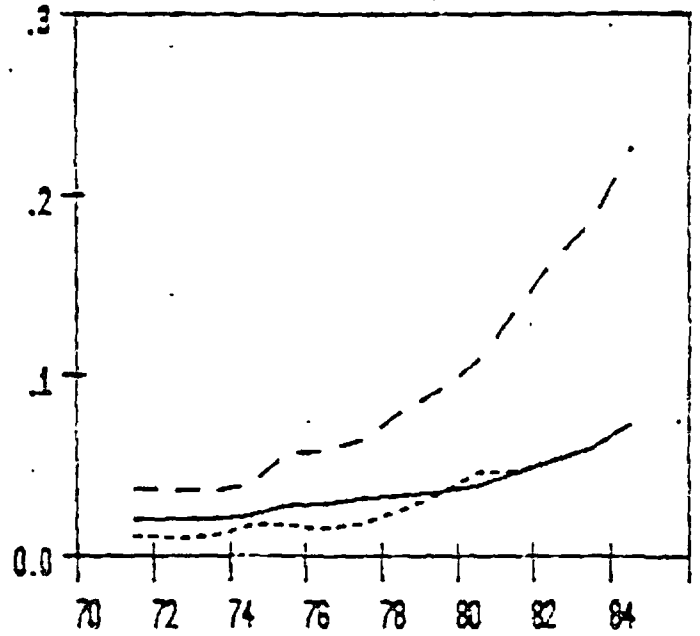


Unit Input Costs
 Nominal Dollars per unit of Real (71\$) Output
 Metal Stamping Industries
 Exchange Rate Adjusted

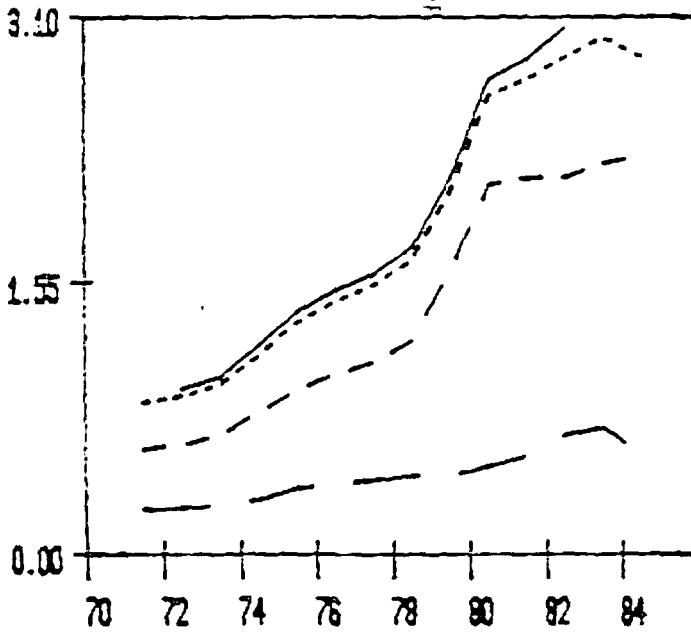
Cdn. Inputs
 Taxes (Line)
 Int. (Dot) Depr. (Dash)



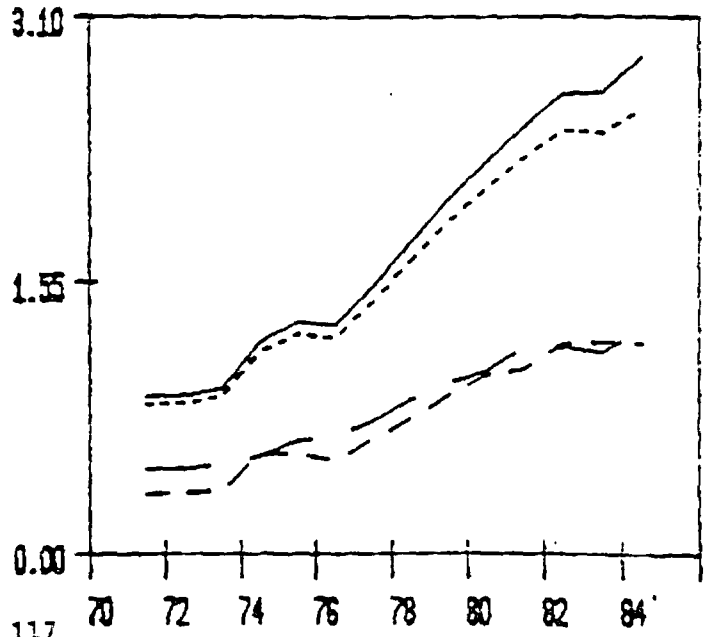
U.S. Inputs
 Taxes (Line)
 Int. (Dot) Depr. (Dash)



