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Labour market dynamics since the 2008/2009 recession

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by **Emmanuelle Bourbeau**

Summary/highlights

This analysis uses data from the Labour Force Survey in order to observe Canadian labour market dynamics since the 2008/2009 recession. In order to do this, gross flow data were created using a different method than what has been done before for Canadian data.

This study helps to answer several questions: what proportion of the population changes their labour force status each month? What were the movements underlying the large changes in the labour market indicators? During the recession, did employment decrease because of an increase in the number of people that lost or quit their job and/or a decrease in the number of people having found a job? What is the probability of changing labour force status between two consecutive months?

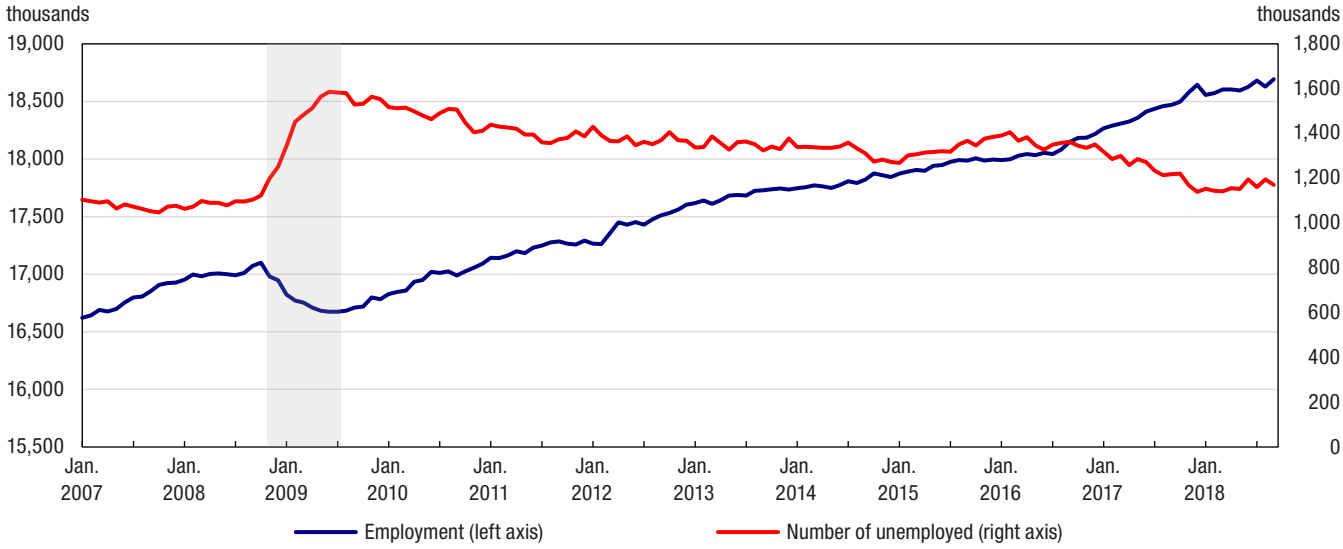
- Although the majority of people have the same labour force status from one month to the next, the Canadian labour market is very dynamic. Each month, 6.2% of the working-age population, on average, changed their labour force status between January 2007 and September 2018. This proportion, however, has decreased over the study period.
- Gross flows help to obtain more detailed information on what is causing the movements in labour market indicators.
- The notable decrease in employment observed during the 2008/2009 recession was primarily due to the increase in flows out of employment, while inflows remained relatively stable.
- This increase in flows out of employment occurred mainly as a result of the increase in flows from employment to unemployment, possibly caused by layoffs over the period.
- The transition rate from employed to unemployed increased notably during the 2008/2009 recession, and remained higher for several years after the economic shock.
- The notable increase in the number of unemployed observed during this recession was caused by the rise in both components of the inflows to unemployment (that is, employed to unemployed, and inactive to unemployed).
- The proportion of unemployed who stayed unemployed saw a notable increase during the recession, and remained higher than the proportion that was observed over the 12 months before this period.

1. Introduction

Every month, the Labour Force Survey (LFS) data published by Statistics Canada garner much attention. Be it the unemployment rate, employment levels, or the proportion of the population participating in the labour force, LFS estimates are used for many purposes, such as taking the pulse of the labour market, administering the Employment Insurance program, or contributing to policy analysis.

When economic shocks occur, shifts in labour market indicators are quickly identifiable. During the last recession in 2008/2009, employment fell by 426,000 between October 2008 and July 2009, while the number of unemployed persons rose by 460,000. Over the same period, the employment rate fell by 2.2 percentage points and the unemployment rate rose by 2.5 percentage points.

Chart 1
Employment and unemployment in Canada



Note: The shaded area represents the 2008/2009 recession.
Source: Statistics Canada, Labour Force Survey.

While these statistics are widely known and used, it may be less understood that the data published every month are "stocks" – snapshots taken at a specific moment in time, the survey reference week.

These levels, or stocks, are often the outcome of many underlying movements in labour force status. These movements have a temporal aspect to them; namely, they are quantities in relation to time referred to as "flows". In the case of labour force surveys, where the respondents remain in the sample for more than one month, these movements can be examined.[1]

Changes in stocks observed between two months are much smaller than what is depicted in statistics on gross flows.[2] In fact, the Canadian labour market is very dynamic. According to Labour Force Survey (LFS) data, from January 2007 to September 2018, approximately 6.2% of the working-age population, on average, changed their labour force status each month.[3] After rising during the recession, the average trended down and has been below 6.0% since the spring of 2016.

Changes in labour market indicators may happen for different reasons. For example, a decline in employment may be due to fewer people moving from "unemployed" to "employed" and/or a decrease in the number of people moving from "not in the labour force" to "employed".

Knowing the origin and destination statuses of the people moving in the labour market provides a more complete picture of the situation and contributes to a better understanding of labour market dynamics in Canada, which can in turn help guide policy development.

1. However, the information used to build the data series is for two specific reference periods. It is not continuous information on all transitions that occur between two periods. For example, a person who was not in the labour force in month *t* may have sought employment and found a job quickly, thereby moving to employment in month *t*+1. In this example, the flows do not capture the transitions from "not in the labour force" to "unemployed" (i.e. looking for work) and from "unemployed" to "employed". They only reflect the transition from "not in the labour force" to "employed".
2. In other words, transitions from one labour force status to another between two consecutive months. A more detailed definition is given in the methodology section.
3. This average is comparable to what has been observed in the United States and New Zealand (Silverstone and Bell 2011).

1.1 About labour market flows

Analyzing gross flows helps to establish the magnitude of the movement between different labour force statuses by modelling changes in employment, unemployment and labour force inactivity in terms of inflows and outflows. These statistics are interesting, as they can help address various questions about labour force dynamics. For example, they can shed light on the cyclical characteristics of worker flows and the relative importance of respondent inflows and outflows in explaining changes in employment levels, unemployment and inactivity. Statistics on flows can also be used to calculate the probability that an employed person will change status between two months.

Studying gross flows can also help guide policy decisions. For example, if there is interest in developing a policy to reduce the number of unemployed persons following an increase, it is important to know the movements that led to the increase. A change in unemployment caused by major layoffs does not have the same implications as one caused by difficulty in finding a job.

Although Statistics Canada produced gross flow data using LFS data in the 1980s, production was halted because of concerns over data reliability.[4] At the time, the data were used to study the structure of unemployment in Canada and Quebec (Hasan and De Broucker 1985; Mayer et al. 1985). Other researchers have used LFS data to analyze the cyclical and seasonal properties of the labour market. It was shown that flows into unemployment are countercyclical, while the opposite is true for flows out of unemployment (Jones 1993; Campolieti 2011). The gross flows data presented in this paper have been created using a different methodology from these past studies.

After the last recession, articles on gross flow movements during that period were published in some countries. Although the results are not fully comparable with Canadian data, the different assumptions and conclusions are interesting to note. For example, the increase in the number of people moving from inactivity to looking for work (flow from not in the labour force to unemployed, referred to as NU flow) in Great Britain began before the last recession and may reflect the impact of a specific policy intended to encourage individuals not in the labour force to enter the labour market (Sutton 2012).

