ECONOMIC VIEWPOINT

How Has the Equilibrium Unemployment Rate Evolved in the Administrative Regions of Quebec?

By Hélène Bégin, Senior Economist with the collaboration of Frédéric Chrétien, Student at Université Laval

In the past, Quebec's unemployment rate stayed above 8% for a long time and there were significant differences from one region to another. However, the last decades has brought deep structural changes, especially in terms of demographics and education, which has pushed the unemployment rate down. Changes in the industrial fabric and productivity have also contributed. In order to understand the long-term effect of these changes, this *Economic Viewpoint* presents regional estimates of structural unemployment. The equilibrium unemployment rate happens when labour supply is essentially equal to employer demand.

This analysis, which summarizes the findings of a university study, sets out the natural unemployment rates each Quebec region and the province as a whole should strive for. The work was carried out by Frédéric Chrétien, a student at Université Laval and author of the master's thesis on the subject. Kevin Moran, an associate professor in Université Laval's Department of Economics, made a significant contribution to the project.

Yesterday to Today

Historically, Quebec's regions have been hit with several periods of underemployment. A rate of over 10% was the norm during the 1980s and the first half of the 1990s (graph 1). Two major recessions kept unemployment high at that time. Then, in the middle of the 2000s, it dipped under the 8% mark. An aging population headed massively into retirement, while at the same time the number of people in the 15-64 age group stopped growing (graph 2). That has led to a shortage of workers in

several sectors. After a temporary surge in spring 2020, Quebec's unemployment rate is almost back to pre-pandemic levels. The difficulties many companies have had meeting their manpower needs is back on the front burner.
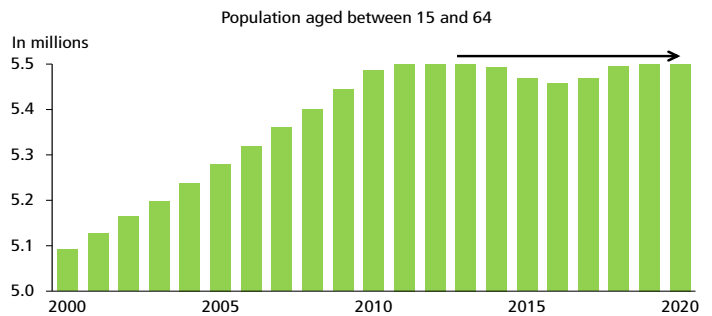
Quebec's strong economic growth just before the pandemic has also increased manpower needs. The growth of real GDP, which was close to 3% from 2017 to 2019, has had repercussions throughout the province, the regions and most industries. The

GRAPH 1
The unemployment rate exceeded 10% during some periods of Quebec's economic history
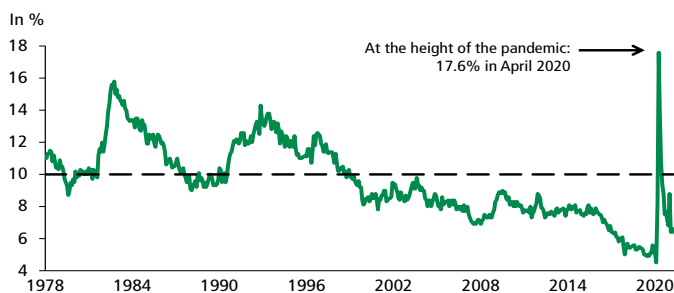
Sources: Statistics Canada and Desjardins, Economic Studies

GRAPH 2
**Quebec's demographic trends limit the number of workers available**

Sources: Statistics Canada and Desjardins, Economic Studies

unemployment rate even hit a low of 4.5% in February 2020, just before COVID-19 hit. After skyrocketing during the Great Confinement of spring 2020, it fell to around 6.0% in summer 2021. This new plunge has already led to a labour shortage in several locations and sectors. It has even gone back below 5% in several Quebec regions (graph 3).

