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AN ANALYSIS OF JOB CREATION BASED ON THE
T4 EMPLOYMENT ESTIMATES DATA BASE 1978-82



Government
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Regional Industrial
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T4 EMPLOYMENT ESTIMATES DATA BASE 1978-82



Statistical Analysis
Policy
Department of Regional
Industrial Expansion
1986

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INTRODUCTION

1. Background

This paper examines the dynamics in job creation and firm evolution for the period 1978 to 1982. It identifies the sectors, the regions and the size of firms that have contributed most to new jobs. This study is based on the T4 Employment Estimates Data Base developed under contract with Statistics Canada.

The Annual Income Tax T4 Supplementary files contain information on the earnings and payroll deductions of individual employees covered under each Payroll Deductions Account (PDA) number in a given calendar year. This account number is issued by Revenue Canada to all employers for the purpose of their monthly remittance of their employees' payroll deductions. These include federal and provincial income taxes (except Quebec), as well as Unemployment Insurance and Canada/Quebec Pension Plan premiums.

The development of this Data Base consisted of two steps. The first step was to estimate the total annual payroll for each employer. Since an employer may have had several PDAs, it was necessary to ensure that information from all PDAs belonging to the same employer were pooled together and aggregated. In this regard, Statistics Canada has identified all the PDAs belonging to an employer and has assigned a unique number to each employer known as the Business Register Identifier (BRID). This BRID is used in most of the business files maintained by the Bureau.

In the second step, the number of full-year equivalent (FYE) employees for each employer was estimated by means of dividing the total annual payroll for each employer by the appropriate average annual earnings of a given sector and province. This estimated average annual earnings is based on Statistics Canada's monthly Survey of Employment, Payrolls and Hours, also known as the Establishment Survey (or SEPH after April, 1983).¹ For sectors where information on average earnings was not collected by this Survey, such as finance, the average composite industrial earnings of the appropriate province in the given year was used.

In the statistical tables of this study, the following firm size classes are used: less than 5 employees, 5 to less than 20 employees, 20 to less than 50 employees, 50 to less than 100 employees, 100 to less than 500 employees and 500 or more employees. Firms which existed throughout the period 1978 to 1982 (Continuous firms) and firms which existed in 1978 but ceased to exist in 1982 (Deaths) are assigned to the appropriate firm size class according to their number of employees in 1978. A different procedure, however, is adopted in classifying firms which came into existence after 1978 and are still operating in 1982 (Births). They are assigned to the size class on the basis of 2 times the employment of this firm in the year of entry.

¹ Establishment Survey only covers firms with 20 or more employees. In order to develop earning estimates for firms of all sizes, the annual average earnings from this Survey were adjusted using corresponding information by firm size from the SEPH.

2. Strengths and Weaknesses of the Data Base

Some of the strong points of this Data Base lie in its consistency with other data sources, its ability to link to other data systems, and its ability to track firms over time.

With respect to consistency, the estimates of employment from this Data Base compare well with alternative data sources, such as the Labour Force Survey and the Establishment Survey. As indicated in Table 1, the number of FYE employees enumerated in this Data Base (excluding public administration) is some 1 to 2% below the Labour Force Survey and about 4 to 7% above the Establishment Survey.

Table 1 - Comparison of Paid Employment Estimates

<u>Year</u>	<u>T4 Employment Estimates Data Base (1)</u>	<u>Labour Force Survey (2)</u>	<u>Establishment Survey (3)</u>	<u>(1) as % of (2)</u>	<u>(1) as % of (3)</u>
1978	8,092	8,243	7,760	98.2	104.3
1979	8,545	8,620	8,068	99.1	105.9
1980	8,841	8,907	8,241	99.3	107.3
1981	9,083	9,164	8,561	99.1	106.1
1982	8,757	8,809	8,242	99.4	106.2

Note: Total Paid Employment excluding employees in Public Administration.

With regard to the shares in number of employees by province, the pattern as determined by the Data Base is similar to those indicated in alternative data sources (Table 2).

Table 2 - Percentage Share of Paid Workers by Province, 1978 and 1982

<u>Province</u>	<u>T4 Employment</u>		<u>Labour Force</u>		<u>Establishment</u>	
	<u>Estimates</u>		<u>Survey</u>		<u>Survey</u>	
	<u>Data Base</u>	<u>Data Base</u>	<u>Survey</u>	<u>Survey</u>	<u>Survey</u>	<u>Survey</u>
	<u>1978</u>	<u>1982</u>	<u>1978</u>	<u>1982</u>	<u>1978</u>	<u>1982</u>
Newfoundland	1.42	1.36	1.58	1.57	1.52	1.46
Prince Edward Island	0.34	0.33	0.44	0.42	0.32	0.31
Nova Scotia	2.71	2.68	2.94	2.87	2.77	2.73
New Brunswick	2.09	2.01	2.32	2.25	2.22	2.18
Quebec	26.30	24.13	25.34	24.29	25.33	24.33
Ontario	39.82	39.65	38.48	38.41	40.13	40.08
Manitoba	4.15	4.03	4.40	4.24	4.10	4.06
Saskatchewan	2.97	3.20	4.01	3.98	2.93	3.09
Alberta	9.10	10.84	9.44	10.61	8.81	10.29
British Columbia	10.78	11.37	11.04	11.34	10.68	11.09
CANADA	100.00	100.00	100.00	100.00	100.00	100.00

Note: Due to data availability, the percentage share of employment, not paid worker, is tabulated by province for the Labour Force Survey.

The pattern of growth rates of employment by industry during the period 1978 to 1982 as estimated from this Data Base is comparable to that from the Labour Force Survey and the Establishment Survey, although differences are not negligible (Table 3).

Table 3 - Year-To-Year Percentage Changes in the Number of Paid Workers
by Industry, Canada, 1978-82

<u>Industry</u>	T4 Employment				Labour Force				Establishment			
	Estimates		Data Base		Survey				Survey			
	1978 to 1979	1979 to 1980	1980 to 1981	1981 to 1982	1978 to 1979	1979 to 1980	1980 to 1981	1981 to 1982	1978 to 1979	1979 to 1980	1980 to 1981	1981 to 1982
Primary	7.1	5.9	0.8	-4.7	6.1	4.4	-	-8.9	-	-	-	-
Mining	10.2	13.6	2.8	-11.5	5.7	16.1	7.2	-17.2	8.0	12.8	4.6	-12.5
Manufacturing	3.9	1.0	0.3	-8.3	5.9	1.9	0.3	-9.1	3.9	-1.2	1.7	-9.3
Construction	2.1	-0.5	5.0	-10.4	1.3	-2.2	5.1	-9.1	6.8	-2.2	4.3	-13.4
Transportation	4.5	1.1	4.6	-3.9	5.5	-0.2	0.8	-3.1	2.1	2.8	0.8	-2.7
Trade	8.8	3.3	2.8	-3.5	4.5	2.2	2.3	-2.1	3.3	2.6	4.7	-3.2
Finance, Insurance and Real Estate	5.8	4.2	-0.6	-0.1	1.1	10.6	-2.9	1.4	2.9	2.9	3.1	0.3
Services	5.4	5.9	4.1	0.6	4.6	5.1	6.6	-0.1	4.4	4.1	6.0	1.1
Total	5.6	3.5	2.7	-3.6	4.5	3.3	2.9	-3.9	4.0	2.2	3.9	-3.7

The second important strength of this Data Base is the ability to link to other data base systems. Each employer in this Data Base is identified by the BRID, the identifier used in most of Statistics Canada business surveys, such as the Census of Manufactures (MAPID), the monthly employment survey (SEPH) and the Private and Public Investment Survey (PPI). The individual records of this Data Base can also be matched with the Corporate Tax (T2) Data Base and the Corporations and Labour Unions Returns Act (CALURA) Data Base to retrieve financial and ownership information. This information would be useful to address some important issues, such as the characteristics of firms which have failed or succeeded, and reasons for regional variation in job creation, etc.

The third notable characteristic of this Data Base is that it facilitates the tracking of firms over time. The BRID is a unique company identifier and remains unchanged unless the company dies or is acquired by another firm. Thus, this Data Base permits the analysis of the performance of firms over a time period in terms of firm size, sector and region. As an example, the total employment of firms of a given size, as identified in the initial year (1978), or the year of entry, is compared with the terminal year (1982), or the year of exit, to determine the share of jobs created or lost by that given firm size over the study period. The Data Base also allows the identification of the firms with high or low employment growth.

While this Data Base is useful as a basis to address some fundamental issues, there are some weaknesses. These limitations include the relevance of the

Full-year equivalent (FYE) concept, the estimation procedure of the number of FYE, the industrial classification of companies, and the coverage of employment. Other weaknesses include the issue of the unclassified and the identification of births and deaths which are described in Appendix A and B.

The appropriateness of the FYE concept varies from sector to sector and from region to region. This concept is more precise in industries and provinces with a higher concentration of full-time and full-year workers. However, it would underestimate the number of workers in industries and regions where the prevailing work pattern is part-time and/or part-year. As it is, the proportion of full-time and full-year workers varies significantly by industry and province. High concentrations of full-time and full-year workers are apparent in finance, insurance and real estate (61.4%); and transportation (61.6%), while low concentrations of full-time and full-year workers are indicated in fishing and trapping (12.0%), construction (34.8%); and amusement and recreation (23.0%). The provincial distribution ranges from a high of 52.9% in Ontario to a low of 39.3% in Newfoundland (Table 4).

The procedure used in the estimation of the number of FYE workers poses some questions. In this Data Base, this number is estimated by dividing the total payroll of each firm by the average wage rate of the appropriate province, industry and year, as determined in the Establishment Survey. Since the average earnings are used and since these wage rates tend to be lower in small firms than large firms, small firm employment may be underestimated.

Table 4 - Proportion of Mostly Full-Time and Full-Year Workers
by Industry and Province, Canada, 1980

<u>Industry</u>	<u>Proportion of Mostly Full-Time and Full-Years Workers %</u>
Agriculture	51.5
Forestry	24.0
Fishing, Trapping	12.0
Mines	56.1
Manufacturing	56.5
Construction	34.8
Transportation	61.6
Finance, Insurance and Real Estate	61.4
Wholesale Trade	61.2
Retail Trade	42.8
Education and Related Service	56.1
Health and Welfare	44.1
Religious organizations	49.7
Amusement and Recreation	23.0
Service to Business	52.7
Personal Services	36.3
Accommodation and Food	27.7
Miscellaneous Services	41.2
Public Administration and Defence	61.8
 <u>Province</u>	
Newfoundland	39.3
Prince Edward Island	40.0
Nova Scotia	47.5
New Brunswick	44.2
Quebec	51.0
Ontario	52.9
Manitoba	51.1
Saskatchewan	48.6
Alberta	48.4
British Columbia	45.5
Yukon	42.2
Northwest Territories	40.8
 CANADA	 49.4

Source: Census of Population and Housing, 1981.