In the United States, an increase in the flow of individuals from inactivity to unemployment may reflect the difficulty in finding employment upon entering the labour market (Frazis and Ilg 2009). One hypothesis discussed by Sahin et al. (2010), who analyzed NU flow by gender, was the "added worker effect"[5] for women and a higher labour supply for men who were not in the labour force during the last recession. During significant recessions, changes in the rate of job separation (transition rate from employed to unemployed) account for most of the fluctuations in the unemployment rate (Davis, Faberman and Haltiwanger 2006; Gomes 2009).

4. These data were never published.
5. When a household member loses their job, another household member enters the labour force to offset the loss, thereby increasing the labour supply (e.g., married women with a family, students).

2. Data and methodology

2.1 Labour Force Survey (LFS)

The data used for this analysis are from the LFS, a cross-sectional sample survey. Every month, the LFS collects data from approximately 56,000 Canadian households for individuals aged 15 years and over, excluding full-time members of the Armed Forces, persons living on an Indian reserve, and institutional residents.

The LFS uses a rotating panel design. A selected household remains in the sample for six consecutive months. Each month, as one household completes its six months in the survey, it is replaced by another household from the same, or a comparable, geographic area.[6] Consequently, five-sixths of the sample is consistent from one month to the next.

Although the survey was designed to estimate the number of persons employed (E), unemployed (U) or not in the labour force (N) during the reference week, the five-sixths sample overlap allows for estimates of the number of persons who had a change in their labour force status between two consecutive months. The method used for matching data from one month to another is briefly discussed in the next section.

2.2 Gross flows

Theoretically, it would be possible to match 83.3% of the sample between two consecutive months, and to estimate the changes in labour force status from five-sixths of respondents, as this is the degree of overlap in the sample. However, a certain proportion of those surveyed do not consistently respond each month. In fact, data matching was possible for between 80% and 81% of the initial sample over the study years. If we consider that 16.7% of the non-matches resulted from rotation of the sample, then a maximum of 3.3% were not matched for other reasons.

To correct for this bias, referred to as "margin error," data were adjusted using a methodology similar to the one used by the United States Bureau of Labor Statistics to produce gross flows.[7] This method is used to estimate data for the missing rotation, as well as other inflows and outflows (deaths, migrations, young people who turn 15 between the two months, etc.).

Another difficulty in estimating gross flows bears mentioning: bias caused by errors in classifying the labour force status. This error may lead to incorrect transitions. For example, consider a person who is looking for a job over three consecutive months, but who, by mistake, is classified as not looking for work during the second month. As a result, there would be two incorrect transitions. The first would be observed between the first and second month (from unemployed to not in the labour force) and the second during the third month (from not in the labour force to unemployed).[8]

2.3 Analysis methodology

This analysis covers the period from October 2007 to September 2018. To study the composition of the changes in published levels and rates, the transitions analyzed are those between the three main labour force statuses: employed (E), unemployed (U) and not in the labour force (N).[9] The matrix below shows these transitions.

6. For more information on the LFS methodology, refer to the publication *Methodology of the Canadian Labour Force Survey Study* (71-526-X).
7. For more information on the Bureau of Labor Statistics' data production method, refer to Frazis, Robinson, Evans and Duff (2005). "Estimating gross flows consistent with stocks in the CPS." *Monthly Labor Review*, September 2005.
8. The classification errors tend to offset each other in stock, which is not the case in gross flows (Frazis and al. 2005).
9. With the methodology used to produce the data in this study, it is possible to estimate other inflows and outflows such that total flows are equal to published figures. These other flows are marginal and are not reported in the context of this analysis.

Matrix 1 Labour market gross flows

	Labour force status in month (*t*+1)		
	Employed	**Unemployed**	**Inactive**
Labour force status in month (*t*)			
Employed	EE	EU	EN
Unemployed	UE	UU	UN
Inactive	NE	NU	NN

The notation comprises two uppercase letters. The first letter represents the labour force status in the previous month (*t*) and the second represents the status in the current month (*t*+1). For example, UE means that the respondent was unemployed during the reference week of the previous month and employed during the reference week of the current month.

Transition rates between statuses are calculated using gross flow data. These rates indicate the probability[10] that an individual will change statuses between two consecutive months. For example, the calculation of the probability of moving from employed to unemployed is illustrated in equation 1.

$$p_t^{EU} = \frac{EU_{t+1}}{E_t} \qquad (1)$$

In this example, the transition rate represents the probability that a person who is employed during period *t* will lose or leave their job in period *t*+1 and will be looking for employment. The rate is calculated by dividing the number of persons who moved from employed to unemployed ($E_t \rightarrow U_{t+1}$) between the two months by the total number of persons employed in month *t*.[11]

Although the gross flow data used for this analysis are seasonally adjusted, six-month moving averages were used to produce the charts in order to ensure more stable estimates.

10. This is a first-order Markov process, which means that the probability of a person maintaining their status in the labour force (e.g., remaining employed) or changing their status (e.g., moving from employed to not in the labour force) at *t*+1 depends on their status at *t*.
11. Transition rates reflect an average value (of individual transition rates). It is possible that different workers have different probabilities of losing or leaving their job.

3. Gross flows in Canada

To show the extent of transitions in the labour market, Table 1 shows the estimated average for each of the nine principal gross flows over the study period; in other words, the average monthly flows between October 2007 and September 2018. The table also presents gross flows as a proportion of the working-age population.

The vast majority of people maintain the same labour force status across two consecutive months. For example, almost 17 million workers, on average, remained employed in the subsequent month, which represents 59.5% of the population aged 15 and over. It should be noted, however, that this does not necessarily mean that these workers did not change jobs. It is possible that they did change jobs over the two consecutive months, but these transitions are not taken into account by this analysis.

Over the study period, an average of 289,000 jobseekers in a given month were employed in the subsequent month, or 1.0% of the working-age population. Similarly, an average of 233,000 workers became unemployed (0.8% of the population aged 15 years and over). Flows from inactivity to employment and vice versa were larger in magnitude.

Table 1
Average gross flows in level and in proportion of the working-age population, October 2007 to September 2018

	Labour force status current month (*t*+1)					
	Employed	Unemployed	Inactive	Employed	Unemployed	Inactive
Averages from October 2007 to September 2018	gross flows (thousands)			proportion of the population aged 15 and over (%)		
Labour force status previous month (*t*)						
Employed	16,958	233	384	59.5	0.8	1.3
Unemployed	289	802	239	1.0	2.8	0.8
Inactive	326	294	8,928	1.1	1.0	31.3

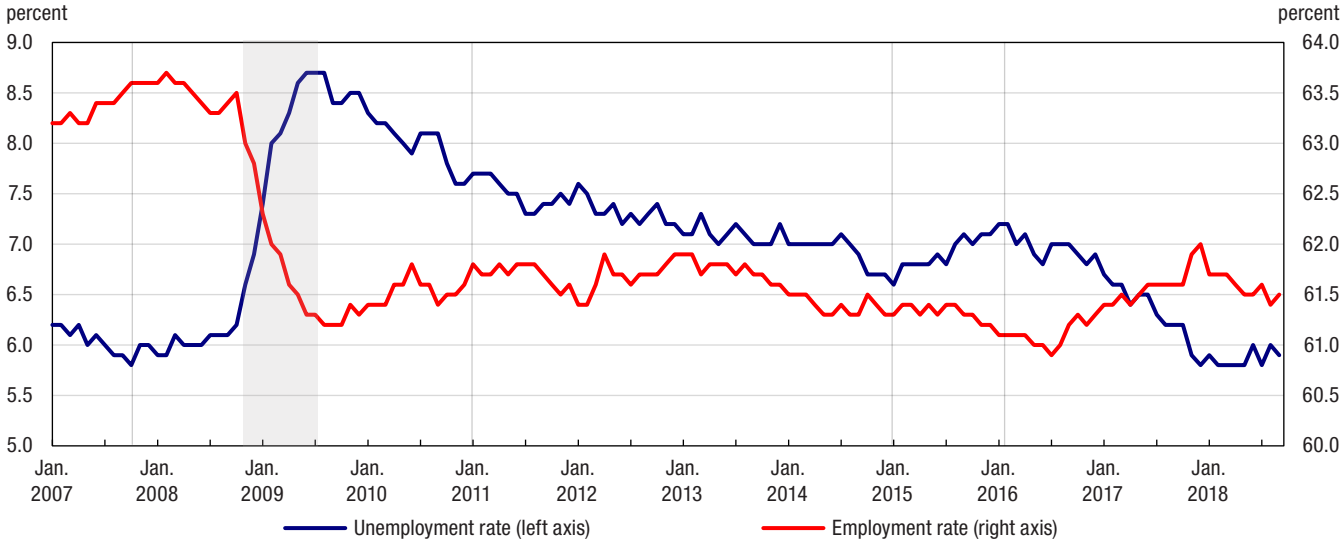
Source: Statistics Canada, Labour Force Survey, custom tabulations.

