REGIONAL MANUFACTURING EMPLOYMENT:

THE SOAP AND DETERGENT SUB-INDUSTRY

IN ONTARIO, 1962-1984

By

VESNA STEVANOVIC

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ABSTRACT

This thesis examines the influence of size and
ownership of plants on the employment characteristics and
locational behaviour of plants. The variables utilized
to attain this objective were: foreign and Canadian-owned
plants; single and multi-plants; plant, office and execu-
tive employment; location of plants within Toronto Census
Metropolitan Area; and location of plants among aggregated
areas in Ontario. Two methods were used in analysing the
data. First, the mean of plant and employment data were
obtained to provide employment characteristics. Second,
regression analysis was performed to obtain in what areas
there was a growth or decline of plants and employment.

The result of the study show that foreign-owned
plants employ a greater proportion of unskilled labour and
are growing in reletively rural areas. On the other hand,
single plants employ a greater proportion of executives
and are growing within the outskirts of the Toronto Census
Metropolitan Area.

ACKNOWLEDGEMENTS

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CHAPTER 1

INTRODUCTION

"Short production runs, like the small population,
long distances, disruptive influence of a hostile climate
are part of Canadian existence and do not explain the decline
of the manufacturing sector." (Stark, 1978: 37) The
following are some of the causes of this phenomena: the
dwindling profits; lower levels of investment; machinery
and equipment growing old; and lack of spending on research
and development which can boost productivity and lower unit
cost through technological innovations. The increasing
level and complexity of government rules, regulations and
requirements; and higher levels of taxation because of
increasing government spending have resulted in workers
demanding higher incomes and therefore contributing to the
high cost of production.

Recent literature has suggested that the degree
of foreign investment in Canada has contributed to the
decline of the manufacturing sector. The key factor in
influencing foreign investment in Canada is the National
Policy which imposed "high tarrifs on manufactured goods
in order to reduce the size of the market Canadian firms
had to reach if their threshold of growth was to be
attained." (Sitwell and Seifried, 1984: 54)

"The unintended result of this policy was the
proliferation of manufacturing subsidiaries
of United State's corporations which set up
operations in Canada to top the domestic and
commonwealth market." (Sitwell and Seifried,
1984: 65)

Sixty percent of two hundred of the largest companies
ranked by sales are foreign controlled. Some four fifths
of the overseas investment on plant and equipment by United
States' multinationals is in four main economic sectors:
vehicles, chemicals, mechanical, engineering and electrical
engineering. Specifically, the foreign ownership in the
capital intensive chemical industry is 70%.

The purpose of the thesis is twofold, one is to
provide an empirical example of manufacturing decline in
the Soap and Detergent sub-industry. The other is to
assess the influence of size and ownership of plants on
the overall employment and plant trend, employment charac-
teristics and locational behaviour of plants.

CHAPTER 2

L I T E R A T U R E   R E V I E W

"Traditional economic theories of urban and regional

growth offer woefully inadequate explanations for the

pattern of employment change." (Forthergill and Gudgin,

1978: 27) Fothergill and Gudgin state that there has

> "emerged an awareness of the changing nature
> of the manufacturing industry itself, of the
> way it is organized, the changing balance of
> productive activities within it, the shifting
> hierarchy of decision-making and the increa-
> sing internationalization of its operations."
> (1978: 52)

Three components are cited by the literature as important

in explaining aspects of the change in reginal manufacturing

employment. These components are: the urban-rural shift

of firms within a region, the size structure of the firms

in the region and the foreign ownership of firms and their

influence on employment characteristics. Each of these

components is now discussed in turn.

2.1 Urban-rural Shift

The pattern of employment change can be explained

by analysing the urban structure of the region as shown

by Fothergill and Gudgin and the formations of a branch

plant economy shown by Erickson. They have shown that

there is increasingly uneven manufacturing growth within

a region, rather than between peripheral and centrally located regions. Furthermore, that this phenomena is not adequately explained by the industrial location theory. For the theory "argues that factories are cited in the locations where costs are minimized and profits maximized," (Fothergill and Gudgin, 1978: 28) which does not explain the behaviour of firms within a region. Erickson's and Fothergill's and Gudgin's insight has been obtained from empirical information in USA and in Britian.

Empirical evidence suggests that the "urban-rural shift" is an important component of the overall pattern of manufacturing employment change. The analysis revealed that the longer the settlement, the faster was the average decline. Fothergill and Gudgin provide two reasons for the urban-rural shift in manufacturing growth in Britian. The first is the lack of room for physical expansion of existing factories in the major urban areas; the relative high cost of land; the restrictions in peripheral growth; and the difficulties of land assembly by cities which make the construction of new factories in urban areas unlikely. These factors influence firms' decisions not to locate, to move out of urban areas which directly contributes to the decline in their manufacturing growth. The second reason for the "urban-rural shift" is that the new industries mostly consist of capital intensive production which requires large amounts of floor space per employee. Therefore,

these industries are attracted to rural areas which have
more space.

Also, the formation of branch plants has made a
significant contribution to net manufacturing change
within a region.

> "As important to this issue is the role which
> the branch plant plays in the production
> activities of the corporate organization as
> a whole. This role is intimately related
> to management's goals for the multi-plant
> firm, expansion plans and particular growth
> strategy involving diversification or
> non-diversification .... and the decisions
> taken to allocate production activities
> among various units of the multi-plant
> operations." (Erickson, 1981: 15)

For example, most branch plants are at the mature stage
in the production cycle where market is saturated with
the product; the competition intensifies and costs are
reduced by employing unskilled labour at low wages. The
non-metropolitan area provides these advantages. Finally,
branch plants are less stable when the reasons for their
establishment are the following: responding to a high
demand for production and operating with leased premises,
equipment and unskilled labour; making considerable manage-
ment demands on corporate executives at a main plant; and
the lack of labour supply which in recession times improves
and may result in closures or work-force reduction.

As a result the "urban-rural shift" is a powerful
influence on manufacturing employment growth and decline

in Britian. Fothergill and Gudgin state that "industrial
movement accounts for one third to one quarter of the
overall decline." (1978: 40) While in USA the manufac-
turing jobs in non-metropolitan areas increased from 3.9
million jobs in 1962 to 5.7 million jobs in 1978.

2.2 Size Structure

The size of the enterprise and its influence on
manufacturing employment change (Fothergill and Gudgin,
1978), (Lloyd and Dicken, 1977) are important topics to
analyse, since in 1963, 5% of firms in Canada owned 32%
of assets. (1977: 342) Both single and multi-plant firms
of various types, "behave and make decisions in the light
of their own interest." (Fothergill and Gudgin, 1978:
52) For instance, multi-plant interests are more diffuse
both structurally and spatially and identify less readily
than single plant firms with a particular community in
which only a part of their operation is located.

Gudgin, Brunskill and Fothergill state that the
rate of formation of new firms declines sharply as the
proportion of employees working in large plants increases.
They suggest five reasons for this occurrence. First, "the
low formation rate in some industries may be the result of
the dominance of large plants in these industries, rather
than any barrier to entry posed by the particular products
and the technology." (Gudgin et al, 1979: 8) Second, the
large plants may not provide their employees with the

relevant experience for starting a new firm, unlike small
plants which spawn ten times more new firms. Thirdly, the
local wage rates are higher in towns dominated by large
plants where small plants find it difficult to compete for
labour. Fourth, new firms were in a weak position because
they generally lacked sufficient quality control facilities,
often lacked a proven record of reliability could not under-
take long runs, and had poor quality premises." (Gudgin
et al, 1979: 10). Finally, lack of cheap premises hindered
new firm formation everywhere. In the long-term the
development of new firms in rural areas in generating jobs
is important and their national impact depends on how they
affect balance of trade.

On the other hand the increase in firm concentration
is explained by the increase in plant size, which is stimu-
lated by the developments in production technology together
with a tendency for more firms to become multi-plant in
their operations due to increased competition. Acquisitions
and mergers are important means of enterprise growth and
contribute to the mortality rates of single plant firms.
As a result Fothergill and Gudgin conclude that size
structure of firms is the least important variance in
explaining the decline of manufacturing employment.

2.3 Foreign Ownership

"Growing geographical separation of production
functions and capital functions seems to be
significant for an interpretation of industrial

change in metropolitan areas and for the
variety and level of employment opportu-
nities available." (Fothergill and Gudgin,
1978: 56)

Comparison was made between matched pairs of plants iden-

tical in size, industry type, age and location but differing

in ownership characteristics. Watt's work suggests three

possible differences in employment related characteristics

which may reflect the investment policies of the firms

which own the plants.

First the employment characteristic is that "exter-

nally-owned and independent plants may differ on the propor-

tion of their work-force in white-colar jobs, where the

former's proportion is lower." (Watts, 1981: 21) The cause

of this difference are the lack of full range of administra-

tive functions at the externally-owned plant, and if the

products produced are in the mature stage of the product

life-cycle, the work-force will be predominantly unskilled.

The second employment characteristic is that "the inde-

pendent and externally-owned plants may differ in the

quality of employment enjoyed by their employees." (Watts,

1981: 21) There can exist a positive relationship:

external ownership may give the opportunity for the plant

to gain from modern management practices. On the other

hand a negative relationship can exist: managers are

forced to implement policies made on other sites with

little regard to local conditions. Furthermore, investment

which may lead to increased output growth but employment loss through the introduction of more capital intensive production processes, so that it is feasible to suggest that "the employment change rates of externally-owned and independent plants may differ." (Watts, 1981: 23) This relationship can cause labour conflict in the form of strikes and increased absenteeism. Finally, "the closure rates of externally-owned and independent plants may differ, and proportion of closure may be higher in the externally-owned category." (Watts, 1981: 23) On the other hand Makeham's analysis shows that the "extent of foreign owner-ship is not a significant influence on the difference between industries in strike activity, either in terms of strike frequency or incidence." (1978: 372) Meanwhile, Forsyth's work in labour relations shows that labour relations in foreign-owned firms tends to be worse than in independent firms.

> "This symptom of underdevelopment has its origins in the direct and indirect effects of foreign control of over half of Canada's secondary manufacturing. Innovation and product development functions have failed to expand in Canada and the centralization of technical, scientific and managerial jobs in the home economies of the multinationals truncates the Canadian industrial system." (Britton, 1980: 181)

Canada has lower levels of development of quaternary verses routine white-collar positions due to its lag in managerial administrative positions. An empirical example

is that foreign chemical firms (84 percent of Canadian output) depends on a higher proportion of white-collar personnel than the small scale Canadian plants. Furthermore, northeastern U.S. firms acquired Canadian firms concentrated in major metropolitan regions of Toronto. These in turn became collectors of control from their own Canadian hinterland through domestic acquisition.

CHAPTER 3

3.1 Background

The Soap and Detergent sub-industry is Standard Industrial Classification number 376, part of the Chemical and Chemical Industrial Group, S.I.C., 19. The S.I.C. Manual defines the manufacturers of soap and cleaning compounds as:

> "Establishments primarily engaged in manufacturing soap in any form, synthetic detergents, cleansers, washing powders and cleaning preparations including scouring powders and hand cleaners. The industry includes establishments primarily engage in manufacturing households laundry, bleaches and blueing." (p. 32)

The products produced by this sub-industry are listed in Table 3 in Appendix A.

3.2 General Trends

The overall trends of employment, plant and profits in Ontario and Canada are described in this section. The data are contained in Tables 1 and 2 and Graphs 1 to 5. in Appendix A. The following data from 1962 to 1982 were obtained from Statistics Canada, such as: plant and office employment; number of establishments; value added; total sales; total cost; rate of profit and price index. The methods used to obtain the desired variables from the above raw data are discussed in the following. The desired variables are the

employment change; number of establishments; employment
by establishments; average employment per plant; value
added; total sales, and total cost adjusted in terms of the
price index; and lastly the rate of profit.

First, the employment change was obtained from the
difference between two consecutive years for both plant
and administrative employees. Second, the employment by
establishment was obtained by dividing the yearly total
employment by the number of establishments. Third, the
average size of plant in terms of employment was obtained
by initially dividing the Ontario data into three periods
and the Canadian data into four periods. Then the average
of the employment range and the number of plants in the
period were calculated, which were multiplied in order to
obtain the average employment per employment range. Further-
more, this value was summed across the ranges to obtain
the total employment in the period. Finally, the average
employment per employment range was divided by the total
employment in the period to derive the percent of plant
in each employment range in that period. Fourth, the value
added, total cost and total sales were divided by the price
index values for the twenty-two year period which were
adjusted to the 1971 value. Meanwhile, the total cost was
obtained by adding the cost of fuel and materials, wages
and salaries. Finally, profit is obtained by subtracting the
wages and salaries from value added, then the profit is

divided by sales in order to get the rate of profit.

The analysis of the data provides the following overall trends. Value added, total sales and total cost increase over the twenty-two year period, both in Ontario and Canada, where Canada's portion is greater than Ontario's. Furthermore, total sales and cost decline in the early 80's; while value added, declines in the mid-70's, then increases rapidly and fluctuates in the early 80's. On the other hand, the rate of profit decreases over the twenty-two year period, both in Ontario and Canada. Although Canada's portion is greater than Ontario's until 1972, then it becomes the same. Tied with this is the fact that the amount of plants has steadily declined in Ontario and Canada, hitting a low in 1976 then increasing again but not to the previous magnitude. Meanwhile, the plant and administrative employment's marginal increase in both Ontario and Canada, as shown in Graphs and Tables, 1A and 1B, has a similar pattern of fluctuations. The overall plant employment changes is greater than the administrative employment. This suggests that employment per plant is increasing over time with a slight downward trend starting in the late 70's. Also, Ontario has on average twice the amount of employees per plant than Canada over the same period. Finally, in Canada the average size of a plant was 125 employees in 1961-67 which increased to approximately 210 employees in the 1975-77, then declined to 150 employees

in 1978-81. On the other hand, in Ontario the average size
of a plant was 375 employees in 1972-74 which declined to
250 employees in 1978-81.

In summary, the Soap and Detergent sub-industry
is experiencing a declining rate of profit; a recent increase
in the number of plants; and a decline in the average size
of plants without experiencing a decline in the overall
employment. There are several questions which arise from
this historical trend. What type of plants are increasing?
What type and amount of employment do these plants employ?
Lastly, what is the spatial distribution of these plants?
These questions will be addressed in the hypothesis section
more specifically. Furthermore, this thesis will try to
shed more light or answers to these questions.

3.3 Hypothesis

Fothergill and Gudgin suggest that there are
additional components that need to be considered when
analysing the overall patterns of manufacturing employment.
The following hypothesis takes these components into account:
the overall pattern of manufacturing employment change
depends on the type of ownership and the size structure
of plants in the Soap and Detergent sub-industry, in Ontario
from 1962 to 1984. The independent variables are type of
ownership such as: foreign and Canadian-owned plants; and
size structure such as: single and multi-plants. A plant

is defined as foreign-owned if its head office or the
parent company is located outside the country. Single
plant firms are those whose head office and production
functions are located in the same place. Multi-plant
firms have more than one plant either within or outside
the region.

The overall pattern of manufacturing employment
change is the dependent variable. This entails the overall
trend of manufacturing plant and employment, locational
behaviour of plants and the employment characteristics of
the sub-industry. The overall trend of manufacturing
employment describes the proportion of employment and plant
found in each location. The proportion of office, plant,
and executive employment represents the employment charac-
teristics. Lastly, the locational behaviour deals with the
urban-rural shift of plants in Ontario over time.

CHAPTER 4

4.1 DATA

The data were obtained yearly from 1962 to 1984 from the Ontario Scott's Index. The Scott's Index is a publication of all manufacturing plants in Ontario listed under their respective S.I.C. number and location. Furthermore, the Scott's Index entailed detailed information of each plant, in terms of employment, type of plant and type of products produced. The data was collected by finding the plants and their location listed under the S.I.C. number 376 for the specific year. Then the detailed information of the plant was obtained by finding the location and the name of the plant both listed in alphabetical order. Therefore, the name of the plant, its location, the number of plant, office and executive employees and whether it is a foreign-owned, multi or single plant were collected for the twenty-two years.

There were numerous problems in data collecting. For example: employment data not available, and aggregated in one total; and data which was discontinuous. Table 15 in Appendix B provides all the data which were eliminated and data which were adjusted and the procedure used.

4.2 Method

The methoids used in order to obtain Tables 4 to 12 in Appendix B and Graphs 6 to 10 in the main body entails two parts: first the preliminary calculations and second the statistical analysis. The preliminary calculations consists of breaking down Ontario in terms of four aggregate areas: Toronto Census Metropolitan Area, other Census Metropolitan Areas, other Census Areas and small towns; and three disaggregated areas: Toronto City, rest of Metro and rest of Census Metropolitan Area. The contents of these areas are shown in Tables 13 and 14 in Appendix B. Then on the basis of these areas, the plant, office and executive employment; and single, multi and foreign owned plants data were allocated. The next preliminary step was to aggregate the data into three parts. First, the data were aggregated in terms of type of employment by type of plants by year. Second, the data were aggregated in terms of type of employment, types of plants and total number of plants by the disaggregated and aggregated areas for every year. Finally, the data were aggregated in terms of type of employment by type of plants by each disaggregated and aggregated areas for each year. Also, all three absolute data values were turned into percentages.

The statistical analysis of the data entailed the calculations of the mean and standard deviation for each variable; in order to see whether one variable or average

was greater or less than another and the extent of the
flunctuations of the variables over the years. Furthermore,
regression analysis was performed in order to decide which
variables had significant linear relationships and the
extent of change the variable had experienced over the
twenty-two year period. The process used to obtain these
results was that each variable was regressed first on two
independent variables. The first independent variable is
years, where 1962 is represented by the value of 0 and 1983
by the value of 21. The second variable is the square of
these values. Secondly, if the equation was significant
overall then each independent variable was tested to see
whether each was significant individually.

CHAPTER 5

R E S U L T S   O F   T H E   A N A L Y S I S

This chapter will discuss the results derived
from the mean, standard deviation and regression analysis
with respect to the influence of ownership and size of
plants on locational behaviour of plants, employment charac-
teristics and the overall trend of plants and employment.