The use of firms which exist only part of the year may provide an estimate of fewer workers than these firms actually had in that year. This is because the payrolls for these firms account for only a portion of a calendar year's payroll but they are treated as annual total payrolls.

In terms of industrial classification, companies in this Data Base are assigned only one industry code. If a company is involved in more than one industrial activity, an industry code is assigned to this company on the basis of its major activity. As a result, there may be overestimation of employment in some industries, and underestimation in others. As well, the industrial classification of some smaller firms may never receive further updating and may no longer be correctly coded.

Due to the difficulties in industry coding and the variation in work patterns within each industry, the Data Base tends to overestimate the number of paid workers in mining, manufacturing, trade and finance, insurance and real estate (Table 5). It also tends to underestimate the number of employees in industries with significant concentration in part-time and seasonal employment, such as primary industries and construction. For the remaining industries, the employee estimates according to this Data Base tend to be lower than the other two data sources.

Table 5 - Percentage Coverage of T4 Employment Estimates Data Base
by Industry, Canada, 1978-82*

<u>Industry</u>	<u>Labour Force Survey</u>					<u>Establishment Survey</u>					<u>Census of Popu- lation and Housing</u>
	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1981</u>
Primary	41.3	41.7	42.3	42.6	44.6	-	-	-	-	-	36.8
Mining	109.2	113.2	111.4	106.9	114.3	124.0	126.6	127.8	125.5	126.8	110.8
Manufacturing	105.8	103.8	102.9	102.9	103.9	113.4	113.3	115.9	114.2	115.5	102.5
Construction	86.4	87.1	88.6	88.5	87.1	105.1	100.6	102.3	102.8	106.7	80.3
Transportation	85.9	85.1	86.3	89.5	88.8	87.5	89.6	88.1	91.4	90.4	88.0
Trade	103.4	107.7	109.0	109.4	107.9	109.0	114.8	115.6	113.5	113.2	105.0
Finance, Insurance and Real Estate	103.9	108.8	102.5	104.9	103.3	112.9	116.1	117.5	113.3	112.7	100.0
Services	97.4	98.2	99.0	96.7	97.4	96.2	97.2	98.8	97.1	96.6	93.4
Total	98.2	99.1	99.3	99.1	99.4	104.3	105.9	107.3	106.1	106.3	95.8

* Percentage coverage is expressed as the number of employees estimated from the T4 Employment Estimates Data Base as a percentage of the corresponding estimates from alternative data sources, such as Labour Force Survey, Establishment Survey and Census.

Finally, since the information used for the construction of the Data Base is based on the Annual Income Tax T4 supplementary files, the coverage is limited to those workers who are required to pay income tax, UI and CPP/QPP premiums at source. Self-employed and unpaid family workers are excluded.

3. The Economic Environment, 1978-82

The period 1978 to 1982 is characterized by economic turbulence and instability, with one minor and one major recession. At the beginning of this period, the modest growth trend of the late seventies continued until it peaked in the second half of 1979. Canada then experienced a mild recession with little or no growth in output for three consecutive quarters. The slowdown in output was concentrated in the Goods producing sector while the Service producing sector experienced a modest growth. A brief recovery started in the third quarter of 1980 and lasted four quarters, until the second quarter of 1981. Then output declined sharply for the next six quarters in both the Goods and Service producing sectors. The turnaround came in the fourth quarter of 1982.

In terms of changes in the number of paid workers, the effect of 1979-80 recession varied among the industries (Table 6). According to the Labour Force Survey, the growth rate of paid employment in 1980 is only slightly less than that in 1979 (3.5% vs 4.2%). This is attributed to the continued overall growth in the Service producing sector, while the employment growth in the Goods producing sector decelerated from 5.0% in 1979 to 2.1% in 1980. This slow growth in the Goods producing industries was mainly due to the decline of employment in forestry and construction. In the Service producing sector, transportation registered a drop of 1.1%, while finance experienced the highest rate of employment growth (10.6%).

Table 6 - Year-to-Year Percentage Changes in the
Number of Paid Workers by Industry, 1978-83

<u>Industry</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>Average 1978-82</u>	<u>1983</u>
Agriculture	7.6	9.9	-3.9	-2.0	2.9	6.1
Forestry	1.4	-8.5	10.8	-22.2	-4.6	19.6
Fishing	20.0	16.7	-7.1	-15.4	3.6	36.4
Mining	5.7	16.1	7.2	-17.2	3.0	-2.9
Manufacturing	5.9	1.9	0.3	-9.1	-0.3	-2.2
Construction	1.3	-2.2	5.1	-9.1	-1.2	-6.2
Goods Producing Sector	5.0	2.1	1.5	-9.6	-0.3	-2.0
Transportation	6.4	-1.1	0.3	-2.7	0.7	-2.4
Utilities	0.9	4.2	4.1	-5.5	0.9	-1.7
Trade	4.5	2.2	2.3	-2.1	1.7	0.5
Finance	1.1	10.6	-2.9	1.4	2.6	-0.9
Community and Business Services	4.6	5.1	6.6	-0.1	4.1	3.5
Public Administration	-0.6	6.1	3.2	-0.1	2.2	2.0
Service Producing Sector	3.8	4.2	3.6	-0.9	2.7	1.5
All Industries	4.2	3.5	2.9	-3.6	1.8	0.5

Source: Labour Force Survey.

During the major recession, the annual average paid employment estimated by the Labour Force Survey in 1982 declined by 3.6% from the previous year. In fact, paid employment in the Goods producing industries was only slightly above its 1977 level, and 9.6% below the 1981 level. The Service producing sector registered a decline of 0.9% in 1982.

Over the period 1978 to 1982, as a whole community and business services (4.1%), fishing (3.6%) and mining (3.0%) experienced the highest annual average rates of change. Declines were registered in forestry (-4.6%) and construction (-1.2%). The Service producing industries enjoyed a modest growth rate of 2.7% while the Goods producing sector indicated a decline of 0.3%.

The effect of the two recessions on employment during this period varied significantly by province (Table 7). In 1980, Ontario had a growth rate of 1.9%, down from 4.3% recorded in 1979, while employment growth in the Western provinces continued to accelerate, with the rates of change in Alberta and B.C. reaching 8.6% and 6.8% respectively.

Table 7 - Year-to-Year Percentage Changes in the
Number of Paid Workers by Province, 1978-83

<u>Province</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>Average 1978-82</u>	<u>1983</u>
Newfoundland	2.1	5.4	0.6	-1.9	1.6	-0.6
Prince Edward Island	0.0	0.0	2.7	-2.6	0.0	8.1
Nova Scotia	2.9	2.5	1.7	-3.8	0.8	1.4
New Brunswick	2.3	2.7	1.3	-4.8	0.4	1.4
Quebec	3.4	2.9	1.1	-6.1	0.3	2.4
Ontario	4.3	1.9	3.1	-2.6	1.7	0.5
Manitoba	2.1	2.1	1.5	-1.3	1.1	1.3
Saskatchewan	4.8	5.3	3.4	0.0	3.4	1.5
Alberta	7.3	8.6	7.4	-1.0	5.6	-2.7
British Columbia	4.5	6.8	3.7	-5.7	2.3	-1.7
CANADA	4.2	3.5	2.9	-3.6	1.8	0.5

Source: Labour Force Survey.

The major recession in 1981-82 affected Quebec, British Columbia and New Brunswick particularly severely, where declines of 6.1%, 5.7% and 4.8% in 1982 were registered respectively. By comparison, Alberta (-1.0%) was touched only lightly by the recession, and it was only in 1983 that the recession was fully felt (2.7% reduction in employment). Over the period 1978 to 1982, the highest annual average growth rates were enjoyed by Alberta (5.6%), Saskatchewan (3.4%) and British Columbia (2.3%), while Prince Edward Island (0.0%), Quebec (0.3%) and New Brunswick (0.4%) experienced the slowest growth in employment.

Other notable changes in the labour market include the increases in part-time paid employment even in 1982. As well, average hours worked have experienced a steady decline, both among the full-time and part-time paid workers.

CHANGES IN EMPLOYMENT AND FIRMS BY INDUSTRY, 1978-82

In this study, employment estimates are derived from a Full-Year Equivalent Concept, and the number of firms by employment size are estimated from the T4 Employment Estimates Data Base developed by Statistics Canada. The size of Continuous firms and Deaths is based on its size in 1978 while the size of Births is based on two times their employment size in the year of entry.

1. Changes of Employment by Industry, 1978-82

During the period from 1978 to 1982, 665,791 net new jobs were created by all industries (excluding public administration), which represented a 8.2% rate of change in employment (Table 8). Of these 665,791 new jobs, about 27,585 could not be allocated to any industry. The remaining 638,206 new jobs represented an increase of 7.9% in 1982 over 1978 level.

Table 8 - Net Employment Changes by Firm Size and by Industry, 1978-82

Industry	FIRM SIZE						All Sizes
	Less than 5	5 to Less than 20	20 to Less than 50	50 to Less than 100	100 to Less than 500	500 or More	
Primary	14,208	-1,641	-1,986	-1,238	X	X	7,837
Mining	4,510	7,359	2,177	1,800	1,156	7,217	24,219
Manufacturing	28,503	14,392	-3,518	-16,863	-31,062	-62,892	-71,440
Construction	11,732	-14,616	-12,659	-5,470	-3,310	3,511	-20,813
Transportation	18,156	1,480	-449	-454	-1,450	26,277	43,559
Wholesale Trade	25,318	6,299	-5,893	418	-910	-1,771	23,462
Retail Trade	66,356	18,817	4,879	-5,301	13,760	62,966	161,476
Finance	19,313	1,104	-307	6,635	8,237	17,387	52,371
Community Services	44,093	21,564	10,831	11,292	45,569	74,581	207,930
Business Services	98,566	34,590	12,283	11,896	36,411	15,861	209,607
Total	344,185	97,783	7,959	4,422	68,968	142,473	665,791

Note: X indicates data not available due to confidentiality.
Total includes unclassified.

The rates of change in employment varied by industry, mainly depending on each industry's vulnerability to the two recessions during this period. For example, in the Service producing industries, business services, community services and retail trade experienced increases of 17.5%, 16.7% and 14.9% respectively, while in the Goods producing industries, construction and manufacturing industries showed declines of 4.5% and 3.5% respectively (Table 9). In the mining industry¹, an exceptionally high growth rate of 14.0% was registered.