To study variations in employment and unemployment levels and rates, the analysis will be divided into six periods:

- the 12 months before the recession (October 2007 to October 2008);
- the recession[12] (October 2008 to July 2009);
- the recovery period (July 2009 to January 2011, when employment regained its pre-recession level);
- the period following recovery (January 2011 to January 2015, when the unemployment rate reached a recent low point);
- the upward trend in the unemployment rate until its recent peak (January 2015 to February 2016); and finally,
- the most recent period (February 2016 to September 2018), during which the unemployment rate took a downward turn, fluctuating between 5.8% and 6.0% from December 2017 to September 2018.

12. For the purposes of this analysis, the period referred to as the "recession" includes the peak employment level (October 2008), followed by a sharp downward turn, and the low point reached in July 2009.

Chart 2
Unemployment rate and employment rate in Canada, January 2007 to September 2018, monthly, seasonally adjusted



Note: The shaded area represents the 2008/2009 recession. The vertical lines separate the different analyzed periods.
Source: Statistics Canada, Labour Force Survey.

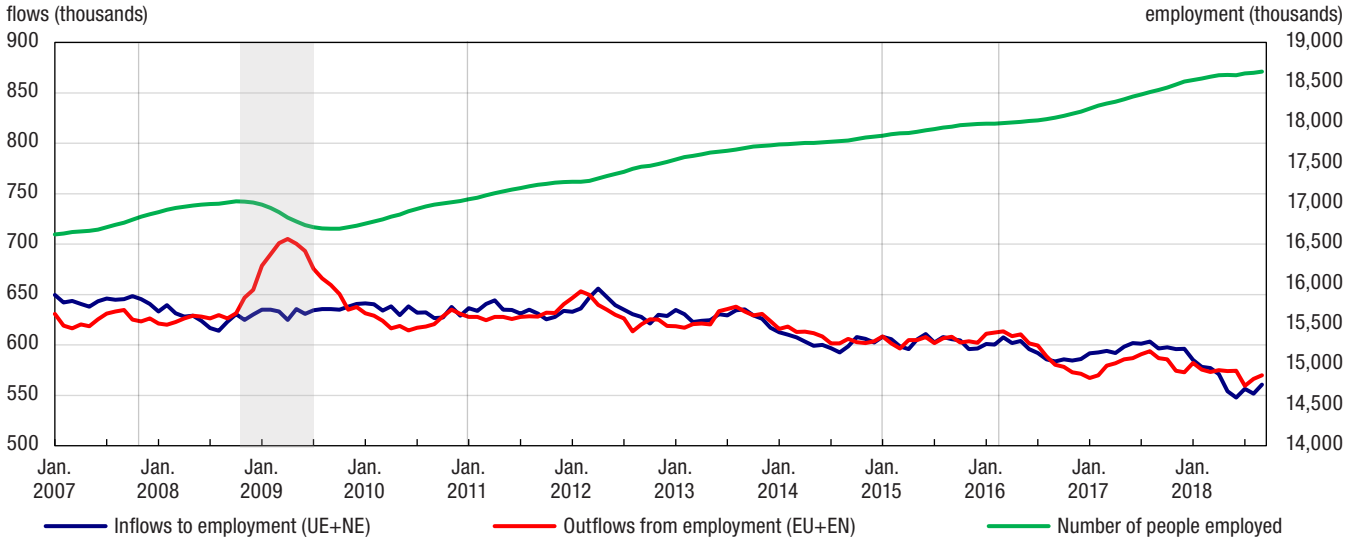
3.1 Variations in employment

After a slight increase over the 12-month period preceding the 2008/2009 recession, the employment level fell sharply from October 2008 to July 2009. The employment rate also declined significantly, and although the employment level has since bounced back, the employment rate is still below what was observed before the recession. What are the underlying movements that can help to better understand these changes?

Chart 3 shows inflows to and outflows from employment, as well as the employment level. Flows into employment (UE+NE) are the sum of persons who moved from unemployed to employed (UE) and from not in the labour force to employed (NE). Flows out of employment (EU+EN) represent the sum of persons who moved from employed to unemployed (EU) and from employed to not in the labour force (EN). Table 2, in the appendix, presents the results for each study period.

By definition, an increase in employment is observed when inflows to employment (UE+NE) are greater than outflows from employment (EU+EN). Conversely, a decline is seen when inflows are less than outflows. Generally, a decrease in the employment rate stems from a reduction in inflows to employment and an increase in outflows.

Chart 3
Employment, inflows to and outflows from employment, January 2007 to September 2018, six-month moving average, seasonally adjusted



Note: The shaded area represents the 2008/2009 recession. The vertical lines separate the different analyzed periods.
Source: Statistics Canada, Labour Force Survey.

Between October 2007 and October 2008, employment rose by 1.1%, as inflows into employment were higher than outflows at the beginning of the period. Flows into employment decreased over the period, while outflows remained relatively stable, which slightly reduced the employment rate (-0.1 percentage points, reaching 63.5% in October 2008). Over the 12 months before the recession, both inflows and outflows averaged 629,000 per month, or 2.4% of the working-age population.

Over the course of the recession, employment declined by 426,000 (-2.5%) and the employment rate decreased by 2.2 percentage points to 61.3% by July 2009. These declines were attributable to an increase in the number of persons who lost or left their job (EU+EN). During this period, outflows from employment rose significantly to an average of 691,000 per month, while inflows remained essentially stable (629,000 on average). This is interesting because the decline in employment could have been caused by greater outflows combined with lower inflows, as observed at the beginning of the same recession in the United States. If this had been the case, employment in Canada would have decreased more substantially.

During the recovery period, employment grew, and regained the level observed prior to the recession in January 2011. Over this period, the increase in employment was characterized by a notable decrease in outflows (625,000 on average) combined with a moderate increase in inflows (637,000 on average).

Although the employment rate rose by 0.5 percentage points during this period, it remained below the rate observed prior to the recession. The increase in the employment rate was more modest because inflows to employment did not increase significantly compared with the previous period. In fact, when looking at inflows as a proportion of the working-age population, the proportion observed during the recovery period was very similar to the one recorded during the recession.

Employment continued to increase between January 2011 and January 2015, but at a slower annual pace. Mean inflows and outflows were practically of the same magnitude (rounded to 623,000 on average per month). Compared with the preceding period, inflows to employment declined and outflows remained fairly stable. The employment rate fell 0.5 percentage point during this period due to the reduction in inflows.

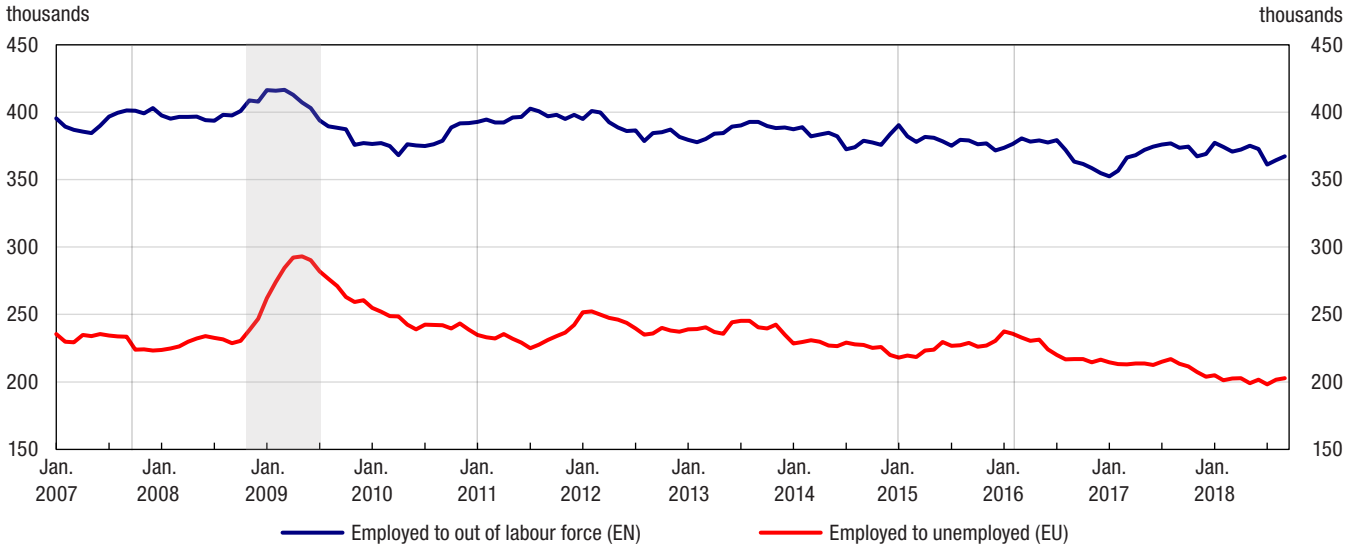
From January 2015 to February 2016, employment increased modestly (+0.7%), while inflows and outflows were at very similar levels. While both inflows and outflows fell over the period, a larger decrease inflows from employment led to a slight decrease in the employment rate (-0.2 percentage points). As discussed below, the unemployment rate trended upwards during this period, mainly linked to the effect of a decrease in oil prices on the labour market.