5.1 Employment By Type of Plant

Graphs 6A to C and Tables 4 and 7 illustrate the
percent of plant, office and executive employment by the
three types of plants (single, multiple and foreign-owned
plants). In Ontario, over the twenty-two year period,
there were on average 61.0% of single, 23.73% of foreign
and 16.27% of multi-plants.

5.1.1 Foreign VS Canadian-owned Plants

The influence of ownership on the employment charac-
teristics will be discussed in the following section.
The relationship betwee the number of plants and employment
is interesting in that foreign-owned plants constitute
one quarter of the plants but employ more than half of both
plant and office employment in Ontario, although Canadian-
owned plants employ more than half of the executive employ-
ment. Furthermore, foreign-owned plants employ on average

SINGLE PLANTS — GRAPH 6A

MULTI-PLANTS — GRAPH 6B

FOREIGN-OWNED PLANTS — GRAPH 6C

YEAR
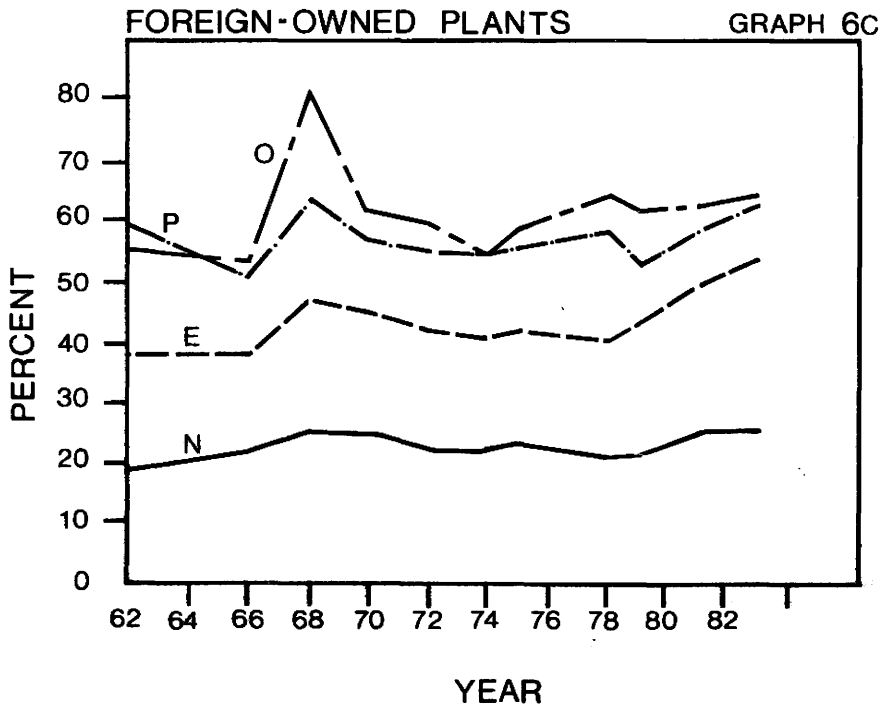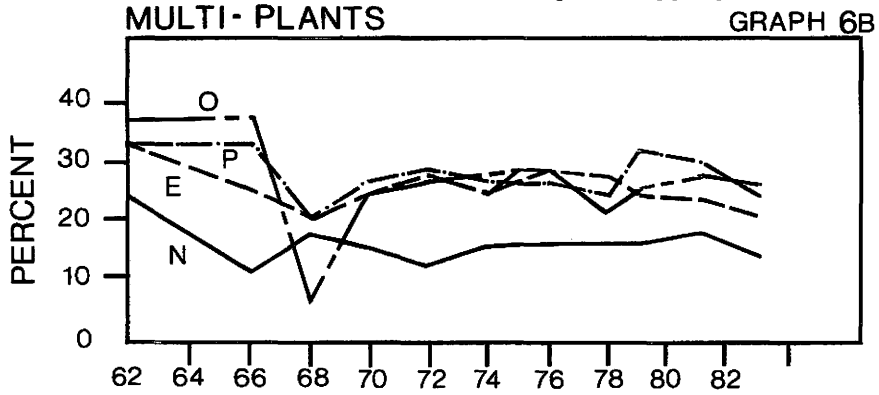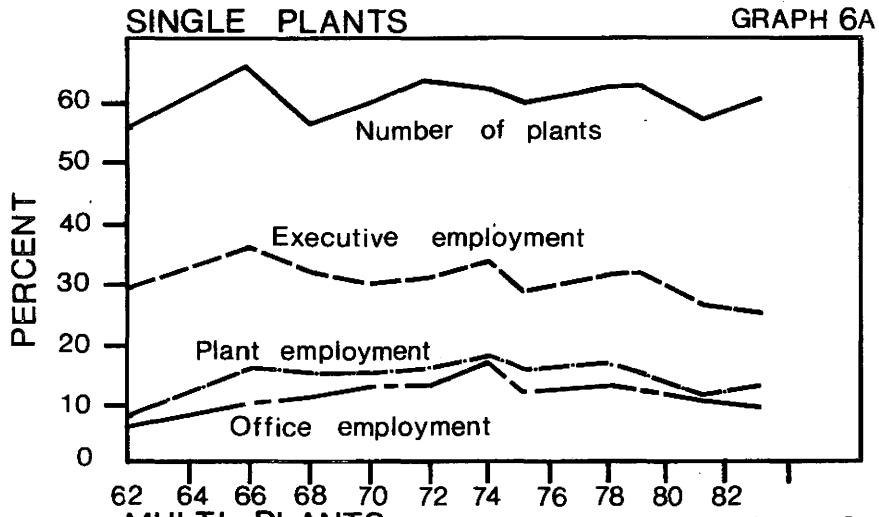
a greater percent of office than plant employees. Although the regression analysis shows that there is a significant growth of executive employment over time. Therefore, foreign-owned plants employ a smaller percentage of executive employees, possibly because the research and development; and head office facilities are located outside the country. But, this is compensated by a higher percentage of office employment (Britton, 1980). A reason for this which is not analyzed in this thesis is that foreign subsidiaries carry out policies and decisions made at the parent company's head office.

5.1.2 Single VS Multi-plants

The size of plants also influences the employment characteristics of the sub-industry. There are four times as many single plants than multi-plants, but multi-plants employ twice the office and plant employment of single plants. Single plants employ a greater percentage of executives, as a result of a large number of plants which employ under five workers of which one is the owner. Both single and multi-plants employ a greater percentage of plant than office employees. The regression analysis shows that there was significant growth of plant and office employment in single plants. Therefore, the recent increase in plants suggests that there is potential employment growth in single and foreign-owned plants.

5.2 Employment By Location

Graphs 7 and 8 and Tables 5 and 8 illustrate the means and regression equations of office, plant and executive employment by location. This section provides information on the overall spatial distribution of employment. This analysis will be discussed in two parts: within the Toronto CMA and the comparison of Toronto CMA with other aggregated areas.

5.2.1 Toronto CMA

As mentioned previously, the Toronto CMA is divided into three areas: Toronto City, rest of Metro and rest of CMA. In general, within the Toronto CMA, the proportion of total employment declines with distance from the Toronto City area. More specifically, in Toronto City, there is a greater number of office employees due to office formation in the downtown. Although, in rest of Metro, and rest of the CMA, there is a greater percentage of executive employment. This is a result of the large number of single plants found in these areas and for the reasons mentioned in the single versus multi-plant section. Furthermore, the regression analysis demonstrates that Toronto City is experiencing a growth in all types of employment, especially executive employment in rest of the CMA.

5.2.2 Comparison of Aggregated Areas

The Toronto CMA employs on average three quarters

GRAPH 7A

TORONTO CITY

PERCENT

YEAR

GRAPH 7B

REST OF METRO

PERCENT

YEAR

GRAPH 7C

REST OF CMA

PERCENT

YEAR
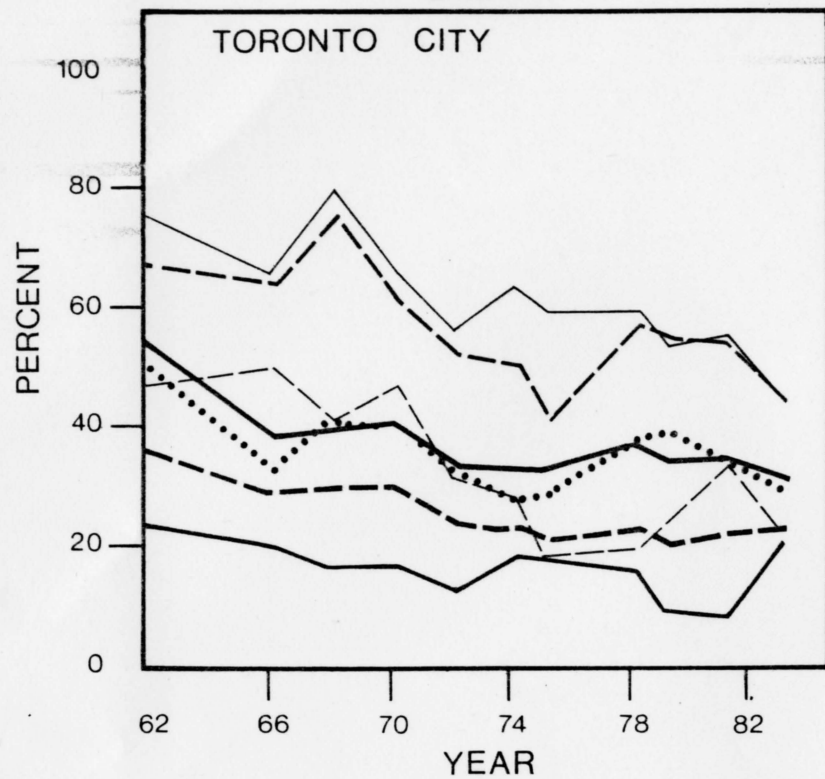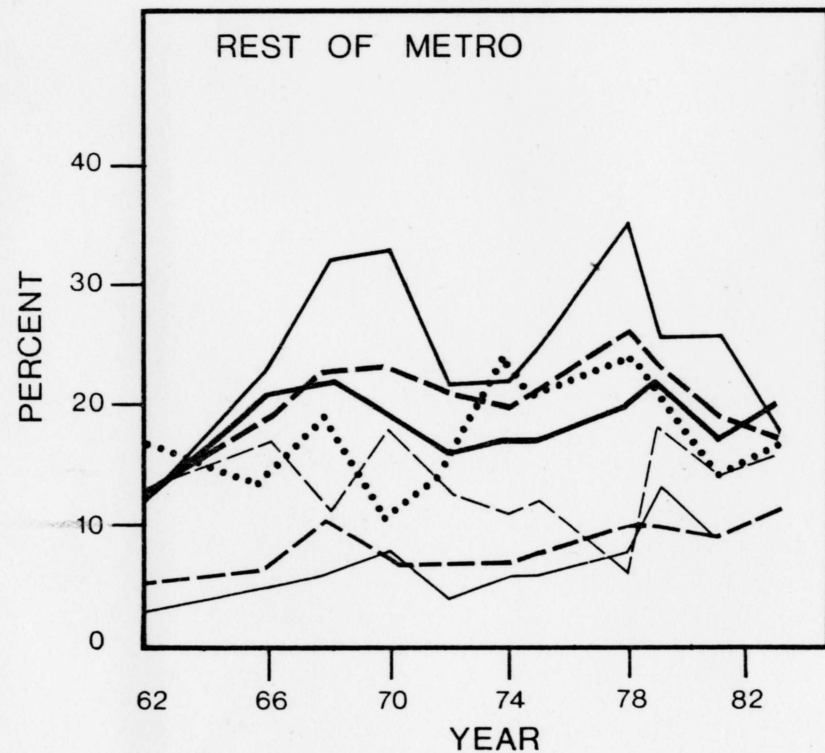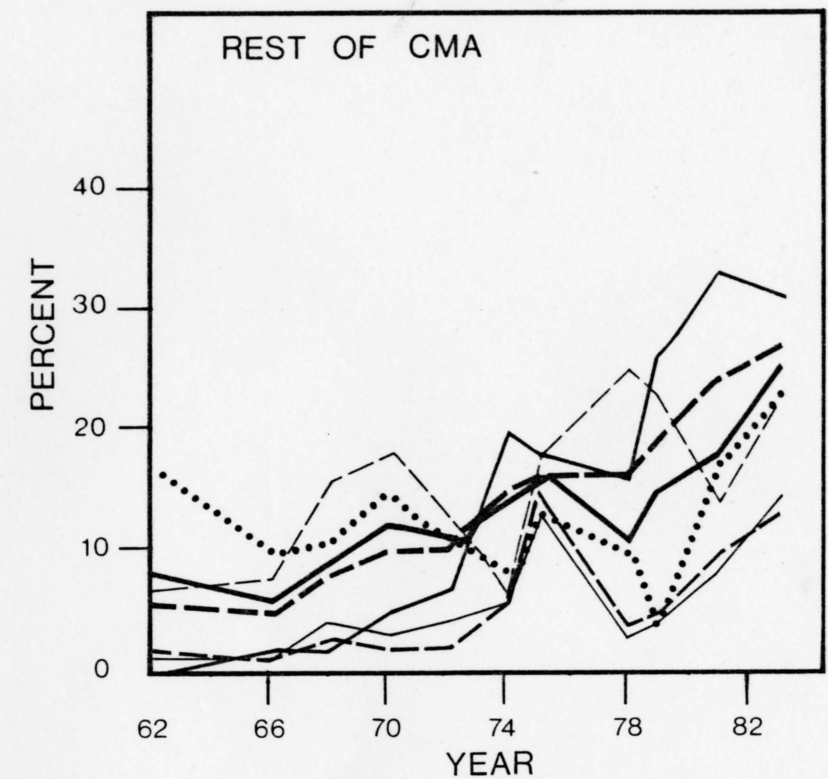
EMPLOYMENT AND PLANTS BY LOCATION