GRAPH 3
Unemployment is already back below 5% in several of Quebec's administrative regions

July 2021*
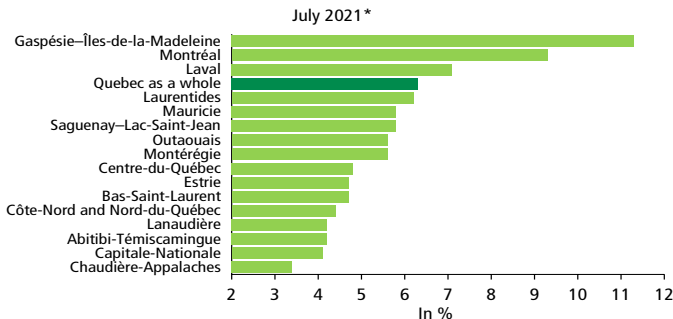
* 3-month moving averages.
Sources: Statistics Canada and Desjardins, Economic Studies

The Two Sides of the Unemployment Rate

According to some studies, variations in the unemployment rate stem from two sources: a cyclical part, which changes with economic context, and a structural part, which mainly depends on socio-economic and demographic factors that evolve over time. Several variables to do with regional population characteristics like age structure, education levels and wage levels are used to estimate the structural part of the unemployment rate. Those indicators are not greatly affected by the economic situation, so we can use them to pinpoint the long-term trend that we use to determine the labour market equilibrium unemployment rate level, which differs from one region to another across the province. In addition, the unemployment rate sometimes differs from the structural level, depending on the economic context. Those variations refer to the cyclical part of the unemployment rate. These are the different factors we used to estimate the regional equilibrium unemployment rate (table).

TABLE
Structural unemployment rate in Quebec's regions

| EXPLANATORY FACTORS USED |
| --- |
| Population aged between 15 and 24 |
| Population aged between 25 and 64 |
| Population with only a high school diploma |
| Population with a university degree |
| Employment by industry |
| Real GDP by industry* |
| Minimum wage**/median wage |
| Unemployment rate |
| Participation rate |

* Available only for the province; ** Minimum wage imposed by law in Quebec.
Sources: Economics Department, Université Laval and Desjardins, Economic Studies

Other equivalent terms are also used for "equilibrium unemployment rate," such as "structural," "natural," "long-term" or "trend." There are several ways to estimate it (box on page 3). The rate levels out when labour supply is essentially sufficient to meet employer demand. When the unemployment rate is below the equilibrium level, as is currently the case for several regions, there is a labour shortage. When it is higher, there are not enough jobs to meet the expectations of potential workers.

The Demographics: Age Structure

The demographic weight of the population aged 15 to 24, compared to that aged 25 to 64, is linked to the structural unemployment rate (graph 4). The larger that segment is, the higher the structural unemployment rate will be, according to the Université Laval researchers. The young people in that age bracket, who are often still studying, do not necessarily work year-round. And they usually have less experience and education than the 25-64 year-old group. Their labour market mobility is sometimes restricted, which may explain why it is not so easy for them to find jobs. Quebec's more widespread labour shortage has no doubt mitigated the difficulties young people have had accessing the labour market in the past few years.

GRAPH 4
Population aged between 15 and 24 compared to between 25 and 64

2020
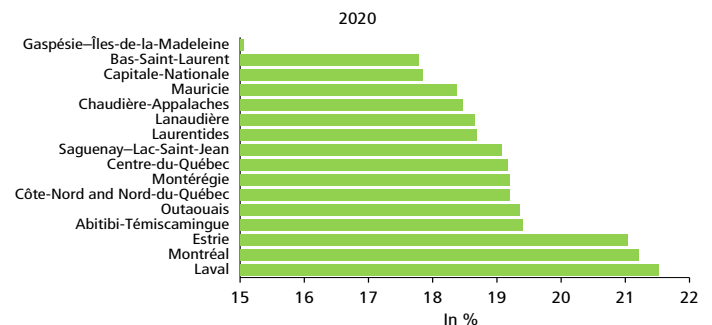
Sources: Institut de la statistique du Québec and Desjardins, Economic Studies

