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# The Entry into and Exit out of Self-employment and Business Ownership in Canada

by Douwre Grekou and Huju Liu

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- <sup>P</sup> preliminary
- <sup>r</sup> revised
- X suppressed to meet the confidentiality requirements of the *Statistics Act*
- <sup>E</sup> use with caution
- F too unreliable to be published
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**Douwere Grekou and Huju Liu**

Economic Analysis Division

**Statistics Canada**

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## Abstract

Using a newly developed database from administrative sources, the Canadian Employer–Employee Dynamics Database (CEEDD), this paper examines in more detail the entry and exit processes for (unincorporated) self-employment and (incorporated) business ownership. This paper finds that self-employment and business ownership have different entry and exit processes. Self-employment has higher entry and exit rates and lower survival probabilities than business ownership. Over the period from 2002 to 2013, almost one-half of entrants to business ownership survived five years while less than 30% of entrants to self-employment did the same. Long-term entrants (i.e., entrants who can survive at least three years) dominate the overall entry into business ownership, while short-term entrants (i.e., entrants who survive at most two years) dominate the entry into self-employment. Self-employment and business ownership also differ by origin of entry. While the largest source of entry into both self-employment and business ownership is from paid employment, non-employment is the second-largest source of entry into self-employment, and self-employment is the second-largest source of entry into business ownership.

## Executive summary

Entrepreneurial activity has long been argued as an important driver of innovation, job creation, and productivity growth. However, measuring entrepreneurial activity is not easy. Traditionally, many studies have approximated entrepreneurship with a broadly defined measure that includes a heterogeneous group of individuals. They include self-employed workers such as commission salespersons, professionals running unincorporated firms such as doctors and lawyers, and owners of corporations.

The incorporated self-employed are a large and important group of entrepreneurs. Incorporated firms are typically larger enterprises than those in the unincorporated sector, employing more people, using more capital per worker, and having much higher output per worker. However, incorporated self-employment has not received much attention in the literature. Using a newly developed administrative database of firms and workers, the Canadian Employer–Employee Dynamics Database (CEEDD), over the period from 2001 to 2013, this paper distinguishes incorporated self-employment from unincorporated self-employment, and compares the entry and exit dynamics of the two types of self-employment by age, gender and province. The large number of observations in CEEDD and its longitudinal nature make this detailed analysis possible.

This paper finds that self-employment (the unincorporated) and business ownership (the incorporated) are different from each other. Business ownership is more male-dominated than self-employment. The vast majority of business owners are employers while only a small percentage of the self-employed have employees. Business owners also receive much higher income from their endeavour than the self-employed.

Moreover, business owners and the self-employed have different entry and exit processes. Specifically, the self-employed have higher entry rates and exit rates than business owners. Self-employment is dominated by short-term entry (i.e., less than one-half of all entrants to self-employment survive for longer than two years after entry). In contrast, business owners are dominated by long-term entry. That is, about 63% of all entrants to business ownership can survive at least three years.

For both self-employment and business ownership, males had higher entry rates and lower exit rates than females. However, the male–female difference in the entry and exit rates became smaller over time, especially for self-employment. The entry rates by age into both self-employment and business ownership follow an inverted U-shape. They are lowest for those aged 15 to 34, increase to a peak for the 35-to-54 age group, and then decline for those aged 55 and older. By contrast, the exit rate is highest for the youngest age group and lowest for the oldest age group. As well, important regional variations exist, especially with respect to entry rates: the western regions have higher entry rates, while the central and eastern regions have lower rates.

Self-employment and business ownership also differ in terms of the origin of entries. While the entry from paid employment is the largest entry source for both business ownership and self-employment, the transition from self-employment is the second-largest source of entry for business ownership, and the transition from non-employment is the second-largest source of entry into self-employment. Men are more likely than females to enter either self-employment or business ownership from paid employment, and less likely than females to enter from non-employment. Also, the share of entrants into both self-employment and business ownership from paid employment decreases with age, while the share of entrants from non-employment increases with age. The shares of entrants making transitions between self-employment and business ownership also increases with age.

# 1 Introduction

Entrepreneurial activity has long been argued as an important driver of innovation, job creation, and productivity growth. New businesses bring new ideas and new products, create new jobs, intensify competition, and force less productive businesses to exit the market and hence increase the aggregate productivity. Entrepreneurs are risk takers, coordinators of factors of production, innovators, and underlying forces of “creative destruction” (Knight 1921; Schumpeter 1942).

However, measuring entrepreneurial activity is not an easy task. Traditionally, many studies have used broadly defined self-employment to approximate entrepreneurship. However, self-employment is quite heterogeneous. It ranges from subsistence to transformational self-employment, where the former is a means of providing basic income and the latter aims to create a large and growing business with economic and societal impact (Schoar 2010). Self-employment can also be divided into self-employment with or without paid help (employer or own-account) from the employment perspective,<sup>1</sup> and it can include both unincorporated and incorporated businesses from the legal perspective.

Incorporated self-employment comprises a large and important group within self-employment. According to the Labour Force Survey (LFS), incorporated self-employment accounted for 44% of total self-employment in Canada in 2016.<sup>2</sup> Furthermore, incorporated firms are typically larger enterprises than firms in the unincorporated sector, employing more people, using more capital per worker, and having much higher output per worker (Baldwin and Rispoli 2010; Baldwin, Leung and Rispoli 2011).

Nevertheless, incorporated self-employment has not received much attention in the literature. Most studies have focused on the unincorporated component or have lumped the two together.<sup>3</sup> An exception is a recent paper by Levine and Rubinstein (2017), in which the authors disaggregate the self-employed into incorporated and unincorporated and argue that incorporated self-employment is a better proxy for entrepreneurship than the overall group of self-employment. They argue that incorporated business owners tend to be better educated and are more likely to come from two-parent families with high earnings, have a higher learning aptitude, and engage in more aggressive and risky activities than unincorporated self-employed.

Data for the study of the incorporated self-employed so far comes mostly from survey data, for example, the LFS in Canada, and the Current Population Survey (CPS) and the National Longitudinal Survey of Youth (NLSY) in the United States.<sup>4</sup> The relatively small number of observations for the incorporated self-employed and/or lack of longitudinal tracking ability within these survey datasets have made it difficult to study the dynamics of incorporated self-employment.

This paper makes a distinction between incorporated and unincorporated self-employment, and documents and contrasts the entry, exit and survival patterns for the two types of self-employment in Canada during the period from 2001 to 2013 using the Canadian Employer–Employee Dynamics Database (CEEDD). CEEDD is a newly developed matched database that includes both firm-level and individual-level characteristics. It is a link between various tax files, and covers 100% of individual and corporate tax filers for 2001 and subsequent years. The administrative tax files in CEEDD can be used to identify the incorporated self-employed. More specifically, all private corporations in Canada are required to file information on shareholders who own at least

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1. Leung and Robinson (2011) studied the transition among own-account and employer self-employment, and other employment types in Canada, over the 1990s and 2000s. Davis et al. (2009) documented the transition from non-employer firms to employer firms from the business side.

2. Statistics Canada, n.d.

3. Examples of these studies include Blanchflower (2000); Hamilton (2000); Lin, Picot and Compton (2000); Kuhn and Schuetze (2001); and Bahar and Liu (2015).

4. The CPS used to treat incorporated self-employment as paid workers (Hipple 2004).

10% of the shares of a company. These shareholders are thus identified as incorporated business owners in CEEDD. They are then linked to individual and corporate tax records, which provide information on their labour market histories and businesses. The large number of observations and the longitudinal nature of CEEDD make it possible to study the dynamics of incorporated and unincorporated self-employment.

This paper finds that incorporated and unincorporated self-employment differ. The income for incorporated business owners is higher than that for the unincorporated self-employed throughout most of the distribution, especially at the higher end. Incorporated business owners are dominated by employers while non-employers make up the largest share of the unincorporated self-employed. The percentage of males is also higher among the former than the latter.

The two also differ in terms of entry, exit and survival patterns. Incorporated self-employment has lower entry and exit rates than unincorporated self-employment. Entry into incorporated self-employment is dominated by long-term entrants (entrants that can survive at least three years), while entry into unincorporated self-employment is comprised mostly short-term entrants. The two also differ in the composition of entry by origin. Paid employment is the largest entry source for both types of self-employment. However, non-employment is the second-largest source of entry for unincorporated self-employment while the transition from unincorporated self-employment is substantial for the entry into incorporated self-employment. Post-entry, the incorporated self-employed also have higher survival probabilities than the unincorporated.

Finally, this paper compares and reconciles the level estimates and entry rates of unincorporated and incorporated self-employment between CEEDD and the LFS. The estimates from the two datasets are largely consistent, despite a large difference in the level of unincorporated self-employment. The difference is due mainly to the fact that marginal businesses are less likely to be captured in the LFS. With respect to the entry of new unincorporated or incorporated self-employment, the LFS is likely capable of capturing only those new activities forming outside unincorporated or incorporated self-employment. By contrast, CEEDD is more inclusive—it is capable of capturing not only the entry from outside unincorporated or incorporated self-employment, but also the transition between unincorporated and incorporated self-employment.

The rest of the paper is organized as follows: Section 2 discusses CEEDD and the methodology to distinguish between unincorporated and incorporated self-employment, and highlights the differences between the two; Section 3 examines entry and exit patterns; Section 4 looks at entry and exit decomposition; Section 5 discusses survival patterns; Section 6 compares the stock estimates and the entry of unincorporated and incorporated self-employment in CEEDD and in the LFS; and Section 7 concludes the paper.

## **2 Self-employment and business ownership in the Canadian Employer–Employee Dynamics Database**

### **2.1 The Canadian Employer–Employee Dynamics Database**

CEEDD is a matched database between Canadian firms and workers created by linking several administrative tax files, including individual tax files (T1 General - Income Tax and Benefit Return), individual employment remuneration files (T4 Statement of Remuneration Paid), immigrant landing file, and corporate (T2 Corporation Income Tax Return) and unincorporated business (T1 business declaration) tax files. As of today, CEEDD covers the universe of individual (including unincorporated businesses) and corporate tax filers in Canada for every year from 2001 to 2013. CEEDD provides information pertaining to three main areas: paid workers, the self-employed and



businesses.<sup>5</sup> On one hand, it contains detailed information about individual paid workers and the self-employed, such as age; gender; marital status; immigrant status (country of origin, immigrant class, education level at landing, landing year); earnings from paid jobs; self-employment income; and income from owned corporations. On the other hand, information about individuals is augmented with information on their workplace, such as industry, number of employees, payroll, revenues and profits.

## 2.2 Distinction between self-employment and business ownership

Traditionally, broadly defined self-employment in the literature is a very disparate group. It may include self-employed workers, such as commission salespersons; professionals running unincorporated firms, such as doctors and lawyers; and owners of corporations.<sup>6</sup> Incorporated firms are typically larger enterprises than those in the unincorporated sector, employing more people, using more capital per worker, and having much higher output per worker (Baldwin and Rispoli 2010; Baldwin, Leung and Rispoli 2011).

Meanwhile, while there are costs associated with incorporation, incorporation offers several advantages. These advantages include the following: a separate legal identity, which enables a company to enter into contracts and own property independently from its owners, survive longer than its owners, and continue to operate without much interruption even when the ownership is traded; protection from creditors via limited liability (this reduces the risks incurred by owners).

Levine and Rubinstein (2017) argue that incorporated self-employment is a better proxy for entrepreneurship than the overall self-employment group. They show that the incorporated self-employed and their businesses engage in activities that demand relatively strong non-routine cognitive abilities, while the unincorporated and their businesses are concentrated in work requiring relatively strong manual skills. Incorporated business owners tend to be better educated, and are more likely to come from two-parent families with high earnings, have higher learning aptitude and engage in more aggressive and riskier activities than the unincorporated self-employed. Light and Munk (2015) argue that unincorporated self-employment differs from incorporated self-employment. They found that the incorporated self-employed are more likely to be identified as businesses owners, and that owners of incorporated businesses are more likely to use owning or running a business to describe the type of work they perform. In contrast, the home-based, single-person pursuits that are more common among the unincorporated, are more likely to be classified as self-employment.