Cdn. Input Totals
 Lab. (L Dash) Mat. (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)

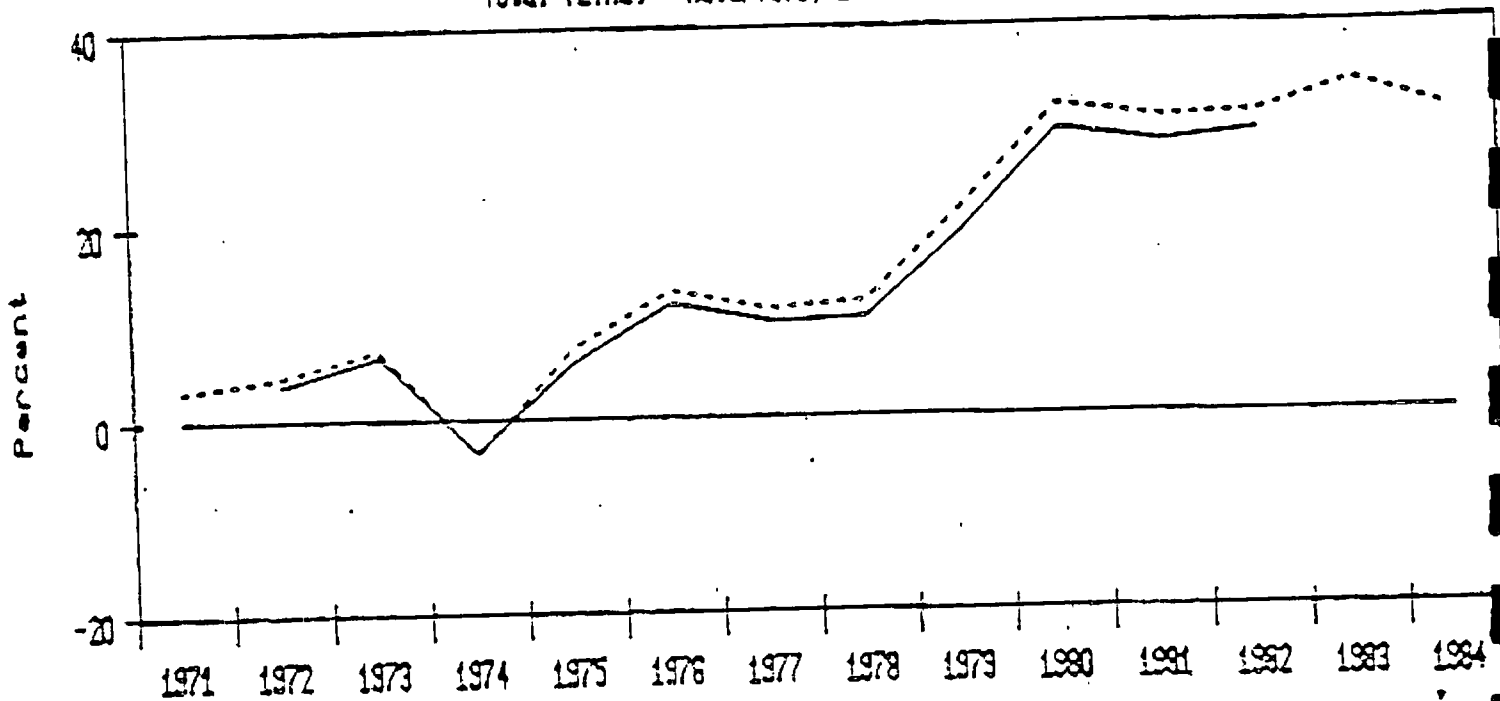


U.S. Input Totals
 Lab. (L Dash) Mat. (Dash) Total (Line)
 Materials, Labour and Taxes (Dot)