Conversely, people of 25 and older have generally finished their studies and have more stable jobs for longer time periods. A relatively older population will generally generate a lower unemployment rate. That is not always the case. Gaspésie–Îles-de-la-Madeleine, for example, has the lowest 15-24 year old segment of all the regions, coupled with a high unemployment rate of about 11.5%. Other structural factors underlie this higher rate, including the overall education level and the lack of industrial diversification.

Education Levels

Several previous studies include education levels among the variables that go into the unemployment rate. The results are clear: the more education a population has, the lower the

BOX
The Different Assessment Methods
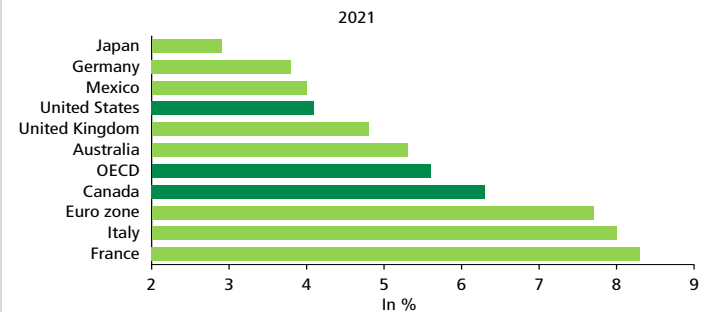
Worldwide, the Organisation for Economic Co-operation and Development (OECD) determines an equilibrium unemployment rate for many of its member countries; there are significant disparities (graph 5). The 2021 level estimated by the OECD is 4.1% in the United States and 6.3% in Canada, holding steady for some years. Structural unemployment is changing slowly: in the mid–1980s the levels were around 8% in Canada and 6.3% in the United States (graph 6). The structural unemployment rate calculated by the OECD refers to a widely used concept: the unemployment rate compatible with stable inflation (Non-Accelerating Inflation Rate of Unemployment – NAIRU). In the United States the NAIRU is also estimated periodically by the Congressional Budget Office. According to that source, the U.S. level has been hovering around 4.5% in recent years. The Bank of Canada also used that approach in a special study assessing the unemployment rate trend at around 6% in 2019, the most recent year available.

The NAIRU method is intended to guide various countries' central banks by determining how low the unemployment rate can fall before it generates inflationary pressure. That approach was incompatible with the goal of assessing the regional disparities of the equilibrium unemployment rate in Quebec. Since the rate of inflation was available only on a provincial basis, that method could not be used for making individual regional calculations.

The work of the Université Laval researchers, which incorporated structural factors, was able to provide an estimate of the equilibrium unemployment rate of Quebec's administrative regions. That was a first attempt to measure both the short- and long-term influences of industrial composition and regional productivity on the unemployment levels of the different regions.

Up to then, the research had focused specifically on Canada and had taken an approach to assessing provincial disparities. However, a U.S. study was able to determine the equilibrium unemployment rate by State. The method used in that study served as a basis for assessing Quebec's administrative regions individually. Several elements were used, and others were added in order to reflect regional realities as closely as possible.

An estimated equilibrium unemployment rate was calculated for each region of the province from 1997 to 2018, based on the available data for all regional indicators. The detailed findings are set out below. Quebec's equilibrium unemployment rate, also assessed using that approach over a longer period of time, was around 6.0% in 2019 (graph 7). A summary of the indicators used is outlined in this *Economic Viewpoint*.