This paper distinguishes between unincorporated and incorporated self-employment. Hereafter in the paper, the unincorporated self-employment is replaced by the term “self-employment” and the incorporated self-employment, by “business ownership.” In CEEDD, the two concepts can be defined as follows. First, self-employment includes individuals who reported either positive gross self-employment income or non-zero net self-employment income in their tax returns.<sup>7</sup> It should be noted that self-employment income includes business, professional, commission, farming, fishing and rental income. The information on unincorporated businesses in CEEDD is available only for 2005 and subsequent years.

Second, business ownership is identified from corporate shareholder information.<sup>8</sup> In Canada, all private corporations (not publicly traded on the stock exchange) and privately controlled corporations need to file information for their shareholders who own at least 10% of shares.<sup>9,10</sup>

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5. See Green et al. (2016) for a detailed description of individual files and methodology used to construct CEEDD. CEEDD is updated regularly, as soon as the underlying administrative tax files become available.

6. See Parker (2004) and Blanchflower (2000) for the discussion on measurement of self-employment.

7. See Bahar and Liu (2015) for a detailed definition of each type of self-employment income.

8. Shareholder information is contained in Schedule 50 of the T2 tax return.

9. Owners of large and publicly traded corporations are not identified in the database.

10. Owners of common shares and preferred shares are both included.

This information includes the type of shareholder (corporate, individual and income trust), the type of share (common share or preferred share), and the number of shares owned of each type.<sup>11</sup> Individual shareholders are then linked back to individual tax files and employment remuneration files to get employment earnings from owned corporations and other demographic and income information. It should be noted that business owners' income from incorporation may include employment earnings, dividend payment and income reinvested in the business (retained earnings), all of which can be derived from CEEDD. Therefore, in this paper, a business owner's income from a corporation is defined as follows.

$$\begin{aligned} \text{A business owner's income} &= \text{employment earnings} + \text{total business dividend payment} \\ &\quad \times \text{ownership share} + \text{net change in retained earnings} \\ &\quad \times \text{ownership share} \end{aligned}$$

This income measure therefore captures both returns to labour and capital, which is also the case for the net self-employment income of the unincorporated.<sup>12</sup>

Finally, with respect to employment, an employer business is defined as a business that issues at least one T4 Statement of Remuneration Paid. As the focus of this paper is the entry and exit of individuals into unincorporated self-employment and business ownership, the employment of each business is allocated to each individual owner according to his or her ownership share.<sup>13</sup>

## 2.3 Categorization

In the data, an individual can report self-employment income and be an incorporated business owner at the same time.<sup>14</sup> In order to focus on the difference between business ownership and self-employment, individuals are categorized into one type or the other according to their main activity. This is implemented by comparing their net self-employment income to the business income of their corporation.<sup>15</sup>

A self-employed or business owner may, at the same time, hold other paid jobs. It follows that individuals labelled as being primarily self-employed or business owners are those self-employed or business owners whose absolute value of net self-employment income or income from a corporation is greater than their earnings from other paid jobs.

## 2.4 Comparisons of the self-employed and business owners

Self-employment and business ownership differ in several ways. First, there were far more unincorporated self-employed (2.3 million) than incorporated business owners (1.2 million) who were 15 and older in 2013 (Table 1).

Second, the vast majority (95%) of unincorporated self-employed did not hire any employees (Table 1). Only 116,150 unincorporated self-employed business owners hired workers. By contrast, almost three-quarters of incorporated business owners were employers. Business owners also accounted for about 89% of all employers.

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11. Individual owners are the majority among all reported shareholders.

12. Hamilton (2000) used a similar measure, equity-adjusted draw, as retained earnings were not available in his paper.

13. Employment information on incorporated businesses is available from 2001; employment information on unincorporated businesses is available from 2005.

14. For example, in 2011, about 1 million individuals reported non-zero net self-employment income and were identified as incorporated business owners at the same time. This group accounts for about 15% of all self-employed and incorporated business owners.

15. Specifically, the absolute values of net self-employment income and business income from a corporation are compared.

Third, business owners also accounted for more jobs than the unincorporated (Table 1). In 2013, each business owner who had employees accounted for 6.6 jobs on average, almost twice as many jobs as an unincorporated employer.

Fourth, males accounted for 65% of all business owners and 54% of all self-employed. The former had far more employers than the latter, and the fraction of males was higher among employers than non-employers, for both the self-employed and business owners (Table 1). On average, age did not differ much between the self-employed (51 years) and business owners (52 years). However, non-employers among the self-employed were relatively younger than their counterparts among business owners.

Fifth, the income for business owners was higher than that of the self-employed throughout most of the distribution (Chart 1). In 2013, the business income of incorporated business owners was \$147,000 on average, while the business income of the self-employed was \$23,000 on average. At the median level, the business income was \$47,000 for the former and \$10,000 for the latter. Business owners also had higher incomes than the self-employed at other percentiles of the distribution, especially at the higher end. The ratio of business owners' income to net self-employment income ranged from 3.5 at the 20th percentile to 5.5 at the 95th percentile.

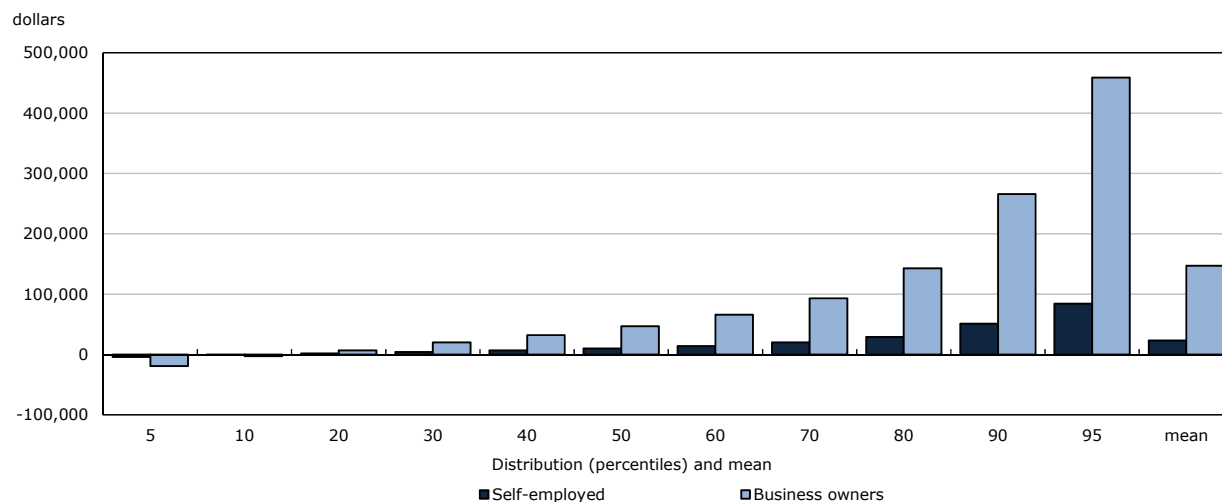
**Table 1**  
**Self-employment and business ownership in 2013, individuals aged 15 and older**

	Headcount	Share	Age	Males	Employment accounted for by owner
	number	percent	mean	percent	mean
<b>Self-employed (unincorporated)</b>					
Non-employer	2,163,790	95	52	54	...
Employer	116,150	5	51	67	3.4
<b>Total</b>	<b>2,279,940</b>	<b>100</b>	<b>51</b>	<b>54</b>	...
<b>Business owner (incorporated)</b>					
Non-employer	317,830	26	56	59	...
Employer	925,570	74	50	67	6.6
<b>Total</b>	<b>1,243,400</b>	<b>100</b>	<b>52</b>	<b>65</b>	...

... not applicable

Source: Statistics Canada, authors' calculations based on data from the Canadian Employer–Employee Dynamics Database.

**Chart 1**  
**Income distributions for the self-employed and business owners in 2013**



Source: Statistics Canada, authors' calculations based on data from the Canadian Employer–Employee Dynamics Database.

### 3 Entry and exit of self-employment and business ownership

This section presents and contrasts the patterns of entry and exit for self-employment and business ownership in Canada overall, then by gender, age, region and employment size.

Entrants to self-employment or business ownership in this paper are defined as those who are self-employed/business owners in the current year but who were not in the previous year. Exits, on the other hand, are those who are self-employed or business owners in the current year but who are not in the next year. The entry rate at year  $t$  is defined as the number of entrants in year  $t$  divided by the adult population of interest in year  $t-1$ .<sup>16</sup> The exit rate at year  $t$  is defined as the number of exits from self-employment or business ownership divided by the population of self-employed or business owners in year  $t-1$ . Because, as discussed in the previous section, self-employment and business ownership are restricted to the primary type, the entry and exit also include the transitions between the non-primary and primary types. For example, suppose that an individual is currently setting up a business that has not paid any income yet while he or she still holds a paid job as the main income source.<sup>17</sup> The following year, the business is fully grown and starts to pay income and he or she quits his or her paid job. This transition is captured as an entry even though the business is not new.

#### 3.1 Overall entry and exit in Canada

The entry rate into self-employment was much higher than that for business ownership during the period from 2002 to 2013 (Chart 2). On average, the entry rate into self-employment was about 1.5% each year while this rate was less than 0.6% for business ownership. These entry rates translate into about 1,480 individuals becoming primarily self-employed and 590 individuals becoming primarily business owners each year out of every 100,000 adults aged 15 and older. The entry rate into self-employment and business ownership peaked in 2007 and 2008, respectively, and then declined. This qualitative feature of entry rates, an initial increase prior to the 2008 global financial crisis and a post-crisis decline, has also been found in other studies, such as Fairlie (2014), Business Development Bank of Canada (BDC) (2012), and Cao et al. (2015).

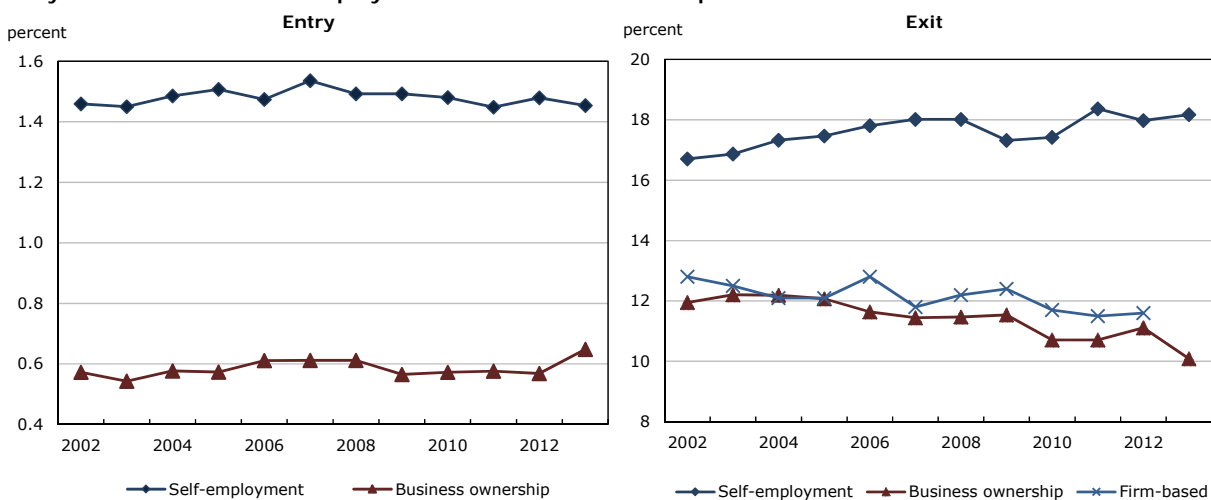
Self-employment and business ownership, however, have divergent exit rates (Chart 2). Exit from self-employment increased in most years during the period from 2002 to 2013, except for a sharp decline following the 2008 global crisis. This overall increase in the exit rate for self-employment, especially before 2008, may partly reflect improved labour market conditions and people leaving self-employment to seek better alternatives. On the other hand, a constantly declining exit rate from business ownership was observed during this period. This result is consistent with firm-based exit rates documented in Macdonald (2014), where the exit rate of employer firms shows a secular declining trend over the period from 1983 to 2012. This resemblance in the exit rates between employer firms and individual business ownership is due to the fact that the majority of business owners are employers as shown in Subsection 2.4.

---

16. Similar definitions of “entry rate” are used in Fairlie (2014), Cao et al. (2015), BDC (2012), Lin, Picot and Compton (2000), and other sources.