Legend for graphs 7 through 8

——— OFFICE EMPLOYMENT

——— MULTI-PLANTS

— — PLANT EMPLOYMENT

——— SINGLE PLANT

━ ━ TOTAL NUMBER OF PLANTS

━━━ EXECUTIVE EMPLOYMENT

······· FOREIGN-OWNED PLANTS

GRAPH 8A

TORONTO CMA

GRAPH 8C

OTHER CA
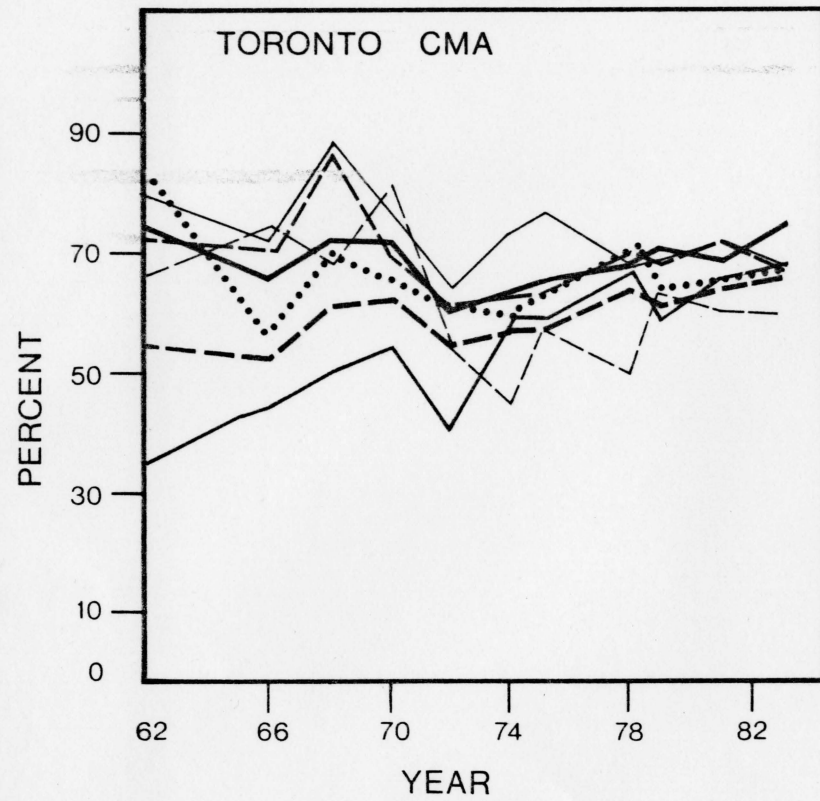
GRAPH 8B
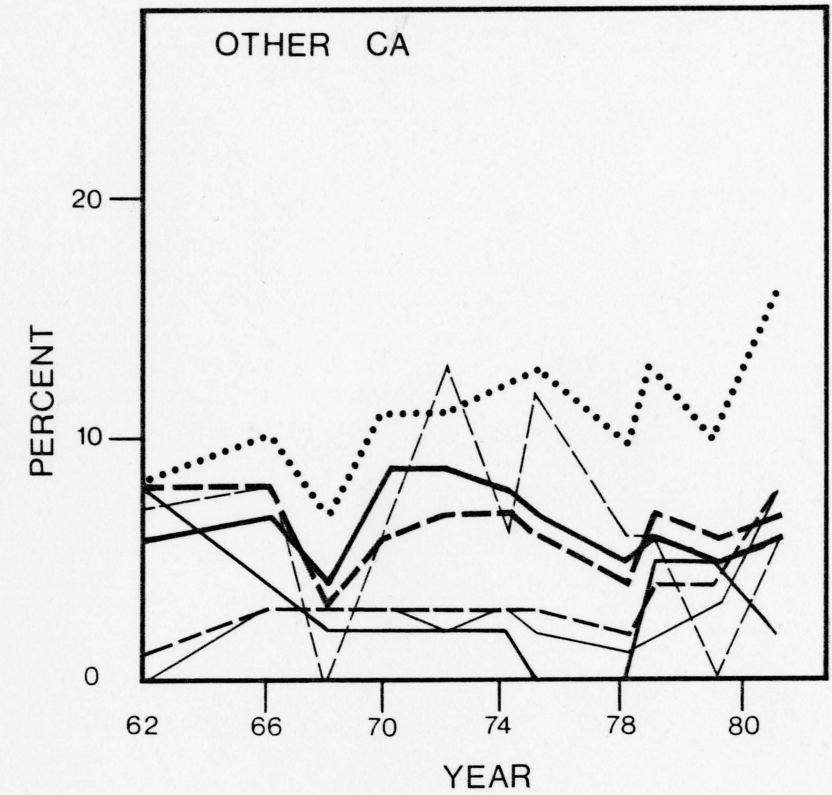
OTHER CMA
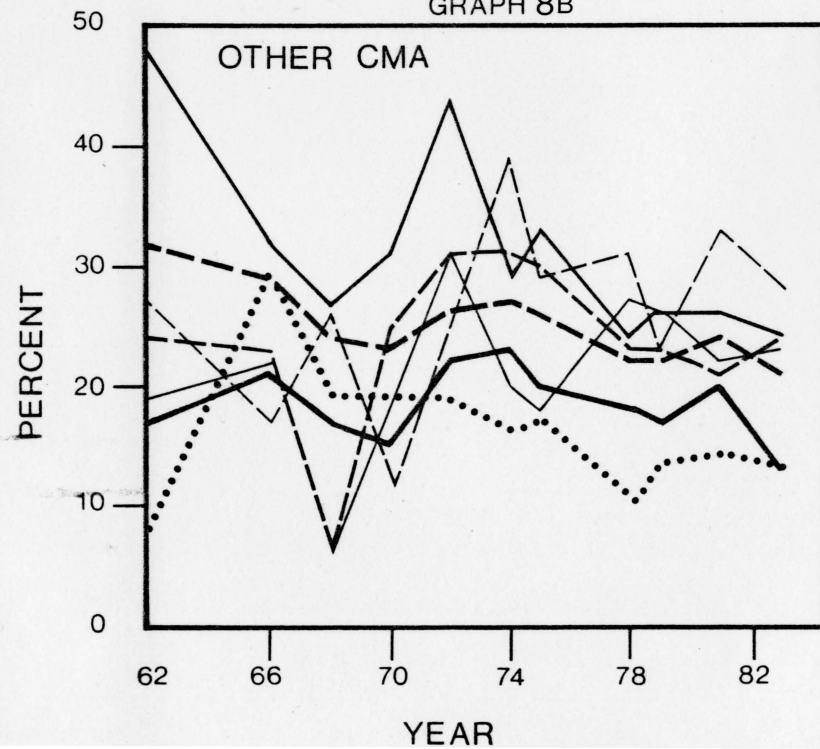
GRAPH 8D
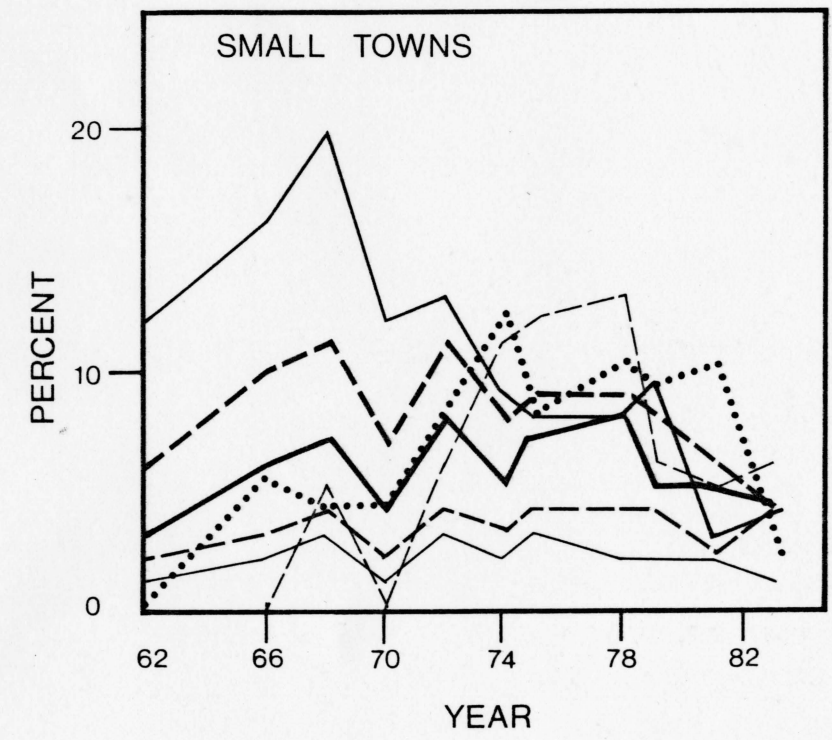
SMALL TOWNS

of all Ontario, Soap and Detergent sub-industry employment. The employment structure in Toronto CMA is the same as in Toronto City; while other CA and small towns employment structure is the same as rest of Metro's. By contrast, in other CMA's plant employment is greater than office employment which is greater than executive employment. It is important to note that regression analysis shows that there is no significant growth or decline in all aggregated areas, except for other CA's where there is marginal growth in plant employment.

5.3 Plants by Location

Graphs 7 and 8 and Tables 5 and 8 illustrate the means and regression equations of single, multiple, Canadian and foreign-owned plants by location. This section provides information on how ownership and size of plants influences locational behaviour and describes the overall spatial distribution of plants. This analysis will be discussed in the same manner as the previous section.

5.3.1 Toronto CMA

In general, within the Toronto CMA the proportion of plants declines with distance from the Toronto City. Overall, there is a greater number of Canadian than foreign owned plants in all disaggregated areas. More specifically, the greatest percentage of foreign-owned plants is found in Toronto City which is twice that of rest of Metro and

three times that of rest of the CMA. Furthermore, multi-
plants are greater than single plants in both Toronto City
and rest of the CMA but similar in rest of Metro. Also,
the largest number of single plants is found in rest of
Metro. The regression analysis shows that there is overall
decline of plants in Toronto City, but growth in the rest
of the CMA. Lastly, the greatest decline in Toronto City
is in multi-plants, but the greatest growth in rest of the
CMA is in single plants.

5.3.2 Comparison of Aggregated Areas

In comparing the Toronto CMA with other areas, the
data shows that two thirds of the plants are located in
Toronto CMA. It is important to note that small towns have
a greater number of plants than other CA's. All aggregated
areas except other CA's have a greater percentage of foreign
than Canadian-owned plants. Furthermore, Toronto CMA and
other CA's have a greater percentage of multi-plants; while
other CMA's and small towns have a greater percentage of
single plants. There is significant growth of single
plants in Toronto CMA, while a decline in all other areas.
This contributes to the decline and growth of total plants
in Toronto and other CMA's. But in other CA's and small
towns there is growth in foreign-owned plants which counters
the decline in single plants. The decline of plants in
an area can be attributed to the closure, mergers or actual

movement of plants to another location. On the other hand
the growth can be attributed to the establishment of new
plants or movement of plants to the area.

5.5.3 Synopsis

The growth, decline and change in employment
reflects the trends of plants in some areas while not in
others. Within, the Toronto CMA, the disaggregated areas
experiencing growth or decline in employment. However, the
magnitude of the change varies between plants and employ-
ment. A possible inference from these results is that
plants located in the Toronto City are older and have pro-
duction processes which needs a larger work-force than
newer plants in the rest of the CMA where newer production
processes entail a smaller work-force. By contrast, in
the aggregated areas there is no significant growth or
decline in employment but a significant growth in the number
of plants. There are two possible reasons why single plants
are not components of employment change. First, single
plants employ a smaller work-force, therefore plant growth
does not create a significant change in employment. Second,
the expansion or contraction of employment through mergers
or new production processes of both the multi and foreign-
owned plants counter balances the decline and growth of
single plant employment.

5.4   Employment by Type of Plant and Location

This section will provide detailed information on how ownership, size of plants influences the employment characteristics and locational behaviour. Graphs 9 and 10 and Tables 6 and 10 illustrate the means and regression equations of plant, office and executive employment by type of plant and by location. This analysis will be discussed in four parts: foreign versus Canadian-owned plants in Toronto CMA and amongst aggregated reas; and single versus multi-plants in Toronto CMA and amongst aggregated areas.

5.4.1   Foreign VS Canadian-owned Plants: Toronto CMA

The employment characteristics of foreign and Canadian-owned plants are the following. In Toronto City and rest of the CMA, over half of the employment works in foreign-owned plants as opposed to Canadian-owned plants, although executive employment is greater in latter plants in the rest of the CMA. By contrast, rest of Metro employs one third percent of employment in foreign-owned plants. The employment structure of foreign-owned plants is such that the percent of office employees is greater than that of plant employees, which is greater than executives. But, the employment structure of Canadian-owned plants is not as consistent, in that the plant and executive employment have similar percentages, which are larger than

GRAPH 9A
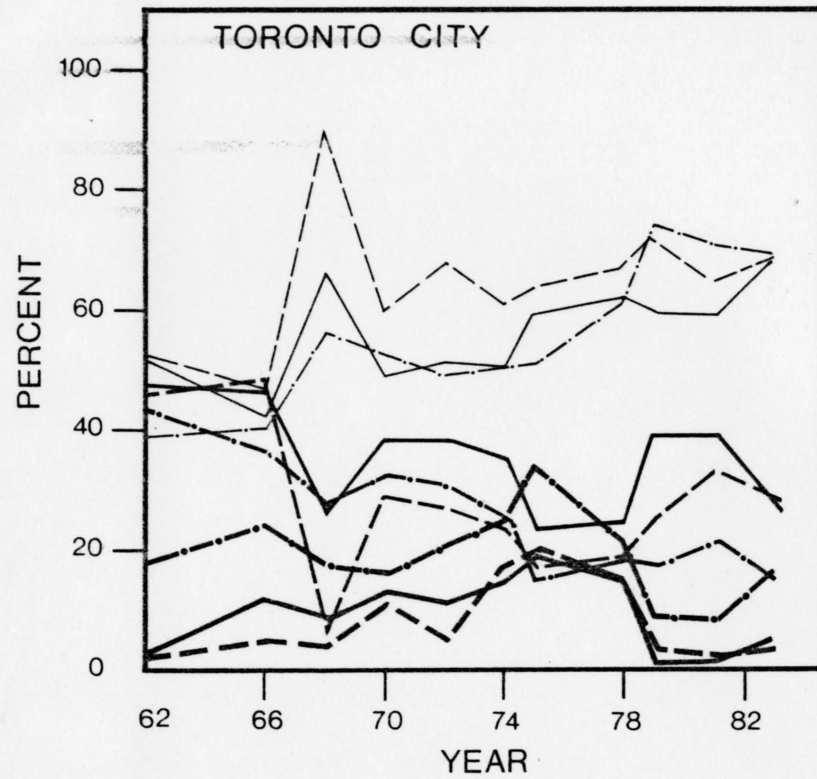
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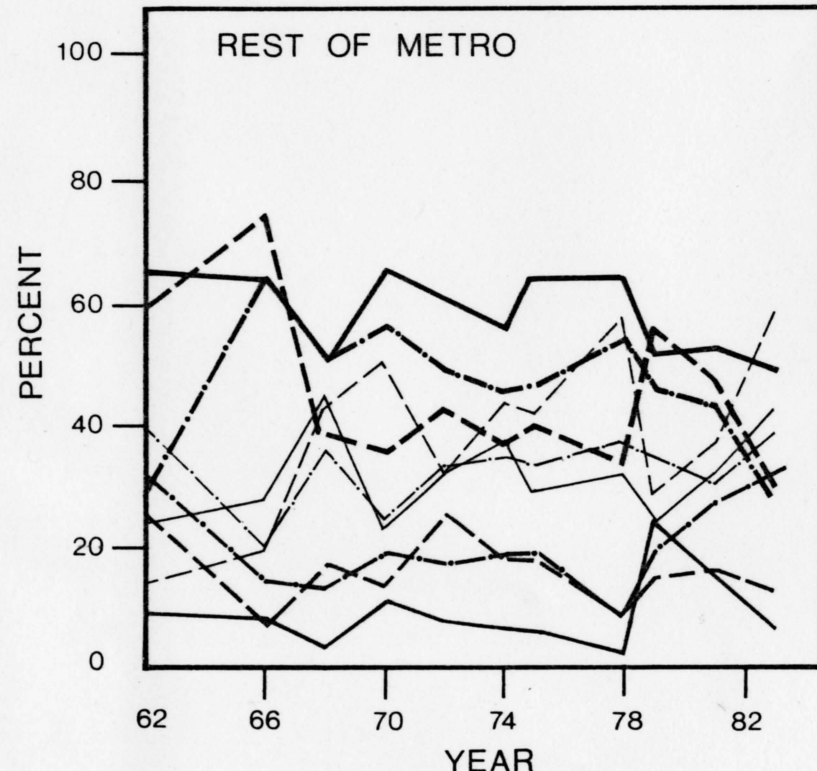
GRAPH 9B
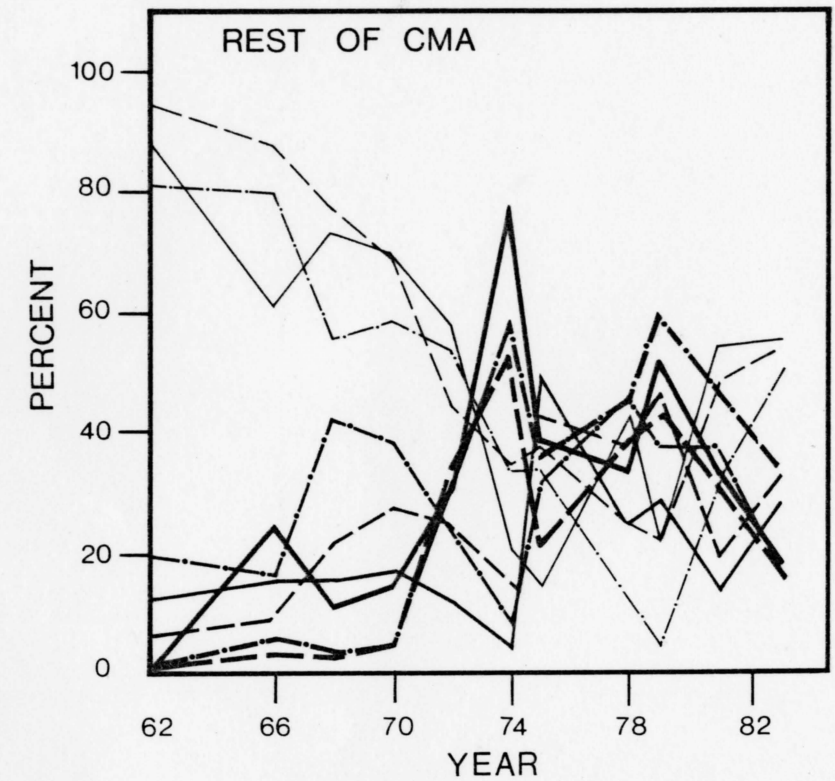
EMPLOYMENT BY TYPE OF PLANT AND BY LOCATION