After the recent peak in the unemployment rate in February 2016, inflows to and outflows from employment began to trend downward. This trend lasted longer for ouflows from employment. A gap once again appeared between the two series, when inflows began to increase, employment rose sharply from August 2016 to December 2017 (+3.1%), and the employment rate rose by one percentage point. The pace of growth slowed from January to September 2018, due to a reduction in inflows, which fell below the level of outflows.

3.1.1 Inflows to and outflows from employment and transition rates

An analysis of flows at a more disaggregated level gives further information on the factors that determine changes in inflows and outflows. Transition rates indicate the probability that an individual will move from one status in the previous month to another status in the current month (see Table 4). Chart 4 presents flows out of employment (EU and EN).

Chart 4
Outflows from employment, January 2007 to September 2018, six-month moving average, seasonally adjusted



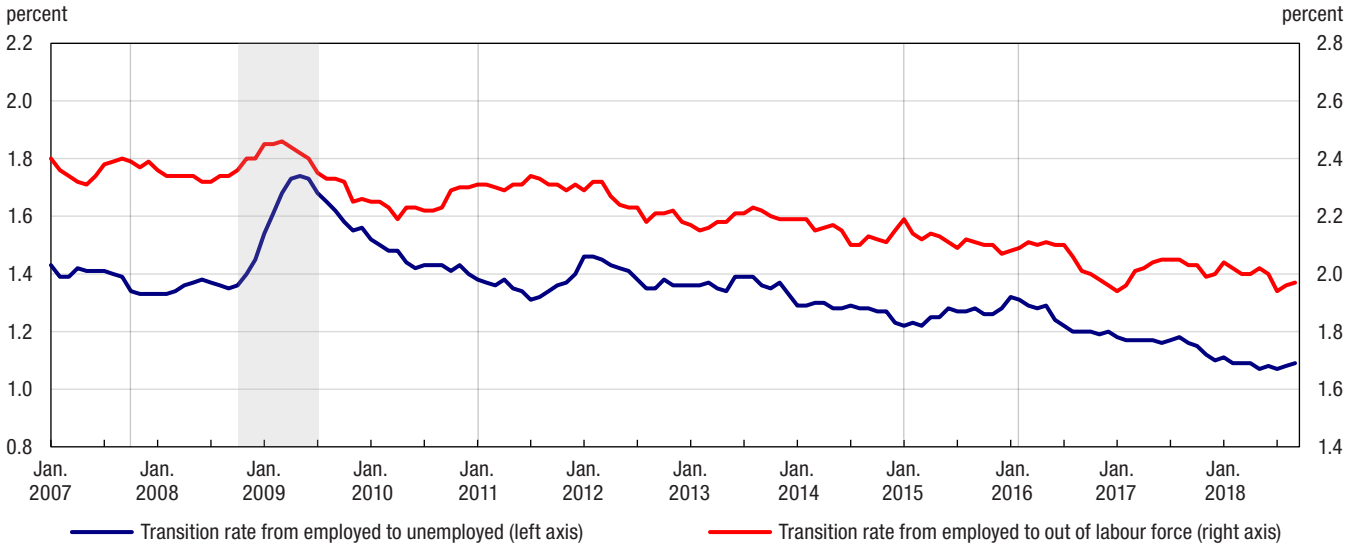
Note: The shaded area represents the 2008/2009 recession. The vertical lines separate the different analyzed periods.
Source: Statistics Canada, Labour Force Survey.

Both outflows from employment (EU and EN) were relatively stable during the period leading up to the recession. The stability of flows out of employment was not caused by the movement of one flow offsetting the movement of the other.

The decline in employment observed during the recession was mainly attributable to the rise in the number of workers who became unemployed (EU). The p_t^{EU} transition rate increased over this period, indicating that employed individuals had a greater probability of becoming unemployed in the next month (see Chart 5).[13] The average number of workers who left the labour force (EN) was slightly higher during the recession compared with the previous period.

13. Chan et al. also found that during the recession period, individuals had a higher probability of losing their job (Chan et al. 2011).

Chart 5
Transition rates from employment, January 2007 to September 2018, six-month moving average, seasonally adjusted



Note: The shaded area represents the 2008/2009 recession. The vertical lines separate the different analyzed periods.
Source: Statistics Canada, Labour Force Survey.

Both types of outflows from employment experienced a reduction during the recovery period. The number of workers becoming unemployed reached an average that was similar to what was recorded prior to the recession. Despite this decrease, the p_t^{EU} transition rate was higher than during the 12 months before the recession.

As for the number of workers leaving the labour force (EN), the reduction observed during the recovery period actually began during the recession. The transition rate from employed to inactive (p_t^{EN}) declined over the recovery period and was lower than the rate observed prior to the recession.

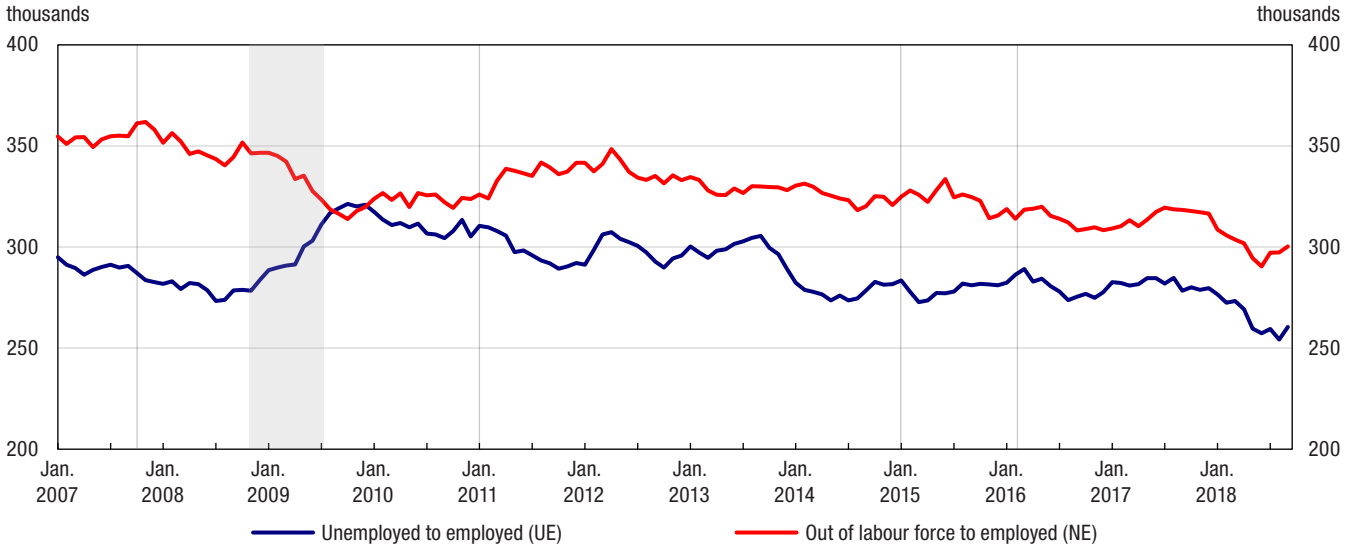
The reduction in flows out of employment over the four years following the recovery reflected the lower average EU flow, as the average EN flow increased slightly. The transition rate from employed to unemployed continued to fall in relation to the previous period, returning to a rate similar to that observed during the 12 months before the recession. On average, people who were employed had a smaller probability of becoming unemployed, compared with previous periods.