17. This stage is sometimes called “nascent entrepreneurship” (Langford, Josty and Saunders 2016).

**Chart 2**  
**Entry and exit rates of self-employment and business ownership**



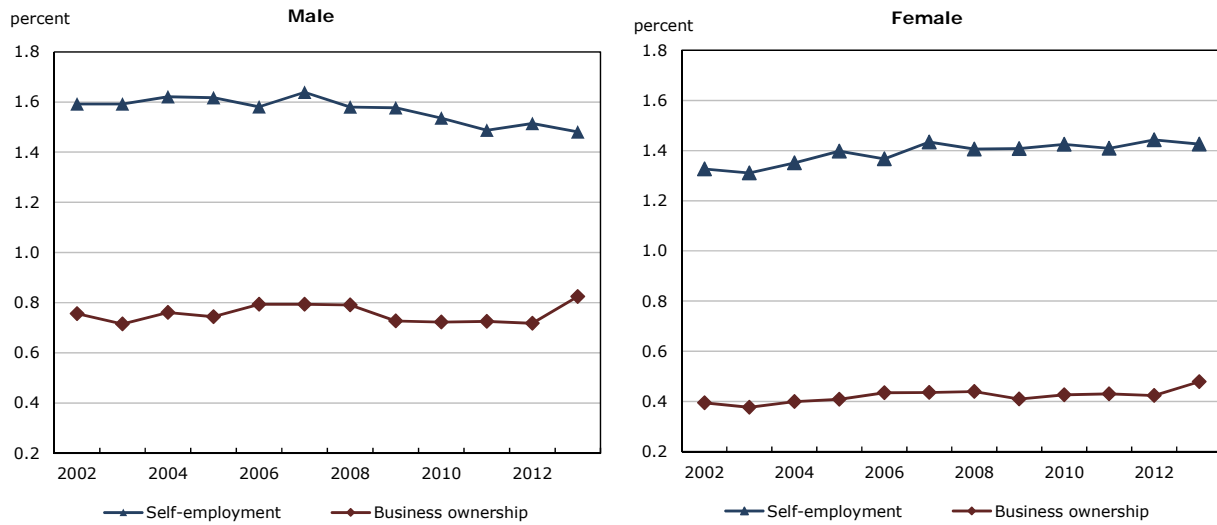
Sources: Statistics Canada, authors' calculations based on data from the Canadian Employer–Employee Dynamics Database, and R. Macdonald, 2014, *Business Entry and exit Rates in Canada: A 30-year Perspective* (for firm-based exit rates).

### 3.2 Entry and exit by gender

The analysis by gender shows that, for both self-employment and business ownership, males had higher entry rates and lower exit rates than females over the period from 2002 to 2013 (Charts 3 and 4). The entry rates into self-employment and business ownership for females increased slightly over this period, while for males, the entry rate into self-employment declined and the entry rate into business ownership remained relatively stable (Chart 3). Both males and females experienced an increasing exit rate from self-employment and a decreasing exit rate from business ownership (Chart 4).

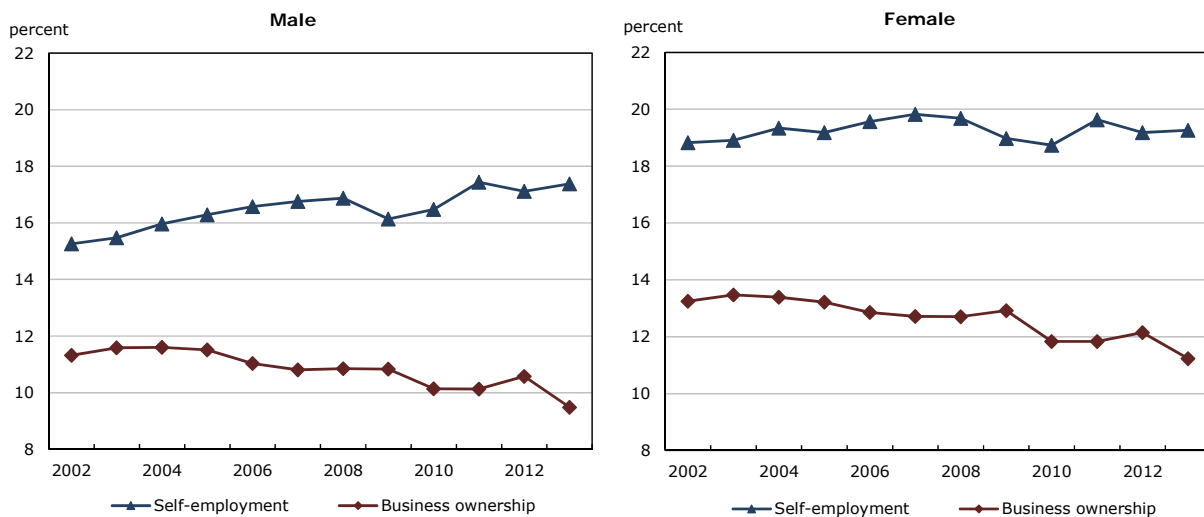
The male–female difference in the entry and exit rates for self-employment became smaller over time. The male–female difference in the entry rate into self-employment decreased from 0.26 percentage points in 2002 to 0.06 percentage points in 2013 (Chart 3). The male–female difference in the exit rate from self-employment declined to less than 2.0 percentage points in 2013 from 3.5 percentage points in 2002 (Chart 4). In contrast, the male–female difference in the entry and exit rates for business ownership remained stable.

**Chart 3**  
Entry rates of self-employment and business ownership, by gender



Source: Statistics Canada, authors' calculations based on data from the Canadian Employer–Employee Dynamics Database.

**Chart 4**  
Exit rates from self-employment and business ownership, by gender



Source: Statistics Canada, authors' calculations based on data from the Canadian Employer–Employee Dynamics Database.

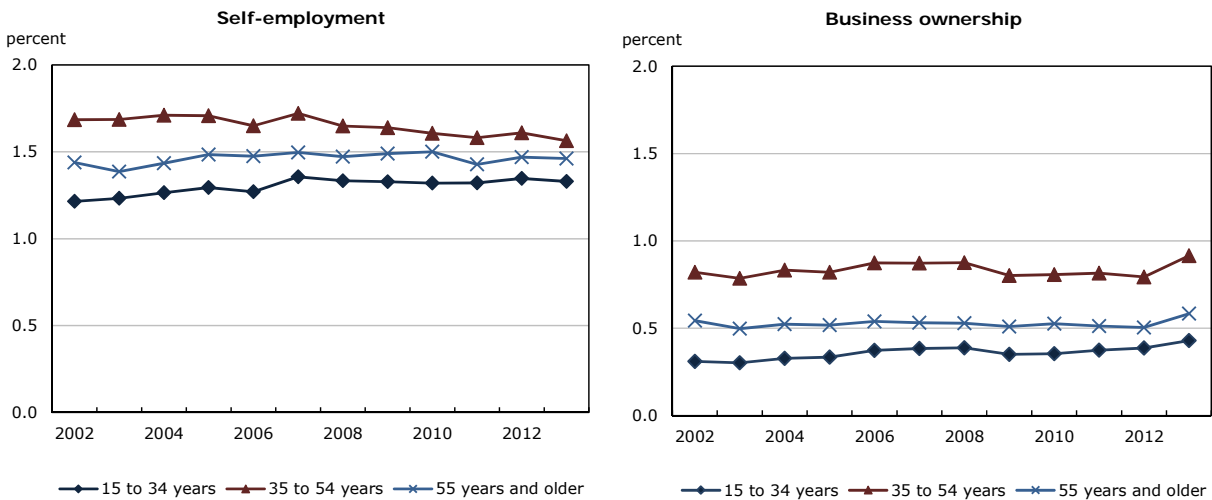
### 3.3 Entry and exit by age group

The analysis by age group shows that the entry rates for self-employment and business ownership were highest for the prime-working-ages group (35 to 54 years), second-highest for the older age group (55 years and older) and lowest for the youngest age group (15 to 34 years) (Chart 5). This is consistent with the age profile of entry into self-employment and business ownership being inverted U-shaped: entry increases with age and reaches a peak in the mid-50s, and then declines with age. For instance, the entry rate of business ownership for the youngest age group was, on average, about 0.36%, representing 360 entrants out of every 100,000 people in that age group. This was less than half the number of new business owners for the 35-to-54 age group, that is, about 835 entrants for every 100,000 people.

However, over the study period, the entry rates for self-employment and business ownership for the youngest age group experienced steady growth relative to their 2002 levels. For instance, the entry rate of business ownership for the youngest age group was 0.31% in 2002 and has grown

to 0.43% in 2013, a growth of 38%. In contrast, the entry rate into business ownership for the 35-to-54 and 55-and-older age groups remained stable during this period, except for an increase at the end of the period.

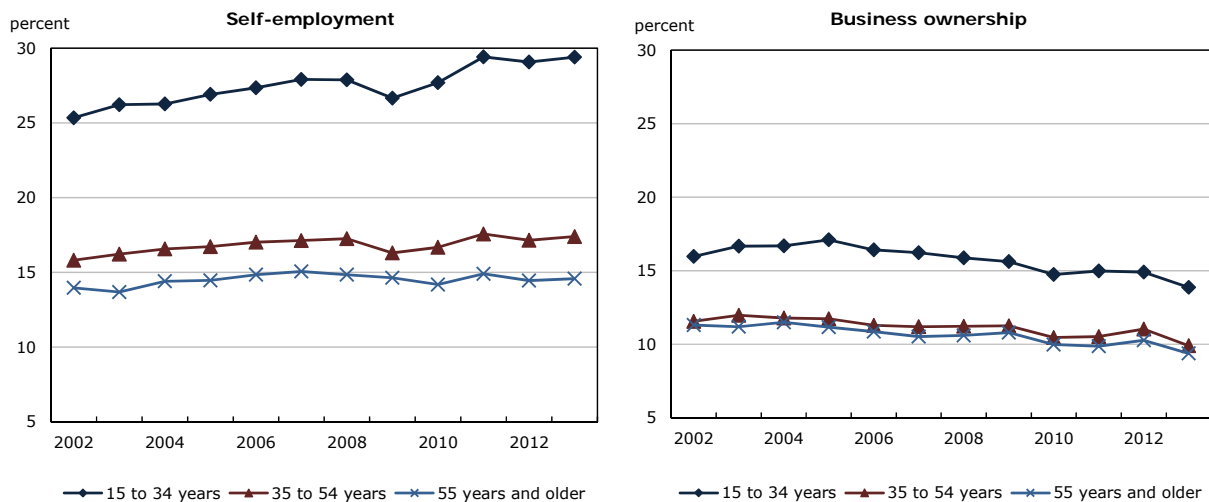
**Chart 5**  
Entry rates of self-employment and business ownership, by age group



Source: Statistics Canada, authors' calculations based on data from the Canadian Employer–Employee Dynamics Database.

By contrast, the exit rate was highest for the youngest age group and lowest for the oldest age group (Chart 6). On average, the exit rate from self-employment was about 28% each year for the youngest age group, almost twice as high as that for the oldest age group. It was particularly high from 2011 to 2013 when the exit rate of self-employment was almost 30% for the youngest age group. That is to say, almost 1 in every 3 of the self-employed aged 15 to 34 exited in these years. On average each year, the exit rate of business ownership was about 16% for the youngest group while it was about 11% for the oldest age group. Overtime, the trends in exit rates by age group reflect those for the aggregate. The exit rates from business ownership have decreased for all age groups, and the exit rates from self-employment have increased for all age groups.

**Chart 6**  
Exit rates of self-employment and business ownership, by age group



Source: Statistics Canada, authors' calculations based on data from the Canadian Employer–Employee Dynamics Database.

