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by Ryan Macdonald



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- | | |
|----------|--|
| . | not available for any reference period |
| .. | not available for a specific reference period |
| ... | not applicable |
| 0 | true zero or a value rounded to zero |
| 0s | value rounded to 0 (zero) where there is a meaningful distinction between true zero and the value that was rounded |
| <i>p</i> | preliminary |
| <i>r</i> | revised |
| <i>x</i> | suppressed to meet the confidentiality requirements of the <i>Statistics Act</i> |
| <i>E</i> | use with caution |
| <i>F</i> | too unreliable to be published |
| * | significantly different from reference category ($p < 0.05$) |

Business Entry and Exit Rates in Canada: A 30-year Perspective

by Ryan Macdonald, Economic Analysis Division

This article in the *Economic Insights* series describes the results of a data linkage project that created experimental long-term estimates of firm entry and exit rates for the Canadian business sector. It is part of a series of papers that examines firm dynamics using micro-economic data.

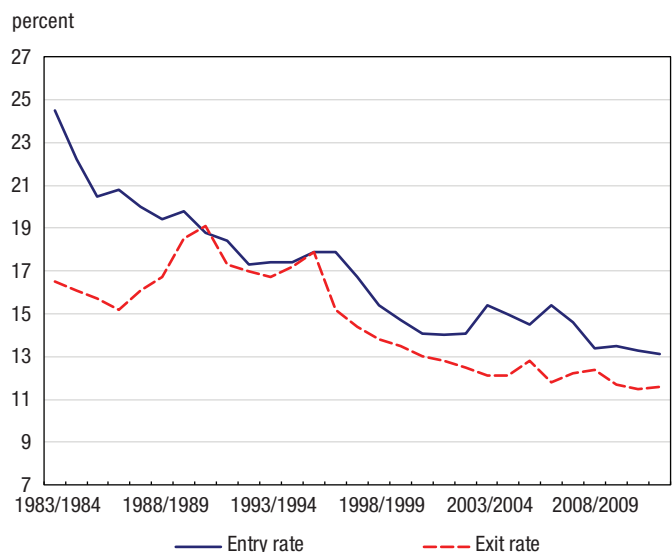
Firm entry and exit are an important source of dynamism that is essential to a well functioning economy. The entry of new firms is an important source of productivity growth and technology adoption while exit removes less productive firms. Based on a new set of linked, experimental data for the period 1983/1984¹ to 2011/2012, Canada's business-sector² entry rate declined from 24.5% to 13.1%; and, the exit rate fell from 16.5% to 11.6% (Chart 1).

Entrants reflect an important aspect of economic dynamism because entry can be viewed as a form of experimentation which introduces new ideas, business models and technologies into the marketplace. Similarly, exits can be viewed as the end of unsuccessful experiments, which were selected out of the marketplace through competitive pressures. Measures of entry and exit are, therefore, a means of examining firm turnover, which is a major feature of micro-economic business dynamics.

Recent studies that focus on the years after 2000 offer mixed evidence that firm entry and exit rates declined in Canada. Ciobanu and Wang (2012) found that, based on the number of firms, a clear trend was not apparent in business-sector entry and exit rates between 2000 and 2008. Baldwin, Liu and Wang (2013) reported stable entry and exit rates in British Columbia, Alberta, Saskatchewan and Ontario, but negative trends in Atlantic Canada, Quebec and Manitoba. Criscuolo, Gal, and Menon (2014) found that, during the 2000s, the share of start-ups (firms less than three years old) declined in many nations, including Canada.³

The entry rates and exit rates reported here are derived by calculating the number of entrants or exits divided by the population of active firms. This approach accounts for differences

Chart 1
Business-sector, entry rate and exit rate,
1983/1984 to 2011/2012



Note: Author's calculations based on data from the source mentioned below.
Source: Statistics Canada, Longitudinal Employment Analysis Program (LEAP).