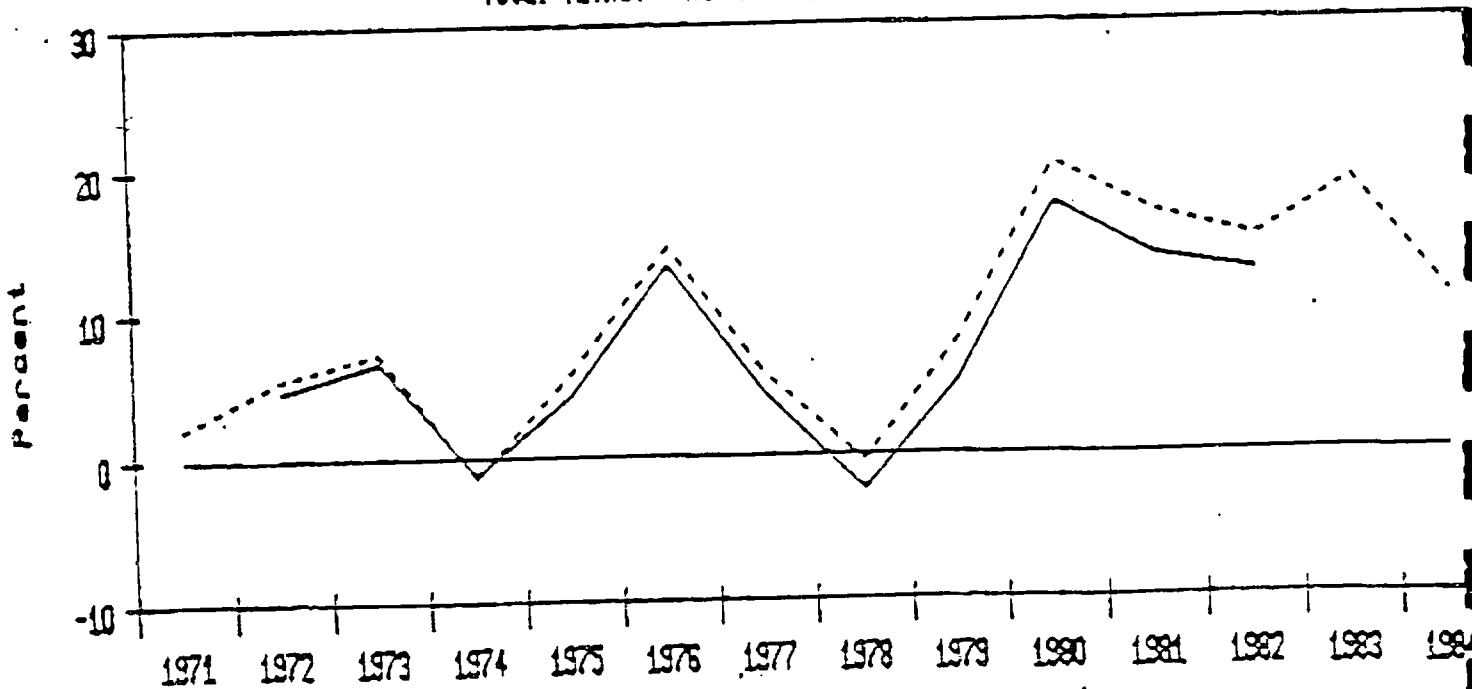
% Difference between Canada and U.S. Input Unit Costs Metal Stamping Industries

Pre-Exchange Rate Adjusted
Total (Line) Materials, Labour and Taxes (Dot)