### 3.4 Entry and exit by region

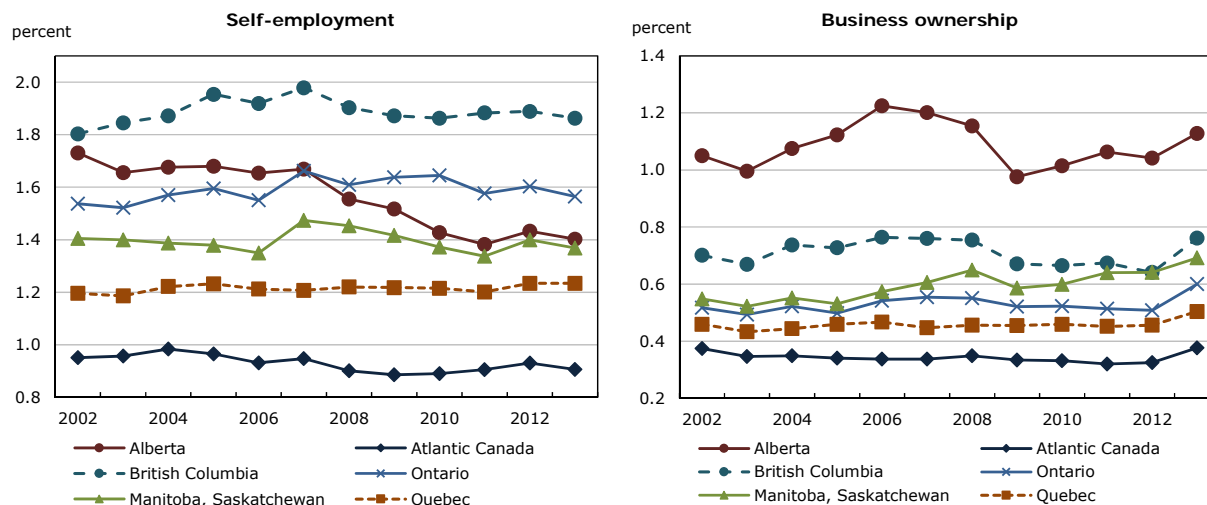
The entry rates into self-employment and business ownership have shown important regional variations (Chart 7). Alberta had the highest entry rate of business ownership over the study period, 1.1% on average each year. British Columbia had the second-highest business ownership entry rate; the third-highest rate was observed for two Prairie provinces combined (Manitoba and Saskatchewan). Ontario, Quebec and the Atlantic Region had lower entry rates into business ownership than the western provinces.

The entry rates into business ownership in Alberta, British Columbia, and Manitoba and Saskatchewan have also shown stronger pro-cyclical patterns than the rest of the country. Specifically, their entry rates increased from 2002 to 2008, and dropped from 2008 to 2009 following the 2008 global crisis. On the other hand, Ontario and Quebec experienced relatively flat entry rates of business ownership while the entry rate in the Atlantic region decreased during most of the period. These regional variations in the entry rate of business ownership are broadly consistent with higher economic growth in western Canada attributable to the booming resource sectors, as well as regional patterns observed using firm-based entry rates (Baldwin, Liu and Wang 2013).

The entry rate into self-employment showed regional patterns similar to that of business ownership, with the western provinces and regions generally higher than the rest of Canada (except Ontario). The entry rates in all provinces and regions broadly remained flat except for Alberta, which experienced a constant decline.

All provinces and regions showed a decline in the exit rate out of business ownership (Chart 8) similar to what was observed at the national level (Chart 2). As for the exit rate of self-employment, the regional variation was much larger than that in business ownership (Chart 8). Alberta, British Columbia, and Ontario generally had higher exit rates than the other provinces or regions.

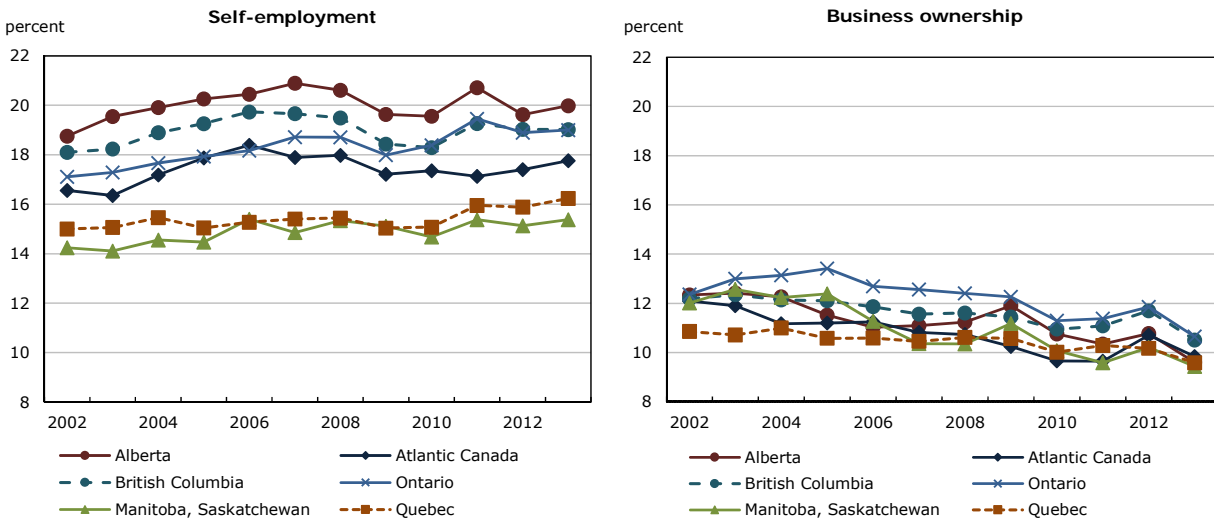
**Chart 7**  
Entry rates of self-employment and business ownership, by region



**Note:** Atlantic Canada: New Brunswick, Nova Scotia, Prince Edward Island, Newfoundland and Labrador.  
**Source:** Statistics Canada, authors' calculations based on data from the Canadian Employer–Employee Dynamics Database.



**Chart 8**  
Exit rates of self-employment and business ownership, by region



**Note:** Atlantic Canada: New Brunswick, Nova Scotia, Prince Edward Island, Newfoundland and Labrador.  
**Source:** Statistics Canada, authors' calculations based on data from the Canadian Employer–Employee Dynamics Database.

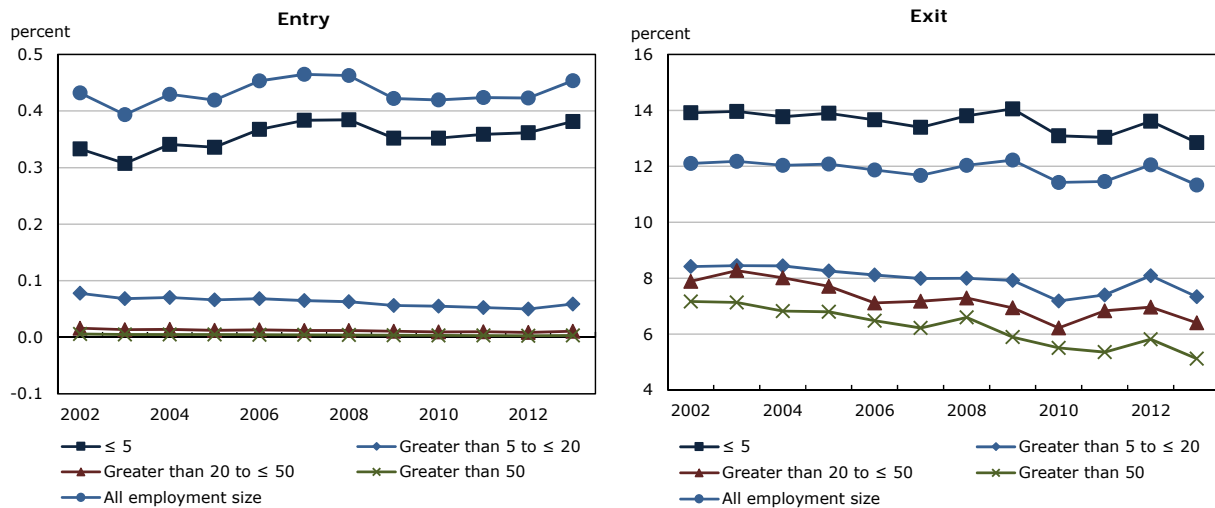
### 3.5 Entry and exit by employment size

The entry and exit rates of employers by employment size category are shown in Chart 9. The employers herein refer only to incorporated business owners with paid help, for the following reasons. First, as discussed in the previous section, the majority of incorporated business owners were employers, and the incorporated employers accounted for 89% of all employers (incorporated and unincorporated). Second, the employment information for the unincorporated self-employed is not available before 2005 while it is available from the beginning of the period for incorporated business owners. The incorporated employers are grouped into four size categories based on the number of employees ascribed to each individual owner: 5 or less, greater than 5 to 20, greater than 20 to 50, and greater than 50.

Business owners with fewer employees have higher entry and exit rates than business owners with more employees. The entry rate was highest among those with 5 employees or less, averaging about 0.35% each year. Furthermore, the entry rate of business owners with employees with 5 employees or less experienced a moderate increase over the study period, while the entry rates of the remaining size groups declined. Specifically, over the period of study, the entry rates for these size groups dropped in 2013 relative to their 2002 levels: entry rates dropped by 24% for the greater than 5 to 20 group, by 35% for the greater than 20 to 50 group, and by 45% for the greater than 50 group. Entrants into business ownership with employees also tended to have fewer employees over time. The fraction of entrants into business ownership with 5 employees or less increased from 77% in 2002 to 84% in 2013. These findings are consistent with firm-based evidence (Ciobanu and Wang 2012).

The exit rate was highest among business owners with 5 employees or less, averaging about 13.6% each year. The exit rates of all size categories, especially business owners with greater than 50 employees, decreased over the period. From 2002 to 2013, the exit rate for business owners with greater than 50 employees decreased by about 28% while the exit rate for business owners with 5 employees or less decreased by only 8%.

**Chart 9**  
**Entry and exit rates of business owners with employees, by employment size**



**Note:** The employers are incorporated business owners with paid help.  
**Source:** Statistics Canada, authors' calculations based on data from the Canadian Employer–Employee Dynamics Database.

## 4 Entry by origin and exit by destination

The previous section showed that business ownership and self-employment differ with respect to their owners and businesses' characteristics, and their patterns of entry and exit. This section shows that they also likely differ in the motive for entry. Unlike self-employment, business ownership is more likely driven by opportunity or high-growth potential rather than necessity resulting from deteriorating labour market conditions. This is shown by decomposing the entry by employment states of origin. Although not perfect, this distinction by origin offers some suggestive evidence on the underlying entry motive and the impacts of economic conditions on self-employment and business creation.

### 4.1 States of employment

For the purpose of the decomposition, in any given year, each individual in CEEDD is assigned one of four mutually exclusive employment states. In addition to being (1) self-employed or (2) a business owner as defined previously, a person could be (3) working at a paid job or be (4) not employed. Specifically, a person is said to be in the state of paid employment if his or her self-employment income or business income is not the primary source of income, and his or her earnings from all paid jobs account for more than 50% of his or her total net income. A person is said to be in the state of non-employment if his or her self-employment income or business income is not the primary source of income and his or her earnings from all paid jobs account for less than 50% of his or her total net income. The non-employment state therefore includes individuals whose primary sources of income are not self-employment income, business income from a corporation or earnings from paid jobs. It may include those weakly attached to the labour market, such as unemployed persons, retired persons, temporary workers or recipients of government income assistance.<sup>18</sup> Individuals starting a business out of non-employment might be driven more by necessity than opportunity.

18. The average age for the "non-employment" employment type in 2013 is 60.5.

## 4.2 Entry by source

The entry from paid employment was by far the largest component of entrants for both business ownership and self-employment (Chart 10). On average, it accounted for about 45% of all entrants to business ownership and 48% of all entrants to self-employment. The share of entrants from paid employment for business ownership remained relatively stable over the period, with the exception of a dip in 2010, while the share for self-employment experienced a decline with a slight rebound after 2010.