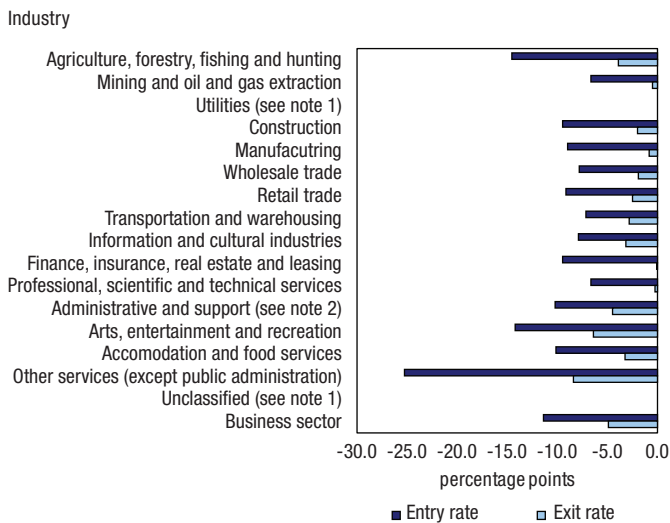
1. Estimates of entry and exit are based on two-year intervals. An exit is a firm present last year that is not present this year. An entry is a firm not present last year but present this year. Active firms in a given year are those present that year. Because the number of firms differs between years (unless the number of exits and entrants is equal), no natural base is available against which to compare entry and exit. Consequently, the number of firms used to calculate the entry and exit rates is the average of the active firm population between this year and last year. This use of two-year intervals is expressed in the text, charts and tables by representing the two years used to calculate entry rates and exit rates as $Y(t)/Y(t+1)$. The first set of estimates uses the years 1983 and 1984, and is thus reported as 1983/1984
2. The business sector is defined as all firms excluding those in the North American Industry Classification System (NAICS) industry number 61 (education), NAICS 62 (health care and social services) and NAICS 91 (public administration).
3. The results for Canada echo those found in the United States. Decker et al. (2014) show a decline in multiple measures of business dynamism in that economy, including a decline in firm based entry and exit rates since the early 1980s. Similar results are found in Hathaway and Litan (2014), who extend the examination of business dynamism along geographical subdivisions that parse the data by state and metropolitan area. Estimates for firm entry and exit rates that accord with the results from these studies can be obtained from the Business Dynamics Statistics section of the U.S. Census Bureau website.



in the number of firms through time. These results extend the analyses in the previous work by showing that a downward trend in entry and exit rates is evident if the time series are lengthened with the addition of historical estimates. When post-2000 data are combined with historical values, the downward trend becomes clearer. These results are not inconsistent with the mixed conclusions in earlier research because the 2000-to-2010 period exhibits a less pronounced downward trend than do earlier periods.

The data show a long-run decline in the business-sector entry rate that was more than double the decline in the exit rate. Most of this difference was attributable to the 1980s when entry rates declined but exit rates increased. The entry rate declined by 5.7 percentage points between 1983/1984 and 1990/1991 while the exit rate increased by 2.6 percentage points. As a consequence, in the mid-1980s, the entry rate was 8.0 to 4.8 percentage points above the exit rate. By the 1990-1991 recession, the exit rate had risen to match the entry rate (which was trending downward) and the two then maintained a similar level until 1995/1996. In 1995/1996, the exit rate declined relative to the entry rate, and a more stable difference between entry and exit rates was established. The difference averaged 1.98 percentage points between 1996/1997, and the end of the sample period in 2011/2012.

Chart 2
Change in entry rate and exit rate by industry,
1983/1984 to 2011/2012



1. Suppressed due to data quality concerns.

2. Administrative and support, waste management and remediation services.

Note: Author's calculations based on data from the source mentioned below.

Source: Statistics Canada, Longitudinal Employment Analysis Program (LEAP).