GRAPH 5
Equilibrium unemployment rate in some OECD countries

OECD: Organisation for Economic Co-operation and Development
Sources: OECD and Desjardins, Economic Studies

GRAPH 6
Equilibrium unemployment rate in the United States and Canada: the downtrend is due to structural changes
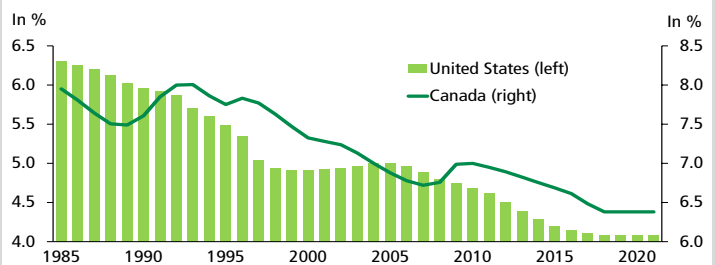
Sources: Organisation for Economic Co-operation and Development and Desjardins, Economic Studies

GRAPH 7
Equilibrium unemployment rate in Quebec: considerably lower than in the mid–1990s
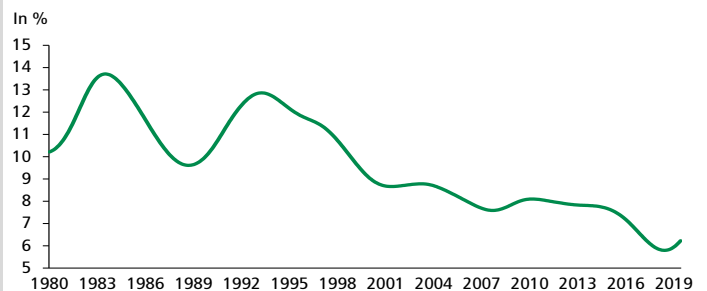
Sources: Economics Department, Université Laval and Desjardins, Economic Studies

unemployment rate will be. Economic theory proposes several plausible reasons. First, a more educated population has more of the aptitudes sought by the labour market and more diversified skills, and is therefore more likely to find a job quickly. Qualified workers find it easier to find a job at the end of a course of studies or after losing a previous job. That means that regions with fewer investments in human capital may come up short. Entrepreneurship is generally more widespread in regions where the unemployed people are relatively qualified. A weak economic performance in any given region can push out the qualified workers, undermining productivity and economic perspectives.

Despite an overall improvement in education levels throughout all of Quebec's administrative regions over the years, these significant disparities still exist (graphs 8 and 9). First, the segment that only has second or third year of high school has gone down, with the result that the number of people who never went beyond a high school diploma went up in some regions. There has also been a sharp increase in the number of people with postsecondary diplomas or bachelor's degrees. The type of postsecondary education seems to be linked to the density of the territory. Vocational training increased much more strongly in the less dense regions like Saguenay–Lac-Saint-Jean and Bas-Saint-Laurent, while there was greater university

GRAPH 8
Education level: share of the population with only a high school diploma

2018

Sources: Statistics Canada and Desjardins, Economic Studies

GRAPH 9
Education level: share of the population with a university degree

2018

Sources: Statistics Canada and Desjardins, Economic Studies

education in the more urban regions such as Laval, Montréal and Capitale-Nationale.

Industrial Structure

Another feature of the method used to estimate structural unemployment rate at the regional level is to take the specific industrial makeup of each region into account. That economic diversification is based on the regional employment variations in goods and services in the 16 main sectors, according to the North American Industry Classification System (NAICS).

For each region, distributing the industry jobs this way fulfills two functions. First, its trend affects the long-term unemployment rate, and, second, its cycle has a shorter-term effect. The cyclical variations are linked to the economic context that temporarily affect employment among the industries. The long-term changes in industrial composition are due to other factors like rising international competition, which can lead to a steady decline of some industries.