The transition from self-employment to business ownership was the second-most-important source of entry into business ownership and was on the rise over the first half of the period until 2007. More than one-third of the entrants to business ownership, about 38%, came from self-employment. Hence, the transitions from both paid employment and self-employment were important in terms of the formation of new business ownership. This is consistent with the idea that some individuals may start a business after having worked as paid employees, accumulating firm- or industry-specific knowledge or experience, learning from their employers about entrepreneurial process, being exposed to a network of entrepreneurs and a network of suppliers of labour, goods and capital, as well as a network of customers (Gompers, Lerner and Scharfstein 2005; Agarwal et al. 2013). Others may start unincorporated businesses first and grow and progress into incorporated ones later (Davis et al. 2009).<sup>19</sup>

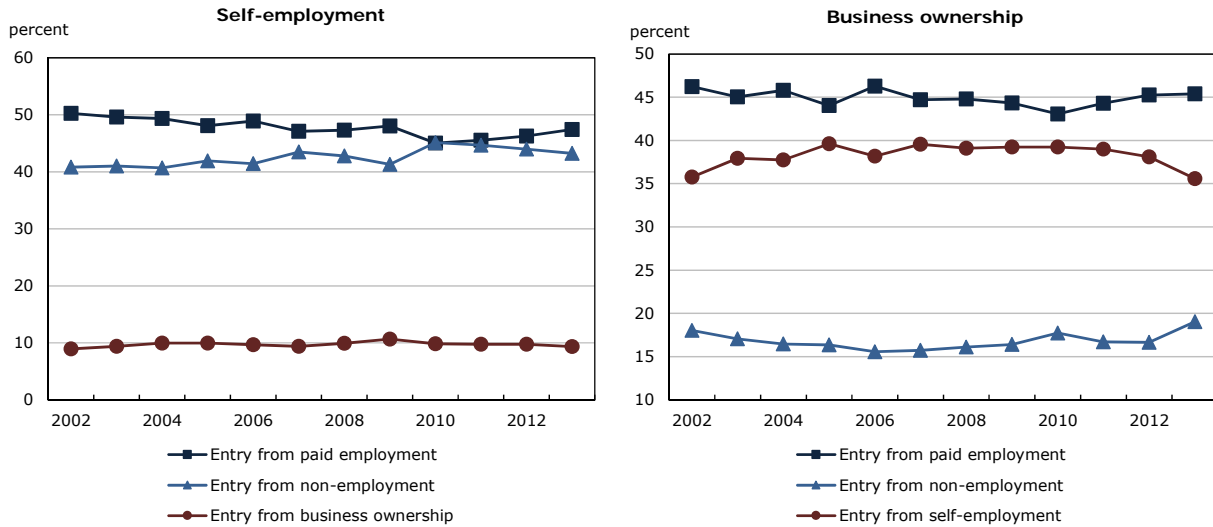
By contrast, the transition from non-employment was the second-largest source of entry into self-employment, accounting for more than 40% of all entrants to self-employment on average. Interestingly, the share of new business owners coming out of non-employment declined during the early and middle periods, when economic conditions improved, while it increased for self-employment. After the 2008 financial crisis, the transition from non-employment increased for both business ownership and self-employment.

These results are informative about the motives of entry into self-employment and business ownership. Generally, over the study period, new business owners seemed driven mostly by seeking opportunity and growth potential (captured by the large shares of entry from paid jobs and self-employment) while the newly self-employed seem to have been driven by opportunity and necessity almost equally. Indeed, the relatively large number of transitions from non-employment to self-employment suggests that individuals starting self-employment are more likely to have been pushed into self-employment because of the worsening labour market conditions.

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19. The transition from the state of self-employment to business ownership may not link to the same business. This matter will be examined further in the future using CEEDD.

**Chart 10**  
**Shares of entrants to self-employment and business ownership, by source**



Source: Statistics Canada, authors' calculations based on data from the Canadian Employer–Employee Dynamics Database.

The composition of employment states for entry also differs by gender, age and size. With regard to the gender dimension, there were proportionally more male entrants from paid employment and fewer from non-employment than female entrants (Table A.1 in Appendix A).

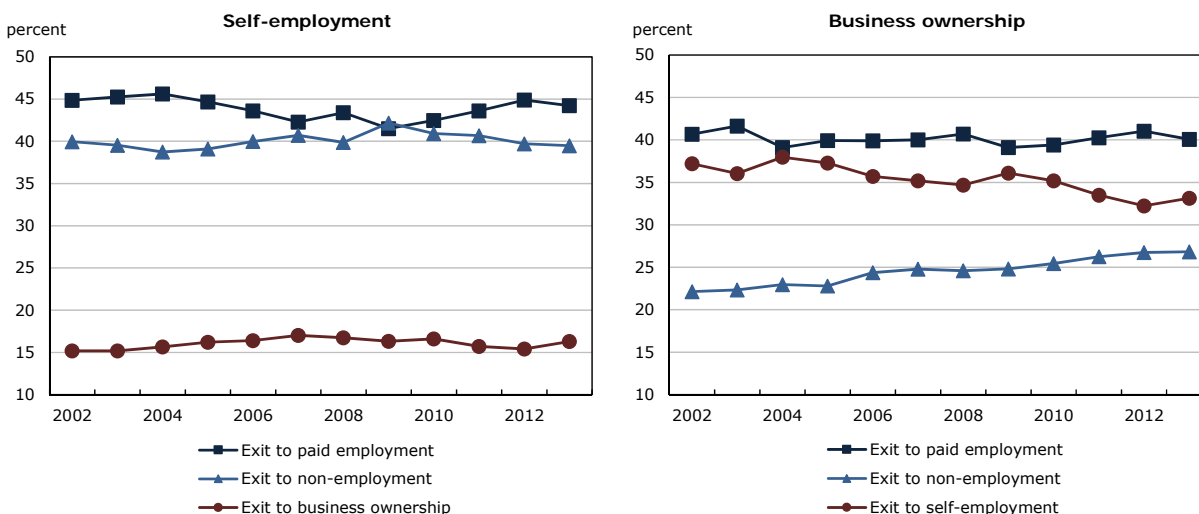
With respect to age, the share of entrants from paid employment decreased with age while the share of entrants from non-employment increased with age. The shares of entrants making transitions between self-employment and business ownership also increased with age (Table A.2 in Appendix A).

As far as the size of employers is concerned, the share of entrants from paid employment to business ownership was smallest for the business owners with 5 employees or less. The importance of paid employment as a source of business owners with employees grew with the number of workers employed by the business owner. Meanwhile, the share of entrants from self-employment to business ownership was largest among the business owners with 5 employees or less and smallest among business owners with greater than 50 employees. Therefore, proportionally, the more workers employed by a new business owner, the more likely that business owner came from paid employment rather than self-employment. (Table A.3 in Appendix A).

### 4.3 Exit by destination

Exits could be the result of business failure or people leaving for better alternatives. Paid employment and self-employment were the two largest destinations when people exited business ownership (Chart 11). In 2002, about 41% of exits from business ownership landed a paid job, 37% were self-employed, and 22% experienced non-employment. In 2013, the fraction of exits from business ownership who ended up in non-employment increased to about 27%; the fraction of exits who were in paid employment remained the same; and the fraction in self-employment declined slightly.

**Chart 11**  
Shares of exits from self-employment and business ownership, by destination



Source: Statistics Canada, authors' calculations based on data from the Canadian Employer–Employee Dynamics Database.

By contrast, paid employment and non-employment were the two largest destinations among those who exited self-employment. During the study period, the fraction of exits from self-employment to paid employment was about 45%; this rate declined slightly in 2009 before rising again. About 40% of exits from self-employment were to non-employment; this rate increased slightly in 2009 and then declined.

## 5 Survival and long-term entry and exit

### 5.1 Survival rates

The contribution of entry and exit to overall job creation and productivity growth depends not only on the incidence of entry and exit, but also on the likelihood of new entrants surviving and the length of time that they survive after entry. The longitudinal nature of CEEDD makes it possible to examine the survival probability of entrants along many dimensions.

The non-parametric Kaplan–Meier survival function is plotted in Chart 12 for the 2002 entrant cohorts to self-employment, business ownership and business ownership with employees, where the survival function is defined as

$$\hat{S}(t) = \prod_{j:t_j \leq t} \left( \frac{n_j - d_j}{n_j} \right),$$

and where  $t_j, j = 1, 2, \dots$ , denotes the times at which exit occurs;  $n_j$  is the number of entrants that have survived just before time  $t_j$ ; and  $d_j$  is the number of exits at time  $t_j$ .

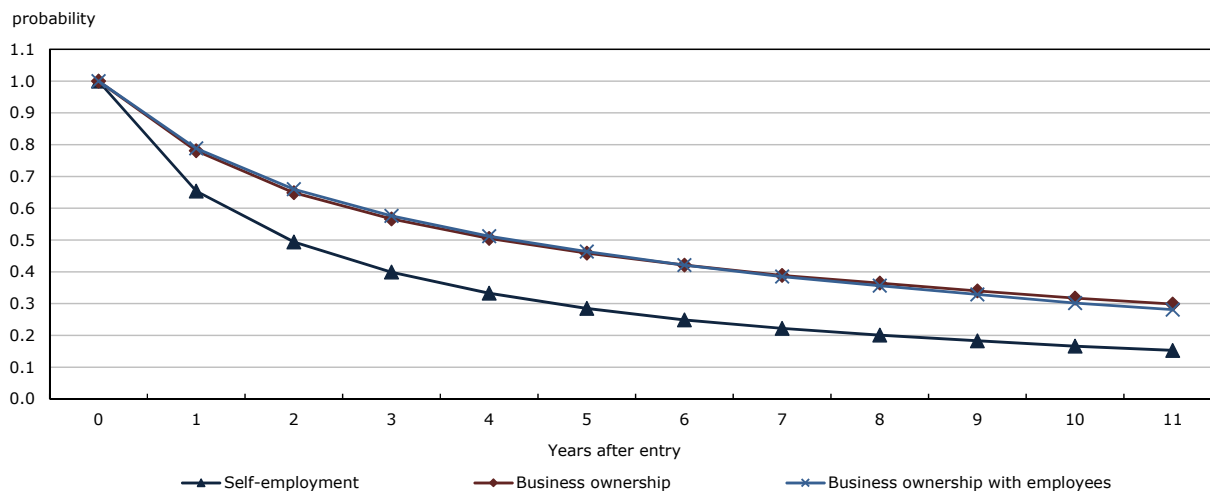
The entrants to both business ownership and business ownership with employees had much higher survival probabilities than the entrants to self-employment (Chart 12). The average duration for the 2002 cohort of entrants to self-employment was 4.0 years (including the year of entry), compared to 5.7 years for the 2002 cohort of entrants to business ownership and 5.8 years for the 2002 cohort of entrants to business ownership with employees. Over the first year, almost 35% (1 minus the survival probability at year 1) of entrants to self-employment exited while about

22% of business owners did so. The survival probability for the entrants to self-employment quickly dropped after year 1 and went down to less than 30% in year 5, while this rate was still about 46% at year 5 for the entrants to business ownership and business ownership with employees. The drops in the survival probabilities attenuated after year 5 for all groups; by year 10, the survival probabilities for business owners and business owners with employees were still more than 30% while it was less than 20% for self-employment. This evidence on the survival, especially for entrants to business ownership and business ownership with employees, is largely in line with a recent OECD study showing a survival rate of about 50% after 5 years for young employer firms across many countries (Calvino, Criscuolo and Menon 2015).

The survival probability also differs by gender, age and employment size. The survival probability among male entrants was higher than among female entrants (Table B.1 in Appendix B). In general, the survival probability increased with age (Table B.2 in Appendix B). The youngest age group (age 15 to 34) had the lowest survival probability among the entrants to both self-employment and business ownership. The oldest age group (aged 55 and older) had the highest survival probability among the entrants to self-employment. However, the middle age group had the highest survival probability among the entrants to business ownership. Among entrants to business ownership with employees, the survival probability increased with size in general (Table B.3 in Appendix B).<sup>20</sup> Business owners with 5 employees or less had the lowest survival probability, and business owners with greater than 50 employees had the highest survival probability. The survival probabilities for business owners with greater than 5 to 20 employees and greater than 20 to 50 employees were similar to each other, and fell in between the survival probabilities for the categories with the smallest and largest number of employees.<sup>21</sup>

The survival probability does not change much across cohorts of business owners with employees (Table B.4 in Appendix B).<sup>22</sup>

**Chart 12**  
Kaplan-Meier survival functions for the 2002 cohorts of entrants to self-employment, business ownership, and business ownership with employees



Source: Statistics Canada, authors' calculations based on data from the Canadian Employer–Employee Dynamics Database.

20. A similar pattern is also found in Macdonald (2012) using the Longitudinal Employment Analysis Program database.  
21. Log-rank tests are used to test the equality of the survival probability by gender, age and size, and the equality is rejected.

22. For the self-employed and business owners in general, the survival probability does not change much either across cohorts. The results are not reported in the paper but available upon request.