Table 9 - Percentage Rates of Change in Employment
by Firm Size and by Industry, 1978-82

Industry	FIRM SIZE						All Sizes
	Less than 5	5 to Less than 20	20 to Less than 50	50 to Less than 100	100 to Less than 500	500 or More	
Primary	37.9	-7.8	-16.4	-18.7	X	X	8.9
Mining	147.4	102.2	29.5	26.6	3.7	6.1	14.0
Manufacturing	81.6	12.6	-2.2	-10.8	-6.8	-5.6	-3.5
Construction	13.6	-13.7	-16.8	-11.4	-4.0	5.8	-4.5
Transportation	69.4	3.2	-1.2	-1.4	-1.9	5.5	6.2
Wholesale Trade	56.2	5.9	-6.2	0.6	-0.8	-2.1	4.6
Retail Trade	48.7	8.0	3.9	-6.9	13.2	15.5	14.9
Finance	45.3	1.9	-0.8	27.0	12.4	5.4	9.5
Community Services	78.0	48.5	20.5	18.2	17.7	9.6	16.7
Business Services	64.6	13.5	6.5	9.5	18.5	5.7	17.5
Total	54.3	9.8	1.0	0.7	4.9	3.9	8.2

Note: X indicates data not available due to confidentiality.
Total includes unclassified.

¹ The dynamic growth in employment of the mining industries may be attributed to the steep increase in energy prices during 1979, which more than offsets the decline in this industry in 1981-82.

The rate of employment change also varied significantly by firm size and industry. As illustrated in Table 9, firms with less than 5 employees experienced an employment increase of 54.3% between 1978 and 1982, while firms of 20 to less than 50 employees, and 50 to less than 100 employees experienced growth of only 1.0% and 0.7% respectively. In terms of industry by firm size, firms of less than 5 employees in mining, manufacturing and community services were the most dynamic, with increases of 147.4%, 81.6% and 78.0%, respectively. Although the overall manufacturing industry experienced a decline of 3.5% over the period, manufacturing firms of less than 20 employees had registered a strong growth in employment. In the primary and the construction industries, firms with 20 to less than 100 employees had large job losses, registering declines of more than 10%.

2. Percentage Share of Job Creation by Firm Size and by Industry, 1978-82

Over the period 1978-82, business services, community services, and retail trade were responsible for 31.5%, 31.2%, 24.3% of the net employment changes respectively, while manufacturing and construction accounted for 10.7% and 3.1% of the jobs lost respectively between 1978 and 1982 (Table 10). In spite of the high growth rate (14.0%) in the mining industry, mining contributed only 3.6% of all new jobs over the period due to its relatively small share of overall employment in the economy.

Concerning the contribution to net new jobs by firm size "Polarization" was observed. Both the smallest and the very large firms have contributed significantly to the net employment growth over the period 1978 to 1982.

Firms with less than 5 employees provided the largest share of net new jobs (51.7%). Their share of employment in 1978 is only 7.8%. Firms with 500 or more employees contributed 21.4% of the total net employment gain, while their share of total employment in 1978 was 45.2%.

Table 10 - Percentage Share of Job Creation
by Firm Size and by Industry, 1978-82

Industry	FIRM SIZE						
	Less than 5	5 to Less than 20	20 to Less than 50	50 to Less than 100	100 to Less than 500	500 or More	All Sizes
Primary	2.1	-0.2	-0.3	-0.2	X	X	1.2
Mining	0.7	1.1	0.3	0.3	0.2	1.1	3.6
Manufacturing	4.3	2.2	-0.5	-2.5	-4.7	-9.4	-10.7
Construction	1.8	-2.2	-1.9	-0.8	-0.5	0.5	-3.1
Transportation	2.7	0.2	-0.1	-0.1	-0.2	3.9	6.5
Wholesale Trade	3.8	0.9	-0.9	0.1	-0.1	-0.3	3.5
Retail Trade	10.0	2.8	0.7	-0.8	2.1	9.5	24.3
Finance	2.9	0.2	0.0	1.0	1.2	2.6	7.9
Community Services	6.6	3.2	1.6	1.7	6.8	11.2	31.2
Business Services	14.8	5.2	1.8	1.8	5.5	2.4	31.5
Total	51.7	14.7	1.2	0.7	10.4	21.4	100.0

Note: X indicates data not available due to confidentiality.
Total includes unclassified.

By industry, the largest share of net new jobs was created by firms of less than 5 employees in business services (14.8%) and retail trade (10.0%); and by firms of 500 or more employees in community services (11.2%). In spite of the remarkable growth rates experienced by firms of less than 5 employees in mining (147.4%), and manufacturing (81.0%), their contribution to net new jobs

was relatively small because they employed less than 1% of employment in 1978. In terms of jobs lost, the manufacturing industry had experienced losses in the large firms (500 or more employees) and medium firms (50 to less than 500 employees), which accounted for -9.4% and -7.2% of net job growth respectively.

3. Percentage Share of Job Creation
by Firm Size Within Each Industry, 1978-82

As indicated in the previous section, the Canadian economy exhibited a bi-modal pattern of job creation across firm size categories. Table 11 illustrates the pattern of job creation by firm size within each industry.

Table 11 - Percentage Share of Job Creation
by Firm Size Within Each Industry, 1978-82

Industry	FIRM SIZE						
	Less than 5	5 to Less than 20	20 to Less than 50	50 to Less than 100	100 to Less than 500	500 or More	All Sizes
Primary	181.3	-20.9	-25.3	-15.8	X	X	100.0
Mining	18.6	30.4	9.0	7.4	4.8	29.8	100.0
Manufacturing	39.9	20.1	-4.9	-23.6	-43.5	-88.0	-100.0
Construction	56.4	-70.2	-60.8	-26.3	-15.9	16.9	-100.0
Transportation	41.7	3.4	-1.0	-1.0	-3.3	60.3	100.0
Wholesale Trade	107.9	26.8	-25.1	1.8	-3.9	-7.5	100.0
Retail Trade	41.1	11.7	3.0	-3.3	8.5	39.0	100.0
Finance	36.9	2.1	-0.6	12.7	15.7	33.2	100.0
Community Services	21.2	10.4	5.2	5.4	21.9	35.9	100.0
Business Services	47.0	16.5	5.9	5.7	17.4	7.6	100.0
Total	51.7	14.7	1.2	0.7	10.4	21.4	100.0

Note: X indicates data not available due to confidentiality.
Total includes unclassified.

The polarization pattern of job creation can be observed in mining, construction, transportation, retail trade, finance, insurance and real estate, and community services. In manufacturing, firms of less than 20 employees were responsible for creating new jobs, while firms of other size categories registered job losses between 1978 and 1982. The polarization pattern is not evident in wholesale trade and business services.

4. Components of Job Creation, 1978-82

The net employment changes can be partitioned into two components or factors, namely, changes in the number of firms and changes in the size of firms. The variation of employment due to changes in the number of firms can be further reviewed in terms of births and deaths. Changes in the size of firms can be split into expansion and contraction.

During this period, the overall net employment change of 8.2% was attributable to the changes in the size of firms (6.1%) rather than to the changes in the number of firms (2.1%) (Table 12). The change in the size of firms is relatively more significant in most industries, except for the primary industry and business services where more jobs are created because of the births of new firms than through the expansion of existing firms. In wholesale trade, jobs are lost because of a low birth rate and high death rate, while expansion of existing firms produces a net increase in jobs.

Table 12 - Components of Job Creation by Industry, 1978-82

<u>Industry</u>	<u>Total Net Change</u>	<u>Changes in # of Firms</u>			<u>Changes in Size of Firms</u>		
		<u>Birth</u>	<u>Death</u>	<u>Net Change</u>	<u>Expan- sion</u>	<u>Contra- ction</u>	<u>Net Change</u>
Primary	8.9	28.6	-18.3	10.3	18.5	-19.9	-1.4
Mining	14.0	9.1	-4.2	4.9	24.2	-15.1	9.1
Manufacturing	-3.5	5.6	-7.3	-1.7	11.9	-13.6	-1.7
Construction	-4.5	17.3	-18.3	-1.0	19.7	-23.3	-3.6
Transportation	6.2	5.7	-5.0	0.7	13.2	-7.7	5.5
Wholesale Trade	4.6	11.6	-12.6	-1.0	20.1	-14.5	5.6
Retail Trade	14.9	14.5	-12.2	2.3	23.1	-10.4	12.7
Finance	9.5	8.2	-7.4	0.8	17.4	-8.7	8.7
Community Services	16.6	4.8	-2.6	2.2	17.1	-2.7	14.4
Business Services	17.5	26.2	-16.9	9.3	21.4	-13.2	8.2
Total	8.2	11.8	-9.7	2.1	17.4	-11.3	6.1

Note: Total includes unclassified.

Analyzed by size of firm, the increase in jobs because of expansion over contraction is consistently higher than those due to the difference of births and deaths. For firms with 20 to less than 500 employees, the number of jobs lost due to business closures is higher, if only slightly so, than those gained as a result of business start-up. Firm expansions create more new jobs than jobs lost due to contraction of businesses in all size classes.

Table 13 - Components of Job Creation by Firm Size, 1978-82

<u>Firm Size</u>	<u>Total Net Change</u>	<u>Changes in # of Firms</u>			<u>Changes in Size of Firms</u>		
		<u>Birth</u>	<u>Death</u>	<u>Net Change</u>	<u>Expan- sion</u>	<u>Contra- ction</u>	<u>Net Change</u>
Less than 5	54.3	57.3	-31.1	26.2	41.7	-13.6	28.1
5 to Less than 20	9.8	23.8	-19.3	4.5	22.1	-16.9	5.2
20 to Less than 50	1.0	15.1	-15.4	-0.3	17.6	-16.3	1.3
50 to Less than 100	0.8	11.0	-14.1	-3.1	18.2	-14.4	3.8
100 to Less than 500	4.9	6.6	-9.1	-2.5	19.4	-11.9	7.5
500 or More	3.9	2.0	-1.6	0.4	11.0	-7.5	3.5
All Sizes	8.2	11.8	-9.7	2.1	17.4	-11.3	6.1

5. Changes in the Number of Firms by Firm Size and by Industry, 1978-82

The changes in the number of firms are a result of the differences between the number of births in new businesses and deaths of existing firms. Over the 1978 to 1982 period, the number of firms increased by 19.4% (Table 14), while the rate of change of employment was 8.2% (Table 13). Industries which experienced a high rate of change in the number of firms included the primary industry (37.1%), mining (29.1%) and business services (26.1%), while the lowest rates of change were recorded by construction (-0.4%), manufacturing (9.6%) and finance, insurance and real estate (10.0%). Although employment declined in manufacturing over the period, the number of firms had increased by 9.6%. In terms of firm size by industry a high rate of change in the number of firms is observed in firms of less than 5 employees in primary

industry (38.3%), mining (34.5%), and in business services (27.7%). By comparison, a high rate of losses in the number of firms can be found in firms with 50 to less than 100 employees (-7.5%) and 100 to less than 500 employees (-3.3%) in manufacturing.