From January 2015 to February 2016, both inflows and outflows were smaller, on average, than in the previous period. Although the transition rate from employed to unemployed was lower on average than earlier periods, it did trend upwards. Therefore, an employed person had a higher chance of becoming unemployed in the subsequent month.

Chart 6 shows inflows to employment – flows from unemployed to employed (UE) and inactive to employed (NE). During the 12 months before the recession, both inflows decreased. This reduction was primarily responsible for the slight drop in the employment rate over this period.

The number of people moving from inactivity to employment (NE) declined during the recession and remained relatively stable during the recovery period. The decrease in the NE flow may be an indication that it had been taking longer for individuals to find employment. There is normally a period of job searching before employment is found, and if this period is very short, the NU transition will not be captured. Since the LFS gathers the labour force status during the reference week, the NE transition is more likely to be captured.

Chart 6
Inflows to employment, January 2007 to September 2018, six-month moving average, seasonally adjusted

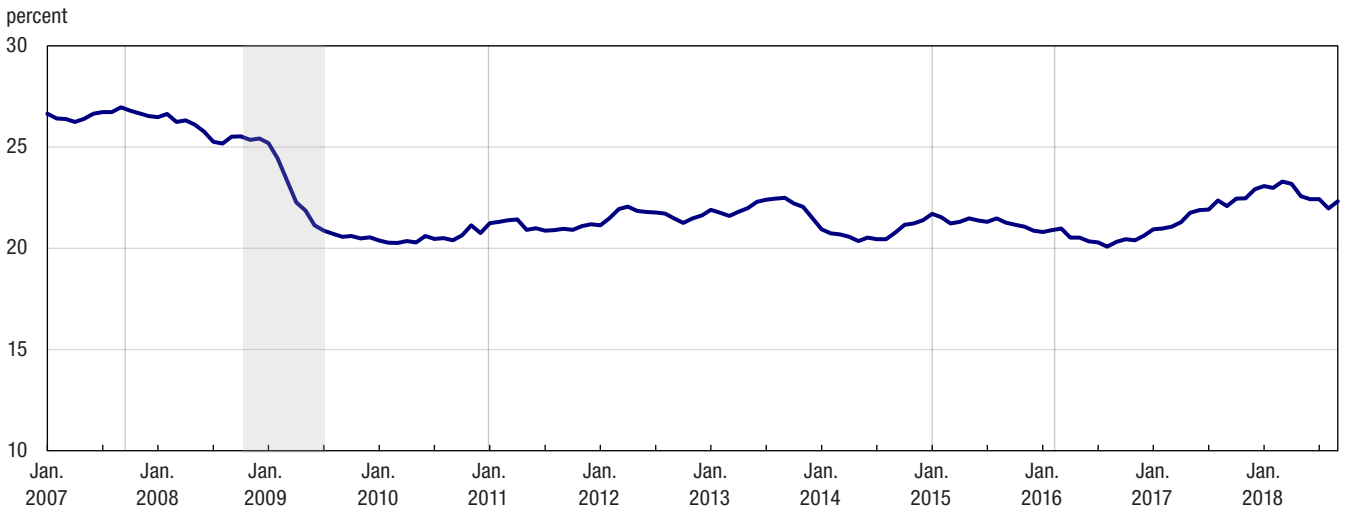


Note: The shaded area represents the 2008/2009 recession. The vertical lines separate the different analyzed periods.
Source: Statistics Canada, Labour Force Survey.

During the recession, the number of unemployed finding work (UE) increased because of a composition effect due to the rise in the number of unemployed persons. Even though the flow increased, the probability of moving from unemployed to employed decreased (see Chart 7a). This finding was also noted in the United States.

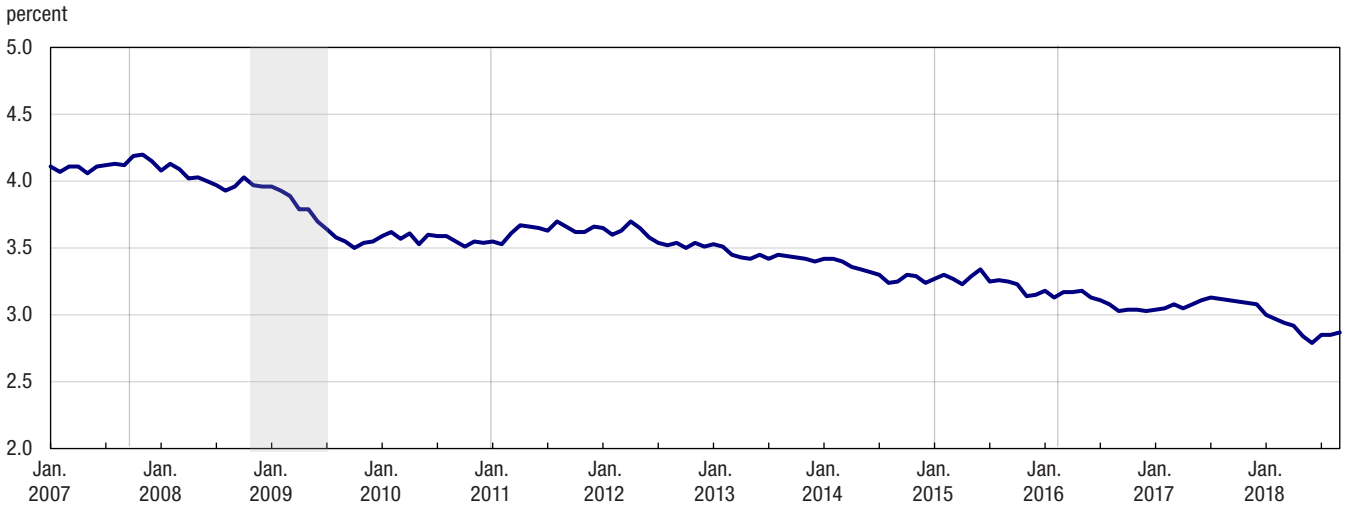
The number of people moving from unemployment to employment (UE) fell, on average, over the four years following the recovery period, while the number of people leaving or losing their job and exiting the labour force (EN) was relatively stable.

Chart 7a
Transition rates from unemployed to employed, January 2007 to September 2018, six-month moving average, seasonally adjusted



Note: The shaded area represents the 2008/2009 recession. The vertical lines separate the different analyzed periods.
Source: Statistics Canada, Labour Force Survey.

Chart 7b
Transition rates from out of the labour force to employed, January 2007 to September 2018, six-month moving average, seasonally adjusted



Note: The shaded area represents the 2008/2009 recession. The vertical lines separate the different analyzed periods.
Source: Statistics Canada, Labour Force Survey.