Legend for graphs 9 through 10

FOREIGN PLANTS

— — Office employment
—·— Executive employment
—— Plant employment

MULTI-PLANTS

— — Office employment
—·— Executive employment
—— Plant employment

SINGLE PLANTS

— — Office employment
—·— Executive employment
—— Plant employment

GRAPH 10A

TORONTO CMA

GRAPH 10B

OTHER . CMA

GRAPH 10C

OTHER CA

GRAPH 10D

SMALL TOWN
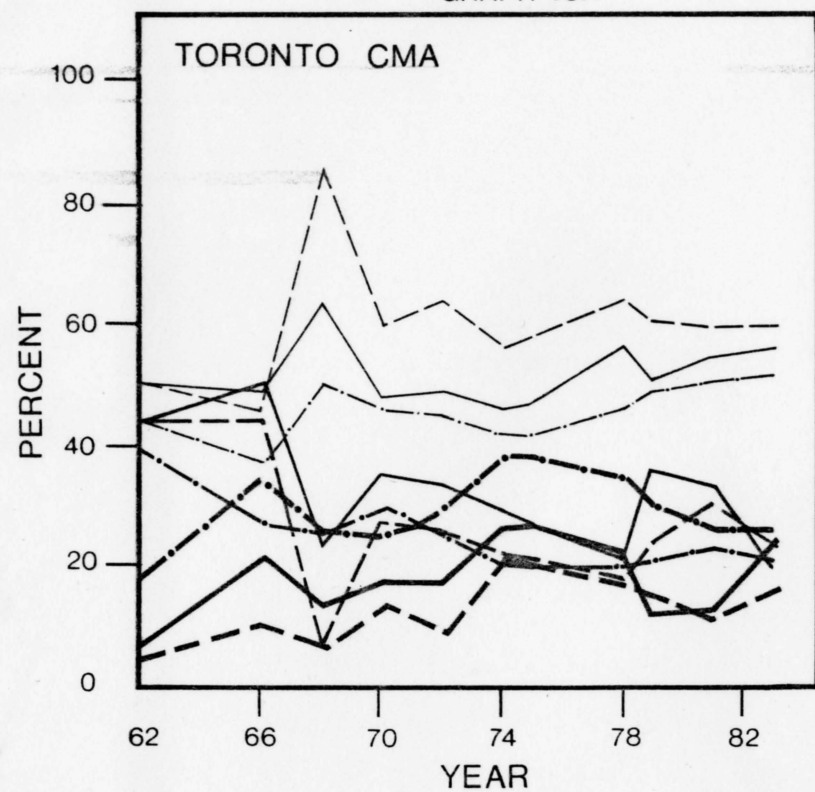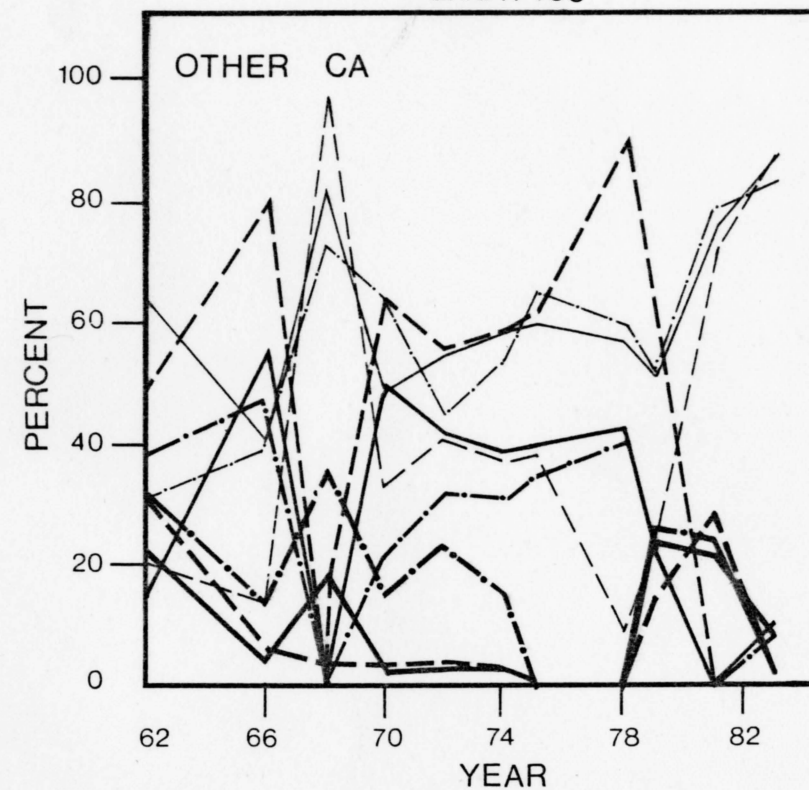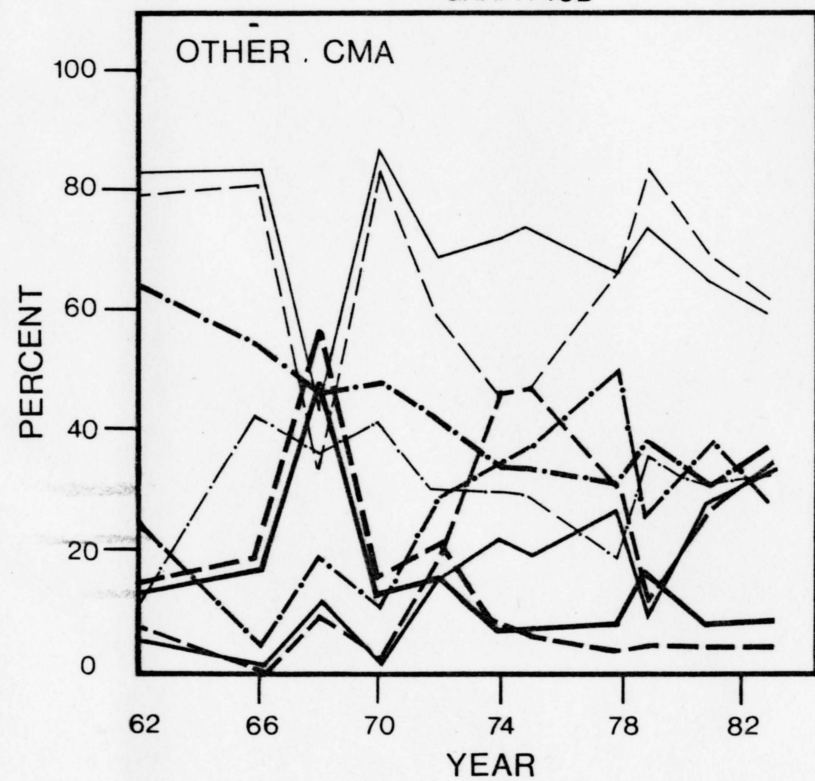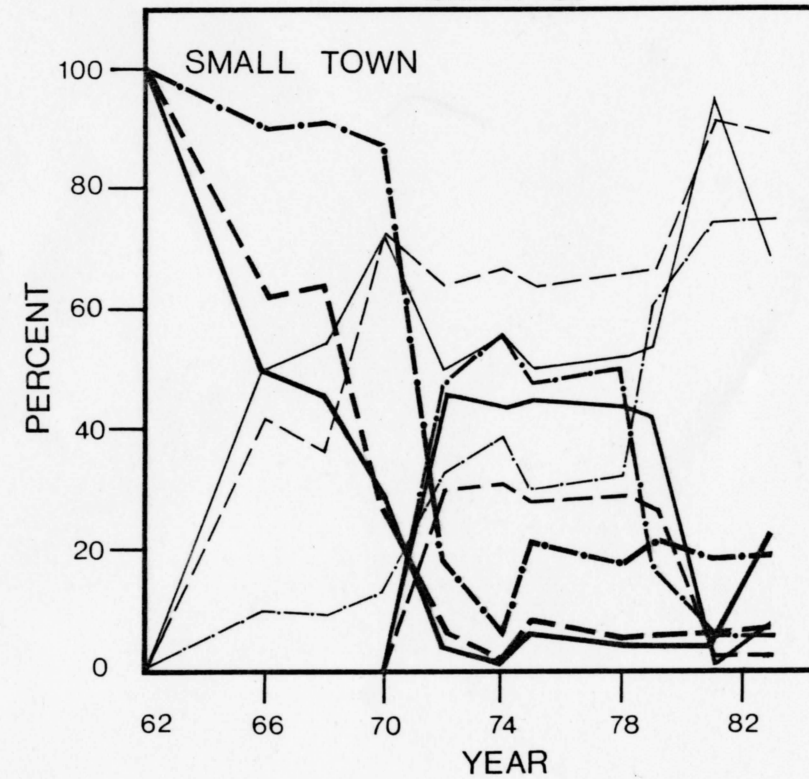
the percentage of office employees. The regression analysis
shows the locational behaviour of employment in that there
is employment growth in foreign-owned plants in Toronto
City while decline in rest of the CMA. In contrast, there
is employment decline in Canadian-owned plants in Toronto
City, while growth in rest of the CMA.

5.4.2. Foreign VS Canadian-owned Plants: Comparison of Aggregated Areas

The employment characteristics of the aggregated
areas are the following. All aggregated areas except other
CA's employ over half the plant and office employment in
foreign-owned plants. The employment structure of foreign
and Canadian-owned plants in Toronto CMA is the same as
that of the disaggregated areas. But, the employment
structure of other aggregated areas is inconsistent. For
example, foreign-owned plants employ a greater percentage
of plant employees in other CMA's and other CA's, although
a greater percentage of office employees in small towns.
Canadian-owned plants employ a greater percentage of execu-
tive employees. in other CMA's and small twons, but a greater
percentage of office employees in other CA's. The locational
behaviour of employment shows that there is employment
growth in foreign-owned plants in other CA's and small
towns; whlie a decline of employment in Canadian-owned plants
in Toronto CMA and small towns and a growth in other CMA's.

5.4.3 Single VS Multi-plants: Toronto CMA

In addition, the analysis of the size of plants
will be discussed in the following. On average, there is
a greater percentage of single plant employees in rest of
Metro and rest of the CMA, but in Toronto City, there is
a greater percentage of multi-plant employees. The employ-
ment structure of single and multi-plants is inconsistent.
Although, single plants employ a greater percentage of
executive employees in Toronto City; and plant employees in
both rest of Metro and rest of the CMA. On the other hand,
multi-plants employ a greater percentage of plant employees
in Toronto City; and executive employees in both rest of
Metro and rest of the CMA. The employment behaviour of
both single and multi-plants is that there is declining
employment in Toronto City while growth in rest of Metro
and rest of the CMA. Furthermore, the growth experienced
by both types of plants is greater in rest of the CMA.

5.4.4 Single VS Multi-plants: Comparison of Aggregated
Areas

Lastly, the employment characteristics of the
aggregated areas are that Toronto CMA and other CA's have
a greater percentage of multi-plant employees, while other
CMA's and small towns have a greater percentage of single
plant employees. Furthermore, the employment structure of
single plants is very consistent, in that executive employ-
ment has the greatest percentage of employees. On the other

hand, multi-plant employment structure varies from one area
to another; but the greater percentage of executive employees
has a higher frequency than other types of employment.
The locational behaviour of employment in single plants
is that there is growth occurring in Toronto CMA, but
decline in other CMA's and small towns. The reverse is
occurring in that employment in multi-plants is declining
in Toronto City, while growing in other CMA's.

5.5   Summary

5.5.1   Foreign VS Canadian-owned Plants

The employment characteristics of foreign-owned
plants is that they employ a greater percentage of plant
and office employment. However, Canadian-owned plants
employ a greater percentage of executive employees. It is
surprising to note that there is an overall growth in
executive employment in foreign-owned plants; and that this
growth is occurring in other CA's and small towns. Although,
other areas are not experiencing a plant growth or decline,
there is significant employment decline in foreign-owned
plants in rest of the CMA.   In contrast, plant and office
employment is growing in Canadian-owned plants. Also,
Canadian-owned plants are declining in all areas except
rest of the CMA. But when disaggregating the data further,
the results show that plant and executive employment is
declining in Toronto City, Toronto CMA and small towns in

the meantime executive and office employment is growing
in rest of Metro, rest of the CMA and other CMA's.

5.5.2 Single VS Multi-plants

Both single and multi-plants employ the greater
percentage of executive employment than plant employment.
The overall growth in plant and office employment is in
single plants which is occurring in rest of the CMA and
Toronto CMA.   Moreover, the decline in single plants is
occurring in all other areas. Although when the data is
further disaggregated, the growth of plant employment
disappears and growth in executive employment becomes
significant in areas mentioned. Furthermore, there is
significant decline in all types of employment in other
CMA's, Toronto City and small towns. By contrast, there
is no overall significant growth or decline of employment
in multi-plants. But there is growth of multi-plants in
rest of the CMA and a decline in Toronto City. The
analysis of disaggregated employment data shows that there
is a decline in all types of employment in Toronto City,
which is greater than the growth in other areas of Toronto
CMA. Therefore, there is an overall decline in Toronto
CMA and growth in other CMA's.

CHAPTER 6

C O N C L U S I O N

Size and ownership of plants contribute to the
employment characteristics and locational behaviour of
plants of the Soap and Detergent sub-industry. Watt
states that foreign-owned plants employ a greater percen-
tage of unskilled labour; and Britton states that there
is higher proportion of white collar workers in foreign-
owned plants. In the Soap and Detergent, sub-industry,
foreign-owned plants employ a greater proportion of office
workers, and Canadian-owned plants employ a greater propor-
tion of plant and executive employment. When taking the
size of plants into account, the single plants employ a
greater proportion of executive employees than multi-
plants. Furthermore, the urban-rural shift of plants is
predominantly in foreign-owned plants where growth is
occurring in other CA's and small towns. Also employment
in foreign-owned plants is growing in Toronto City, which
is still the location of foreign subsidiary head offices.
Canadian-owned plants are growing in the outskirts of the
Toronto CMA, with employment growth in other CMA's. However,
disaggregating the Canadian-owned plants in terms of size,
single plants are growing within Toronto CMA, excluding
Toronto City. The same pattern is occurring with multi-

plants.

As a result this empirical example supports the
literature in that foreign-owned plants are moving out of
the highly urban centers to more rural areas. The reasons
for their movement or establishment and the closure in
other areas are not analysed in this thesis. Further
research is needed in establishing the reasons for the growth
and decline of plants and employment in the various areas
and how they relate to the ownership and size of plants.

APPENDIX A

GRAPH 1A

EMP CHANGE

1285

1030

775

520

265

10

-245

-500

CAN.(A)

CAN.(P)

1962 64 66 68 70 72 74 76 78 80

YEAR

GRAPH 1B

EMP CHANGE

ONT.(A)

ONT(P)