Table 14 - Percentage Rates of Change in the Number of Firms
by Firm Size and by Industry, 1978-82

<u>Industry</u>	FIRM SIZE						
	<u>Less than 5</u>	<u>5 to Less than 20</u>	<u>20 to Less than 50</u>	<u>50 to Less than 100</u>	<u>100 to Less than 500</u>	<u>500 or More</u>	<u>All Sizes</u>
Primary	38.3	20.7	7.3	2.2	-2.0	0.0	37.1
Mining	34.5	24.3	25.4	7.1	9.2	1.4	29.1
Manufacturing	18.1	6.3	-1.8	-7.5	-3.3	1.6	9.6
Construction	-1.2	3.7	-0.9	3.7	6.7	23.1	-0.4
Transportation	16.1	6.1	-2.4	-2.8	-2.3	0.0	12.7
Wholesale Trade	14.8	5.3	-2.3	0.9	-0.7	5.3	10.3
Retail Trade	11.8	11.2	6.8	0.9	4.6	-1.1	11.3
Finance	10.2	10.1	8.0	8.8	1.6	1.7	10.0
Community Services	19.8	22.5	1.6	-0.3	0.5	1.2	18.4
Business Services	27.7	21.5	23.2	20.9	15.5	1.8	26.1
Total	21.9	14.0	7.4	3.7	2.4	2.0	19.4

Note: Total includes unclassified.

CHANGES IN EMPLOYMENT BY MAJOR GROUPS WITHIN INDUSTRY SECTORS, 1978-82

This section analyzes the patterns of changes in employment for major industry groups (2-digit SIC).

1. Primary Industries and Mining

Among the primary industries, agriculture, fishing and trapping experienced growth rates in employment of 24.2% and 47.1%, creating 13,397 and 1,054 jobs respectively¹ (Table 15). However, the forestry industry registered a decline of 22.0% in employment, or a loss of 6,614 jobs. Only firms employing less than 5 employees recorded positive change with a 16.2% growth rate.

¹ The high growth rate in fishing and trapping is probably attributable to the rapid expansion of the fishing industry during 1978 to 1980 as a result of the declaration of a 200 mile offshore territorial limit in 1977. In fact, the strong growth in employment during this period exceeds the declines in this industry experienced during 1980 to 1982.

According to the T4 Employment Estimates Data Base, the number of paid workers in the fishing and trapping industry was about 2,238 in 1978. This is considerably less than corresponding estimates of 19,000 in 1978 and 11,000 in 1982 from the Labour Force Survey (LFS).

Table 15 - Employment Changes by Firm Size in the Major Groups
of the Primary and Mining Industries, 1978-82

<u>Industry</u>	EMPLOYMENT				
	<u>1978</u>	<u>1982</u>	<u>Net Change 1978-82</u>	<u>Rate of Change %</u>	<u>% Share of Job Creation</u>
Agriculture	55,280	68,677	13,397	24.2	170.9
Forestry	30,123	23,509	-6,614	-22.0	-84.4
Fishing and Trapping	2,238	3,292	1,054	47.1	13.4
Primary	87,642	95,478	7,837	8.9	100.0
Metal Mines	78,808	80,033	1,225	1.6	5.1
Mineral Fuels	35,969	59,070	23,102	64.2	95.4
Non-metal Mines	19,842	15,415	-4,427	-22.3	-18.3
Quarries and Sand Pits	5,959	5,458	-502	-8.4	-2.1
Services Incidental to Mining	32,977	37,798	4,821	14.6	19.9
Mining	173,555	197,774	24,219	14.0	100.0

RATES OF CHANGE (%) BY FIRM SIZE

<u>Industry</u>	<u>Less than 5</u>	<u>5 to Less than 20</u>	<u>20 to Less than 50</u>	<u>50 to Less than 100</u>	<u>100 to Less than 500</u>	<u>500 or More</u>
Agriculture	40.6	1.5	-0.1	1.1	13.9	0.0
Forestry	16.2	-23.9	-32.9	-33.0	X	X
Fishing and Trapping	63.0	37.2	43.9	X	X	0.0
Primary	37.9	-7.8	-16.4	-18.7	X	X
Metal Mines	149.4	475.4	38.7	29.6	0.1	-0.1
Mineral Fuels	219.5	446.4	71.1	106.4	23.0	51.8
Non-metal Mines	-6.6	-8.1	-7.9	17.6	-4.7	-27.8
Quarries and Sand Pits	3.2	-11.2	-11.7	X	X	0.0
Services Incidental to Mining	189.5	152.4	37.3	13.8	-1.8	-17.0
Mining	147.4	102.2	29.5	26.6	3.7	6.1

Note: X indicates data not available due to confidentiality.

Agriculture created the largest share of new jobs in the primary industries, particularly firms of less than 5 employees (Table 15). Most of the jobs in the primary industry were lost by the forestry group, where firms with 5 to less than 100 employees accounted for almost all the losses.

Among the major groups in the mining industry, mineral fuels enjoyed the highest rate of change in employment (95.4%), gaining 23,102 jobs (Table 15). Firms with less than 20 employees, with growth rates in excess of 200%, had the highest growth rates of all major groups in the mining industry. This exceptionally high rate of change may be attributable to the increase of energy prices in 1979 and 1980. Other associated industries, such as services incidental to mining, also experienced a high growth rate (19.9%), or an increase of 4,821 jobs.

The other major groups in mining, non-metal mines, quarries and sand pits incurred declines in employment of 22.3% and 8.4%, or a loss of 4,427 and 502 jobs respectively. This may be due to the slump in construction during the recessions. However, firms with less than 5 employees in quarries and sand pits still recorded some growth in employment in spite of the overall decline.

The mineral fuels group accounts entirely for the dynamic growth in employment in mining. Non-metal mines, quarries and sand pits all contributed job losses in mining.

2. Manufacturing

The manufacturing industry had a decline of 3.5% in employment, or 71,440 jobs lost during 1978 to 1982 (Table 16). However, not all the major groups in manufacturing experienced a decline in jobs. The seven major groups which registered increases in employment were electrical products (13.0%), printing and publishing (8.4%), petroleum and coal products (8.0%), rubber and plastics products (7.0%), chemicals and chemical products (4.7%), miscellaneous manufacturing (3.5%) and food and beverages (0.4%), while large declines occurred in wood (-14.3%), transportation equipment (-13.9), non-metallic mineral products (-13.5%), textiles (-12.6%) and clothing (-10.1%). Firms with less than 5 employees achieved growth rates of well over 25% or more in all industries except tobacco products.

Table 16 - Employment Changes by Firm Size in the Major Groups of the Manufacturing Industry, 1978-82

Industry	EMPLOYMENT			
	1978	1982	Net Change 1978-82	Rate of Change %
Food and Beverages	262,635	263,639	1,004	0.4
Tobacco Products	9,092	8,910	-182	-2.0
Rubber and Plastic Products	58,435	62,509	4,074	7.0
Leather	29,260	28,507	-753	-2.6
Textiles	76,810	67,163	-9,647	-12.6
Knitting Mills	20,631	19,032	-1,600	-7.8
Clothing	113,007	101,544	-11,463	-10.1
Wood	115,971	99,330	-16,641	-14.3
Furniture and Fixture	54,022	49,166	-4,856	-9.0
Paper and Allied	170,451	158,573	-11,877	-7.0
Printing, Publishing and Allied	119,489	129,490	10,001	8.4
Primary Metal	115,396	110,734	-4,662	-4.0
Metal Fabricating	179,125	170,918	-8,207	-4.6
Machinery	97,794	90,732	-7,062	-7.2
Transportation Equipment	212,454	182,823	-29,631	-13.9
Electrical Products	136,229	153,970	17,741	13.0
Non-Metallic Mineral Prod.	61,573	53,266	-8,307	-13.5
Petroleum and Coal Prod.	45,343	48,973	3,630	8.0
Chemical and Chemical Prod.	96,977	101,536	4,559	4.7
Miscellaneous Manuf.	70,589	73,027	2,438	3.5
Total	2,045,282	1,973,842	-71,440	-3.5

RATES OF CHANGE (%) BY FIRM SIZE

Industry	Less	5 to	20 to	50 to	100 to	500 or More
	than 5	Less than 20	Less than 50	Less than 100	Less than 500	
Food and Beverages	57.8	6.8	-2.5	-1.5	1.8	-1.9
Tobacco Products	0.0	-21.9	X	0.0	X	0.3
Rubber and Plastic Products	150.3	26.5	13.3	-7.8	-10.5	12.6
Leather	135.7	29.2	20.7	-10.5	-7.9	-8.2
Textiles	89.7	4.3	6.3	-20.6	-22.4	-12.0
Knitting Mills	87.9	32.6	3.3	-13.7	-16.1	-3.0
Clothing	155.6	25.9	-8.9	-16.6	-18.0	-17.2
Wood	38.2	-4.6	-18.9	-32.6	-14.1	-14.1
Furniture and Fixture	60.0	11.4	-14.3	-19.7	-4.8	-39.7
Paper and Allied	86.8	33.5	4.5	-0.6	1.2	-8.9
Printing, Publishing and Allied	83.0	6.8	-0.8	-1.9	7.8	6.0
Primary Metal	95.9	19.8	22.6	-9.7	-17.0	-3.5
Metal Fabricating	92.3	15.7	0.6	-8.9	-12.4	-14.3
Machinery	148.9	35.3	-4.3	-3.2	-1.1	-21.1
Transportation Equipment	105.6	8.2	-11.8	-26.8	-11.8	-15.2
Electrical Products	143.8	60.2	36.7	0.1	19.5	9.3
Non-Metallic Mineral Prod.	27.8	-6.8	-26.7	-15.4	-14.4	-13.5
Petroleum and Coal Prod.	172.7	132.5	X	X	14.9	6.7
Chemical and Chemical Prod.	77.1	18.5	7.2	10.4	3.4	3.0
Miscellaneous Manuf.	71.4	4.6	3.7	-4.6	-7.6	4.5
Total	81.6	12.6	-2.2	-10.8	-6.8	-5.6

Note: X indicates data not available due to confidentiality.