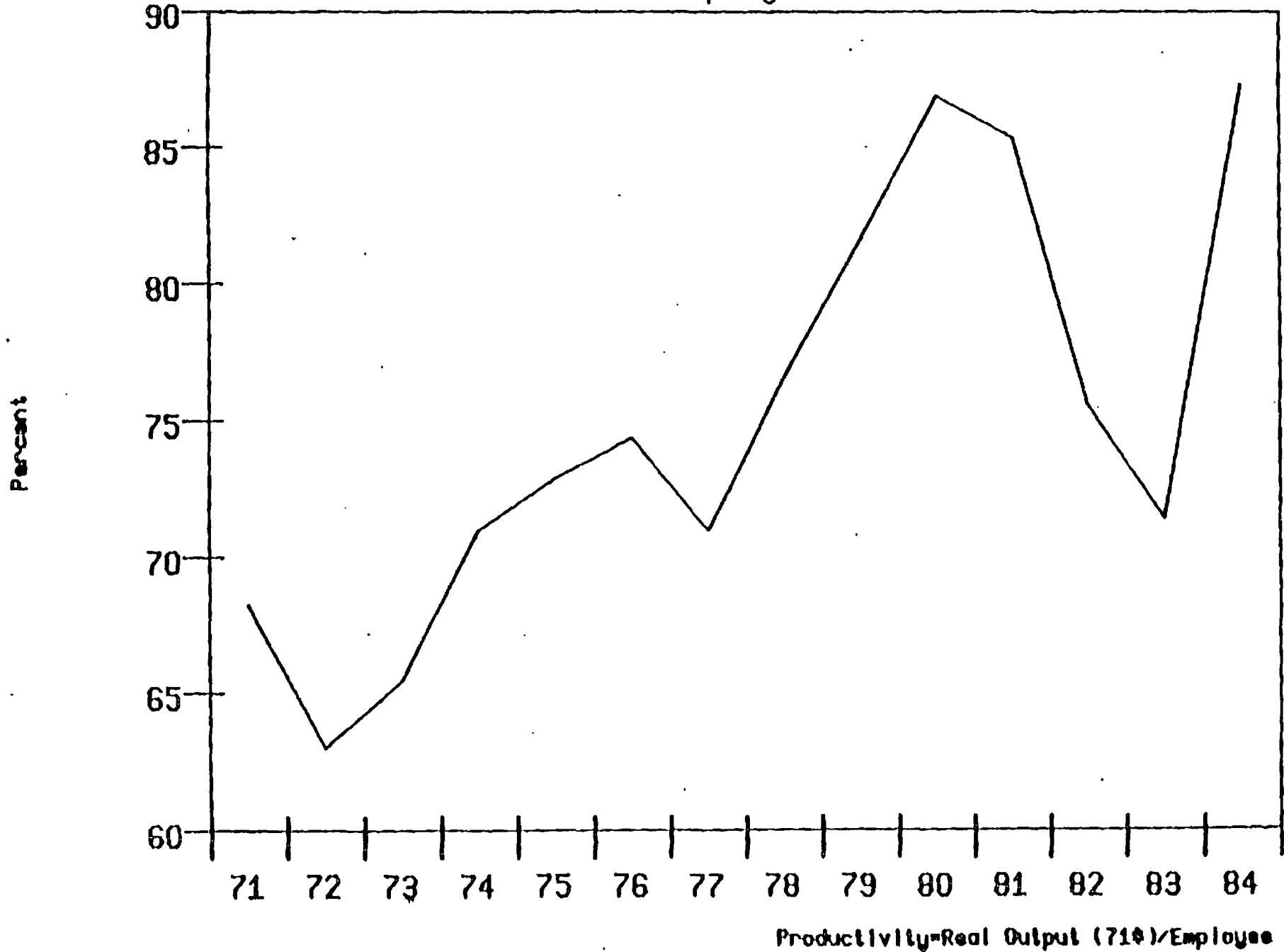
Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line


Exchange Rate Adjusted
Total (Line) Materials, Labour and Taxes (Dot)



Note: Can. cost advantage below 0 line, U.S. cost advantage above 0 line

Productivity Ratio
Canadian Productivity as a % of U.S. Productivity
Metal Stamping Industries



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