YEAR

GRAPH 2

GRAPH 3

GRAPH 4A

Graph 4A. CANADA. Average size of plants (Cumulative %) versus Employment, showing curves for 1961-67, 1972-74, 1975-77, and 1978-81.
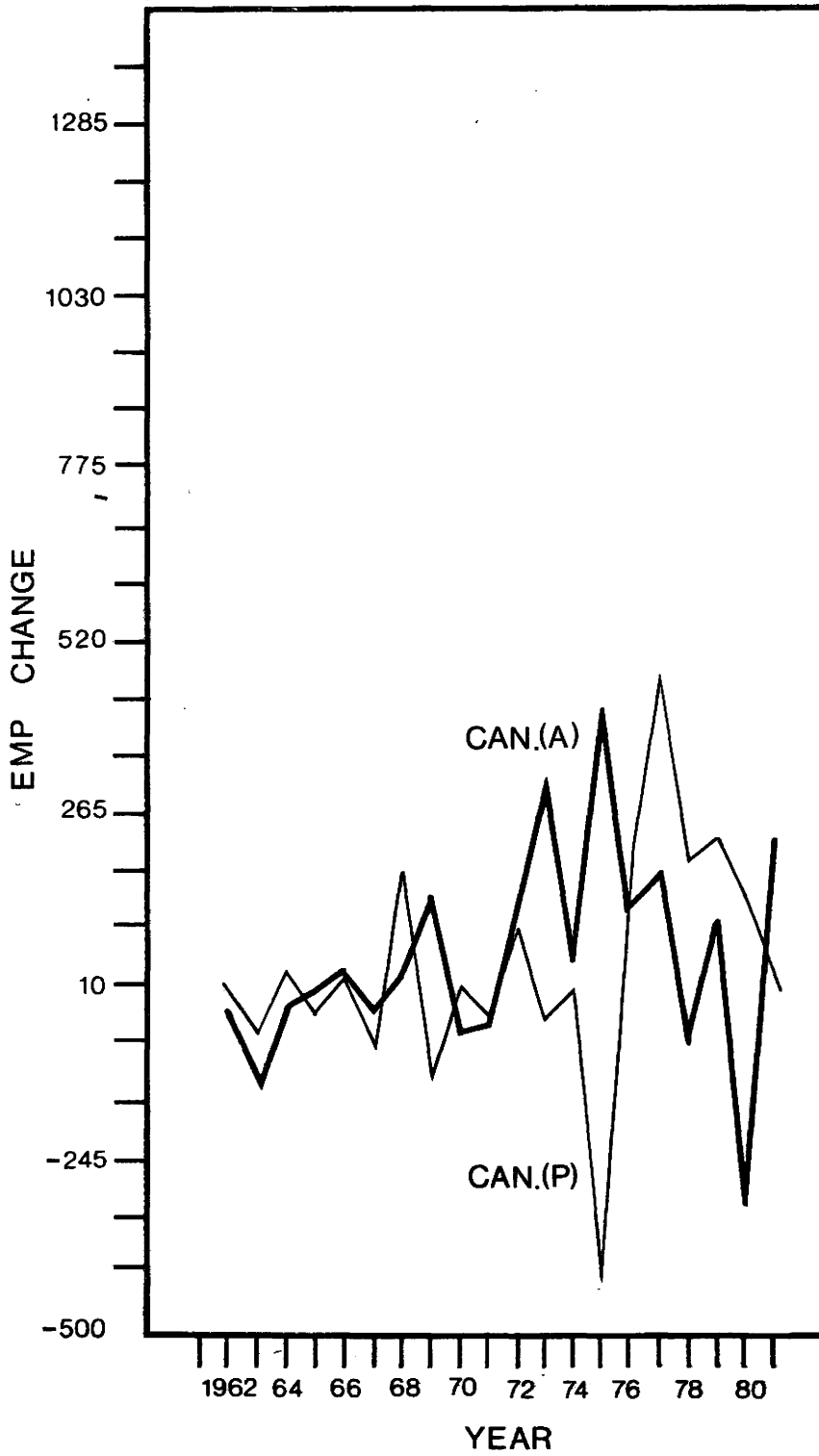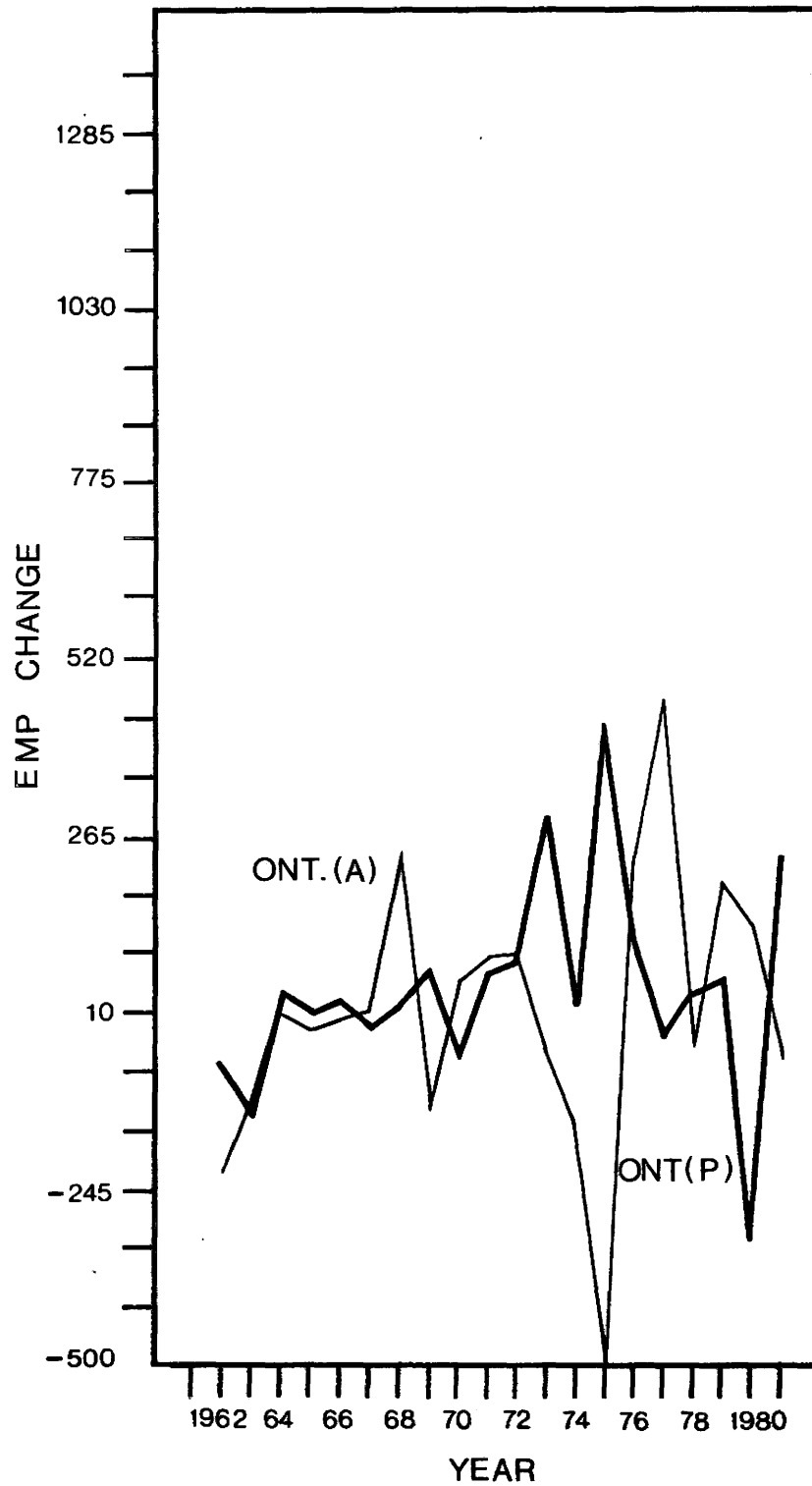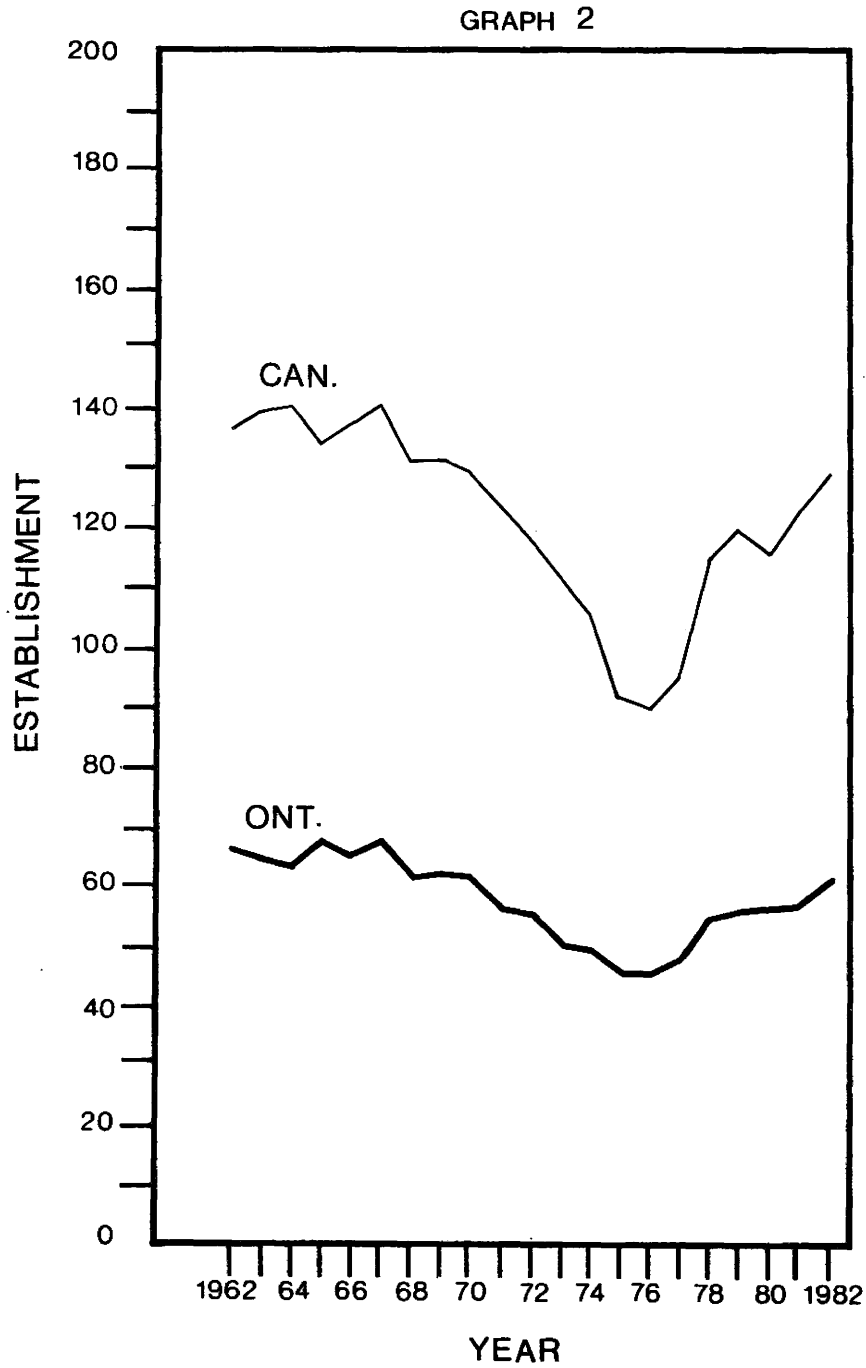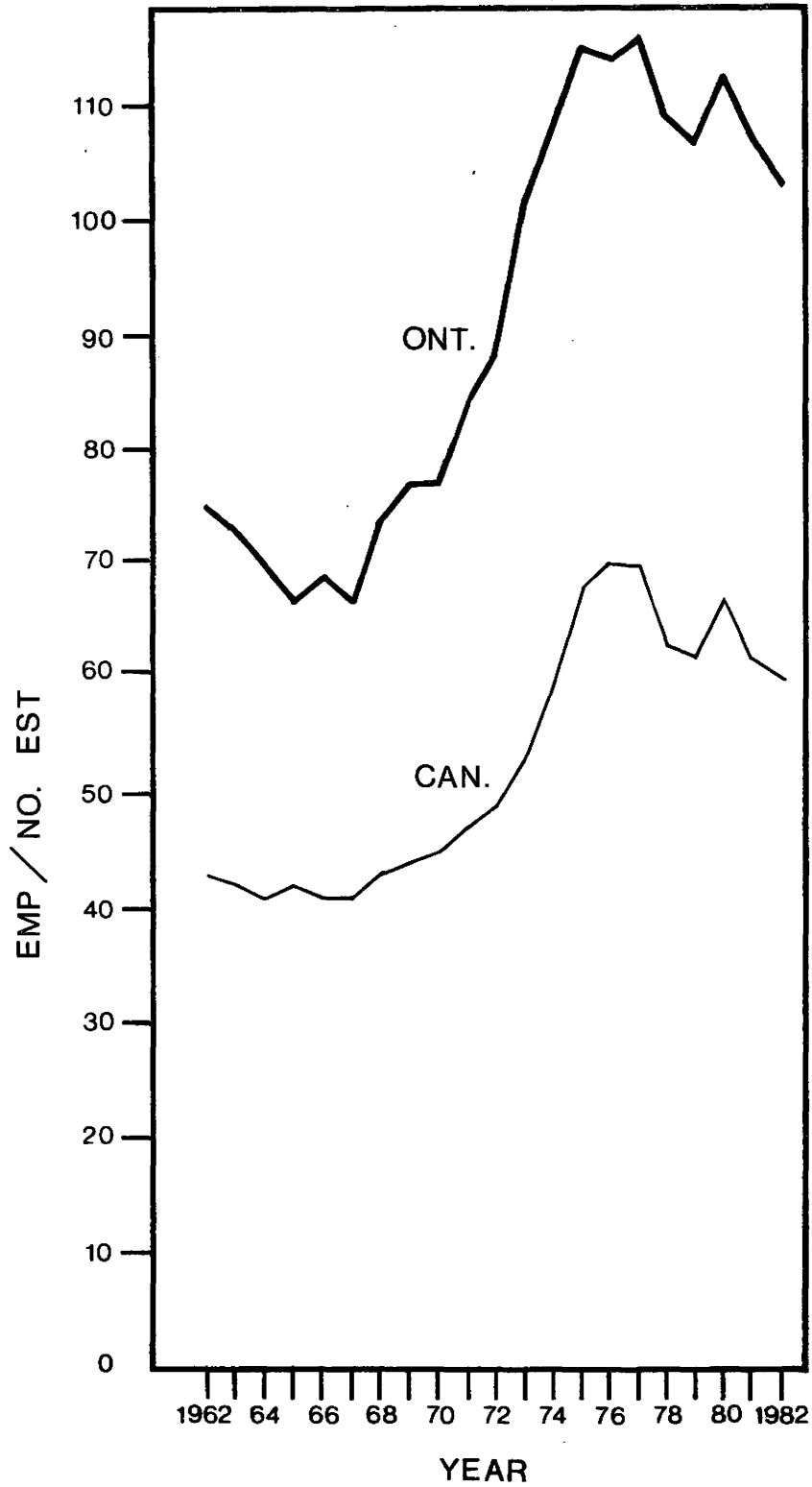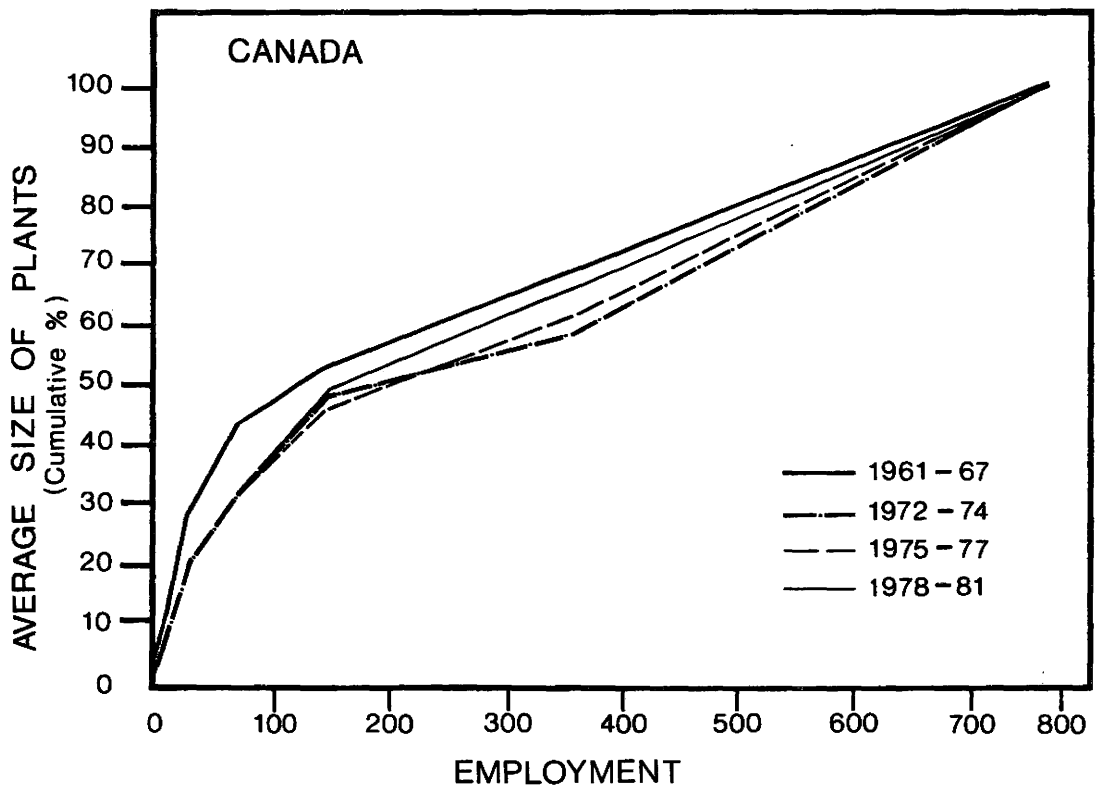
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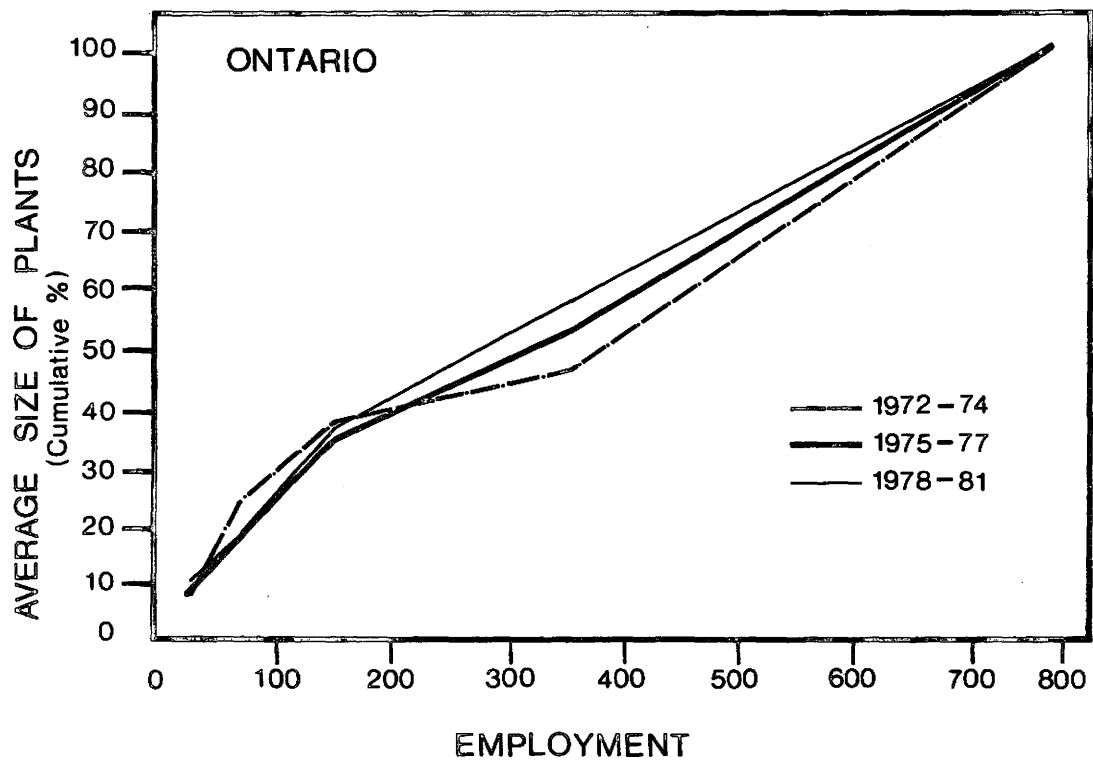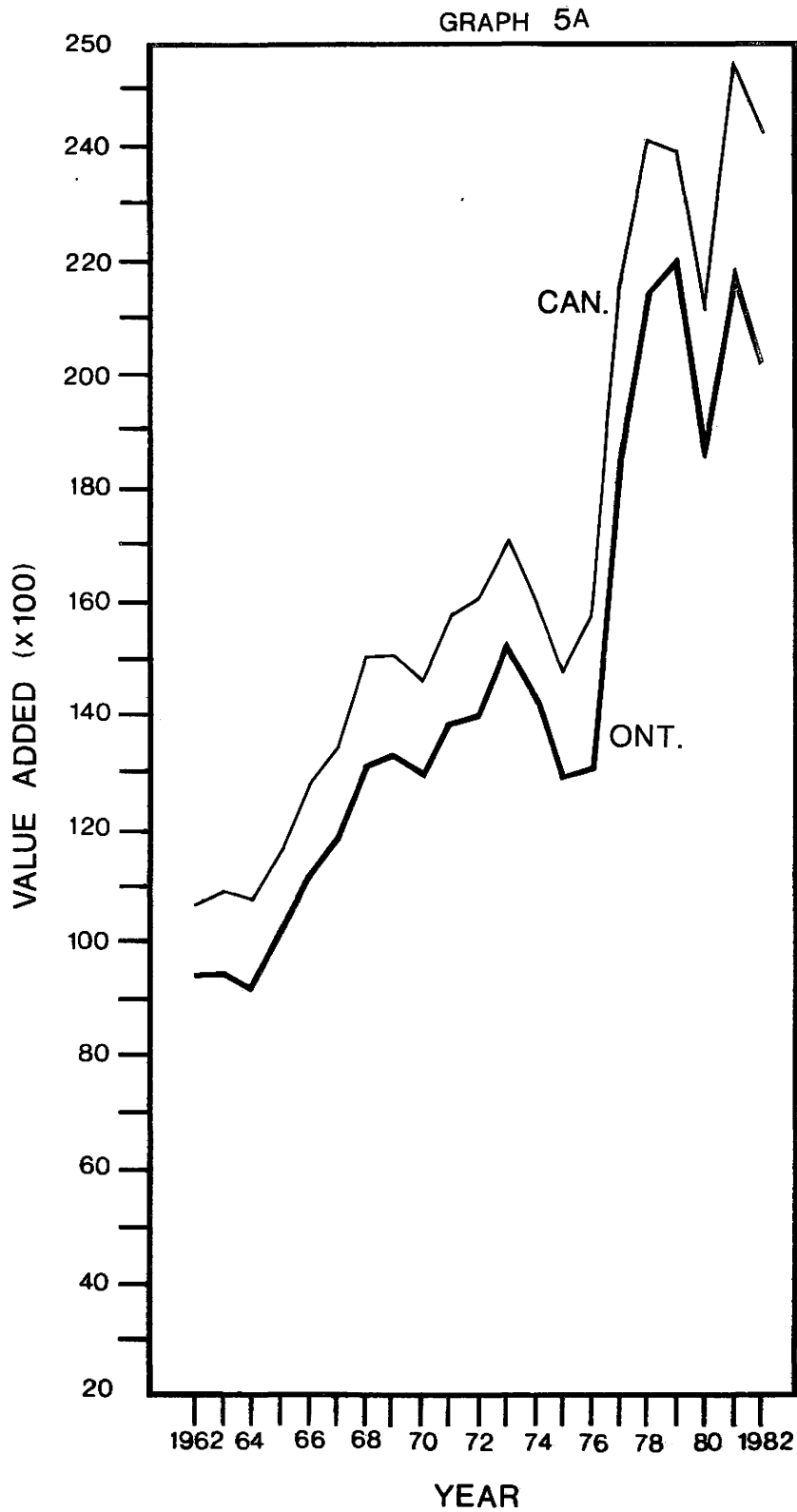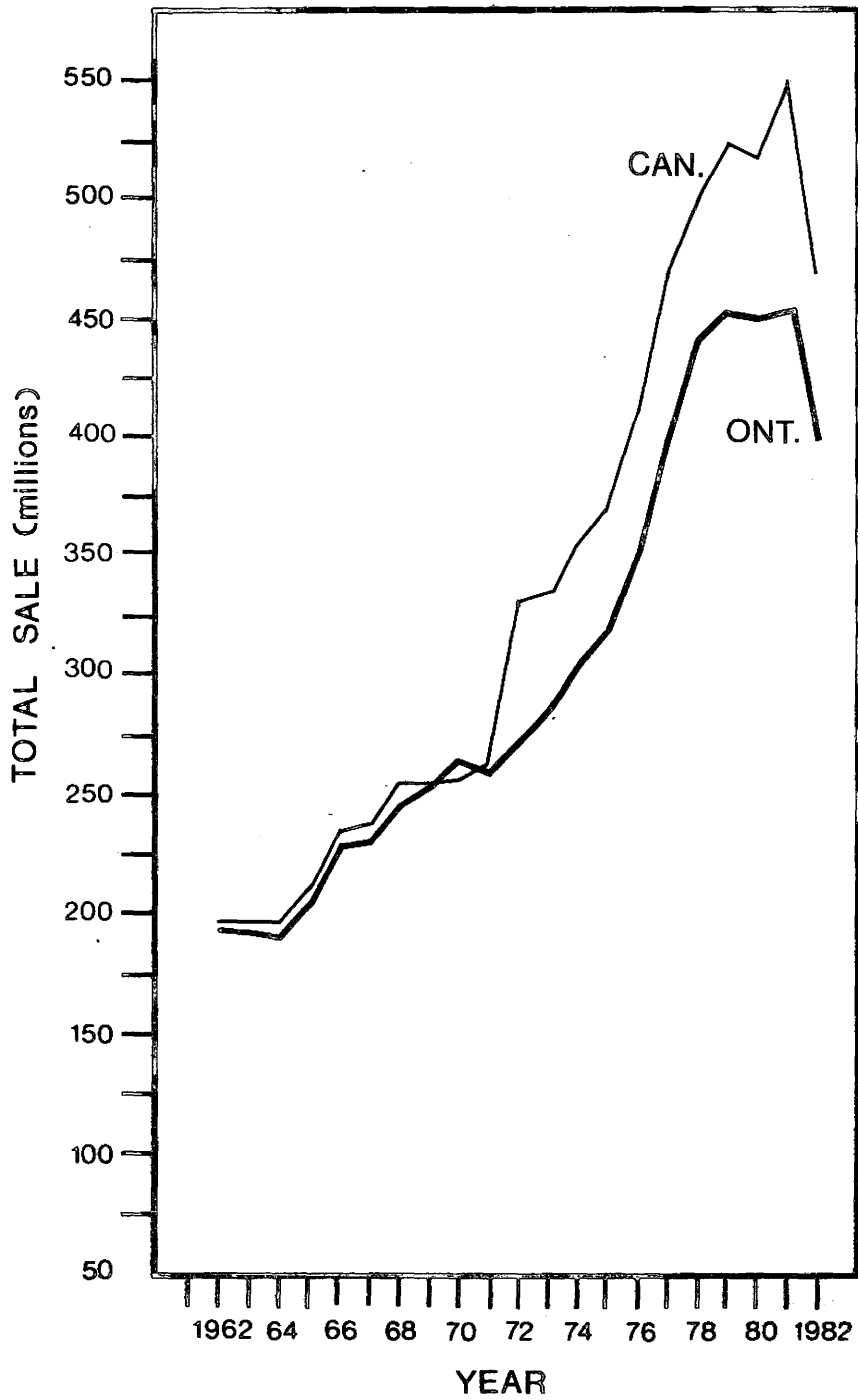
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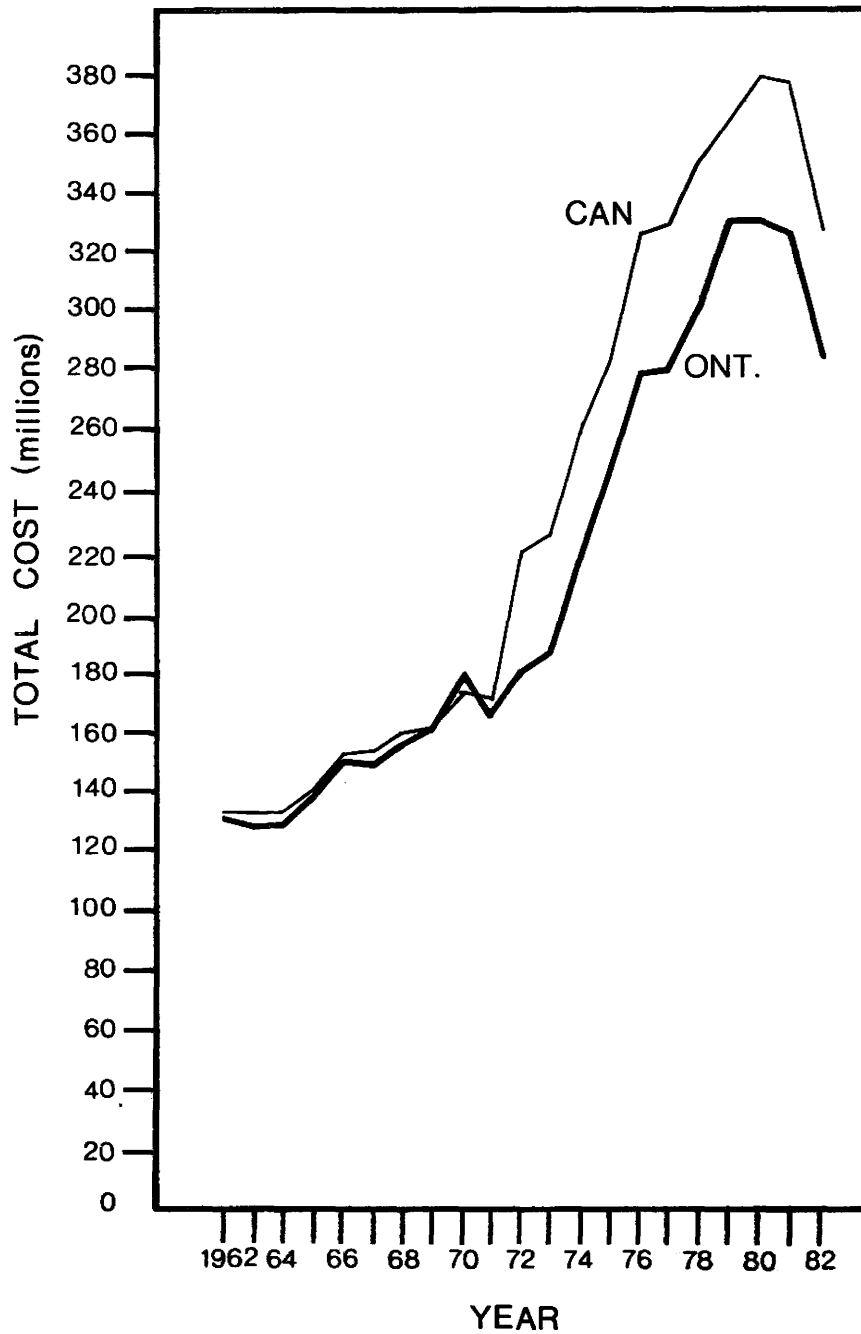
GRAPH 5B