The growth of employment in electrical products, printing and publishing, petroleum and coal products, rubber and plastic products, and chemical and chemical products and the decline of textiles and clothing may be attributed to more long term structural factors, such as changes in consumer demand and the competitiveness or lack thereof of domestic industries. However, cyclical economic factors may be responsible for declines in industries such as non-metallic minerals, wood and transportation equipment as demands for these products tend to decrease during recessionary periods. By comparison, the food and beverages industry tends to be less vulnerable in a short term economic downturn.

With regard to the pattern of job creation, most of the new jobs were created by firms with less than 20 employees in most of the major groups (Table 17). Among the seven major groups with positive employment growth, both the smallest and the largest firms were contributing to new jobs, with the exception of the food and beverages group, where firms with 100 to less than 500 employees provided the most new jobs.

Table 17 - Percentage Share of Job Creation by Firm Size
 Within Major Groups in the Manufacturing Industry, 1978-82

Major Group	FIRM SIZE						
	Less than 5	5 to Less than 20	20 to Less than 50	50 to Less than 100	100 to Less than 500	500 or More	All Sizes
Food and Beverages	255.4	91.6	-43.0	-21.8	106.2	-288.2	100.0
Tobacco Products	0.0	-7.7	X	0.0	X	13.2	-100.0
Rubber and Plastics Products	30.9	22.2	16.8	-14.6	-37.8	82.5	100.0
Leather	44.9	45.9	85.3	-51.7	-131.6	-93.0	-100.0
Textiles	8.1	1.5	3.2	-10.6	-52.0	-50.3	-100.0
Knitting Mills	7.3	17.6	4.4	-25.0	-110.8	6.6	-100.0
Clothing	23.2	19.6	-14.2	-29.0	-73.0	-26.7	-100.0
Wood	8.3	-2.9	-15.0	-27.1	-35.8	-27.6	-100.0
Furniture and Fixture	35.8	14.8	-26.6	-34.3	-18.2	-71.4	-100.0
Paper and Allied	2.4	4.9	1.4	-0.1	1.6	-110.1	-100.0
Printing, Publishing & Allied	45.4	10.1	-1.1	-2.3	19.8	28.2	100.0
Primary Metal	5.1	4.8	11.2	-6.2	-41.2	-73.7	-100.0
Metal Fabricating	56.6	37.8	2.0	-23.0	-72.9	-100.5	-100.0
Machinery	26.9	24.3	-5.4	-4.4	-4.3	-137.1	-100.0
Transportation Equipment	4.2	1.0	-2.3	-5.3	-9.9	-87.8	-100.0
Electrical Products	7.4	8.6	9.3	0.0	19.8	54.8	100.0
Non-Metallic Mineral Products	5.0	-4.2	-18.0	-8.7	-20.7	-53.4	-100.0
Petroleum and Coal Products	1.6	5.8	X	X	7.4	79.7	100.0
Chemical and Chemical Products	10.6	11.7	7.5	13.4	19.1	37.7	100.0
Miscellaneous Manuf.	103.2	18.5	14.5	-17.9	-55.7	37.4	100.0
Total	39.9	20.1	-4.9	-23.6	-43.5	-88.0	-100.0

Note: X indicates data not available due to confidentiality.

The net job losses in the manufacturing industry were primarily attributable to the transportation equipment and wood product groups which accounted for 41.5% and 23.3% respectively (Table 18). 36.4% of all job losses in manufacturing was attributable to firms with 500 or more employees in the transportation equipment group.

Table 18 - Percentage Share of Job Creation by Firm Size
and by Major Groups in the Manufacturing Industry, 1978-82

Major Group	FIRM SIZE						
	Less than 5	5 to Less than 20	20 to Less than 50	50 to Less than 100	100 to Less than 500	500 or More	All Sizes
Food and Beverages	3.6	1.3	-0.6	-0.3	1.5	-4.1	1.4
Tobacco Products	0.0	0.0	X	0.0	X	0.0	-0.3
Rubber and Plastics Products	1.8	1.3	1.0	-0.8	-2.2	4.7	5.7
Leather	0.5	0.5	0.9	-0.5	-1.4	-1.0	-1.1
Textiles	1.1	0.2	0.4	-1.4	-7.0	-6.8	-13.5
Knitting Mills	0.2	0.4	0.1	-0.6	-2.5	0.1	-2.2
Clothing	3.7	3.2	-2.3	-4.6	-11.7	-4.3	-16.0
Wood	1.9	-0.7	-3.5	-6.3	-8.3	-6.4	-23.3
Furniture and Fixture	2.4	1.0	-1.8	-2.3	-1.2	-4.9	-6.8
Paper and Allied	0.4	0.8	0.2	0.0	0.3	-18.3	-16.6
Printing, Publishing & Allied	6.4	1.4	-0.2	-0.3	2.8	4.0	14.0
Primary Metal	0.3	0.3	0.7	-0.4	-2.7	-4.8	-6.5
Metal Fabricating	6.5	4.3	0.2	-2.6	-8.4	-11.5	-11.5
Machinery	2.7	2.4	-0.5	-0.4	-0.4	-13.6	-9.9
Transportation Equipment	1.8	0.4	-1.0	-2.2	-4.1	-36.4	-41.5
Electrical Products	1.8	2.1	2.3	0.0	4.9	13.6	24.8
Non-Metallic Mineral Products	0.6	-0.5	-2.1	-1.0	-2.4	-6.2	-11.6
Petroleum and Coal Products	0.1	0.3	X	X	0.4	4.0	5.1
Chemical and Chemical Products	0.7	0.7	0.5	0.9	1.2	2.4	6.4
Miscellaneous Manuf.	3.5	0.6	0.5	-0.6	-1.9	1.3	3.4
Total	39.9	20.1	-4.9	-23.6	-43.5	-88.0	-100.0

Note: X indicates data not available due to confidentiality.

3. Construction, Transportation, Communication, and Other Utilities,
Finance, Insurance and Real Estate

As a result of two recessions during the 1978 to 1982 period, the construction industry registered a decline in employment of 4.5%, losing 20,813 jobs (Table 19). The general contractors group was responsible for 60.7% of lost jobs in construction, with the special-trade contractors group accounting for the balance. The only increase in jobs for these two groups occurred with firms of less than 5 employees and those of 500 or more employees.

Table 19 - Employment Changes by Firm Size in the Major Groups of Construction, Transportation, Communication and Other Utilities, Finance, Insurance and Real Estate, 1978-82

<u>Industry</u>	EMPLOYMENT				
	<u>1978</u>	<u>1982</u>	<u>Net Change 1978-82</u>	<u>Rate of Change %</u>	<u>% Share in Job Creation</u>
General Contractors	217,904	205,281	-12,624	-5.8	-60.7
Special Trade Contractors	240,154	231,965	-8,189	-3.4	-39.3
Construction	458,059	437,246	-20,813	-4.5	-100.0
Transportation	356,972	360,799	3,827	1.1	8.8
Storage	16,642	17,202	560	3.4	1.3
Communication	145,223	173,463	28,240	19.4	64.8
Electric Power Gas & Water Utilities	115,860	119,541	3,682	3.2	8.5
Transportation	702,830	746,389	43,559	6.2	100.0
Finance Industries	291,029	313,355	22,325	7.7	42.6
Insurance Carriers	89,539	101,465	11,925	13.3	22.8
Insurance Agencies & Real Estate Industry	170,262	188,382	18,120	10.6	34.6
Finance	550,830	603,201	52,371	9.5	100.0

RATES OF CHANGE (%) BY FIRM SIZE

<u>Industry</u>	<u>Less than 5</u>	<u>5 to Less than 20</u>	<u>20 to Less than 50</u>	<u>50 to Less than 100</u>	<u>100 to Less than 500</u>	<u>500 or More</u>
General Contractors	3.8	-18.1	-19.6	-8.8	-2.3	6.0
Special Trade Contractors	19.5	-11.2	-14.7	-13.9	-6.4	5.3
Construction	13.6	-13.7	-16.8	-11.4	-4.0	5.8
Transportation	50.9	2.0	-5.9	-3.4	-7.0	0.3
Storage	45.5	24.3	7.0	-29.3	-26.7	6.7
Communication	573.5	17.4	10.3	6.4	22.8	16.2
Electric Power Gas & Water Utilities	46.3	4.8	-8.7	-3.9	5.9	2.7
Transportation	69.4	3.2	-1.2	-1.4	-1.9	5.5
Finance Industries	41.2	9.6	16.3	73.8	14.7	2.4
Insurance Carriers	30.4	21.0	2.0	15.5	20.6	11.5
Insurance Agencies & Real Estate Industry	46.9	-1.4	-10.5	1.1	6.7	13.3
Finance	45.3	1.9	-0.8	27.0	12.4	5.4

Note: X indicates data not available due to confidentiality.

Employment in all major groups in transportation, communication and other utilities increased between 1978 to 1982. Communication, with a growth rate of 19.4%, provided the largest share of new jobs in this industry. Firms of less than 5 employees created most of new employment in all major groups in transportation, communication and other utilities. By comparison, medium size firms (20 to less than 500 employees) in most of these major groups recorded decline in employment.

Employment in all major groups in finance, insurance and real estate industry increased during the study period. Within this industry, the most favorable growth rate in employment was recorded by insurance carriers (13.3%) (Table 19). "Polarization" pattern of job creation occurred in insurance agencies and real estate industry where the bulk of new jobs were created by the smallest and largest firms and medium size firms recorded decline or slow growth in employment. No discernable pattern of job creation by employment size, however, occurred in finance and insurance carriers.

4. Community Services and Business Services

Both service industries recorded similar and above average overall industry employment growth rates between 1978 and 1982. Moreover, all major groups within these industries were in a positive position throughout the period. The group health and welfare provided most new jobs in community services, and services to business management did the same in business and personal services (Table 20). Again, firms of less than 5 employees recorded the largest increase in new jobs in all major groups in both service industries.