Patterns similar across industries

From 1983/1984 to 2011/2012, entry rates in many industries declined by 7 to 11 percentage points, and exit rates tended to decline by 2 to 7 percentage points (Chart 2). This suggests similarity in the underlying forces that affect entry and exit rates—for instance, a general decline in experimentation—rather than idiosyncratic effects in particular industries.

Despite similarity in the magnitude of the declines in entry and exit rates, some changes were industry-specific as not all industries evolved in the same way or at the same pace. One example is manufacturing.

Manufacturing

Manufacturing entry and exit rates exhibit many of the same features as overall business-sector entry and exit rates (Chart 3): a wider gap in the 1980s that was reduced by a rise in the exit rate; a long downturn in the entry rate; and long-term similarity in entry- and exit-rate trends.

However, after the late 1990s, unlike the business sector overall, in which the number of firms increased (the entry rate surpassed the exit rate), in the manufacturing sector, the entry rate fell below the exit rate. That is, the number of manufacturing firms began to decline. This coincides with the period when manufacturing's share of value-added in the Canadian economy began to decline. By contrast, in the 1980s and 1990s, when the share of manufacturing in value-added rose, the entry rate surpassed the exit rate resulting in an increase in the number of manufacturing firms.

The differences in manufacturing entry and exit rates across decades reflect differences in the economic environment manufacturers faced. In the 1980s and 1990s, the Canadian dollar depreciated relative to the American dollar, and in the 1990s, the implementation of the Canada-United States Free Trade Agreement (FTA) and North American Free Trade Agreement (NAFTA) changed the composition of Canada's manufacturing industry.⁴ During these decades, the number of firms increased, and the share of manufacturing in value added in Canada moved counter to the international trend that saw a decline in the importance of this sector.⁵

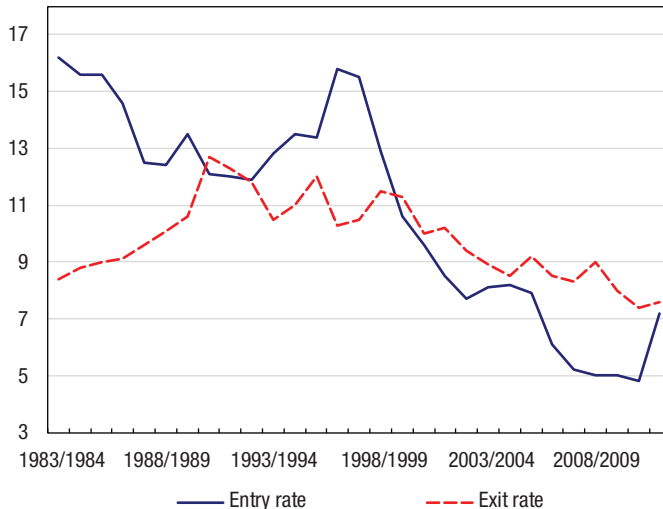
The implementation of the FTA and NAFTA, in particular, coincided with changes in firm entry rates for manufacturing. After the 1990-1991 recession, the entry rate rose from around 12.2% to 15.8% in 1996/1997, and then subsequently resumed a downward trend.

4. Baldwin and Macdonald (2009).

5. The share of manufacturing in value added declined across most OECD countries in the 1980s and 1990s. Canada is an exception to this trend during these decades. See: Baldwin and Macdonald (2009), Pilat et al. (2006).

Chart 3
Manufacturing entry rate and exit rate,
1983/1984 to 2011/2012

percent



Note: Author's calculations based on data from the source mentioned below.

Source: Statistics Canada, Longitudinal Employment Analysis Program (LEAP).

Is the economy becoming less dynamic?