Usually, regions that specialize in industries with strong hiring capacities have lower unemployment rates. Regions that are strongly diversified by sector are more stable and less sensitive to the ups and downs of some types of industries.
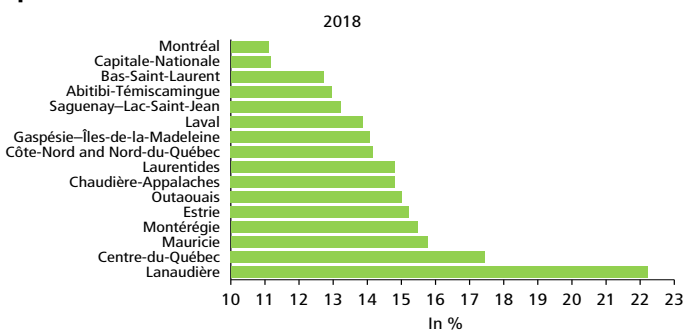
Productivity

Two other elements affect the equilibrium unemployment rate of each region: relative productivity and the minimum wage/median wage ratio (in real terms). The productivity index partially explains regional disparities in unemployment. The more productive a region is compared to the others, the more its unemployment rate goes down. The mechanism behind that relationship is possibly linked to the employers' preference for productivity. It is of course in their interest to encourage hiring in regions where their industries are performing best, or in those where productivity is boosted. Along the same lines, jobs in the more productive areas, occur only as a last resort, since the employers usually prefer to maintain the more value-added jobs that keep their companies going.
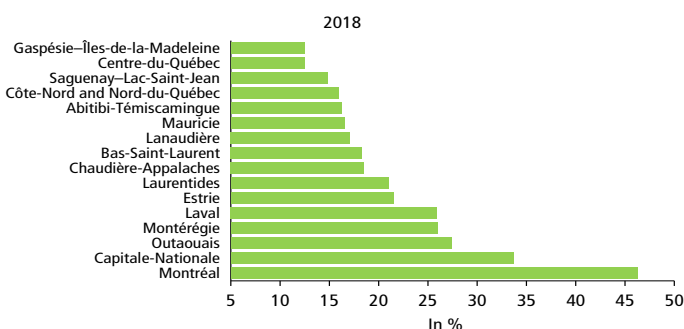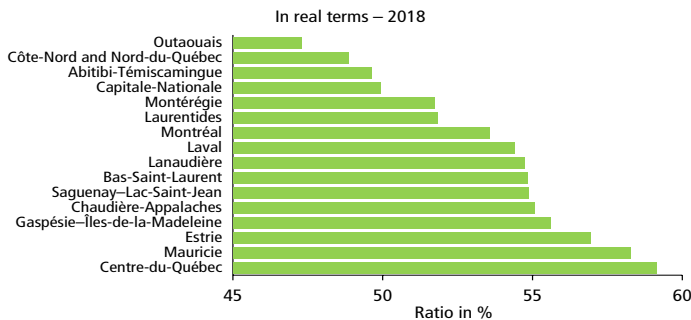
Wage Levels

Even though the minimum wage is determined at the provincial level, the gap between minimum wage and median wage differs from one region to another. In the past the median hourly wage has risen less rapidly in the outlying regions. The relative cost of labour for each of those regions, represented by the ratio between the minimum and median hourly wages (graph 10 on page 5), seems to have an effect on structural unemployment, although a limited one. When the ratio between the minimum and median wage is low in a region (high median wage), the unemployment level is usually lower in that region. That is the case for Abitibi-Témiscamingue, Côte-Nord and Nord-du-Québec, which have among the lowest unemployment rates in Quebec, close to 4% in July 2021.