Table 20 - Employment Changes by Firm Size in the Major Groups of
Community Services and Business and Personal Services, 1978-82

<u>Industry</u>	EMPLOYMENT				
	<u>1978</u>	<u>1982</u>	<u>Net Change 1978-82</u>	<u>Rate of Change %</u>	<u>% Share in Job Creation</u>
Education and Related	624,996	689,526	64,530	10.3	31.0
Health and Welfare	591,128	729,688	138,560	23.4	66.6
Religious Organizations	32,472	37,312	4,840	14.9	2.3
Community Services	1,248,596	1,456,526	207,930	16.6	100.0
Amusement and Recreation	81,998	93,748	11,750	14.3	5.6
Services to Bus. Mgmt.	354,546	434,154	79,608	22.5	38.0
Personal Services	75,292	88,261	12,969	17.2	6.2
Accommodation and Food	516,572	576,212	59,641	11.5	28.5
Misc. Services	170,742	216,380	45,639	26.7	21.8
Business and Personal Services	1,199,150	1,408,757	209,607	17.5	100.0

RATES OF CHANGE (%) BY FIRM SIZE

<u>Industry</u>	Less	5 to	20 to	50 to	100 to	500
	than 5	Less than 20	Less than 50	Less than 100	Less than 500	or More
Education and Related	293.4	118.3	4.9	2.4	16.8	4.9
Health and Welfare	81.2	37.2	25.8	25.4	18.7	16.6
Religious Organizations	15.3	14.9	7.1	10.5	X	X
Community Services	78.0	48.5	25.3	18.3	17.7	9.6
Amusement and Recreation	39.1	7.0	1.0	10.9	26.6	0.3
Services to Bus. Mgmt.	78.7	19.7	14.1	14.2	14.3	7.7
Personal Services	44.7	3.0	-2.5	2.2	18.7	7.8
Accommodation and Food	67.5	9.7	3.5	7.6	6.8	4.7
Misc. Services	63.1	27.0	14.7	8.9	60.9	5.3
Business and Personal Services	64.6	13.5	6.5	9.5	18.5	5.7

Note: X indicates data not available due to confidentiality.

CHANGES IN EMPLOYMENT BY PROVINCE, 1978-82

1. Changes in Employment by Sector, Firm Size and by Province, 1978-82

During the period from 1978 to 1982, Alberta, Saskatchewan and British Columbia experienced the best performance in employment growth, with growth rates reaching 29.0%, 16.8% and 14.2%, and gaining 213,224, 40,242 and 124,031 jobs, respectively (Table 21). By comparison, the slowest employment growth was in Quebec (-0.7%), losing 14,564, in New Brunswick (3.9%) and Newfoundland (3.9%), gaining 6,570 and 4,520 jobs, respectively. In terms of firm size, firms of less than 5 employees in all provinces achieved growth rates of over 30%, while performance of medium size firms such as those with 50 to less than 100 employees was mixed. Declines of 12.3%, 9.8% and 9.7% in Quebec, Nova Scotia and Newfoundland, respectively occurred alongside growth of 17.2% in Alberta and 9.2% in British Columbia. In all provinces except Quebec firms with 500 or more employees experienced a net increase in new jobs.

Table 21 - Percentage Rates of Change in Employment
by Firm Size and by Province, 1978-82

Province	FIRM SIZE						
	Less than 5	5 to Less than 20	20 to Less than 50	50 to Less than 100	100 to Less than 500	500 or More	All Sizes
Newfoundland	34.8	8.1	-1.4	-9.7	-0.8	1.6	3.9
Prince Edward Island	31.5	7.0	-10.5	2.3	2.1	3.1	5.5
Nova Scotia	39.0	5.6	-3.4	-9.8	10.3	5.0	7.0
New Brunswick	33.6	0.8	-7.0	-6.5	1.7	2.9	3.9
Quebec	41.6	3.0	-7.1	-12.3	-2.8	-4.1	-0.7
Ontario	51.3	10.9	3.3	4.9	6.2	2.8	7.8
Manitoba	43.0	2.9	-1.6	-0.4	-0.7	4.3	5.2
Saskatchewan	56.9	9.3	3.5	5.7	10.9	17.8	16.8
Alberta	102.4	24.2	11.7	17.2	17.0	26.5	29.0
British Columbia	60.2	12.2	6.1	9.2	10.6	8.1	14.2
CANADA	54.3	9.8	1.0	0.7	4.9	3.9	8.2

In Alberta all industries had positive growth rates with mining (45.3%), community, business and personal services (39.4%), retail trade (35.8%) and primary industries (33.1%) demonstrating the strongest growth in employment over this period (1978-1982) (Table 22). In Quebec the growth industries were primary industries (10.9%), community, business and personal services (7.8%) and retail trade (4.7%), while five out of the remaining six industries showed negative growth in employment. The highest rate of job loss in Quebec was observed in construction where there was a decline of 17.9% in 1982 over the 1978 employment level. The losses occurred in all firm sizes in this industry. In both provinces, the overall jobs created were mostly attributable to the smallest firms (less than 5 employees) and the job losses occurred mostly in medium size firms.

Table 22 - Percentage Rate of Change in Employment and
Percentage Share of Net Employment Change by
Firm Size and Industry, Quebec and Alberta, 1978-82

<u>Industry/Firm Size</u>	<u>Quebec</u>		<u>Alberta</u>	
	<u>Rate of Change</u>	<u>Share of Job Creation</u>	<u>Rate of Change</u>	<u>Share of Job Creation</u>
PRIMARY				
Less than 5	46.9	166	47.1	84
5 to Less than 20	12.3	21	-6.1	-4
20 to Less than 50	-23.6	-37	X	X
50 to Less than 100	-25.4	-29	-14.0	-2
100 to Less than 500	-16.4	-20	422.5	18
500 or More	0.0	0	X	X
Total	10.9	100	33.1	100
MINES				
Less than 5	33.5	3	176.5	13
5 to Less than 20	40.6	14	161.5	26
20 to Less than 50	3.1	1	52.7	8
50 to Less than 100	-8.8	-2	35.6	5
100 to Less than 500	-1.5	-3	2.5	1
500 or More	-13.5	-113	40.6	46
Total	-9.0	-100	45.3	100
MANUFACTURING				
Less than 5	72.1	13	113.8	28
5 to Less than 20	6.4	4	28.3	21
20 to Less than 50	-9.9	-10	5.8	5
50 to Less than 100	-19.6	-20	-0.1	0
100 to Less than 500	-15.8	-39	-1.1	2
500 or More	-9.6	-48	8.7	44
Total	-9.7	-100	10.4	100
CONSTRUCTION				
Less than 5	5.9	6	42.6	28
5 to Less than 20	-14.8	-20	-2.1	-2
20 to Less than 50	-27.2	-23	-9.7	-7
50 to Less than 100	-27.5	-17	4.8	2
100 to Less than 500	-19.5	-19	32.3	29
500 or More	-36.2	-28	63.6	50
Total	-17.9	-100	22.3	100
TRANSPORTATION				
Less than 5	60.5	193	83.5	25
5 to Less than 20	-2.2	-13	7.6	3
20 to Less than 50	-13.7	-69	5.7	2
50 to Less than 100	-12.8	-62	-2.3	-1
100 to Less than 500	-11.6	-100	7.6	6
500 or More	-0.7	-50	18.0	64
Total	-1.1	-100	17.4	100

Table 22 - Percentage Rate of Change in Employment and
Percentage Share of Net Employment Change by
Firm Size and Industry, Quebec and Alberta, 1978-82 (Cont'd)

<u>Industry/Firm Size</u>	<u>Quebec</u>		<u>Alberta</u>	
	<u>Rate of Change</u>	<u>Share of Job Creation</u>	<u>Rate of Change</u>	<u>Share of Job Creation</u>
WHOLESALE TRADE				
Less than 5	39.4	59	96.1	50
5 to Less than 20	-5.2	-20	25.2	31
20 to Less than 50	-18.0	-64	4.2	5
50 to Less than 100	-22.3	-58	21.1	17
100 to Less than 500	-11.8	-46	5.3	9
500 or More	16.4	29	-8.0	-12
Total	-5.8	-100	14.5	100
RETAIL TRADE				
Less than 5	40.4	133	74.1	23
5 to Less than 20	6.0	28	18.3	13
20 to Less than 50	-3.2	-9	26.4	8
50 to Less than 100	-17.9	-27	13.4	2
100 to Less than 500	-11.6	-24	7.3	2
500 or More	-0.4	-3	51.1	51
Total	4.7	100	35.8	100
FINANCE, INSURANCE & REAL ESTATE				
Less than 5	37.0	144	77.9	34
5 to Less than 20	2.6	19	5.8	3
20 to Less than 50	-1.2	-5	-9.5	-4
50 to Less than 100	3.9	11	26.0	5
100 to Less than 500	17.6	126	15.3	10
500 or More	-5.3	-196	21.1	50
Total	1.6	100	21.4	100
SERVICES				
Less than 5	47.0	45	155.6	38
5 to Less than 20	6.7	9	30.2	11
20 to Less than 50	4.0	4	17.2	6
50 to Less than 100	4.5	4	24.6	7
100 to Less than 500	14.4	38	30.2	14
500 or More	0.1	0	28.5	24
Total	7.8	100	39.4	100
TOTAL				
Less than 5	41.6	442	102.3	32
5 to Less than 20	3.0	51	24.2	12
20 to Less than 50	-7.1	-104	11.7	5
50 to Less than 100	-12.3	-144	17.2	5
100 to Less than 500	-2.8	-76	17.0	11
500 or More	-4.1	-269	26.5	35
Total	-0.7	-100	29.0	100

2. Provincial Contributions to Job Creation, 1978-82

During the period 1978 to 1982, Alberta's contribution to new jobs was exceptional. Of the 665,791 new jobs created in Canada over this period, 213,224 (32.0%) jobs were recorded in Alberta (Table 23). This contribution is the second largest after Ontario's and represents a 29% growth in net employment in the province. In 1978, Alberta had 9.1% of total employment in Canada, and by 1982 it had 10.8%, for a gain of 1.7 percentage points. British Columbia and Saskatchewan also increased their shares of total Canadian employment, from 10.8% to 11.4% and from 3.0% to 3.2% respectively. Their contribution to new jobs, however, was not as significant as that of Alberta. British Columbia accounted for 18.6% or 124,031 of the new jobs created over the period 1978 to 1982 while Saskatchewan registered a 6.1% contribution.

Table 23 - Percentage Share of Paid Employment by Province, 1978 and 1982

<u>Province</u>	<u>Employment</u>		<u>Share of Net Employment Gains</u>
	<u>1978</u>	<u>1982</u>	
Newfoundland	1.4	1.4	0.7
Prince Edward Island	0.3	0.3	0.2
Nova Scotia	2.7	2.7	2.3
New Brunswick	2.1	2.0	1.0
Quebec	26.3	24.1	-2.2
Ontario	39.8	39.7	37.6
Manitoba	4.2	4.0	2.6
Saskatchewan	3.0	3.2	6.1
Alberta	9.1	10.8	32.0
British Columbia	10.8	11.4	18.6
Other*	0.3	0.4	1.0
CANADA	100.0	100.0	100.0

* Other include Yukon, N.W.T. and Outside Canada.