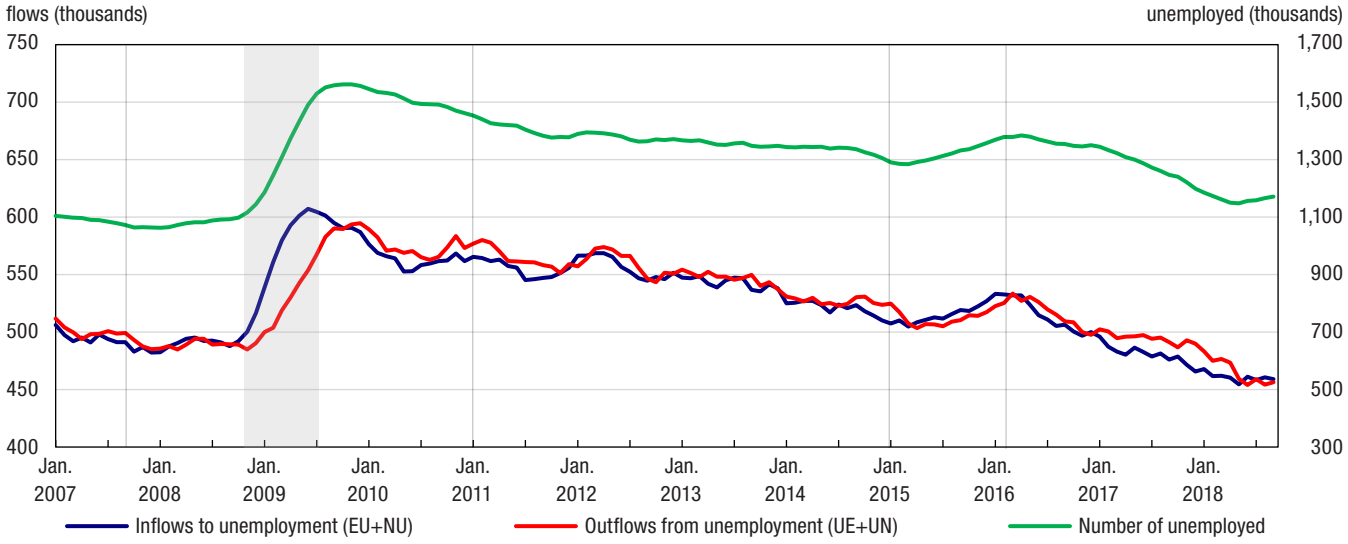
3.2 Variations in unemployment

Chart 8 presents flows into and out of unemployment. Inflows (EU + NU) are the sum of persons moving from employed to unemployed (EU) and from not in the labour force to unemployed (NU). Outflows (UE + UN) are the sum of persons moving from unemployed to employed (UE) and from unemployed to not in the labour force (UN). The same six periods are analyzed.[14]

By definition, an increase in the number of unemployed persons is observed when inflows are greater than outflows. A decline is observed when inflows are less than outflows. Table 3, in the appendix, presents the full results.

14. The 12 months prior to the recession (October 2007 to October 2008), the recession (October 2008 to July 2009), the recovery period (July 2009 to January 2011), the four years following the recovery (January 2011 to January 2015); the upward trend in the unemployment rate until its recent peak (January 2015 to February 2016); and finally, the most recent period (February 2016 to September 2018).

Chart 8
Unemployment, inflows to and outflows from unemployment, January 2007 to September 2018, six-month moving average, seasonally adjusted



Note: The shaded area represents the 2008/2009 recession. The vertical lines separate the different analyzed periods.
Source: Statistics Canada, Labour Force Survey.

Over the 12 months before the recession, the number of unemployed persons rose, as inflows were greater than outflows (493,000 and 489,000 on average, respectively). The unemployment rate increase by 0.4 percentage points.

Inflows rose notably during the recession, the number of unemployed persons increased sharply (+460,000), and the unemployment rate rose by 2.5 percentage points. However, outflows also increased over the period, but to a lesser extent, and beginning later in the period. On average, flows into unemployment were 597,000 per month, while outflows were 548,000.

During the recovery period, outflows from unemployment were higher on average than during the recession, while inflows decreased. The greater number of people exiting unemployment, combined with the decline in entrants, reduced the total number of unemployed. This reduction continued until August 2011, when inflows and outflows returned to similar average levels.

The number of unemployed persons continued to decline during the period following the recovery (January 2011 to January 2015), but at a slower pace. Outflows and inflows both trended downwards over the four-year period, although the number of people exiting unemployment remained higher than the number entering. The unemployment rate decreased by 1.1 percentage point, reaching a low of 6.6% in January 2015.

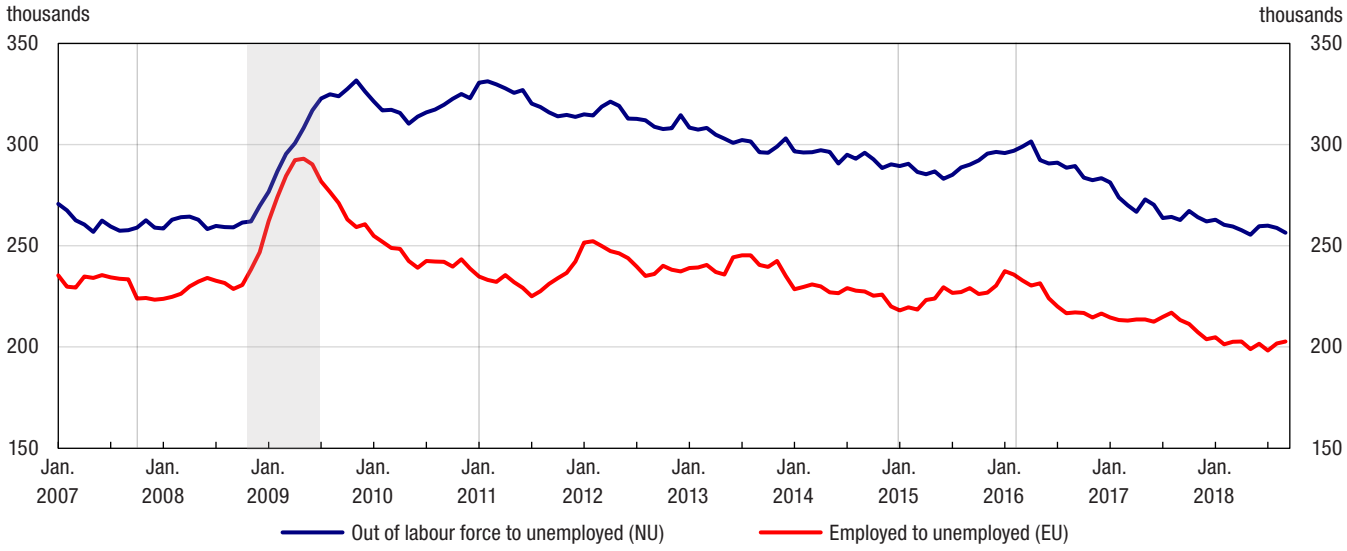
From January 2015 to February 2016, coinciding with the oil price shock, flows into unemployment trended upwards. Outflows also increased, somewhat later in the period. Consequently, a gap formed between the number of people entering and exiting unemployment. The unemployment rate peaked at 7.2% in January and February 2016.

Following this peak, inflows to and outflows from unemployment both decreased and inflows went back to being less than outflows. The gap between the two flows widened from January 2017 to April 2018 and the unemployment rate dropped sharply to hover between 5.8% and 6.0% between December 2017 and September 2018.

3.2.1 Inflows to and outflows from unemployment and transition rates

Once again, examining inflows and outflows at a more disaggregated level allows for a better understanding of the movements that underlie the changes in flows described above. It should be noted that two of the flows related to unemployment were also discussed in the section on employment. Chart 9 shows flows into unemployment.

Chart 9
Inflows to unemployment January 2007 to September 2018, six-month moving average, seasonally adjusted



Note: The shaded area represents the 2008/2009 recession. The vertical lines separate the different analyzed periods.
Source: Statistics Canada, Labour Force Survey.

The strong increase in the number of unemployed observed during the recession was caused by a rise in both components of the inflows. As previously mentioned, the flow from employed to unemployed increased sharply over the period. The number of people entering the labour force to look for work also rose notably. Looking at the transition rate from being inactive to unemployed, an increase over the course of the recession can be seen. Therefore, the probability of moving from inactivity to unemployment increased over this period (Chart 12).

During the recovery period, as the number of people moving from employment to unemployment dropped back to its pre-recession level, the number of people entering the labour force to look for work remained higher than the average level observed before and during the recession. This higher average NU flow dampened the declines in inflows to unemployment and the number of unemployed persons.

The fact that the NU flow increased and remained high could indicate weaker growth in employment. Chart 10 shows the share of individuals not in the labour force who entered the labour market and did not find employment during the first few weeks of job searching. In October 2008, this proportion was 41.8%, while it was 51.9% in July 2009, an increase of 10.1 percentage points.