Firm entry and exit rates in Canada fell during the last three decades. The decline in the entry rate was about twice as large as the decline in the exit rate, a pattern that was generally similar across industries. Experimentation and technology adaptation through entry, and the process through which market forces lead unsuccessful firms to exit, weakened through time, and this is suggestive of a reduction in one aspect used to characterize the extent of economic dynamism in an economy. However, changes in entry and exit rates do not mean that Canada's economy has become less dynamic. Entry and exit are only one aspect of the process of economic re-alignment that comprises economic dynamism. Other measures, such as firm turnover, changes in market share and employment re-allocation, are not addressed here and require further evaluation, in greater depth, and along additional dimensions.

Conclusion

Based on experimental linked data, a decline in firm entry and exit rates over the last 30 years is apparent. The magnitude of the decline was similar across industries, suggesting the decline was secular rather than the result of a compositional shift with growth favouring industries with lower entry rates and exit rates. Nor was the decline the result of one area of the economy adjusting to specific events, and producing a dynamic that differed substantially from another area. Although industry-specific shocks created industry-specific adjustments, they were not large enough to negate the evidence of widespread declines in entry and exit rates.

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Appendix: Linking the data

Statistics Canada's Longitudinal Employment Analysis Program (LEAP) tracks firm entry and exit. The program follows firms through time by using tax files, particularly administrative data on T4 filings and the associated business numbers. By linking administrative files for multiple years, the lifespan of a particular firm can be tracked.

A new LEAP vintage is constructed each year. Through implementing rules for mergers, acquisitions and divestitures, LEAP creates a particular firm structure unique to that vintage. As a result, with each year that is added to the dataset, the number of firms changes. These changes have a greater effect on the number of firms than the growth rate of firms. Consequently, the long-run estimates of firm entry and exit constructed here use growth rates from past vintages to back-cast current year estimates.

To form industry estimates for firm entry and exit, it is necessary to transform data from past vintages from the Standard Industrial Classification (SIC) to the North American Industry Classification System (NAICS). Based on information from the LEAP files for overlapping years, a concordance between SIC and NAICS was created. This concordance was used to transform the SIC codes from SIC-based vintages into NAICS industry codes.

For a number of industries, correlations between NAICS-based data and the SIC-to-NAICS converted data were lower than desired. Because the NAICS 61 (education) and NAICS 62 (health care and social assistance) industry links performed poorly, these industries are not reported, and the business-sector aggregate omits them. NAICS 52 (finance and insurance), NAICS 53 (real estate) and NAICS 55 (management of companies) also yielded values that were not ideal for linking,

Table 1-1
Entry rates

	Agriculture, forestry, fishing and hunting	Mining and oil and gas extraction	Construction	Manufacturing	Wholesale trade	Retail trade	Transportation and warehousing	Information and cultural industries
	entry rates							
1983/1984	24.4	20.7	22.9	16.2	14.6	18.5	24.0	21.9
1984/1985	18.2	18.2	20.2	15.6	13.0	17.0	21.7	20.0
1985/1986	17.6	16.1	20.8	15.6	13.0	17.0	21.5	20.6
1986/1987	16.2	15.5	20.6	14.6	13.6	16.3	20.9	19.1
1987/1988	13.3	12.1	17.1	12.5	11.7	13.6	17.0	15.3
1988/1989	13.7	10.9	17.5	12.4	11.7	13.5	16.3	17.3
1989/1990	16.9	15.3	19.5	13.5	14.9	16.8	19.8	20.3
1990/1991	18.3	15.0	16.9	12.1	14.9	14.8	19.0	18.7
1991/1992	17.5	13.2	18.2	12.0	14.2	15.1	18.0	19.1
1992/1993	16.4	18.4	16.8	11.9	14.4	15.0	17.7	17.9
1993/1994	16.7	18.9	16.9	12.8	14.2	15.0	18.7	18.2
1994/1995	16.8	17.4	15.1	13.5	14.8	14.6	18.8	20.3
1995/1996	18.3	22.0	16.2	13.4	15.1	15.1	19.6	21.0
1996/1997	18.1	22.6	17.7	15.8	14.3	14.1	20.6	20.8
1997/1998	15.4	15.6	16.0	15.5	13.7	12.7	18.9	20.9
1998/1999	13.3	12.8	14.8	12.9	12.6	12.4	18.2	19.3
1999/2000	12.4	14.9	14.4	10.6	11.1	12.1	16.4	18.8
2000/2001	11.7	15.9	14.2	9.6	10.2	11.2	15.0	15.8
2001/2002	11.0	13.0	14.6	8.5	9.5	10.8	14.4	14.3
2002/2003	10.1	14.1	14.5	7.7	9.1	11.1	13.7	13.4
2003/2004	10.8	17.7	16.6	8.1	9.9	12.1	15.6	14.5
2004/2005	10.1	18.4	16.4	8.2	10.0	11.3	16.0	15.3
2005/2006	9.3	17.5	15.5	7.9	8.9	10.5	15.9	14.7
2006/2007	9.6	12.6	13.8	6.1	7.2	8.8	15.9	12.3
2007/2008	9.6	12.0	12.0	5.2	6.3	7.9	12.6	11.6
2008/2009	10.5	9.4	11.7	5.0	6.0	8.2	11.6	12.7
2009/2010	9.6	10.0	11.2	5.0	5.4	7.8	10.7	11.9
2010/2011	9.4	12.3	10.9	4.8	5.5	7.7	11.8	12.5
2011/2012	9.9	14.1	13.4	7.2	6.8	9.4	16.9	14.0