GRAPH 5C

GRAPH 5D
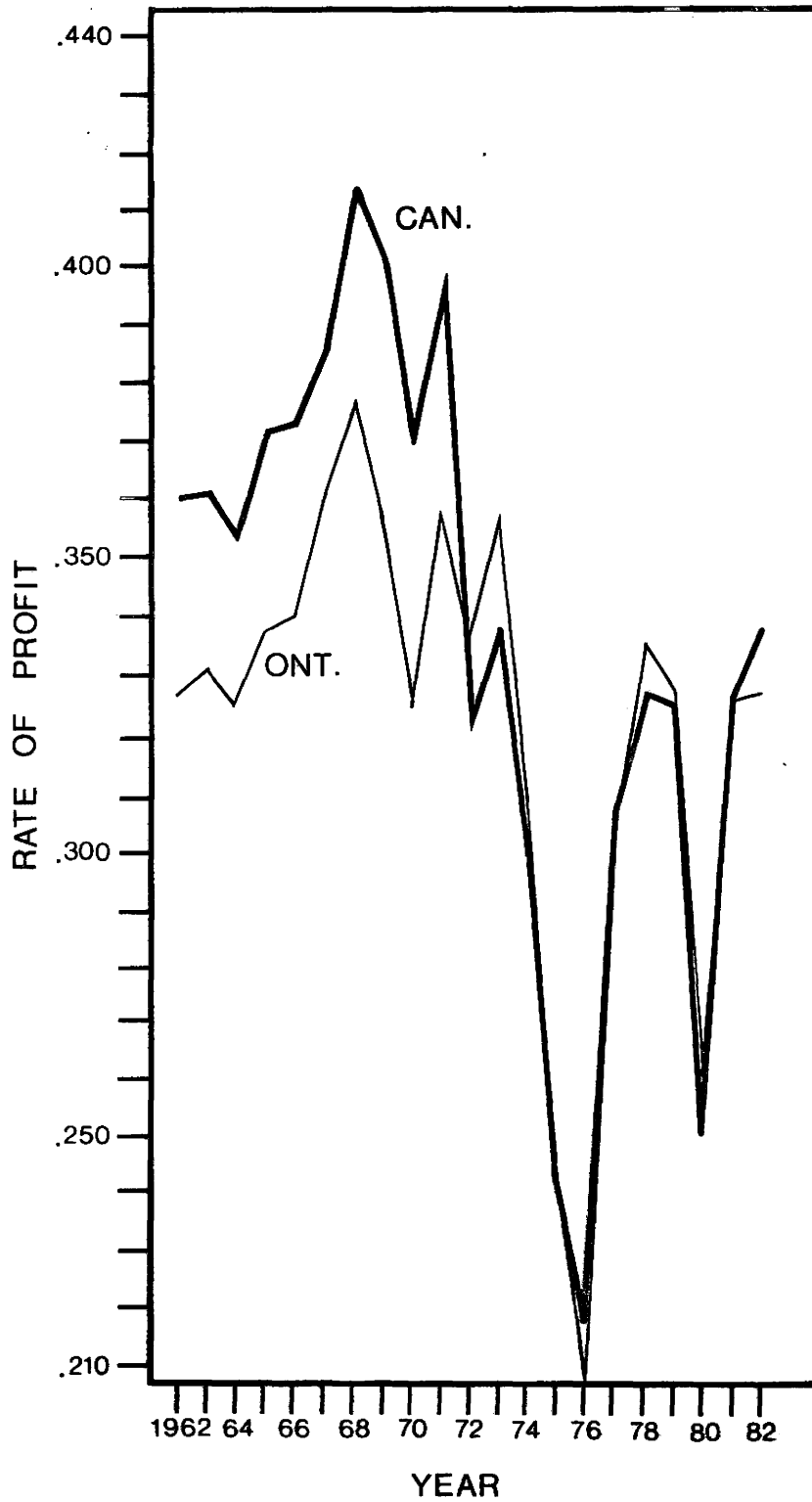
TABLE 1A : <u>CANADIAN EMPLOYMENT AND PLANT TREND</u>

Years	Number Of Plants	Employment P	Employment A	Change P	Change A	Employment By Establishment
1962	136	2637	3250			43
1963	139	2606	3252	-31	2	42
1964	140	2482	3195	-124	-57	41
1965	134	2462	3226	-20	31	42
1966	137	2465	3197	3	-29	41
1967	140	2503	3225	38	28	41
1968	131	2476	3148	-27	-77	43
1969	131	2499	3328	23	180	44
1970	129	2638	3204	139	-124	45
1971	123	2578	3216	-60	12	47
1972	117	2528	3185	-50	-31	49
1973	111	2613	3277	85	92	53
1974	105	2926	3233	313	-44	59
1975	91	2980	3236	54	3	68
1976	89	3396	2821	416	-415	70
1977	94	3527	3006	131	185	70
1978	114	3711	3478	184	472	63
1979	119	3649	3678	-62	200	62
1980	115	3755	3906	106	228	67
1981	122	3456	4049	-299	143	62
1982	128	3677	4065	221	16	60
				1040	815	

TABLE 1B: ONTARIO EMPLOYMENT AND PLANT TREND

Years	Number Of Plants	Employment P	Employment A	Change P	Change A	Employment By Establishment
1962	66	2112	2846			75
1963	64	2047	2624	-65	-222	73
1964	63	1910	2511	-137	-173	70
1965	67	1951	2520	41	9	67
1966	65	1963	2504	12	-16	69
1967	67	1993	2505	30	1	67
1968	61	1974	2520	-19	15	74
1969	62	1990	2765	16	245	77
1970	61	2062	2640	72	-125	77
1971	56	2013	2696	-49	56	84
1972	55	2079	2788	66	92	88
1973	50	2163	2889	84	101	101
1974	49	2458	2845	295	-44	108
1975	45	2491	2704	33	-141	115
1976	45	2903	2208	412	-496	114
1977	47	3013	2435	110	227	116
1978	54	2989	2897	-24	462	109
1979	55	3025	2868	36	-29	107
1980	55	3084	3066	59	198	112
1981	56	2773	3200	-311	134	107
1982	60	3006	3151	233	-49	103
				894	305	

TABLE 1C: AVERAGE EMPLOYMENT PER PLANT

CANADA

	1-5	6-14	15-49	50-99	100-199	200-499	500-499
1961-67	4	6	19	15	9	–	47

	1-4	5-9	10-19	20-49	50-99	100-199	200-499	500-999
1972-74	2	2	6	10	13	15	10	42
1975-77	1	2	5	13	11	14	15	39
1978-81	1	2	5	13	11	17	17	34

ONTARIO

	1-4	5-9	10-19	20-49	50-99	100-199	200-499	500-999
1972-74	1	1	3	7	13	13	8	54
1975-77	0	1	2	7	10	15	18	47
1978-81	1	1	2	8	8	17	21	42

TABLE 2A: ECONOMIC FACTORS - CANADA DATA

Years	Price Index (P.I.)	Value Added /P.I.	Total Sales /P.I.	Total Cost /P.I.	Rate Of Profit
1962	91.0	106673	196766	133595	0.361
1963	91.2	108973	197950	133525	0.362
1964	92.0	107311	198534	134902	0.355
1965	94.1	116262	210495	140559	0.373
1966	92.4	128088	234317	153794	0.374
1967	93.5	134640	238750	153989	0.387
1968	94.5	150046	254397	159750	0.414
1969	96.5	150334	253251	161365	0.403
1970	99.8	146560	258763	173462	0.372
1971	100.0	157642	261975	169643	0.400
1972	101.5	160068	325723	219947	0.323
1973	108.7	170444	336487	225695	0.339
1974	131.8	160264	354666	259222	0.301
1975	142.2	147667	369166	284169	0.245
1976	134.5	157288	411977	326348	0.220
1977	141.1	215965	471262	329418	0.307
1978	151.2	240831	498483	350554	0.328
1979	169.7	239279	522046	363813	0,326
1980	189.1	211607	517854	378791	0,254
1981	209.9	254525	550595	376806	0.327
1982	225.6	242508	473863	329096	0.339

TABLE 2B: ECONOMIC FACTORS - ONTARIO DATA

Years	Price Index (P.I.)	Value Added /P.I.	Total Sales /P.I.	Total Cost /P.I.	Rate Of Profit
1962	91.0	94197	192860	131319	0.328
1963	91.2	94547	191851	128059	0.332
1964	92.0	91994	188914	129360	0.326
1965	94.1	101427	206224	138102	0.339
1966	92.4	111624	228574	150133	0.341
1967	93.5	118395	230786	148453	0.362
1968	94.5	130601	246135	155310	0.378
1969	96.5	132490	252847	161163	0.359
1970	99.8	121115	264265	178558	0.326
1971	100.0	138465	259426	166030	0.359
1972	101.5	140237	271316	179657	0.337
1973	108.7	152924	285901	186477	0.359
1974	131.8	142378	304994	220858	0.310
1975	142.2	128359	318858	245581	0.247
1976	134.5	130651	349122	280060	0.211
1977	141.1	184062	400288	280313	0.306
1978	151.2	214376	442202	309681	0.336
1979	169.7	219817	475586	330681	0.329
1980	189.1	186604	459306	330613	0.263
1981	209.9	217488	477191	326795	0.327
1982	225.6	201574	408368	285756	0.328

TABLE 3: PRODUCTS PRODUCED BY THE SOAP AND DETERGENT SUB-
          INDUSTRY GROUP

Ammonia household manufacturing;

Cleaning preparations, manufacturing;

Cleaners, soapless, manufacturing;

Drain, pipe cleaners, manufacturing;

Fabric softeners, manufacturing;

Hand cleansers, manufacturing;

Laundry bleaches and blueing, households, manufacturing;

Lye, manufacturing;

Mechanics paste soap, manufacturing;

Scouring compounds, manufacturing;

Shaving - cakes or sticks, manufacturing;

Soap (in any form), manufacturing;

Soap stock or soap base, manufacturing;

Synthetic detergents, manufacturing;

Toilet bowl cleansers, manufacturing;

Washing compounds, manufacturing;

A P P E N D I X   B

TABLE 4:   EMPLOYMENT BY TYPE OF PLANT

Single Plant

	Employment			Firms
	Plant	Office	Executives	#
M	19.55	11.45	30.55	61.0
SD	2.88	2.81	3.24	3.22

Multiple Plant

	Employment			Firms
	Plant	Office	Executives	#
M	27.91	26.64	25.91	16.27
SD	3.94	8.10	3.51	3.17

Foreign Plant

	Employment			Firms
	Plant	Office	Executives	#
M	57.36	62.09	43.64	22.73
SD	3.96	7.66	5.01	2.05