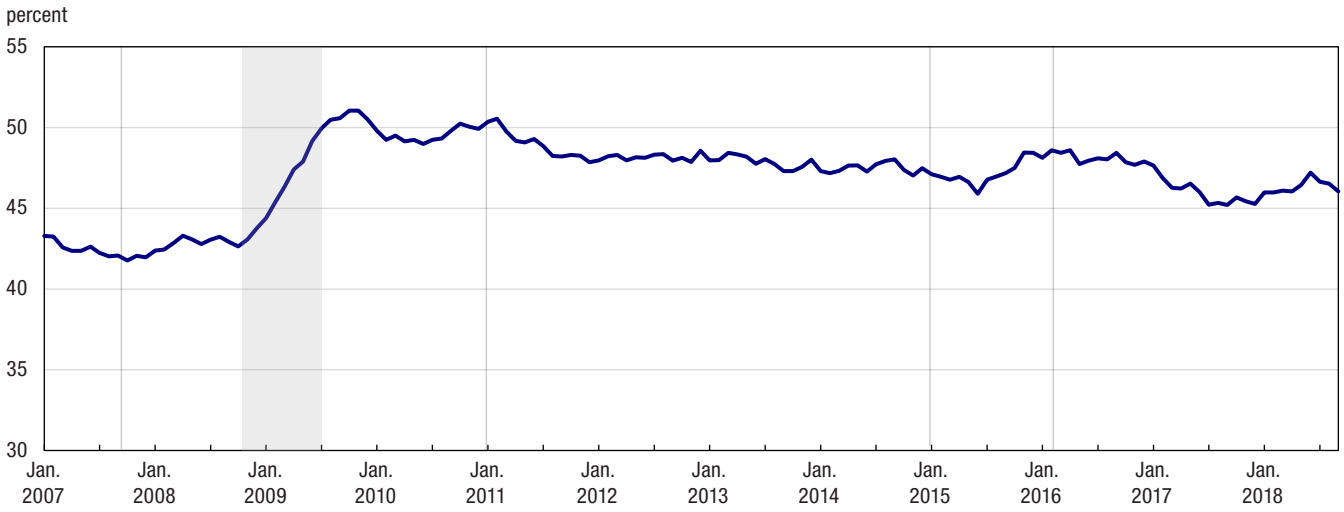
This increase in the share of individuals not in the labour force who entered the labour market and did not find employment quickly was also observed during the recession periods in the United States. In Canada, although the share decreased during the periods following the recession, it remained greater than it had been in the 12 months before the recession.

The number of people moving from employment to unemployment rose between January 2015 and February 2016. Although the transition rate between employment and unemployment (p_t^{EU}) was lower on average during that period, the rate trended upward. This increase followed a downward trend over the previous two periods.[15] The flow of people from inactivity to unemployment also rose on average over this period, but began somewhat later. An increase in the transition rate between inactivity and unemployment (p_t^{NU}) was also observed. These changes in the gross flows and transition rates coincided with the oil price shock.

15. Average transition rates are presented in Table 4 in the appendix.

Over the more recent period, both components of the inflows to unemployment decreased, but the decline was less notable than that observed for the outflows.

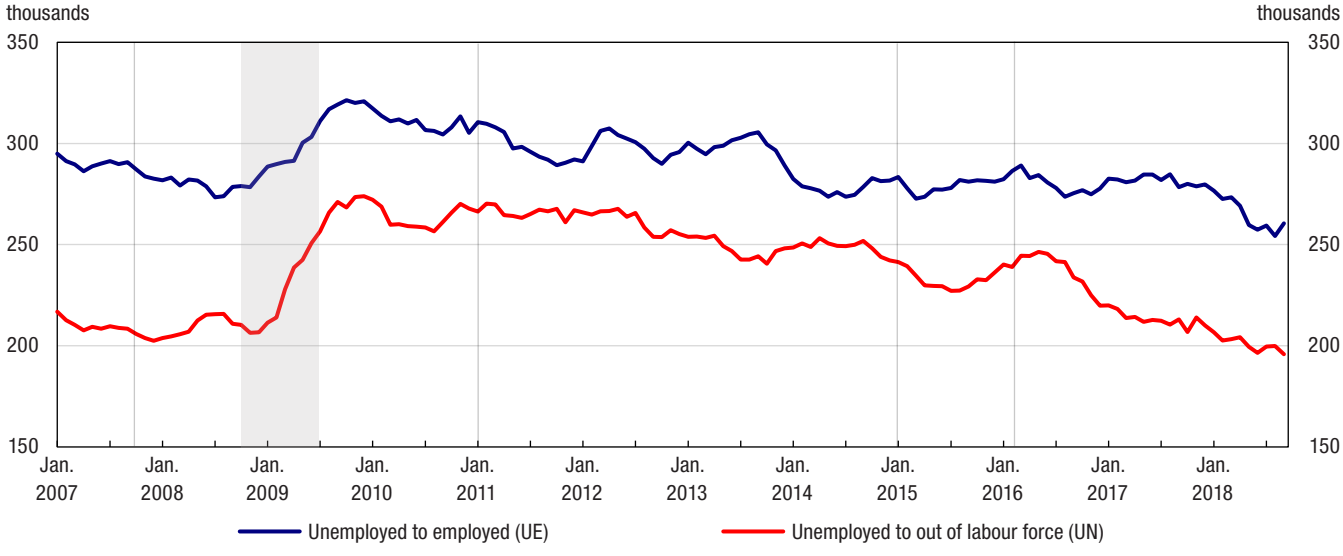
Chart 10
Flows from inactive to unemployment as a proportion of labour market entrants [NU/(NU+NE)], January 2007 to September 2018, six-month moving average, seasonally adjusted



Note: The shaded area represents the 2008/2009 recession. The vertical lines separate the different analyzed periods.
Source: Statistics Canada, Labour Force Survey.

In terms of flows out of unemployment (Chart 11), the number of unemployed who left the labour force in the following month (UN) began to increase after the recession period began. It is well documented in the literature that many different factors may have contributed to this rise in the UN flow. For example, job seekers who stopped searching when faced with less than ideal job prospects, or individuals who returned to school.

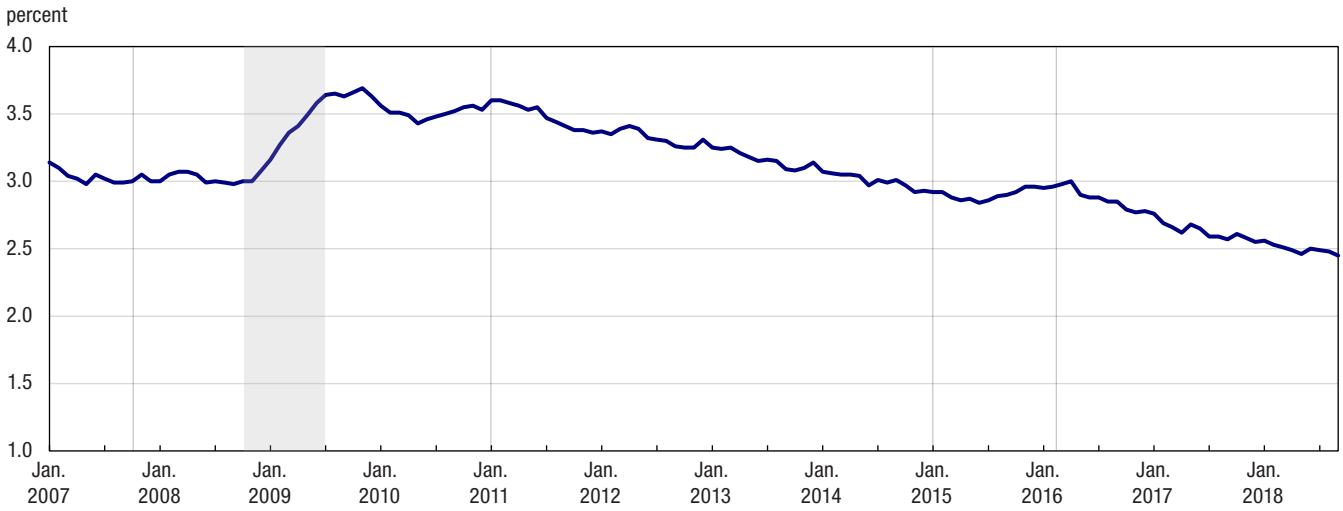
Chart 11
Outflows from unemployment January 2007 to September 2018, six-month moving average, seasonally adjusted



Note: The shaded area represents the 2008/2009 recession. The vertical lines separate the different analyzed periods.
Source: Statistics Canada, Labour Force Survey.

Looking at the UN transition rate (p_t^{UN}), a decline can be seen through the recession. Consequently, the probability of moving from unemployed to not in the labour force decreased during these periods. It is therefore difficult to determine if part of the increase in the UN flow was a composition effect caused by the rise in the number of unemployed persons or by the increase in the number of discouraged searchers.

Chart 12
Transition rates from out of the labour force to unemployed, January 2007 to September 2018, six-month moving average, seasonally adjusted



Note: The shaded area represents the 2008/2009 recession. The vertical lines separate the different analyzed periods.
Source: Statistics Canada, Labour Force Survey.