## 5.2 Short-term versus long-term entry and exit

The definition of “entry” so far is based on two consecutive years. Hence, one is defined as an entrant to self-employment (or business ownership) if he or she is currently in the state of self-employment (or business ownership) but was not in the preceding year. As shown above, a large proportion of entrants exited only one or two years after entry. These entrants are short-lived and may reflect entries that are temporary, seasonal or experimental in nature, or a lack of preparation or long-term commitment. Entrants that survived longer may reflect long-term commitment or be growth-oriented. The two concepts, long-term and short-term entrants or exits, can be described as follows. A “long-term entrant” is defined as an entrant that survives at least three years (including the year of entry). A “long-term exit” is defined as an exit that stays out of self-employment or business ownership for at least three years (including the year of exit). The “short-term entrants or exits” are then the difference between all entrants or exits and the long-term entrants or exits. The long-term (short-term) entry rate is then the ratio of long-term (short-term) entrants to the population, and the long-term (short-term) exit rate is the ratio of long-term (short-term) exits to the population of self-employed or business owners.

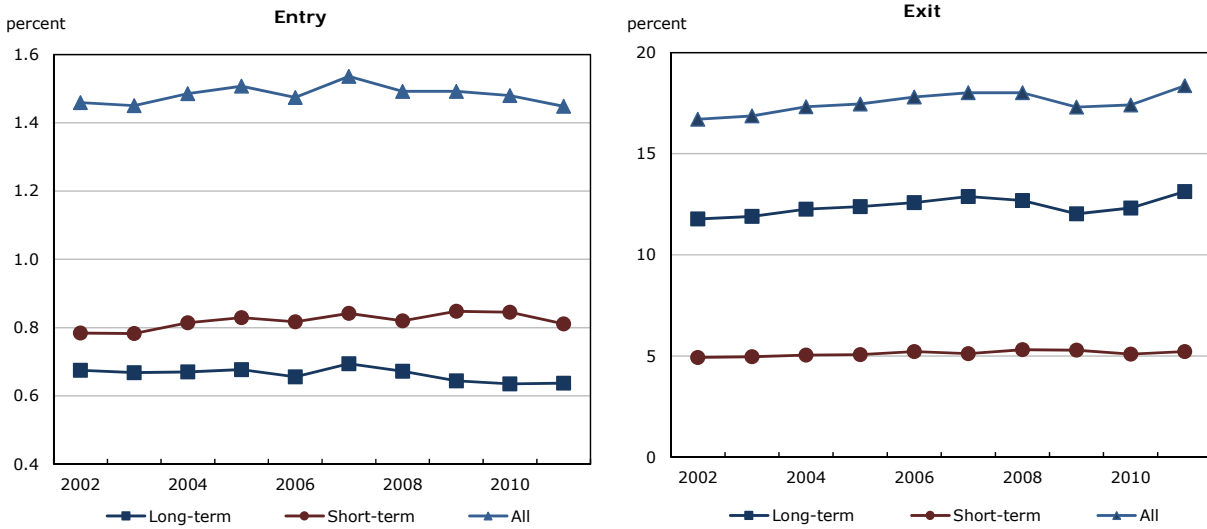
The short-term entrants dominated the entry into self-employment while the long-term entrants dominated the entry into business ownership over the period from 2002 to 2011 (Charts 13 and 14).<sup>23</sup> The short-term entry rate for self-employment was 0.82% on average each year, higher than the long-term entry rate of 0.66%. Hence, more than one-half of all entrants to self-employment could survive for no more than two years (including the year of entry) after entry. The short-term entry rate also increased slightly over the period while the long-term entry rate declined. For business ownership, the long-term entrants accounted for about 63% of all entrants (Chart 14). Over the period from 2002 to 2011, the long-term entry rate was 0.37% on average, higher than the short-term entry rate that was 0.22%. The long-term entry rate increased more strongly and was more volatile than the short-term entry rate over the period.

The long-term exits dominated both exits from self-employment and business ownership. The long-term exit rate of self-employment was 12.4% on average, and accounted for about 71% of all exits from self-employment. Also, the long-term exit rate increased slightly over the period from 2002 to 2011 while the short-term exit rate was flat. Regarding the exit from business ownership, the long-term exit rate was also higher than the short-term exit rate—6.9% versus 4.7% on average each year. However, the short-term exit rate experienced a steeper decline than the long-term exit rate over the period from 2002 to 2011.

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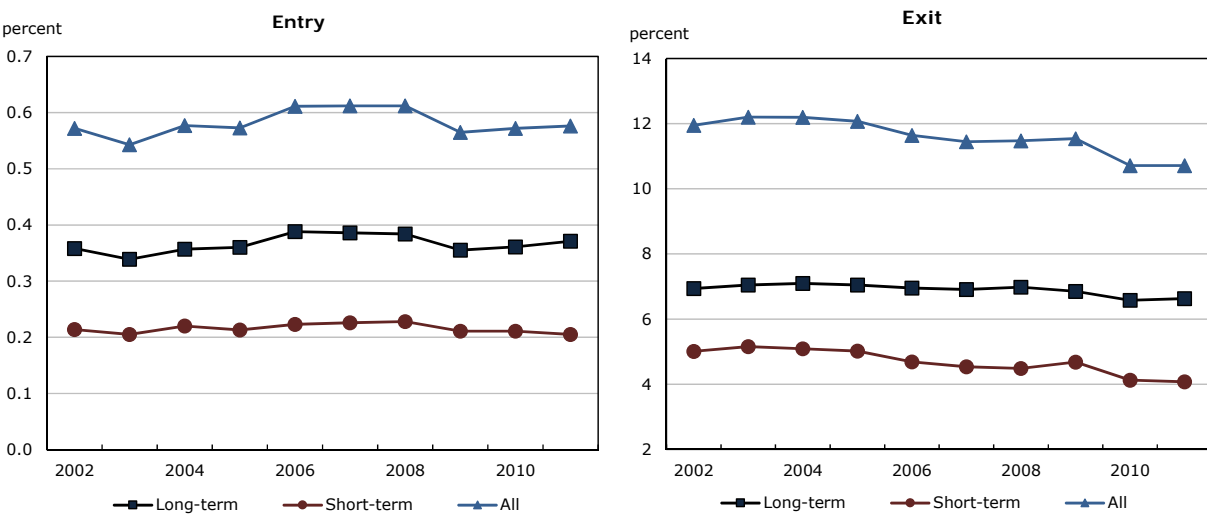
23. The year 2011 is the last year for which the long-term entry and exit rates can be constructed, given that the last year of CEEDD now is 2013.

**Chart 13**  
**Long-term and short-term entry and exit rates of self-employment**



Source: Statistics Canada, authors' calculations based on data from the Canadian Employer–Employee Dynamics Database.

**Chart 14**  
**Long-term and short-term entry and exit rates of business ownership**



Source: Statistics Canada, authors' calculations based on data from the Canadian Employer–Employee Dynamics Database.

## 6 Comparison between the Canadian Employer–Employee Dynamics Database and the Labour Force Survey

How reliable or sensible are the estimates obtained from CEEDD? To answer this question, similar estimates of self-employment and business ownership using the LFS, the long-standing and prominent data source of labour market information in Canada, are produced as a benchmark and compared with those from CEEDD. It is also known that household (e.g., the LFS) and establishment data sources (e.g., CEEDD) may yield different estimates of employment (e.g., see Abraham et al. 2013). This section also makes effort to reconcile the differences between the two data sources.



## 6.1 The levels of self-employment and business ownership

The number of self-employed identified in CEEDD was much higher than that in the LFS over the period from 2001 to 2013 (bars in Chart 15).<sup>24</sup> On average, there were about 2.15 million self-employed in CEEDD each year and 1.51 million in the LFS. The two series show a similar and upward trend up to 2009. The growth rates of the two series, defined as the level at a given year divided by its 2001 level (denoted as LFS-normalized and CEEDD-normalized in Chart 15), were intertwined with each other; the LFS was more volatile and bounced around CEEDD. The large departure of the two series took place after 2009—CEEDD kept rising and the LFS kept declining. Overall, the two series have a strong correlation over the whole period with a correlation coefficient of 0.77.

In terms of business ownership, CEEDD has very similar estimates of level to the LFS (bars in Chart 16). On average, there were about 994,000 business owners in CEEDD each year, and 1,013,000 in the LFS. Overall, the number of business owners in CEEDD was lower than in the LFS before 2010 and higher thereafter. However, the difference was small, at about 19,000 on average each year. The growth of business owners in the two data sources was also trending upward (LFS-normalized and CEEDD-normalized in Chart 16). The two had a very similar growth rate until 2005, after which the growth rate in CEEDD exceeded that in the LFS. Over the 13 years, the number of business owners grew by 69% in CEEDD and by 46% in the LFS. The two series had a nearly perfect correlation, with a correlation coefficient of 0.98.

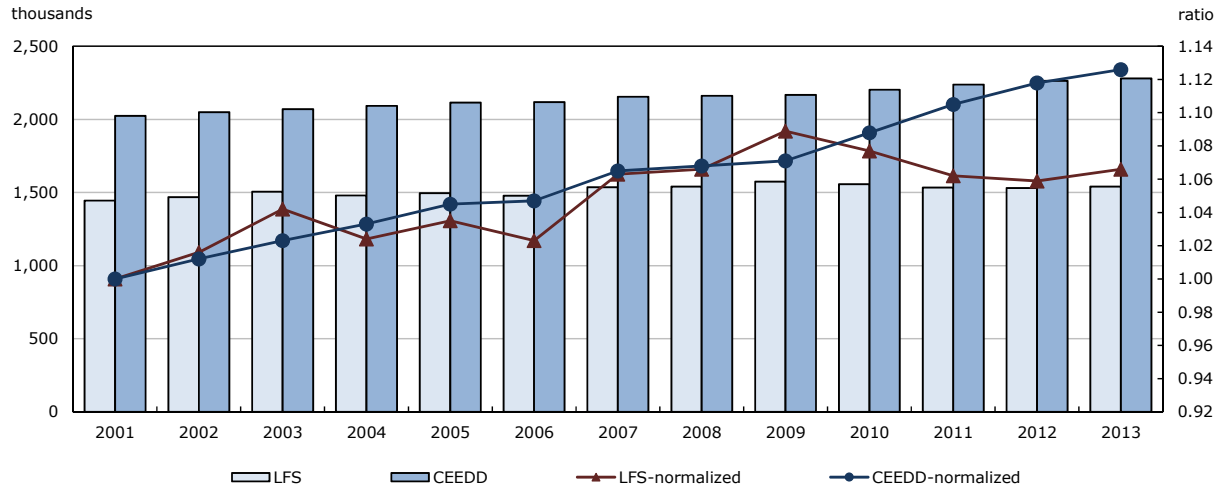
The large discrepancy in the overall measure of self-employment between CEEDD and the LFS may be due to several conceptual differences between the two datasets. First, CEEDD is based on all businesses owned during the year, while the LFS is based on the main business during the reference week or last business within the previous 12 months. Moreover, although only the primary types of self-employment and business owners are discussed in this paper, the primary type is based on income rather than hours worked, as is the case in the LFS. Second, the self-employment in CEEDD includes those engaged in fishing and rental activities, while the LFS does not include them.<sup>25</sup> Third, CEEDD may include those marginally self-employed and marginal businesses. For example, many young people in their teens or early 20s are still in school and are more likely to identify themselves as students rather than self-employed, even if they may have started a summer painting or gardening business, or done some part-time tutoring. Older people may identify themselves as retirees even if they still engage in some self-employment activities to earn extra income. Therefore, these younger and older people are more likely to be included in the CEEDD definition of self-employment but not in the LFS definition. Meanwhile, marginal businesses with short duration or low income are also less likely to be reported in a household survey.

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24. The self-employed in the LFS include the unincorporated self-employed with or without paid help. Business owners include the incorporated self-employed with or without paid help.

25. Eliminating those who are self-employed with non-zero net rental and fishing income reduces the number of self-employed in CEEDD to about 1.65 million on average each year. This figure is still higher than the LFS estimate by about 135,000 on average each year.