TABLE 7:   <u>EMPLOYMENT BY TYPE OF PLANT</u>

Dependent Variable	Constant	Linear Term	Squared Term	R_2	Change
Single Plant:					
Plant Employees	9.04	1.37	−0.0596	74.3	2.95
Office Employees	5.61	1.40	−0.0594	80.8	3.10
Foreign Plant:					
Executive Employees	38.1	0.48		40.2	9.71

TABLE 5A: <u>EMPLOYMENT BY LOCATION</u>

Toronto City

	Employment			Plant			
	<u>Plant</u>	<u>Office</u>	<u>Executives</u>	<u>Single</u>	<u>Multiple</u>	<u>Foreign</u>	<u>Total</u>
M	56.3	61.45	37.55	16.36	32.7	36.0	25.55
SD	10.0	9.91	6.33	4.76	12.0	6.63	4.97

Rest of Metro

M	8.27	7.18	18.45	24.91	13.64	17.91	20.45
SD	1.85	2.99	3.01	6.74	3.70	4.39	3.50

Rest of CMA

M	5.73	5.55	13.18	14.5	15.45	12.64	14.18
SD	4.82	4.41	5.31	12.1	6.55	5.16	7.18

TABLE 5B: ## Toronto CMA

M	70.09	74.45	69.27	55.7	62.5	66.64	60.18
SD	6.80	6.52	4.56	11.1	10.6	6.83	4.69

Other CMA

M	23.73	21.18	18.45	31.27	26.36	16.09	25.09
SD	6.86	6.40	3.05	7.94	7.37	5.65	3.33

Other CA

M	3.36	2.64	6.55	3.18	6.36	11.0	6.27
SD	1.75	1.75	1.63	2.68	4.01	2.49	1.56

Small Towns

M	3.27	2.0	5.64	10.36	5.82	6.55	8.09
SD	0.9	0.78	1.69	4.97	4.69	3.64	2.21

TABLE 8A: <u>EMPLOYMENT AND PLANT BY LOCATION</u>

Dependent Variable	Constant	Linear Term	Squared Term	R_2	Change
Toronto City					
<u>Employment:</u>					
Plant	68.5	-1.07		49.6	-22.49
Office	76.3	-1.3		74.1	-27.24
Executives	51.3	-2.2	0.0672	78.7	-16.542
# of <u>Firms:</u>					
Multiple	49.4	-1.46		64.4	-30.66
Total	36.4	-1.59	0.0431	88.4	-14.38
Rest of Metro					
<u>Employment:</u>					
Plant	5.85	0.212		56.8	4.45
Office	3.05	0.361		62.8	7.58
# of <u>Firms:</u>					
Total	13.7	1.56	-0.0646	65.0	4.18
Rest of CMA					
<u>Employment:</u>					
Plant	0.03	0.50		46.2	10.45
Office	0.35	0.45		45.7	9.53
Executives	5.32	0.69		72.4	14.42
# of <u>Firms:</u>					
Single	-1.53	0.688	0.0480	91.0	35.64
Multiple	8.05	0.696	0.0805	42.2	13.58
Total	5.37	0.165	0.0906	96.5	21.36

TABLE 8B:

Dependent Variable	Constant	Linear Term	Squared Term	R_2	Change
Toronto CMA					
# of Firms:					
Single	37.1	1.87	-0.0166	81.2	31.98
Total	54.0	0.543		58.2	11.41
Other CMA					
# of Firms:					
Single	40.8	-0.835		47.9	-17.54
Total	29.7	-0.399		62.0	-8.37
Other CA					
Employment:					
Plant	1.27	0.183		47.4	3.84
# of Firms:					
Single	8.40	-1.06	0.0405	51.9	-4.36
Foreign	7.98	0.263		48.4	5.53
Small Towns					
# of Firms:					
Single	14.5	0.171	-0.0359	72.9	-12.235
Foreign	-1.01	1.43	-0.0515	64.8	-7.24
Total	6.62	0.700	-0.0384	64.9	-2.24

TABLE 6A: EMPLOYMENT BY LOCATION AND BY TYPE OF PLANT

Toronto City

	Single				Multiple		
	Plant	Office	Executives		Plant	Office	Executives
M	9.18	7.91	19.0		34.73	27.4	25.36
SD	5.93	6.46	7.33		8.51	12.1	9.22

Foreign

	Plant	Office	Executives
M	56.09	64.9	55.6
SD	8.14	11.1	11.9

Rest of Metro

	Single				Multiple		
	Plant	Office	Executives		Plant	Office	Executives
M	59.0	45.2	46.9		9.0	15.91	19.91
SD	6.84	13.6	11.2		6.24	5.72	7.61

Foreign

	Plant	Office	Executives
M	31.91	38.8	32.91
SD	7.66	14.5	6.14

Rest of CMA

	Single				Multiple		
	Plant	Office	Executives		Plant	Office	Executives
M	30.0	22.1	28.6		19.5	25.1	27.2
SD	21.0	18.6	22.7		12.3	13.2	12.1

Foreign

	Plant	Office	Executives
M	50.4	53.5	44.1
SD	23.9	25.1	24.9

TABLE 6B: Toronto CMA

	Single			Multiple		
	Plant	Office	Executives	Plant	Office	Executives
M	18.0	13.0	29.64	32.0	26.1	24.64
SD	6.53	5.62	6.28	9.55	10.7	5.78

	Foreign		
	Plant	Office	Executives
M	52.0	60.7	45.82
SD	5.42	10.0	4.51

Other CMA

	Single			Multiple		
	Plant	Office	Executives	Plant	Office	Executives
M	14.5	14.2	41.6	15.5	21.2	27.4
SD	11.5	15.7	10.4	11.1	16.8	13.1

	Foreign		
	Plant	Office	Executives
M	70.4	64.6	30.82
SD	12.5	16.9	8.86

Other CA

	Single			Multiple		
	Plant	Office	Executives	Plant	Office	Executives
M	12.8	8.4	16.9	29.0	48.6	25.2
SD	14.0	10.9	11.6	20.0	31.2	16.3

	Foreign		
	Plant	Office	Executives
M	61.6	42.9	58.7
SD	14.7	29.8	16.5

TABLE 6B (Continued)

Small Towns

	Single				Multiple		
	Plant	Office	Executives		Plant	Office	Executives
M	24.5	26.7	44.8		20.9	13.6	21.0
SD	30.7	33.3	37.8		22.4	14.8	24.0

	Foreign		
	Plant	Office	Executives
M	54.7	60.0	34.3
SD	22.8	25.9	26.3

TABLE 9A: <u>EMPLOYMENT BY LOCATION AND BY TYPE OF PLANT</u>

Dependent Variable	Constant	Linear Term	Squared Term	R_2	Change
Toronto City					
Single: Plant	3.02	2.07	-0.103	53.0	-1.94
Multiple: Executives	39.9	-1.27		81.5	-26.58
Foreign: Plant	47.3	0.764		38.1	16.04
Executives	37.5	1.59		77.2	33.33
Rest of Metro					
Single: Executives	36.0	3.87	-0.196	55.3	5.13
Multiple: Executives	29.3	-2.93	0.142	58.6	0.98
Foreign: Office	22.9	1.39		39.4	-0.94
Rest of CMA					
Single: Office	2.06	1.75		38.2	36.72
Executives	-2.83	2.75		63.3	57.69
Multiple: Office	10.1	1.31		42.5	27.45
Foreign: Plant	96.5	-8.31	0.288	57.3	-47.78
Office	108.0	-8.74	0.267	79.0	-65.9
Executives	77.5	-2.92		59.2	-37.93

TABLE 9B:

Dependent Variable	Constant	Linear Term	Squared Term	R_2	Change
Toronto CMA					
Single:					
Office	6.94	0.529		38.4	11.11
Multiple:					
Plant	42.2	−0.892		37.8	−18.73
Executives	37.6	−2.08	0.0642	33.0	−15.457
Other CMA					
Single:					
Executives	65.4	−3.58	0.101	92.4	−30.55
Multiple:					
Plant	−0.08	1.36		64.8	28.65
Office	3.58	1.54		36.3	32.27
Executives	13.4	1.22		37.4	25.53
Other CA					
Foreign:					
Executives	38.7	1.75		48.6	36.81
Small Towns					
Single:					
Plant	101.0	−13.5	0.457	96.9	−82.2
Office	105.0	−12.5	0.376	93.9	−95.57
Executives	99.7	−4.8		69.8	−100.71
Foreign:					
Plant	27.5	2.38		47.2	50.01
Office	20.4	3.46		77.2	−72.6
Executives	−8.52	3.74		87.1	78.45

TABLE 10: <u>EMPLOYMENT BY TYPE OF PLANT</u>

Years	Single Plants				Multi-Plants				Foreign-Owned Plants			
	<u>P</u>	<u>O</u>	<u>E</u>	<u>N</u>	<u>P</u>	<u>O</u>	<u>E</u>	<u>N</u>	<u>P</u>	<u>O</u>	<u>E</u>	<u>N</u>
1962	225	151	62	35	922	921	72	15	1651	1433	83	12
	(8)	(6)	(29)	(56)	(33)	(37)	(33)	(24)	(59)	(57)	(38)	(19)
1966	641	227	117	64	1144	900	85	12	1741	1264	124	21
	(16)	(10)	(36)	(66)	(33)	(38)	(26)	(12)	(51)	(53)	(38)	(22)
1968	440	231	108	62	600	152	71	19	1809	1779	158	27
	(15)	(11)	(32)	(57)	(21)	(7)	(21)	(18)	(64)	(82)	(47)	(25)
1970	496	353	112	65	879	651	93	17	1843	1695	165	27
	(15)	(13)	(30)	(60)	(27)	(25)	(25)	(16)	(57)	(62)	(45)	(25)
1972	496	296	108	78	925	634	98	16	136	1403	147	27
	(16)	(13)	(31)	(64)	(29)	(27)	(28)	(13)	(55)	(60)	(42)	(22)
1974	638	379	114	72	958	548	84	18	1929	1199	138	25
	(18)	(17)	(34)	(63)	(27)	(28)	(25)	(16)	(55)	(55)	(41)	(22)
1975	636	263	94	64	1052	669	94	17	2179	1357	139	24
	(16)	(12)	(29)	(61)	(27)	(29)	(29)	(16)	(56)	(59)	(42)	(23)
1978	592	343	94	62	802	593	81	16	1990	1707	119	21
	(17)	(13)	(32)	(63)	(24)	(22)	(28)	(16)	(59)	(65)	(40)	(21)
1979	561	318	108	69	1229	718	85	17	2006	1714	146	23
	(15)	(12)	(32)	(63)	(32)	(26)	(25)	(16)	(53)	(62)	(43)	(21)
1981	399	353	97	65	1051	997	87	21	2084	2253	184	29
	(11)	(10)	(26)	(57)	(30)	(28)	(24)	(18)	(59)	(63)	(50)	(25)
1983	458	318	105	76	862	927	87	18	2286	2333	221	31
	(13)	(9)	(25)	(61)	(24)	(26)	(21)	(14)	(63)	(65)	(54)	(25)

TABLE 11A: <u>EMPLOYMENT AND PLANTS BY LOCATION</u>

Toronto City

<u>Years</u>	<u>P</u>	<u>O</u>	<u>E</u>	<u>S</u>	<u>M</u>	<u>F</u>	<u>T</u>
1962	1860	1867	112	6	7	6	19
	(67)	(75)	(54)	(24)	(47)	(50)	(36)
1966	2147	1575	129	9	6	7	22
	(64)	(66)	(39)	(20)	(50)	(33)	(29)
1968	2125	1702	137	7	8	11	26
	(75)	(79)	(40)	(17)	(42)	(41)	(30)
1970	1947	1715	147	7	8	11	26
	(61)	(66)	(41)	(17)	(47)	(41)	(30)
1972	1630	1264	122	7	5	9	21
	(52)	(56)	(34)	(13)	(31)	(33)	(24)
1974	1775	1367	114	8	5	7	20
	(50)	(63)	(33)	(18)	(28)	(28)	(23)
1975	1467	1436	109	7	3	7	17
	(41)	(59)	(33)	(18)	(18)	(29)	(21)
1978	1922	1555	111	6	3	8	17
	(57)	(59)	(38)	(16)	(19)	(38)	(23)
1979	2047	1468	119	4	4	9	17
	(54)	(53)	(35)	(9)	(23)	(39)	(20)
1981	1916	2024	129	3	7	10	20
	(54)	(56)	(35)	(8)	(33)	(35)	(22)
1983	1573	1582	124	7	4	9	20
	(44)	(44)	(31)	(20)	(22)	(29)	(23)

Rest of Metro

1962	128	83	25	3	2	2	7
	(5)	(3)	(12)	(12)	(13)	(17)	(13)
1966	228	122	69	10	2	3	15
	(7)	(5)	(21)	(23)	(17)	(14)	(19)
1968	291	127	76	13	2	5	20
	(10)	(6)	(22)	(32)	(11)	(19)	(23)

TABLE 11A: (Cont'd)

1970	216	208	67		14	3	3	20
	(7)	(8)	(19)		(33)	(18)	(11)	(23)
1972	223	100	58		12	2	4	18
	(7)	(4)	(16)		(22)	(13)	(15)	(21)
1974	247	131	57		10	2	6	18
	(7)	(6)	(17)		(22)	(11)	(24)	(20)
1975	282	135	57		10	2	5	17
	(8)	(6)	(17)		(25)	(12)	(21)	(21)
1978	327	210	60		13	1	5	19
	(10)	(8)	(20)		(35)	(6)	(24)	(26)
1979	337	363	74		11	3	5	19
	(10)	(13)	(22)		(26)	(18)	(22)	(23)
1981	315	322	63		10	3	4	17
	(9)	(9)	(17)		(26)	(14)	(14)	(19)
1983	408	400	79		8	3	5	16
	(11)	(11)	(20)		(18)	(17)	(16)	(17)

Rest of CMA

1962	42	35	16		0	1	2	3
	(2)	(1)	(8)		(0)	(7)	(17)	(6)
1966	33	58	19		1	1	2	4
	(1)	(1)	(6)		(2)	(8)	(10)	(5)
1968	71	90	31		1	3	3	7
	(3)	(4)	(9)		(2)	(16)	(11)	(8)
1970	65	81	45		2	3	4	9
	(2)	(3)	(12)		(5)	(18)	(15)	(10)
1972	70	89	38		4	2	3	9
	(2)	(4)	(11)		(7)	(13)	(11)	(10)
1974	205	126	49		9	1	3	13
	(6)	(6)	(14)		(20)	(6)	(8)	(15)
1975	546	317	55		7	3	3	13
	(15)	(13)	(16)		(18)	(18)	(13)	(16)

TABLE 11A: (Cont'd)

1978	137	79	33		6	4	2	12
	(4)	(3)	(11)		(16)	(25)	(10)	(16)
1979	181	120	49		11	4	1	16
	(5)	(4)	(15)		(26)	(23)	(4)	(19)
1981	334	273	65		13	3	5	21
	(10)	(8)	(18)		(33)	(14)	(17)	(24)
1983	452	501	99		14	4	7	25
	(13)	(14)	(25)		(31)	(22)	(23)	(27)

TABLE 11B: <u>EMPLOYMENT AND PLANT BY LOCATION</u>

Toronto CMA

<u>Years</u>	<u>P</u>	<u>O</u>	<u>E</u>	<u>S</u>	<u>M</u>	<u>F</u>	<u>T</u>
1962	2030 (73)	1985 (80)	153 (74)	9 (36)	10 (67)	10 (83)	29 (55)
1966	2407 (71)	1755 (73)	217 (66)	20 (45)	9 (75)	12 (57)	41 (53)
1968	2487 (87)	1919 (89)	244 (72)	21 (51)	13 (69)	19 (70)	53 (61)
1970	2228 (70)	2004 (77)	259 (72)	23 (55)	14 (82)	18 (67)	55 (63)
1972	1923 (62)	1453 (65)	218 (61)	23 (42)	9 (56)	16 (63)	48 (55)
1974	2227 (63)	1624 (75)	220 (64)	27 (60)	8 (45)	16 (60)	51 (58)
1975	2295 (64)	1888 (78)	221 (66)	24 (60)	8 (58)	15 (63)	47 (58)
1978	2386 (71)	1844 (70)	204 (69)	25 (68)	8 (50)	15 (71)	48 (65)
1979	2601 (69)	1951 (70)	242 (72)	26 (60)	11 (64)	15 (65)	52 (62)
1981	2565 (75)	2619 (73)	557 (70)	26 (67)	13 (61)	19 (66)	58 (65)
1983	2433 (68)	2483 (69)	302 (76)	31 (69)	11 (61)	21 (68)	63 (67)

Other CMA

Years	P	O	E	S	M	F	T
1962	659 (24)	478 (19)	35 (17)	12 (48)	4 (27)	1 (8)	17 (32)
1966	767 (23)	518 (22)	67 (21)	14 (32)	2 (17)	6 (29)	22 (29)
1968	169 (6)	128 (6)	56 (17)	11 (27)	5 (26)	5 (19)	21 (24)

TABLE 11B: (Cont'd)

1970	794	493	56		13	2	5	20
	(25)	(19)	(15)		(31)	(12)	(19)	(23)
1972	965	683	79		14	4	5	23
	(31)	(31)	(22)		(44)	(25)	(19)	(26)
1974	1099	438	79		13	7	4	24
	(31)	(20)	(23)		(29)	(39)	(16)	(27)
1975	1067	429	68		12	5	4	21
	(30)	(18)	(20)		(33)	(29)	(17)	(26)
1978	773	707	53		9	5	2	16
	(23)	(27)	(18)		(24)	(31)	(10)	(22)
1979	859	717	58		11	4	3	18
	(23)	(26)	(17)		(26)	(23)	(13)	(22)
1981	746	808	74		10	7	4	21
	(21)	(22)	(20)		(26)	(33)	(14)	(24)
1983	842	842	52		11	5	4	20
	(24)	(23)	(13)		(24)	(28)	(13)	(21)