Quebec, on the other hand, with the second largest share of total employment in Canada saw its share decline from 26.3% to 24.1%.

Ontario continued to have the largest share of total employment in Canada, even though it declined by 0.1 percentage point. Ontario's contribution of new jobs for the period 1978 to 1982 was 250,350, which represented a 7.8% growth in net employment and was below the national average growth rate of 8.2%.

3. Share of Job Creation by Firm Size and by Province, 1978-82

The Bi-polar pattern of job creation is again evident among most of the provinces, where the largest shares of new jobs are created by firms of less than 5 employees and firms with 500 or more employees (Table 24). Quebec is the only province which does not share this pattern. In this province, all the jobs are created by firms with less than 20 employees.

Table 24 - Percentage Share of Job Creation
by Firm Size and by Province, 1978-82

Province	FIRM SIZE						
	Less than 5	5 to 20	20 to 50	50 to 100	100 to 500	500 or More	All Sizes
Newfoundland	78.3	26.3	-3.2	-17.5	-3.2	19.4	100.0
Prince Edward Island	79.1	24.7	-27.7	4.4	8.8	10.6	100.0
Nova Scotia	49.6	10.4	-5.1	-11.6	28.0	28.7	100.0
New Brunswick	86.2	2.9	-17.1	-11.5	8.0	31.6	100.0
Quebec	442.2	51.4	-103.9	-144.3	-76.4	-269.0	100.0
Ontario	45.0	15.8	3.8	4.4	12.9	18.1	100.0
Manitoba	62.3	6.6	-3.0	-0.6	-2.3	36.9	100.0
Saskatchewan	36.7	8.9	2.5	2.7	11.7	37.4	100.0
Alberta	32.4	12.3	4.6	5.0	10.5	35.2	100.0
British Columbia	42.6	12.6	4.4	4.9	12.0	23.5	100.0
CANADA	51.7	14.7	1.2	0.7	10.4	21.4	100.0

Provinces which experienced strong economic growth in this period (1978-82), such as Alberta, Saskatchewan and British Columbia, tend to have both dynamic small and large firms. On the contrary, in provinces with slow growth, such as Quebec, Newfoundland and New Brunswick, new jobs were mainly contributed by the smallest firms (over 75%).

CHANGES IN THE PATTERN OF JOB CREATION AND SHARE OF EMPLOYMENT
BY FIRM SIZE, 1978-82

The first part of this section examines the variations in the percentage share of job creation by firm size within the period 1978 to 1982. The second part of this section identifies the changes in the shares of employment by firm size and by industry.

1. Changes in the Percentage Share of Job Creation by Firm Size, 1978-82

The percentage share of job creation by firm size varied from year to year within the period 1978 to 1982. For example, as illustrated in Table 25, the percentage share of new jobs created in 1979 varied from 6.1% to 29.7% while in 1982 the share varied from -46.5% to 8.8%. In 1979, employment growth was 5.6% and firms with more than 500 employees contributed 29.7% of new jobs as compared to the 25.1% attributed to firms with less than 5 employees. When employment declined in 1982 (-3.6%), only firms with less than 5 employees registered growth in employment. All groups of firms with more than 5 employees have shown declines, in particular firms with more than 500 employees, which accounted for 46.5% of the jobs lost in that period. Over the period 1978 to 1982 as a whole, firms with less than 5 employees contributed 51.7% of new jobs while firms with more than 500 employees accounted for 21.4%.

Table 25 - Percentage Share of Job Creation by Firm Size,
1978 to 1982

<u>Firm Size</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1978 to 1982</u>
Less than 5	25.1	30.2	39.3	8.8	51.7
5 to Less than 20	13.3	12.4	14.7	-14.4	14.7
20 to Less than 50	6.1	7.7	6.7	-14.5	1.2
50 to Less than 100	6.2	4.5	2.9	-11.6	0.7
100 to Less than 500	19.5	11.7	13.4	-21.9	10.4
500 or More	29.7	33.6	23.0	-46.5	21.4
Average Annual Percentage Change	5.6	3.5	2.7	-3.6	2.1

2. Changes in the Percentage Shares of Employment by Firm Size, 1978-82

One recurring theme in this report is that most of the new jobs in the economy during the period 1978 to 1982 are created by small firms. Thus it may be concluded that the percentage share of employment by small firms has increased considerably during this period. However, by adding or reducing employees, firms may cross over into larger or smaller size classes. Hence there are two ways to measure the contribution of a given size class. The first approach is to trace a cohort of firms at a given employment size in 1978 and the new firms of given employment size groups at the year of entry to review their contributions to the share of employment in 1982 (longitudinal method). As illustrated in Table 26, when measured on this basis small and new small firms accounted for 7.8% of total employment in 1978 and 11.2% in 1982, a 3.4% gain in share. In contrast, all groups of firms with more than 20 employees in 1978 have shown declines in share in 1982.

Table 26 - Percentage Share of Employment by Firm Size,
1978 and 1982

<u>Firm Size*</u>	<u>1978</u>	<u>1982</u>	<u>Change</u>
Less than 5	7.8	11.2	3.4
5 to Less than 20	12.4	12.6	0.2
20 to Less than 50	9.8	9.2	-0.6
50 to Less than 100	7.5	7.0	-0.5
100 to Less than 500	17.3	16.7	-0.6
500 or More	45.2	43.4	-1.8

* According to its employment size in 1978, or the year of entry for Births.

The second approach is to identify the size of firms according to their employment size for the given year instead of the employment size in the initial year used in the first method (cross section method). Table 27 shows that, measured in this way, the distribution remained fairly stable throughout the period. The change in employment share by firm size is less than 1% for each group over the five years.

Table 27 - Percentage Share of Employment By Firm Size,
by Year* 1978-82

<u>Firm Size*</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>
Less than 5	7.8	7.5	7.6	7.9	8.5
5 to Less than 20	12.4	12.4	12.3	12.4	12.4
20 to Less than 50	9.8	9.8	9.6	9.6	9.4
50 to Less than 100	7.5	7.4	7.5	7.4	7.2
100 to Less than 500	17.3	17.1	16.8	16.7	16.5
500 or More	45.2	45.8	46.1	46.2	46.0

* According to its employment size in the year under consideration. The percentage share of employment by firm size for any given year may not add up to 100 because of rounding.

The apparent paradox between the results in tables 26 (longitudinal method) and 27 (cross section method) is explained by the movement of firms across size classes over this period. Small and new small firms make their considerable contribution to employment creation by growing bigger and moving into large size classes, while the larger firms may contract and shift into smaller size classes.

For example, according to the longitudinal method, employment of the firms with 500 or more employees in 1982 was 3,798,259 or 43.4% of total employment in 1978. Based on the cross section method, the corresponding employment was 4,027,037 or 46.2% of total employment, which was 228,778 or 2.8% percentage points higher than the longitudinal method.

In both methods, firms which remained in the size class of 500 or more employees in both 1978 or initial year of entry and 1982 contributed 3,721,188 employees in 1982. The difference between these two methods lies in the employment attributed to the largest firms contracting in the longitudinal method and smaller firms expanding according to the cross section method. According to the longitudinal method, the balance of 75,071 employees was attributable to firms of 500 or more employees in 1978 or year of entry but contracted and shifted into smaller size classes. By comparison, according to the cross section method, the remaining 303,849 employees belonged to smaller firms with less than 500 employees in initial year and had grown to become 500 or more employees by 1982.

JOB CREATION AND CHANGES IN FIRM SIZE, 1978-82

The job creation process can be examined either through tracking firms that have been in continuous operation since 1978 - the "continuous" firms, or through tracking firms that have come into existence after 1978 - the "births", or through tracking of firms that ceased to operate in 1982 - the "deaths". In the initial year, 1978, 596,429 firms were in business and by 1982, there were 712,013 firms in operation. Of the base population of 596,429 firms, 384,846 firms remained active in 1982, and 211,583 firms had gone out of business by 1982. Over the period 1978-82, 327,167 new businesses came into existence.

Among the 596,429 firms in 1978, 311,583 had died by 1982, representing a 35.5% mortality rate (Table 28). Of the surviving 384,846 firms, the overwhelming majority of them (318,571 or 53.4% of 1978 firms) remained in the same size class. For firms in 1978, the likelihoods of shifting to a larger (30,195 firms or 5.1%) or smaller size (36,080 firms or 6.0%) were relatively small and similar.

The probabilities of dying, growing or declining did vary considerably by firm size class. For example, the death rate among firms of less than 5 employees was 41.1%. It dropped steadily by firm size class and was only 4.0% among the largest firms. By comparison the probability of remaining in the same size class was highest among the largest (100 or more employees) and smaller firms

(less than 20 employees). Medium size firms (20 to less than 99 employees) recorded the highest probability of moving either to a smaller or larger size class. This suggests that many of these medium size firms may represent a transitional stage for growing small firms or more likely declining large firms.

Table 28 - Growth Pattern of Firms, 1978 to 1982

<u>Firm Size in 1978</u>	FIRM SIZE IN 1982								Total Firms in 1978	
	Continuous Firms						Deaths			
	Smaller Size		Same Size as in 1978		Larger Size					
	Number	%	Number	%	Number	%	Number	%	Number	%
Less than 5	-	0.0	239,967	53.4	24,611	5.5	184,815	41.1	449,393	100.0
5 to Less than 20	20,584	19.9	55,051	53.2	7,222	7.0	20,704	20.0	103,561	100.0
20 to Less than 50	6,276	24.1	12,976	49.9	2,693	10.4	4,058	15.6	26,003	100.0
50 to Less than 100	2,113	24.1	4,181	47.7	1,235	14.1	1,237	14.1	8,766	100.0
100 to Less than 500	1,054	15.2	4,863	70.1	319	4.6	699	10.1	6,935	100.0
500 or More	168	9.5	1,533	86.6	-	0.0	70	4.0	1,771	100.0
Total	30,195	5.1	318,571	53.4	36,080	6.0	211,583	35.5	596,429	100.0

The growth pattern of "continuous" firms and their contributions to job creation by firm size from the initial year (1978) to the terminal year (1982) is further illustrated in Table 29.