Note: Author's calculations based on data from the source mentioned below.

Source: Statistics Canada, Longitudinal Employment Analysis Program (LEAP).

and so were grouped into finance, insurance, real estate and leasing (FIREL), which provided more appropriate results. The aggregate value, rather than the individual NAICS industries, is reported. Finally, the NAICS 22 (utilities) industry contained a number of aberrant observations; its values were deemed to be of insufficient quality to publish and report separately.

To back-cast the data, historical estimates are created at two levels of aggregation. First, the top-level business sector is back-cast. The business sector is defined as all industries excluding NAICS 61 (education), NAICS 62 (health care and social assistance) and NAICS 91 (public administration). Because firms' industry allocation can change over time, the business sector offers the most stable link.

Next, a back-cast is performed for each industry. These industry-based estimates are used to calculate a bottom-up business sector estimate. This estimate is not identical to the top-level value, which has the strongest link. To produce industry estimates that match the top-level business sector estimate, each industry's share, in each year, of the bottom-up business sector estimate is calculated, and these shares are used to distribute the top-level link across industries. In this way, the strongest aggregate link is combined with information from the industry links so as to ensure aggregation across industries to the top-level business-sector data.

The results for the entry and exit rate by industry are presented in Table 1 and Table 2.

Table 1-2
Entry rates

	Finance, insurance, real estate and leasing	Professional, scientific and technical services	Administrative and support ¹	Arts, entertainment and recreation	Accommodation and food services	Other services (except public administration)	Business sector
entry rates							
1983/1984	21.7	21.0	21.7	23.8	22.1	33.7	24.5
1984/1985	18.4	19.7	20.5	23.3	20.6	27.1	22.2
1985/1986	17.8	18.8	21.0	21.1	20.8	24.0	20.5
1986/1987	16.3	17.6	20.7	19.1	20.2	22.0	20.8
1987/1988	14.9	15.4	16.5	15.2	17.5	18.8	20.0
1988/1989	15.4	16.2	16.0	15.2	17.3	18.0	19.4
1989/1990	17.2	19.0	19.9	20.1	21.9	22.6	19.8
1990/1991	18.1	18.6	19.3	19.0	19.3	20.3	18.8
1991/1992	16.7	18.4	18.7	18.9	19.0	18.9	18.4
1992/1993	14.7	17.8	17.6	17.8	19.2	16.6	17.3
1993/1994	14.4	17.9	17.9	18.0	20.4	15.6	17.4
1994/1995	14.7	18.8	17.7	17.2	19.9	14.8	17.4
1995/1996	16.4	20.4	18.7	18.1	20.8	15.8	17.9
1996/1997	17.3	20.2	19.5	17.3	18.7	15.4	17.9