GRAPH 10
Provincial minimum wage compared to median wage in each of Quebec's regions

In real terms – 2018

Region	
Outaouais	
Côte-Nord and Nord-du-Québec	
Abitibi-Témiscamingue	
Capitale-Nationale	
Montérégie	
Laurentides	
Montréal	
Laval	
Lanaudière	
Bas-Saint-Laurent	
Saguenay—Lac-Saint-Jean	
Chaudière-Appalaches	
Gaspésie—Îles-de-la-Madeleine	
Estrie	
Mauricie	
Centre-du-Québec	

Ratio in %
45   50   55   60

Sources: Economics Department, Université Laval, Statistics Canada and Desjardins, Economic Studies

Participation Rate: Remarkable Progress in the Past 20 Years

Lastly, the historical unemployment and participation rates on a regional basis have also been used to estimate the structural unemployment rate. The participation rate has grown in the past 20 years, mainly due to Quebec's family policies, which encouraged many more women to enter the labour market. Even though the increase has been most marked in Montréal and Capitale Nationale, structural unemployment in all of Quebec's regions has been affected by the rising participation rate.

Dominant Factors

The estimates made by the Université Laval researchers show that age structure and the education level of the population are the most signficant factors determining structural unemployment. A region's industrial composition will also have a major influence. Relative productivity and wage levels also affect the determination of regional structural unemployment, although it is hard to pinpoint the exact role of each of those explanatory variables used for regional estimates. Significant changes in wage increases, education and aging patterns reinforce the idea that the equilibrium unemployment rate is not the same from one region to another and will change over time.

The Results Reflect Reality

The equilibrium unemployment rate is different in each region of this province. Gaspésie–Îles-de-la-Madeleine and the Island of Montreal now have the highest levels, due to some less favourable structural factors, so it is not surprising that unemployment reached around 10% in July in both those regions, much higher than in the province's other regions. Conversely, Chaudière-Appalaches and Capitale-Nationale have the lowest structural unemployment rates, respectively around 2.5% and 4.0%. Those are the two administrative regions with the lowest current unemployment rates, respectively around 3.5% and 4.0%.

Structural unemployment rates in each region of the province have been decreasing the end of the 1990s. Several of the
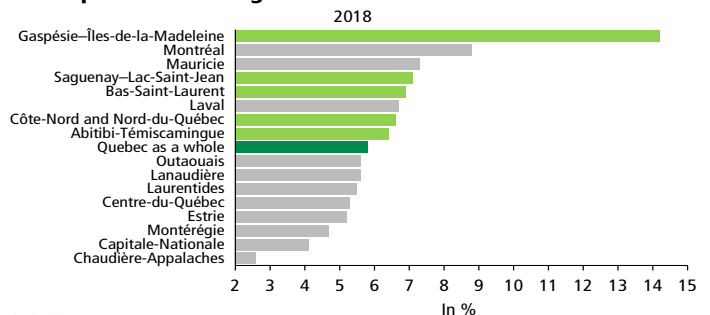
factors used for the estimates have evolved in the same direction in many regions, especially demographic trends and education levels. Despite some ongoing differences, the labour market gaps between resource regions and the rest have narrowed considerably. Structural unemployment rate gaps have narrowed greatly in the past 20 years (graphs 11 and 12). The widespread decline in unemployment rates in the different regions is largely due to long-term trends (appendix on page 7).

GRAPH 11
Equilibrium unemployment in the resource regions:* the highest in Quebec 20 years ago
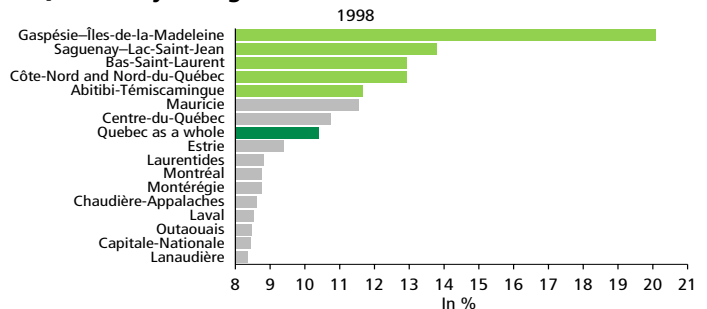
1998