During the recovery and the subsequent four years, the number of job searchers who stopped searching (UN) was higher than the average level observed over the 12 months prior to the recession. Nevertheless, the UN flow did trend downwards over the period. This trend persisted until the summer of 2015.

The increase in the flows out of unemployment observed between January 2015 and February 2016 stemmed primarily from the rise in the number of unemployed leaving the labour force. However, this increase did not last long, as the flow began to diminish notably beginning in the summer of 2016.

3.2.2 Long-term unemployment

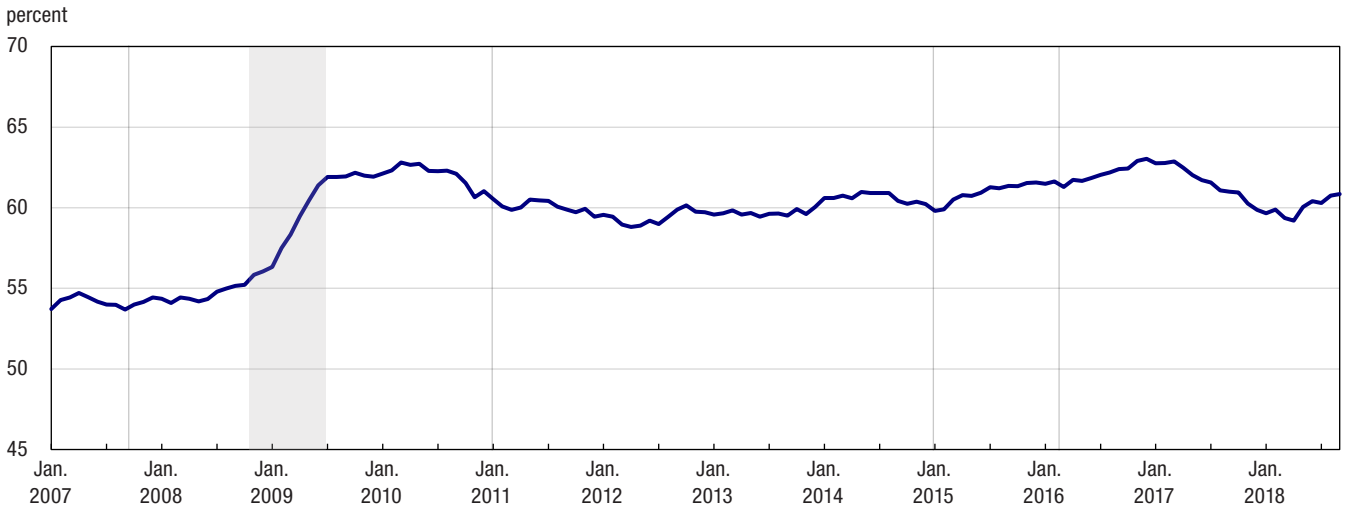
During periods of economic shocks, such as recessions, the number of long-term unemployed increases. The number of unemployed who remain so in the following month can be seen in the gross flows. Chart 13 presents the transition rates for this flow.

The proportion of the unemployed who remain unemployed (UU transition rate) increased notably over the recession and remained high thereafter. Over this period, the proportion of the unemployed who had been looking for work for 27 weeks or more also increased markedly.

The probability of remaining unemployed over two consecutive months fell over the recovery period, and this reduction persisted until the summer of 2012. However, this proportion remained higher that what had been observed before the recession. This was also true for the proportion of people who had been looking for work for 27 weeks or more.

The proportion of the unemployed who remained unemployed rose between January 2015 and January 2017. At this point, the transition rate was similar to that observed during the recession. The rate subsequently trended downwards, as did the proportion of long-term unemployed. From the spring of 2018, the transition rate began to rise, which was not the case for the share of unemployed who had been searching for 27 weeks or more.

Chart 13
Proportion of unemployed who stayed unemployed (transition rate), January 2007 to September 2018, six-month moving average, seasonally adjusted



Note: The shaded area represents the 2008/2009 recession. The vertical lines separate the different analyzed periods.
Source: Statistics Canada, Labour Force Survey.

4. Conclusion

This analysis shows that knowing the origin and destination statuses of the people moving in the labour market provides a more complete picture of the situation and contributes to a better understanding of labour market dynamics in Canada, which can in turn help guide policy development.

The Canadian labour market is very dynamic, with 6.2% of the working-age population, on average, having changed their labour force status each month between January 2007 and September 2018. However, this percentage has decreased over time, as more people remain in the same labour force status from one month to the next.

The movements in the data are clearly observable during economic shocks. The sharp decrease in employment observed during the 2008/2009 recession was mainly attributable to the increase in outflows from employment, while inflows remained relatively stable. This increase in flows out of employment occurred mainly as a result of the increase in flows from employment to unemployment, possibly caused by layoffs over the period. The notable increase in the number of unemployed observed during the recession was caused by a rise in both components of the inflows to unemployment.

The proportion of unemployed who stayed unemployed the next month increased notably over the 2008/2009 recession, and remained higher compared with what was observed over the 12 months before the recession.

This analysis has also paved the way for several possible research projects in the future. For example, do gross flows behave similarly in the larger regions? What gender or age differences can be seen in terms of gross flows? Are the cyclical aspects of the flows similar to previous recessions?

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Appendix 1: Tables

Table 1
Average gross flows in level and in proportion of the working-age population, October 2007 to September 2018

	Labour force status current month (*t*+1)					
	Employed	Unemployed	Inactive	Employed	Unemployed	Inactive
Averages from October 2007 to September 2018	gross flows (thousands)			proportion of the population aged 15 and over (%)		
Labour force status previous month (*t*)						
Employed	16,958	233	384	59.5	0.8	1.3
Unemployed	289	802	239	1.0	2.8	0.8
Inactive	326	294	8,928	1.1	1.0	31.3

Source: Statistics Canada, Labour Force Survey, custom tabulations.

Table 2
Employment and employment rate changes and average employment gross flows

	October 2007 to October 2008	October 2008 to July 2009	July 2009 to January 2011	January 2011 to January 2015	January 2015 to February 2016	February 2016 to September 2018
Change in employment (thousands)	194	-426	469	731	123	696
Change in the employment rate (percentage points)	-0.1	-2.2	0.5	-0.5	-0.2	0.4
			average over the period (thousands)			
Inflows (UE+NE)	629	629	637	623	603	584
UE	281	302	311	291	282	274
NE	349	326	325	331	321	310
Outflows (EU+EN)	629	691	625	623	608	579
EU	230	287	244	235	232	210
EN	399	405	381	388	376	369

Source: Statistics Canada, Labour Force Survey, table 14-10-0287-01 and custom tabulations.

Table 3
Unemployment and unemployment rate changes and average unemployment gross flows

	October 2007 to October 2008	October 2008 to July 2009	July 2009 to January 2011	January 2011 to January 2015	January 2015 to February 2016	February 2016 to September 2018
Change in unemployment (thousands)	75	460	-143	-171	137	-234
Change in the unemployment rate (percentage points)	0.4	2.5	-1.0	-1.1	0.6	-1.3
			average over the period (thousands)			
Inflows (EU+NU)	493	597	567	539	524	478
EU	230	287	244	235	232	210
NU	263	310	323	305	293	269
Outflows (UE+UN)	489	548	577	545	515	488
UE	281	302	311	291	282	274
UN	209	246	266	254	234	214

Source: Statistics Canada, Labour Force Survey, table 14-10-0287-01 and custom tabulations.

Table 4
Transition rate between labour force statuses

	October 2007 to October 2008	October 2008 to July 2009	July 2009 to January 2011	January 2011 to January 2015	January 2015 to February 2016	February 2016 to September 2018
				averages in percentage		
pEE	96.28	95.87	96.28	96.43	96.60	96.83
pEU	1.36	1.70	1.45	1.34	1.29	1.14
pEN	2.35	2.41	2.26	2.21	2.09	2.01
pUE	25.91	21.74	20.69	21.39	21.09	21.70
pUU	54.79	60.57	61.65	59.93	61.40	61.34
pUN	19.27	17.67	17.64	18.66	17.49	16.93
pNE	4.03	3.69	3.58	3.47	3.21	3.02
pNU	3.03	3.51	3.55	3.19	2.93	2.62
pNN	92.75	92.62	92.69	93.16	93.67	94.17

Source: Statistics Canada, Labour Force Survey, custom tabulations.