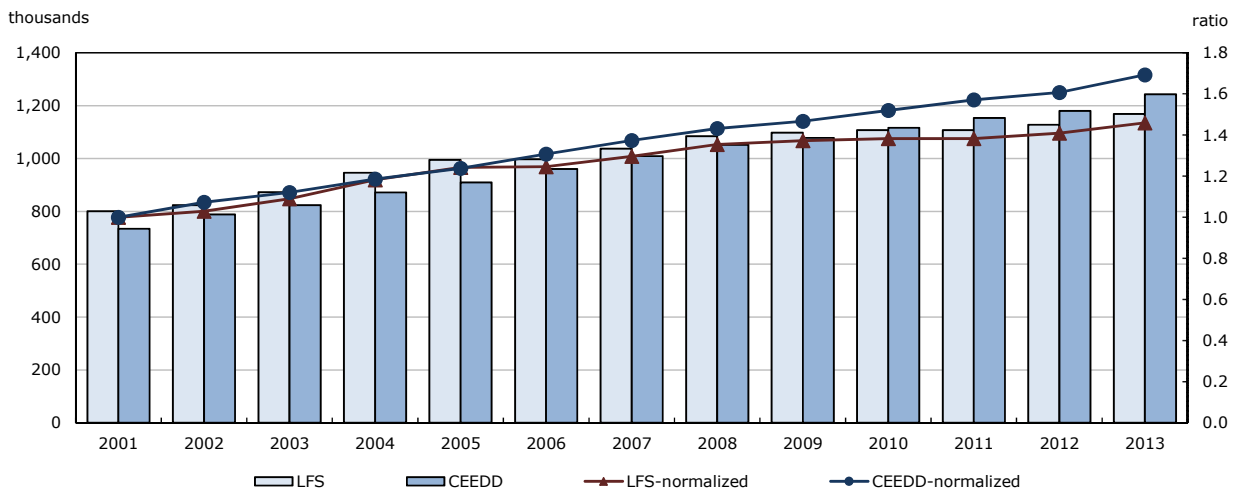
**Chart 15**  
**Unincorporated self-employment in CEEDD and the LFS**



**Note:** LFS-normalized or CEEDD-normalized: Dividing the level in each year by the level in 2001.  
**Sources:** Statistics Canada, authors' calculations based on data from the Canadian Employer–Employee Dynamics Database (CEEDD) and the Labour Force Survey (LFS).

Abraham et al. (2013) link the CPS with the Current Employment Statistics (CES) to investigate the discrepancy in measuring employment between household and establishment surveys. They find age (65 and older) and low-paying jobs raise the probability of a job being identified in the CES but not reported in the CPS. In the spirit of Abraham et al. (2013), Chart C.1 (Appendix C) shows the alternative estimates of self-employment in CEEDD with age (from 18 to 65) and income (the absolute value of income greater than or equal to \$1,000 or \$5,000) restrictions. It can be seen that imposing these age and income restrictions makes CEEDD estimates of self-employment closer to the LFS estimates.

**Chart 16**  
**Incorporated business ownership in CEEDD and the LFS**



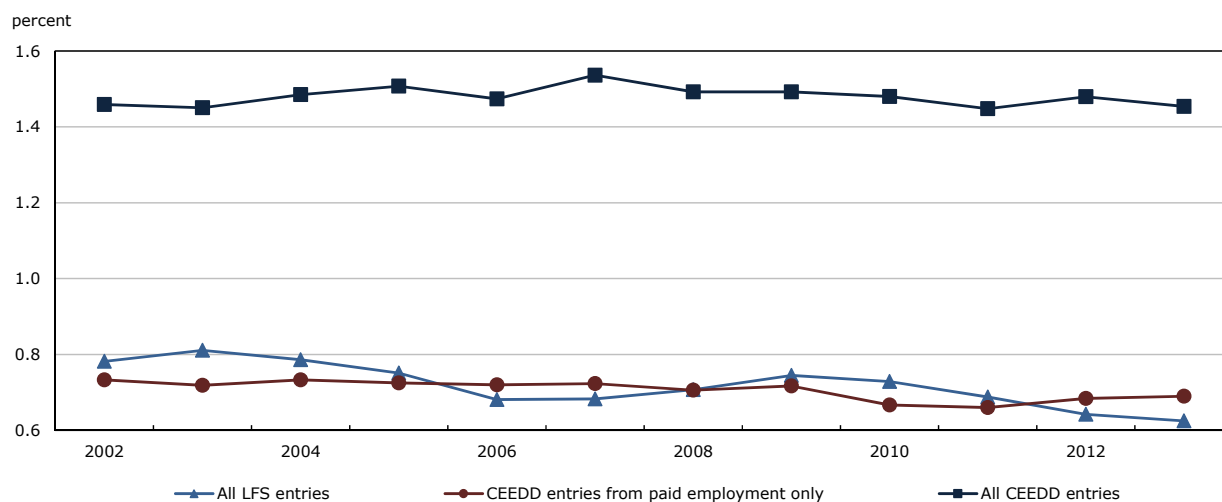
**Note:** LFS-normalized or CEEDD-normalized: Dividing the level in each year by the level in 2001.  
**Sources:** Statistics Canada, authors' calculations based on data from the Canadian Employer–Employee Dynamics Database (CEEDD) and the Labour Force Survey (LFS).

## 6.2 The entry rates

Although the LFS is not a longitudinal survey, its job tenure variable can be used to construct entry. The entry in the LFS is defined as those self-employed or business owners with tenure less than or equal to 12 months.<sup>26</sup>

The entry rates in CEEDD are much higher than those in the LFS (Charts 17 and 18, all CEEDD entries versus all LFS entries). On one hand, this seems not surprising especially for the entry rate into self-employment, given the much larger stock estimate of the self-employed in CEEDD discussed above. On the other hand, although CEEDD and the LFS have a similar estimate of business owners, the entry rate of business ownership is still much higher in CEEDD. This seems to suggest that some conceptual differences in measuring entry do exist. Indeed, the entry in CEEDD is defined based on two consecutive years. As well, it includes not only entry from outside self-employment or business ownership, such as paid employment, but also the transition between self-employment and business ownership. For example, suppose an individual starts an unincorporated business in year 1 and grows the business into a corporation in year 2. According to the CEEDD definition, the person would be defined as an entrant to business ownership in year 2. However, in the LFS, despite the change in legal structure, the person may not report the business as a new one. This probably explains why the LFS entry rate is much similar to the CEEDD entry rate from paid employment (Charts 17 and 18, all LFS entries versus CEEDD entries from paid employment only).

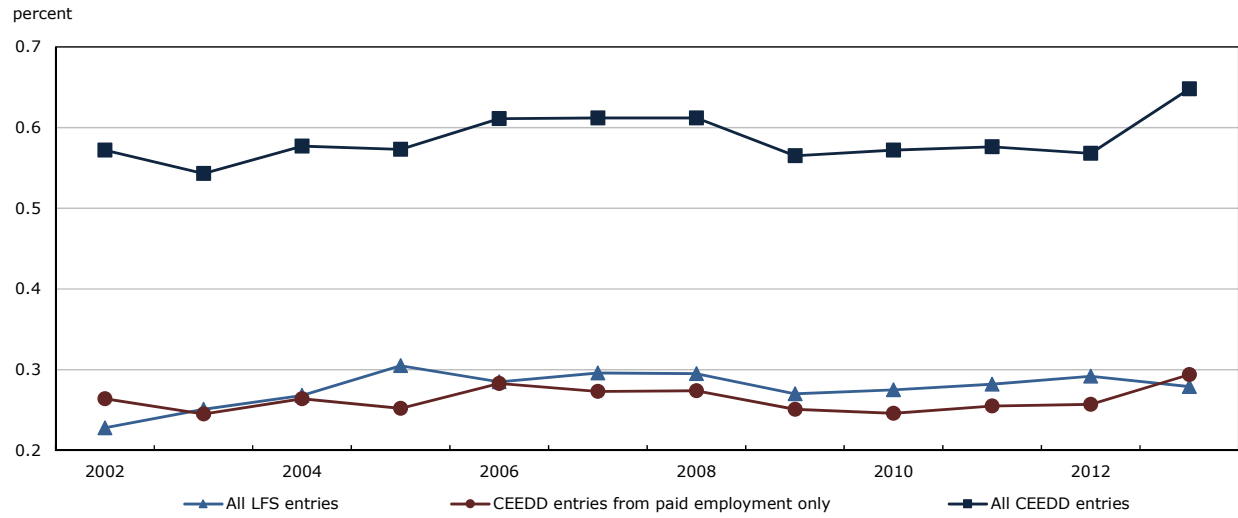
**Chart 17**  
Entry rate of self-employment in the LFS and CEEDD



Source: Statistics Canada, authors' calculations based on data from the Canadian Employer–Employee Dynamics Database (CEEDD) and the Labour Force Survey (LFS).

26. Cao et al. (2015) and BDC (2012) use a similar definition of “entry” in the LFS.

**Chart 18**  
**Entry rate of business ownership in the LFS and CEEDD**



**Sources:** Statistics Canada, authors' calculations based on data from the Canadian Employer–Employee Dynamics Database (CEEDD) and the Labour Force Survey (LFS).

## 7 Conclusion

Entrepreneurial activity is an important driver for innovation, job creation, and productivity growth. However, measuring entrepreneurial activity has so far been limited partly due to data limitation. Using the Canadian Employer–Employee Dynamics Database (CEEDD), a newly developed matched database, this paper distinguishes between unincorporated self-employment and incorporated business ownership and examines the patterns of entry, survival, and exit for the two types of self-employment. This analysis demonstrates the potential of CEEDD in the area of entrepreneurship research.

Several findings are noteworthy. First, self-employment (the unincorporated) and business ownership (the incorporated) are two distinct types. They differ not only in the number of jobs accounted for and the income generated, but also in the entry and exit processes involved. Self-employment has higher entry and exit rates than business ownership. It also has lower survival probability than business ownership. The two also differ in the composition of entry by origin. The entry from non-employment is equally important as the entry from paid employment for self-employment, while the entry from paid employment and from unincorporated self-employment are the two major sources for business ownership. These stylized facts suggest that self-employment is characterized by a process where costs to entry are low and people are free to enter to try and experiment either voluntarily or involuntarily. However, the failure rate is also high: almost one-half of entrants survived for only two years. By contrast, business ownership seems to be characterized by a different process, where entry costs are relatively higher and people are more prepared or more selective before entry; this leads to a higher survival rate.

Second, although the entry rates into self-employment and business ownership for females experienced a relatively larger increase than for males over the study period, males still have higher entry rates, lower exit rates and higher survival probabilities than females. Additionally, entry rates increase with age and reach a peak in the mid-50s, and then decline with age. These findings suggest interesting and important future research using CEEDD to better understand women entrepreneurship and the differences between men and women entrepreneurs, as well as senior entrepreneurship in the wake of ongoing population ageing in Canada.

Finally, readers or data users should note that survey and administrative data may yield different estimates of self-employment and business ownership. However, the difference can be reconciled. The difference is due mainly to the fact that marginal businesses are less likely to be captured in the Labour Force Survey (LFS). With respect to the entry or new self-employment or business activities, the LFS is likely to capture only those new activities forming outside self-employment or business ownership. By contrast, CEEDD is more inclusive, capturing not only the entry from outside self-employment and business ownership, but also the transition between self-employment and business ownership.

## Appendix A: Composition of entry source and exit destination by gender, age and employment size

Table A.1 reports the male–female ratio in the share of entrants by source, defined as the share of entrants among males divided by the share of entrants among females, by source. It can be seen differences exist by gender. First, the shares of entrants for self-employment from paid employment were higher among males by about 7% on average (Column 1). However, for business ownership, the share of entrants from paid employment was roughly the same between males and females (Column 4). Second, among males, there were proportionally fewer entrants from non-employment to both self-employment (lower by about 20%, Column 2) and business ownership (lower by about 35%, Column 5) than among females. Third, there were proportionally more transitions from business ownership to self-employment (almost 90% more, Column 3) or from self-employment to business ownership (about 25% more, Column 6) among males than females.

**Table A.1**  
**Male–female ratio in the share of entrants by source for self-employment and business ownership**

Year	Share of entrants for					
	Self-employment from			Business ownership from		
	Paid employment	Non-employment	Business ownership	Paid employment	Non-employment	Self-employment
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	
	male–female ratio					
2002	1.05	0.83	1.87	0.99	0.70	1.23
2003	1.05	0.83	1.85	0.97	0.70	1.24
2004	1.05	0.82	1.86	0.96	0.70	1.25
2005	1.05	0.82	1.90	0.95	0.66	1.28
2006	1.06	0.81	1.89	0.96	0.66	1.26
2007	1.11	0.78	1.86	0.97	0.61	1.28
2008	1.14	0.75	1.89	1.00	0.60	1.27
2009	1.12	0.75	1.87	1.01	0.62	1.24
2010	1.07	0.82	1.92	0.99	0.63	1.26
2011	1.07	0.82	1.88	1.01	0.61	1.24
2012	1.07	0.81	1.92	1.04	0.59	1.22
2013	1.07	0.82	1.87	1.06	0.66	1.18

**Source:** Statistics Canada, authors' calculations based on data from the Canadian Employer–Employee Dynamics Database.