1997/1998	17.2	20.0	18.6	15.9	16.8	15.1	16.7
1998/1999	15.4	18.4	17.4	14.8	16.3	13.9	15.4
1999/2000	13.8	18.2	16.9	14.1	14.9	13.4	14.7
2000/2001	13.8	17.0	16.7	13.5	14.5	13.8	14.1
2001/2002	13.2	15.8	15.2	12.5	14.9	13.6	14.0
2002/2003	12.5	14.6	14.7	12.2	14.0	13.1	14.1
2003/2004	14.4	15.9	15.3	13.1	15.0	14.9	15.4
2004/2005	14.4	16.5	14.8	11.8	13.9	14.5	15.0
2005/2006	13.6	15.6	13.9	11.0	13.1	13.8	14.5
2006/2007	13.2	13.6	11.6	9.0	10.9	13.1	15.4
2007/2008	11.6	12.3	10.7	8.1	10.1	11.9	14.6
2008/2009	11.9	11.5	11.2	8.7	10.4	11.9	13.4
2009/2010	11.6	11.5	10.8	7.8	10.1	7.5	13.5
2010/2011	11.3	12.1	10.2	8.2	10.4	7.3	13.3
2011/2012	12.2	14.4	11.5	9.6	12.0	8.4	13.1

1. Administrative and support, waste management and remediation services.

Note: Author's calculations based on data from the source mentioned below. The utilities and unclassified industries have been suppressed due to data quality concerns.

Source: Statistics Canada, Longitudinal Employment Analysis Program (LEAP).



Table 2-1
Exit rates

	Agriculture, forestry, fishing and hunting	Mining and oil and gas extraction	Construction	Manufacturing	Wholesale trade	Retail trade	Transportation and warehousing	Information and cultural industries
	exit rates							
1983/1984	14.3	11.9	13.8	8.4	10.2	12.2	13.8	15.0
1984/1985	14.2	11.6	13.8	8.8	9.8	13.0	14.2	15.0
1985/1986	13.5	11.7	13.2	9.0	9.3	13.0	14.2	15.9
1986/1987	15.3	14.7	13.5	9.1	9.7	13.8	14.7	16.5
1987/1988	16.8	14.3	15.2	9.6	10.6	14.4	15.6	17.1
1988/1989	16.0	14.8	14.9	10.1	10.3	14.7	15.6	16.5
1989/1990	19.2	14.8	16.1	10.6	10.7	14.1	16.6	16.5
1990/1991	18.5	15.3	20.7	12.7	12.9	15.8	18.3	18.1
1991/1992	17.0	16.1	18.1	12.3	13.1	15.3	17.1	17.8
1992/1993	16.6	14.3	18.3	11.8	13.0	15.7	15.9	16.6
1993/1994	18.0	12.6	17.7	10.5	12.9	15.3	15.0	17.5
1994/1995	18.4	13.6	20.1	11.0	12.6	15.9	16.5	17.7
1995/1996	18.9	13.7	20.5	12.0	13.8	17.2	17.8	19.1
1996/1997	15.7	11.3	15.6	10.3	12.6	15.2	15.3	17.3
1997/1998	14.4	15.9	14.9	10.5	13.3	13.6	14.9	15.8
1998/1999	13.4	14.4	13.9	11.5	12.9	12.3	14.9	13.0
1999/2000	13.4	12.3	13.5	11.3	12.8	11.7	15.4	14.9
2000/2001	13.0	12.4	12.5	10.0	12.6	11.3	15.6	14.8
2001/2002	12.7	12.8	12.1	10.2	10.2	11.4	14.2	14.3
2002/2003	12.7	11.4	12.1	9.4	9.9	11.0	13.5	14.3
2003/2004	12.4	10.6	11.4	8.9	9.7	10.9	13.5	12.8
2004/2005	11.9	10.3	11.6	8.5	9.2	11.0	12.6	12.5
2005/2006	12.8	11.1	12.7	9.2	9.7	11.9	13.7	12.4
2006/2007	12.1	11.4	11.7	8.5	9.2	11.2	12.4	12.4
2007/2008	12.0	11.3	12.0	8.3	9.4	11.2	13.4	12.8
2008/2009	11.8	13.6	12.8	9.0	9.3	11.1	13.7	13.0
2009/2010	10.6	12.0	11.7	8.0	8.7	9.8	12.0	13.1
2010/2011	10.6	11.3	11.6	7.4	8.0	9.5	10.5	11.7
2011/2012	10.4	11.4	11.8	7.6	8.3	9.7	11.0	11.9