Other CA

1962	27	10	13		2	1	1	4
	(1)	(0)	(6)		(8)	(7)	(8)	(8)
1966	99	67	23		3	1	2	6
	(3)	(3)	(7)		(7)	(8)	(10)	(8)
1968	95	58	15		1	0	2	3
	(3)	(3)	(4)		(2)	(0)	(7)	(3)
1970	109	76	33		1	1	3	5
	(3)	(3)	(9)		(2)	(6)	(11)	(6)
1972	104	54	31		1	2	3	6
	(3)	(2)	(9)		(2)	(13)	(11)	(7)
1974	100	54	26		1	2	3	6
	(3)	(3)	(9)		(2)	(6)	(12)	(7)
1975	101	55	23		0	2	3	5
	(3)	(2)	(7)		(0)	(12)	(13)	(6)

TABLE 11B: (Cont'd)

	P	O	E		S	M	F	T
1978	82	33	15		0	1	2	3
	(2)	(1)	(5)		(0)	(6)	(10)	(4)
1979	154	49	21		2	1	3	6
	(4)	(2)	(6)		(5)	(6)	(13)	(7)
1981	137	123	19		2	0	3	5
	(4)	(3)	(5)		(5)	(0)	(10)	(6)
1983	274	259	25		1	1	5	7
	(8)	(7)	(6)		(2)	(6)	(16)	(7)

Small Towns

Years	P	O	E		S	M	F	T
1962	58	22	7		3	0	0	3
	(2)	(1)	(3)		(12)	(0)	(0)	(6)
1966	105	53	20		7	0	1	8
	(3)	(2)	(6)		(16)	(0)	(5)	(10)
1968	100	62	25		8	1	1	10
	(4)	(3)	(7)		(20)	(5)	(4)	(11)
1970	75	30	15		5	0	1	6
	(2)	(1)	(4)		(12)	(0)	(4)	(7)
1972	121	58	28		7	1	2	10
	(4)	(3)	(8)		(13)	(6)	(7)	(11)
1974	124	51	16		4	1	2	7
	(3)	(2)	(5)		(9)	(11)	(12)	(8)
1975	143	61	23		3	2	2	7
	(4)	(3)	(7)		(8)	(12)	(8)	(9)
1978	145	59	22		4	2	2	7
	(4)	(2)	(8)		(8)	(13)	(10)	(9)
1979	151	64	18		4	1	2	7
	(4)	(2)	(5)		(9)	(6)	(9)	(8)
1981	83	52	16		1	1	3	5
	(2)	(2)	(5)		(3)	(5)	(10)	(6)
1983	13	36	16		2	1	1	4
	(4)	(1)	(4)		(4)	(6)	(3)	(4)

TABLE 12A: EMPLOYMENT BY TYPE OF PLANT AND BY LOCATION

TORONTO CITY

Years	Single Plants			Multi-Plants			Foreign-Owned Plants		
	P	O	E	P	O	E	P	O	E
1962	47	39	20	870	858	48	943	970	44
	(3)	(2)	(18)	(47)	(46)	(43)	(51)	(52)	(39)
1966	263	75	31	1008	760	46	913	740	52
	(12)	(5)	(24)	(46)	(48)	(36)	(42)	(47)	(40)
1968	161	70	23	561	99	37	1403	1533	77
	(8)	(4)	(17)	(26)	(6)	(27)	(66)	(90)	(56)
1970	248	191	24	739	490	47	960	1034	76
	(13)	(11)	(16)	(38)	(29)	(32)	(49)	(60)	(52)
1972	172	65	26	619	336	36	839	863	60
	(11)	(5)	(21)	(38)	(27)	(30)	(51)	(68)	(49)
1974	273	227	29	617	310	28	885	830	57
	(15)	(17)	(25)	(35)	(23)	(25)	(50)	(61)	(50)
1975	328	231	37	434	239	16	1105	916	56
	(18)	(20)	(34)	(23)	(17)	(15)	(59)	(64)	(51)
1978	264	213	23	460	293	20	1198	1049	68
	(14)	(14)	(21)	(24)	(19)	(18)	(62)	(67)	(61)
1979	26	44	12	808	361	22	1210	1063	95
	(1)	(3)	(9)	(39)	(25)	(17)	(59)	(72)	(74)
1981	26	41	10	751	673	27	1139	1310	92
	(1)	(2)	(8)	(39)	(33)	(21)	(59)	(65)	(71)
1983	74	62	20	420	438	18	1079	1082	86
	(5)	(4)	(16)	(27)	(28)	(15)	(69)	(68)	(69)

TABLE 12B: EMPLOYMENT BY TYPE OF PLANT AND BY LOCATION

REST OF METRO

Years	Single Plants			Multi-Plants			Foreign-Owned Plants		
	P	O	E	P	O	E	P	O	E
1962	85	50	7	12	21	8	31	12	10
	(66)	(60)	(28)	(9)	(25)	(32)	(24)	(14)	(40)
1966	147	91	45	17	8	10	64	23	14
	(65)	(75)	(65)	(8)	(7)	(14)	(28)	(19)	(20)
1968	147	50	39	10	22	10	134	55	27
	(51)	(39)	(51)	(3)	(17)	(13)	(46)	(43)	(36)
1970	122	75	38	20	28	13	42	105	16
	(66)	(36)	(57)	(11)	(13)	(19)	(23)	(50)	(24)
1972	136	42	29	16	24	10	71	31	19
	(61)	(43)	(50)	(7)	(25)	(17)	(32)	(32)	(33)
1974	141	49	26	16	24	11	97	58	20
	(56)	(37)	(46)	(6)	(18)	(19)	(38)	(44)	(35)
1975	183	54	27	16	24	11	83	57	19
	(65)	(40)	(47)	(6)	(18)	(19)	(29)	(42)	(33)
1978	214	71	33	7	18	5	106	121	22
	(65)	(34)	(55)	(2)	(9)	(8)	(32)	(58)	(37)
1979	195	204	34	88	54	14	90	105	26
	(52)	(56)	(46)	(24)	(15)	(19)	(24)	(29)	(35)
1981	167	153	27	46	51	17	103	118	19
	(53)	(48)	(43)	(15)	(16)	(27)	(32)	(37)	(30)
1983	201	116	21	30	48	24	177	236	29
	(49)	(29)	(28)	(7)	(12)	(32)	(43)	(59)	(39)

TABLE 12C: <u>EMPLOYMENT BY TYPE OF PLANT AND BY LOCATION</u>

REST OF CMA

Years	Single Plants			Multi-Plants			Foreign-Owned Plants		
	<u>P</u>	<u>O</u>	<u>E</u>	<u>P</u>	<u>O</u>	<u>E</u>	<u>P</u>	<u>O</u>	<u>E</u>
1962	0	0	0	5	2	3	37	33	13
	(0)	(0)	(0)	(12)	(6)	(19)	(88)	(94)	(81)
1966	8	2	1	5	5	3	20	51	15
	(24)	(3)	(5)	(15)	(9)	(16)	(61)	(88)	(79)
1968	8	2	1	11	19	13	52	69	17
	(11)	(2)	(3)	(15)	(21)	(42)	(73)	(77)	(55)
1970	9	3	2	11	22	17	45	56	26
	(14)	(4)	(4)	(17)	(27)	(38)	(69)	(69)	(58)
1972	22	29	9	8	21	9	40	39	20
	(31)	(33)	(24)	(11)	(24)	(24)	(57)	(44)	(53)
1974	157	64	29	6	16	4	42	41	16
	(77)	(53)	(59)	(3)	(13)	(8)	(20)	(34)	(33)
1975	206	66	20	267	133	17	73	118	18
	(38)	(21)	(36)	(49)	(42)	(31)	(13)	(37)	(33)
1978	45	30	15	33	29	15	59	19	3
	(33)	(38)	(45)	(24)	(37)	(45)	(43)	(24)	(9)
1979	93	50	29	50	55	18	38	15	2
	(51)	(42)	(59)	(28)	(46)	(37)	(21)	(21)	(4)
1981	110	88	30	45	53	14	179	132	21
	(33)	(32)	(46)	(13)	(19)	(22)	(54)	(48)	(32)
1983	81	74	34	122	161	17	249	266	48
	(18)	(15)	(34)	(27)	(32)	(17)	(55)	(53)	(48)

TABLE 12D: <u>EMPLOYMENT BY TYPE OF PLANT AND BY LOCATION</u>

TORONTO CMA

Years	Single Plants			Multi-Plants			Foreign-Owned Plants		
	<u>P</u>	<u>O</u>	<u>E</u>	<u>P</u>	<u>O</u>	<u>E</u>	<u>P</u>	<u>O</u>	<u>E</u>
1962	132	89	27	887	881	59	1011	1015	67
	(7)	(4)	(18)	(44)	(44)	(39)	(50)	(51)	(44)
1966	418	168	77	1030	773	59	997	814	81
	(21)	(10)	(35)	(51)	(44)	(27)	(49)	(46)	(37)
1968	316	122	63	582	140	60	1589	1657	121
	(13)	(6)	(26)	(23)	(7)	(25)	(64)	(86)	(50)
1970	379	269	64	770	540	77	1097	1195	118
	(17)	(13)	(25)	(35)	(27)	(30)	(48)	(60)	(46)
1972	330	136	64	643	381	55	950	933	99
	(17)	(9)	(29)	(33)	(26)	(25)	(49)	(69)	(45)
1979	571	340	84	639	350	43	1024	929	93
	(26)	(21)	(38)	(29)	(22)	(20)	(46)	(57)	(42)
1975	717	401	84	717	396	44	1261	1091	93
	(27)	(21)	(38)	(27)	(21)	(20)	(47)	(58)	(42)
1978	523	314	71	500	340	40	1363	1189	93
	(22)	(17)	(35)	(21)	(18)	(20)	(57)	(65)	(46)
1979	317	298	75	946	470	54	1338	1183	123
	(12)	(15)	(30)	(36)	(24)	(21)	(51)	(61)	(49)
1981	303	282	67	842	777	58	1420	1560	132
	(12)	(11)	(26)	(33)	(30)	(23)	(55)	(60)	(51)
1983	72	48	78	61	72	64	167	180	156
	(24)	(16)	(26)	(20)	(24)	(21)	(56)	(60)	(52)

TABLE 12E: EMPLOYMENT BY TYPE OF PLANT AND BY LOCATION

OTHER CMA

Years	Single Plants			Multi-Plants			Foreign-Owned Plants		
	P	O	E	P	O	E	P	O	E
1962	83	66	21	31	35	8	545	377	4
	(13)	(14)	(64)	(5)	(7)	(24)	(83)	(79)	(12)
1966	124	97	36	4	2	3	639	419	28
	(16)	(19)	(54)	(1)	(0)	(4)	(83)	(81)	(42)
1968	79	73	26	18	12	10	72	43	20
	(47)	(57)	(46)	(11)	(9)	(19)	(43)	(34)	(36)
1970	92	74	28	8	11	6	694	408	24
	(12)	(15)	(48)	(1)	(2)	(10)	(87)	(83)	(41)
1972	158	151	32	142	129	23	665	403	24
	(16)	(22)	(41)	(15)	(19)	(29)	(69)	(59)	(30)
1974	72	33	27	238	202	28	789	203	24
	(7)	(8)	(34)	(22)	(46)	(35)	(72)	(46)	(30)
1975	70	26	23	208	200	25	789	203	20
	(7)	(6)	(34)	(19)	(47)	(37)	(74)	(47)	(29)
1978	60	19	16	206	212	26	507	476	10
	(8)	(3)	(31)	(27)	(30)	(50)	(66)	(67)	(19)
1979	146	29	22	76	87	15	637	601	21
	(17)	(4)	(38)	(9)	(12)	(26)	(74)	(94)	(36)
1981	56	33	23	209	218	28	481	557	23
	(8)	(4)	(31)	(28)	(27)	(38)	(64)	(69)	(31)
1983	67	32	28	276	287	22	499	525	25
	(8)	(4)	(37)	(33)	(34)	(29)	(59)	(62)	(33)

TABLE 12F: <u>EMPLOYMENT BY TYPE OF PLANT AND BY LOCATION</u>

OTHER CA

<u>Years</u>	<u>Single Plants</u>			<u>Multi-Plants</u>			<u>Foreign-Owned Plants</u>		
	<u>P</u>	<u>O</u>	<u>E</u>	<u>P</u>	<u>O</u>	<u>E</u>	<u>P</u>	<u>O</u>	<u>E</u>
1962	6	3	4	4	5	5	17	2	4
	(22)	(30)	(31)	(15)	(50)	(38)	(63)	(20)	(31)
1966	4	4	3	55	54	11	40	9	9
	(4)	(6)	(13)	(56)	(81)	(48)	(40)	(13)	(39)
1968	17	2	4	0	0	0	78	56	11
	(18)	(3)	(36)	(0)	(0)	(0)	(82)	(97)	(73)
1970	2	2	5	55	49	7	52	25	21
	(2)	(3)	(15)	(50)	(64)	(21)	(48)	(33)	(64)
1972	3	2	7	44	30	10	57	22	14
	(3)	(4)	(23)	(42)	(56)	(32)	(55)	(41)	(45)
1974	3	2	4	39	35	8	58	22	14
	(3)	(3)	(13)	(39)	(59)	(31)	(58)	(37)	(54)
1975	0	0	0	40	34	8	61	21	15
	(0)	(0)	(0)	(40)	(62)	(35)	(60)	(38)	(65)
1978	0	0	0	35	30	6	47	3	9
	(0)	(0)	(0)	(43)	(91)	(40)	(57)	(9)	(60)
1979	40	7	5	35	30	5	79	12	11
	(26)	(14)	(24)	(23)	(61)	(24)	(51)	(24)	(52)
1981	33	35	4	0	0	0	104	88	15
	(24)	(28)	(21)	(0)	(0)	(0)	(76)	(72)	(79)
1983	5	3	2	29	31	2	240	225	21
	(2)	(1)	(8)	(11)	(11)	(8)	(88)	(88)	(84)

TABLE 12G: <u>EMPLOYMENT BY TYPE OF PLANT AND BY LOCATION</u>

SMALL TOWNS

Years	Single Plants			Multi-Plants			Foreign-Owned Plants		
	<u>P</u>	<u>O</u>	<u>E</u>	<u>P</u>	<u>O</u>	<u>E</u>	<u>P</u>	<u>O</u>	<u>E</u>
1962	58	22	7	0	0	0	0	0	0
	(100)	(100)	(100)	(0)	(0)	(0)	(0)	(0)	(0)
1966	53	33	18	0	0	0	52	20	2
	(50)	(62)	(90)	(0)	(0)	(0)	(50)	(42)	(10)
1968	45	38	20	0	0	0	53	21	2
	(96)	(64)	(91)	(0)	(0)	(0)	(54)	(36)	(9)
1970	21	8	13	0	0	0	54	22	2
	(28)	(27)	(87)	(0)	(0)	(0)	(72)	(73)	(13)
1972	4	3	4	54	16	10	59	34	7
	(3)	(6)	(19)	(46)	(30)	(48)	(50)	(64)	(33)
1974	1	1	1	54	16	10	69	34	7
	(1)	(2)	(6)	(44)	(31)	(56)	(56)	(67)	(39)
1975	8	5	5	64	17	11	71	39	7
	(6)	(8)	(22)	(45)	(28)	(48)	(50)	(64)	(30)
1978	6	3	4	64	17	11	75	39	7
	(4)	(5)	(18)	(44)	(29)	(50)	(52)	(66)	(32)
1979	6	4	4	63	17	3	82	43	11
	(4)	(6)	(22)	(42)	(27)	(17)	(54)	(67)	(61)
1981	3	3	3	1	1	1	79	48	12
	(4)	(6)	(19)	(1)	(2)	(6)	(95)	(92)	(75)
1983	3	3	3	1	1	1	9	32	12
	(23)	(8)	(19)	(8)	(3)	(6)	(69)	(89)	(75)

TABLE 13:   THE TORONTO CENSUS METROPOLITAN AREA COMPOSITE

Toronto City	Rest of Metro	Rest of CMA
Toronto, C	Etobicoke, BOR	Ajax, T
	North York, C	Aurora, T
	East York, BOR	Brampton, C
	York, BOR	Caledon, T
	Richmond Hill, T	East Gwillinbury, T
	Scarborough, BOR	King, TP
		Markham, T
		Mississauga, C
		Newmarket, T
		Oakville, T
		Pickering, T
		Vaughan, T
		Witchurch-Stouffville,T

TABLE 14:   THE OTHER AGGREGATED AREA COMPOSITES

Other CMA's	Other CA's	Small Towns
Hamilton	Belleville	Ailsa Craig
Kitchener	Brantford	Amherstburg
London	Brodeville	Blenheim
Oshawa	Guelph	Chalk River
Ottawa-Hull	North Bay	Clifford
St. Catharines-	Peterborough	Elmira
Niagara		Florence
Thunder Bay		Fort Erie
Windsor		Longford Mills
		Milton
		Mount Bridges
		Nanticoke
		Perth
		Thamesville
		Waterford
		Woodstock

TABLE 15:   DATA ADJUSTMENT DUE TO INADEQUATE SUPPLY OF DATA
            BY SCOTT'S INDEX

1)   Plants eliminated due to inconsistent data, or data

     not available in the Scott's Index:

     a)   Canada Packers
     b)   Ideal Cleaning Products Limited
     c)   Astro Soap and Wax
     d)   E.P. General Soap
     e)   Proctor and Gamble in 1968-1969

2)   Data which was not available in one year but existed
     in the previous and after years and data which was in
     an aggregated form was estimated the following way. The
     employment change data in Ontario in the sub-industry
     was used to estimate the ratio of each employment type
     and the percent growth or decline from previous year.
     The estimations were done in the following cases:

     a)   Domtar Inc., 1981
     b)   Procter and Gamble, 1975-76, 1962-1969
     c)   Splender Bleach and Pool Company, 1972-1973
     d)   Whitehouse Soaps and Chemicals, 1966-1973
     e)   Andrew Jergenst, 1966-1973
     f)   Refco, 1968-1969
     g)   Astro Soap and Wax, 1966-1967

     Furthermore, the ratio of plant and office workers in
     1982 was used for an estimation of 1983-1984.

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