On the age dimension, the middle-aged group (35 to 54) had proportionally fewer entrants from paid employment to both self-employment and business ownership than does the young age group (15 to 34), about 20% less on average (Columns 1 and 4, Table A.2). However, the middle-aged group had proportionally more transitions from business ownership to self-employment (Column 3) and vice versa (Column 6) than the young group. These relationships are more pronounced between the older age group (aged 55 and older) and the young group. Interestingly, the share of entrants from paid employment decreased with age (Columns 1 and 4 versus Columns 7 and 10) while the share of entrants from non-employment increased with age (Columns 2 and 5 versus Columns 8 and 11). The shares of entrants making transitions between self-employment and business ownership also increased with age (Columns 3 and 6 versus Columns 9 and 12).

**Table A.2**

**Differences across age groups in the share of entrants by source for self-employment and business ownership**

Year	Share of middle-aged entrants relative to young entrants to						Share of older entrants relative to young entrants to					
	Self-employment from			Business ownership from			Self-employment from			Business ownership from		
	Paid employment	Non-employment	Business ownership	Paid employment	Non-employment	Self-employment	Paid employment	Non-employment	Business ownership	Paid employment	Non-employment	Self-employment
	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10	Column 11	Column 12
			ratio <sup>1</sup>						ratio <sup>2</sup>			
2002	0.80	1.21	3.68	0.84	1.01	1.35	0.35	2.18	4.73	0.49	2.04	1.58
2003	0.80	1.18	3.75	0.83	0.94	1.38	0.37	2.04	4.80	0.49	1.73	1.68
2004	0.80	1.16	3.62	0.83	0.93	1.43	0.37	2.03	4.53	0.50	1.71	1.73
2005	0.80	1.16	3.49	0.80	0.91	1.49	0.36	2.04	4.15	0.46	1.73	1.80
2006	0.80	1.19	3.62	0.83	0.91	1.43	0.35	2.15	4.35	0.49	1.78	1.74
2007	0.81	1.14	3.57	0.84	0.87	1.39	0.37	1.91	4.35	0.50	1.67	1.67
2008	0.79	1.16	3.81	0.84	0.87	1.40	0.36	1.97	4.68	0.50	1.66	1.68
2009	0.80	1.15	3.64	0.84	0.87	1.39	0.38	1.94	4.49	0.49	1.71	1.66
2010	0.78	1.15	3.99	0.82	0.91	1.42	0.37	1.83	4.87	0.49	1.61	1.71
2011	0.77	1.18	3.92	0.83	0.87	1.43	0.38	1.84	4.94	0.49	1.59	1.74
2012	0.78	1.18	4.10	0.83	0.89	1.43	0.38	1.90	5.18	0.49	1.68	1.75
2013	0.78	1.23	4.05	0.85	0.97	1.35	0.37	2.05	5.13	0.51	1.78	1.61

1. Ratio of the middle-aged group of entrants to the young age group of entrants.

2. Ratio of the older age group of entrants to the young age group of entrants.

**Note:** Young age group: 15 to 34 years; middle-aged group: 35 to 54 years; older age group: 55 years and older.

**Source:** Statistics Canada, authors' calculations based on data from the Canadian Employer–Employee Dynamics Database.

On the size dimension, the share of entrants from paid employment to business ownership with employees was the smallest among the business owners with 5 employees or less (about 40% on average, Column 1, Table A.3) and increased with size class to about 60% among the business owners with greater than 50 employees. Meanwhile, the share of entrants from self-employment was the largest among the smallest employers (about 49% on average, Column 3), and decreased with size class to about 29% among the largest size class (Column 12). Therefore, proportionally, the higher the number of employees in the business gets, the more entrants there are from paid employment and the fewer there are from self-employment.



**Table A.3**

**Shares of entrants across sources for business ownership with employees, by employment size**

Year	Greater than 0 and ≤ 5			Greater than 5 and ≤ 20			Greater than 20 and ≤ 50			Greater than 50		
	Paid	Non-	Self-	Paid	Non-	Self-	Paid	Non-	Self-	Paid	Non-	Self-
	employment	employment	employment	employment	employment	employment	employment	employment	employment	employment	employment	employment
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10	Column 11	Column 12	
						percent						
2002	44	12	45	53	11	36	56	11	32	57	12	31
2003	42	12	46	51	11	38	59	11	30	62	12	26
2004	43	11	47	50	11	39	57	10	33	65	10	25
2005	40	11	49	50	10	40	58	10	32	60	13	27
2006	42	10	48	51	10	39	56	11	33	59	11	30
2007	40	10	50	50	11	40	57	10	33	60	11	29
2008	40	10	50	49	11	40	56	11	33	59	12	29
2009	39	10	51	48	11	41	55	11	34	60	11	29
2010	37	12	51	47	11	42	54	11	35	62	12	26
2011	38	11	51	48	11	41	53	11	35	55	11	35
2012	39	10	51	48	11	41	54	12	34	58	10	31
2013	41	11	48	52	12	35	57	12	31	61	12	27

**Source:** Statistics Canada, authors' calculations based on data from the Canadian Employer–Employee Dynamics Database.

The distributions of exits from self-employment and business ownership by destination also differ by gender, age and size.<sup>27</sup> Generally, there was an equal proportion of males and females that transited to paid jobs after exiting from self-employment or business ownership. However, there were proportionally fewer males than females that transited to non-employment following exit and more males than females that transited between self-employment and business ownership.

With respect to age, there were proportionally fewer individuals who transited to paid jobs following exits from self-employment or business ownership but more who transited to non-employment when they became older. With respect to size, there were proportionally more individuals who transited to paid jobs but fewer individuals who transited to incorporated non-employers or unincorporated self-employment following exits from incorporated employers when the number of employees in the business increased.

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27. Results are not reported in the paper. However, they are available upon request.

## Appendix B: Survival probabilities

**Table B.1**  
Survival probabilities for the 2002 cohorts of entrants to self-employment and business ownership by gender

Duration in years	Self-employment		Business ownership	
	Male	Female	Male	Female
1	0.66	0.64	0.79	0.77
2	0.51	0.48	0.66	0.63
3	0.41	0.38	0.58	0.55
4	0.35	0.32	0.52	0.49
5	0.30	0.27	0.47	0.44
6	0.26	0.23	0.44	0.40
7	0.23	0.21	0.40	0.36
8	0.21	0.19	0.38	0.34
9	0.19	0.17	0.36	0.31
10	0.18	0.16	0.33	0.29
11	0.16	0.14	0.31	0.27

Source: Statistics Canada, authors' calculations based on data from the Canadian Employer–Employee Dynamics Database.

**Table B.2**  
Survival probabilities for the 2002 cohorts of entrants to self-employment and business ownership by age

Duration in years	Self-employment			Business ownership		
	15 to 34 years	35 to 54 years	55 years and older	15 to 34 years	35 to 54 years	55 years and older
1	0.61	0.66	0.69	0.77	0.78	0.78
2	0.44	0.50	0.54	0.63	0.65	0.65
3	0.35	0.41	0.44	0.54	0.57	0.57
4	0.29	0.34	0.37	0.48	0.51	0.50
5	0.24	0.29	0.32	0.43	0.47	0.46
6	0.21	0.26	0.28	0.39	0.43	0.41
7	0.18	0.23	0.25	0.36	0.40	0.38
8	0.16	0.21	0.22	0.34	0.38	0.35
9	0.15	0.19	0.20	0.32	0.35	0.32
10	0.13	0.18	0.18	0.30	0.33	0.30
11	0.12	0.16	0.17	0.28	0.31	0.28

Source: Statistics Canada, authors' calculations based on data from the Canadian Employer–Employee Dynamics Database.

**Table B.3**  
Survival probabilities for the 2002 cohorts of entrants to business ownership with employees, by size

Duration in years	Employment size			
	Greater than 0 and ≤ 5	Greater than 5 and ≤ 20	Greater than 20 and ≤ 50	Greater than 50
1	0.78	0.84	0.83	0.85
2	0.65	0.72	0.73	0.74
3	0.56	0.64	0.64	0.67
4	0.50	0.58	0.58	0.60
5	0.45	0.53	0.53	0.55
6	0.41	0.48	0.48	0.52
7	0.37	0.44	0.44	0.48
8	0.34	0.41	0.41	0.44
9	0.32	0.39	0.38	0.42
10	0.29	0.36	0.36	0.39
11	0.27	0.33	0.34	0.37

Source: Statistics Canada, authors' calculations based on data from the Canadian Employer–Employee Dynamics Database.

**Table B.4****Survival probabilities of entrants to business ownership with employees, by cohort**

Duration in years	Cohort of entrants							
	2002	2003	2004	2005	2006	2007	2008	2009
				probability				
1	0.79	0.79	0.78	0.79	0.79	0.78	0.78	0.78
2	0.66	0.65	0.65	0.66	0.66	0.65	0.65	0.65
3	0.58	0.57	0.56	0.57	0.57	0.57	0.57	0.56
4	0.51	0.50	0.50	0.50	0.50	0.50	0.50	0.50
5	0.46	0.45	0.44	0.45	0.45	0.45	0.45	...
6	0.42	0.41	0.40	0.41	0.41	0.41	...	...
7	0.39	0.37	0.37	0.37	0.38	...	...	...
8	0.36	0.35	0.34	0.34	...	...	...	...
9	0.33	0.32	0.31	...	...	...	...	...
10	0.30	0.29	...	...	...	...	...	...
11	0.28	...	...	...	...	...	...	...

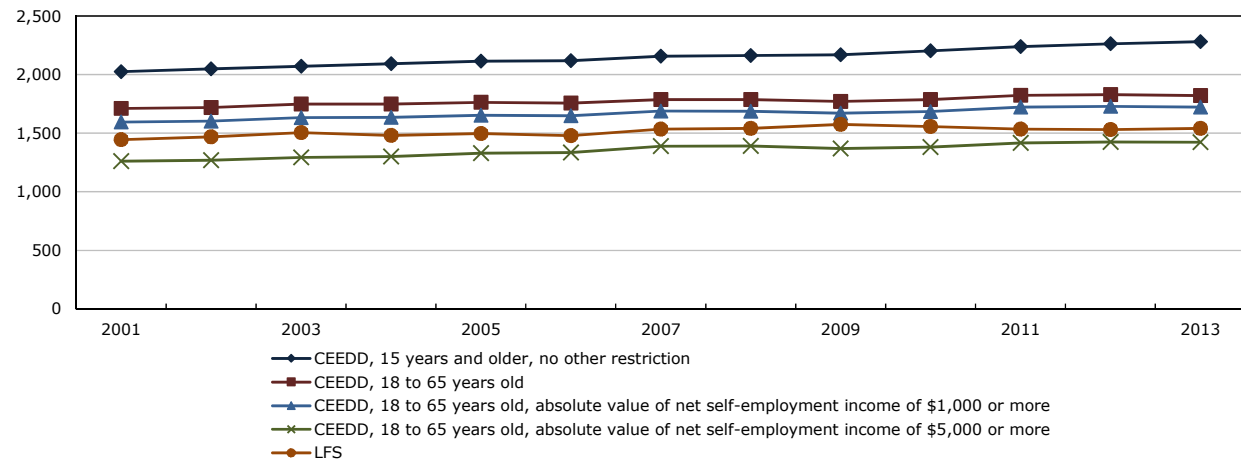
...not applicable

**Source:** Statistics Canada, authors' calculations based on data from the Canadian Employer–Employee Dynamics Database.

## Appendix C: Alternative estimates of self-employment

**Chart C.1**  
LFS estimates and alternative estimates of self-employment in CEEDD with age and income restrictions

thousands



**Source:** Statistics Canada, authors' calculations based on data from the Canadian Employer–Employee Dynamics Database (CEEDD) and the Labour Force Survey (LFS).

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