Note: Author's calculations based on data from the source mentioned below.

Source: Statistics Canada, Longitudinal Employment Analysis Program (LEAP).



Table 2-2
Exit rates

	Finance, insurance, real estate and leasing	Professional, scientific and technical services	Administrative and support ¹	Arts, entertainment and recreation	Accommodation and food services	Other services (except public administration)	Business sector
	exit rates						
1983/1984	13.0	12.1	15.6	16.1	14.1	20.3	16.5
1984/1985	12.5	11.8	13.6	16.3	14.6	24.8	16.1
1985/1986	12.2	11.6	13.6	17.6	15.2	20.1	15.7
1986/1987	12.6	12.2	14.1	16.2	16.1	18.5	15.2
1987/1988	13.9	13.2	15.1	15.9	17.4	18.4	16.1
1988/1989	12.8	12.4	14.9	14.9	17.1	17.7	16.7
1989/1990	13.9	12.7	14.4	14.5	16.9	16.1	18.5
1990/1991	16.0	15.0	18.3	15.5	17.3	16.8	19.1
1991/1992	15.3	14.4	16.8	15.6	17.3	16.6	17.3
1992/1993	14.3	14.0	15.9	15.4	16.7	17.3	17.0
1993/1994	13.8	13.7	15.4	16.0	17.6	17.6	16.7
1994/1995	14.5	13.9	15.4	17.2	18.4	17.9	17.2
1995/1996	14.6	14.7	16.2	18.3	19.7	17.8	17.9
1996/1997	12.9	13.0	13.6	16.4	17.3	14.8	15.2
1997/1998	12.6	13.0	14.2	13.2	16.6	14.2	14.4
1998/1999	12.6	13.2	13.3	11.3	15.5	13.3	13.8
1999/2000	12.8	13.5	12.6	11.5	14.8	12.5	13.5
2000/2001	12.4	13.5	11.9	10.6	14.1	11.8	13.0
2001/2002	13.3	13.2	13.9	10.9	14.3	12.7	12.8
2002/2003	13.2	13.2	13.4	11.1	13.7	12.6	12.5
2003/2004	11.9	12.3	12.8	10.5	14.2	12.2	12.1
2004/2005	11.6	12.1	12.6	11.1	14.0	12.7	12.1
2005/2006	11.9	12.2	13.3	11.1	14.8	13.0	12.8
2006/2007	11.7	11.8	12.3	11.0	13.3	11.9	11.8
2007/2008	12.8	11.7	12.3	11.0	13.3	12.7	12.2
2008/2009	13.8	12.4	12.6	10.2	12.2	12.6	12.4
2009/2010	12.9	11.8	11.5	10.1	10.9	12.2	11.7
2010/2011	12.9	11.5	11.2	9.4	10.9	12.0	11.5
2011/2012	12.9	11.9	11.1	9.7	10.9	11.9	11.6

1. Administrative and support, waste management and remediation services.

Note: Author's calculations based on data from the source mentioned below. The utilities and unclassified industries have been suppressed due to data quality concerns.

Source: Statistics Canada, Longitudinal Employment Analysis Program (LEAP).