The analysis is focused on "continuous" firms, and the initial observation indicated that both the very small firms (less than 5 employees) and the very large firms (500 or more employees) were major contributors of new jobs. Of the 384,846 "continuous" firms, 264,578 firms were identified to have employed less than 5 employees in 1978, representing 68.7% of all "continuous" firms. These smaller firms created 178,089 new jobs which represented 35.9% of the 496,104 net employment change from all the "continuous" (384,846) firms. Among these 264,578 firms, 90.7% or 239,967 firms remained in the same firm size employing less than 5 employees, creating 10,601 new jobs over the period 1978-1982. The remaining 9.3% of the total firms or 24,611 firms expanded their operations and had contributed an increase of 167,488 new jobs (representing 94.0% of the total net employment change from this firm size category). Further examination indicated that the bulk of the new jobs created by continuous firms of less than 5 employees came from 23,445 firms which showed a more modest expansion of their operations (from firm size of less than 5 employees to firm size of 5 to 19 employees), creating 113,533 jobs or 63.8% of the total net employment change for this firm size category.

There were 1,701 firms identified as having 500 or more employees in 1978; 1,533 of these firms were still in operation in 1982 and had created 195,160 new jobs. The remaining 168 firms had reduced their operations, registering a decline of 67,527 jobs.

Continuing firms with 100 to less than 500 employees had also created a significant number of new jobs. By 1982, there were 319 firms or 5.1% of the 6,236 firms who had expanded their operations and created 126,097 new jobs. Concurrently, there were 1,054 firms or 16.9% of firms in this same category who had reduced their employment, contributing a loss of 83,562 jobs. The total net contribution by this group of firms was 104,239 new jobs, or 21.0% of the total (496,104) new jobs created by all "continuous" firms.

Analysis of the "continuous" firms and their number of employees demonstrates that both the very small firms (less than 5 employees) and the very large firms (500 or more employees) were the major contributors of new jobs. When "births" and "deaths" are included in the analysis, the very small firms (less than 5 employees) account for 344,185 new jobs, representing 51.7% of all new jobs created in the economy during the period 1978-82, while the very large firms account for only 142,473 new jobs (21.4% of total new jobs) in the same period. This significant increase in the number of new jobs contributed by the very small firms was mainly the result of "births", while the jobs created by the very large firms were the result of these firms expanding their operations.

APPENDIX A: THE UNCLASSIFIED

One of the problems related to the industrial classification of firms is the issue of the unclassified. Most of these cases involve start up of small new firms who have not provided sufficient information on the nature of their activities when they applied for a new PD number from Revenue Canada¹. These firms registered the highest growth rate in employment between 1978 to 1982 (104.8%), relative to firms of other industries (Table A1). In fact, the number of employees in the unclassified firms has more than doubled in all firm size categories. As a result, their share of employment increased to 0.6% in 1982, up from 0.3% in 1978, and contributed to 4.1% of all new jobs created over the study period.²

These firms are primarily in the group of less than 5 employees. For example, when the unclassified firms are excluded, the rate of change in employment between 1978 and 1982 for firms with less than 5 employees and firms with 5 to less than 20 employees is reduced from 54.3% to 53.3%, and from 9.8% to 9.0%, respectively. By comparison, the rate of change in employment for firms of other size classes changed only slightly.

¹ If a firm does not provide sufficient information on the nature of their activities, they will be contacted by Statistics Canada for further details.

² One of the possible reason for the increasing share of unclassified firms is that due to resource constraints, Statistics Canada is falling behind in contacting firms the nature of whose activities cannot be determined.

The proportion of employment which is unclassified also increased in all provinces (Table A2). For example, while the share of unclassified jobs ranged from 0.2% in Ontario to 0.5% in Newfoundland and British Columbia in 1978, the corresponding share varied from 0.3% in Nova Scotia to 1.1% in British Columbia in 1982. Over the study period, the proportion of new jobs created by these firms is about 16.2% in Quebec, and less than one tenth in other provinces. Their impact on the rate of job creation in all the provinces appears to be relatively small. As well, the percentage share of job creation by province is similar with or without taking the employment of these firms into consideration.

Table A1 - The Unclassified

	FIRM SIZE						
	Less than <u>5</u>	5 to Less than <u>20</u>	20 to Less than <u>50</u>	50 to Less than <u>100</u>	100 to Less than <u>500</u>	500 or <u>More</u>	All <u>Sizes</u>
A. Percentage Share of Employment of Unclassified, 1978 and 1982							
1978	2.1	0.5	0.3	0.2	X	X	0.3
1982	2.7	1.2	0.6	0.5	X	X	0.6
B. Percentage Rate of Change in Employment and Firm Size by Industry, 1978-82							
Unclassified	100.5	172.4	100.3	141.4	X	X	104.8
Total (including Unclassified)	54.3	9.8	1.0	0.7	4.9	3.9	8.2
Total (excluding Unclassified)	53.3	9.0	0.7	0.4	X	X	7.9
C. Percentage Share of Net Employment Changes by Firm Size and by Industry, 1978-82							
Unclassified	2.0	1.3	0.4	0.3	X	X	4.1
Total (including Unclassified)	51.7	14.7	1.2	0.7	10.4	21.4	100.0
Total (excluding Unclassified)	49.7	13.4	0.8	0.4	X	X	95.9
D. Percentage Share of Net Employment Changes by Firm Size Within Industry, 1978-82							
Unclassified	48.7	30.6	9.4	6.2	X	X	100.0
Total (including Unclassified)	51.7	14.7	1.2	0.7	10.4	21.4	100.0
Total (excluding Unclassified)	51.8	14.0	0.8	0.4	X	X	100.0

Note: X indicates data not available due to confidentiality.

Table A2 - The Unclassified

	PROVINCE										<u>CANADA</u>
	<u>NFLD</u>	<u>PEI</u>	<u>NS</u>	<u>NB</u>	<u>QUE</u>	<u>ONT</u>	<u>MAN</u>	<u>SASK</u>	<u>ALTA</u>	<u>BC</u>	
A. Percentage Share of Employment by Province, 1978 and 1982											
1978	0.5	0.4	0.3	0.4	0.4	0.2	0.3	0.4	0.4	0.5	0.3
1982	0.6	0.7	0.3	0.6	0.5	0.4	0.7	1.0	0.9	1.1	0.6
B. Percentage Rate of Change in Employment by Province, 1978-82											
Total (including Unclassified)	3.9	5.5	7.0	3.9	-0.7	7.8	5.2	16.8	29.0	14.2	8.2
Total (excluding Unclassified)	3.8	5.2	7.0	3.7	-0.8	7.5	4.8	16.1	28.3	13.5	7.9
C. Percentage Share of Net Employment Changes Contributed by the Unclassified by Province, 1978-82											
Share of Province Total	2.8	5.0	1.2	5.5	16.2	3.6	8.6	4.2	2.6	5.4	4.1
D. Percentage Share of Total Net Employment Changes by Province											
Share of Net Employment Changes (including Unclassified)	0.7	0.2	2.3	1.0	-2.2	37.6	2.6	6.0	32.0	18.6	100.0
Share of Net Employment Changes (excluding Unclassified)	0.7	0.2	2.4	1.0	-2.7	37.8	2.5	6.0	32.5	18.4	100.0

Table A3 - Components of Employment Change by Industry, 1978-82

	COMPONENTS				
	<u>Net Change</u>	<u>Birth</u>	<u>Death</u>	<u>Expansion</u>	<u>Contraction</u>
Unclassified	104.8	168.5	-77.4	19.4	-5.6
Total (including Unclassified)	8.2	11.8	-9.7	17.4	-11.3
Total (excluding Unclassified)	7.9	11.3	-9.5	17.4	-11.3

Table A4 - Components of Employment Change by Firm Size, 1978-82

Industry	COMPONENTS									
	<u>Net Change</u>		<u>Birth</u>		<u>Death</u>		<u>Expansion</u>		<u>Contraction</u>	
	<u>1</u>	<u>2</u>	<u>1</u>	<u>2</u>	<u>1</u>	<u>2</u>	<u>1</u>	<u>2</u>	<u>1</u>	<u>2</u>
Less than 5	54.3	53.3	57.3	54.6	-31.1	-29.9	41.7	42.4	-13.6	-13.8
5 to Less than 20	9.8	9.0	23.8	22.9	-19.3	-19.0	22.1	22.0	-16.9	-16.9
20 to Less than 50	1.0	0.7	15.1	14.6	-15.4	-15.2	17.6	17.6	-16.3	-16.3
50 to Less than 100	0.7	0.4	11.0	10.7	-14.1	-14.0	18.2	18.2	-14.4	-14.4
100 to Less than 500	4.9	X	6.6	X	-9.1	X	19.4	X	-11.9	X
500 or More	3.9	X	2.0	X	-1.6	X	11.0	X	-7.5	X
All Sizes	8.2	7.9	11.8	11.3	-9.7	-9.5	17.4	17.4	-11.3	-11.3

1 Including Unclassified

2 Excluding Unclassified

Note: X indicates data not available due to confidentiality.

APPENDIX B: IDENTIFYING BIRTH AND DEATH OF FIRMS

One of the weaknesses of this Data Base is the identification of births and deaths of firms. In this Data Base, a firm is said to be born if a new Business Register Identifier (BRID) comes into existence. On the other hand, the disappearance of a BRID in a given year indicates that the firm represented by that BRID is dead. A new BRID is assigned to a firm when both the PD (Payroll Deduction) number and the legal name of the firm is changed.

However, there are cases where the appearance of a new BRID or the disappearance of an existing BRID is a result of changes in business organization, such as acquisition, divestitures, amalgamation, split-up, etc. It does not necessarily indicate the actual start-up of a new firm or close down of an existing firm, resulting in little or no net changes in employment.

For example, a firm may have a new BRID when it becomes incorporated. In other cases, when a company is acquired by another company, it may have a new BRID even though its employment and activities remained the same. Similarly, when two firms are amalgamated, one or both BRIDs may change or disappear. All of these changes in BRID correspond to little or no changes in the continuity of firms and therefore do not reflect genuine births and deaths.

The problem of identifying births is illustrated by Table B1. During the period 1978 to 1982, the number of firms which are born with 500 or more employees is 105. Notably there are 32 new manufacturing firms and 17 new companies in business service with 500 or more employees. What share of employment change for this group? Their contribution to job creation in these two industries are 31.1% and 4.9% respectively.

Since it is rare and difficult to have a firm start up with more than 500 employees, it is quite possible that most of these births represent changes in the organization of firms, rather than actual births.

Table B1 - Number of births for Firms with 500 or More Employees
by Industry, 1978-82¹

<u>Industry</u>	<u>Number of Births</u>
Primary	0
Mining	2
Manufacturing	32
Construction	14
Transportation	4
Wholesale Trade	9
Retail Trade	6
Finance	8
Community Services	12
Business Services	17
Grand Total	105

¹ Births are firms which come into existence after 1978 and are still alive in 1982.