Region	
Gaspésie—Îles-de-la-Madeleine	
Saguenay—Lac-Saint-Jean	
Bas-Saint-Laurent	
Côte-Nord and Nord-du-Québec	
Abitibi-Témiscamingue	
Mauricie	
Centre-du-Québec	
Quebec as a whole	
Estrie	
Laurentides	
Montréal	
Montérégie	
Chaudière-Appalaches	
Laval	
Outaouais	
Capitale-Nationale	
Lanaudière	

In %
8 9 10 11 12 13 14 15 16 17 18 19 20 21

* Abitibi-Témiscamingue, Bas-Saint-Laurent, Côte-Nord and Nord-du-Québec, Gaspésie—Îles-de-la-Madeleine, Saguenay—Lac-Saint-Jean.
Sources: Economics Department, Université Laval and Desjardins, Economic Studies

GRAPH 12
Equilibrium unemployment in some resource regions:* now close to the provincial average

2018

Region	
Gaspésie—Îles-de-la-Madeleine	
Montréal	
Mauricie	
Saguenay—Lac-Saint-Jean	
Bas-Saint-Laurent	
Laval	
Côte-Nord and Nord-du-Québec	
Abitibi-Témiscamingue	
Quebec as a whole	
Outaouais	
Lanaudière	
Laurentides	
Centre-du-Québec	
Estrie	
Montérégie	
Capitale-Nationale	
Chaudière-Appalaches	

In %
2 3 4 5 6 7 8 9 10 11 12 13 14 15

* Abitibi-Témiscamingue, Bas-Saint-Laurent, Côte-Nord and Nord-du-Québec, Gaspésie—Îles-de-la-Madeleine, Saguenay—Lac-Saint-Jean.
Sources: Economics Department, Université Laval and Desjardins, Economic Studies

What Do We Take Away from All This?

This analysis has highlighted two aspects. The estimates of regional equilibrium unemployment rates capture the effect of the structural factors that have contributed to the downtick in unemployment rates across the province. The long-term trends of the different variables analyzed over the past 20 years or so have smoothed out the unemployment rate disparities. The more limited gaps between regional unemployment rates are based on structural socio-economic and demographic factors that have evolved.

Structural unemployment rate is changing slowly and is less vulnerable to upsets than cyclical unemployment. Cyclical unemployment rate changes rapidly, sometimes abruptly,

reflecting ever-changing economic circumstances or some unique events like the Great Confinement of spring 2020. Structural factors have thus pushed unemployment rate down in Quebec's regions over the years.

The economic context may dislodge the unemployment rate from its long-term trajectory for a bit, but it will revert to its equilibrium rate, as we saw after the impact of COVID-19 in spring 2020. Estimates made on a regional basis are anchors for each of Quebec's administrative regions. They also pinpoint the regions that systematically have higher or lower unemployment rates due to different structural factors. Other indicators released by Statistics Canada, such as the vacant positions rate by region and by industry, are also useful for assessing the labour market's vitality.

Appendix
Unemployment Rates of the Administrative Regions

GRAPH 13
Province of Quebec

In %
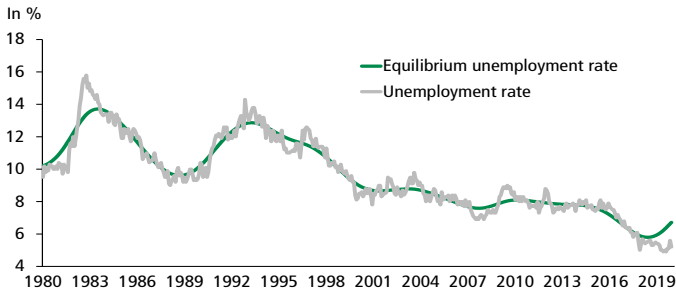
Sources: Economics Department, Université Laval and Desjardins, Economic Studies

GRAPH 16
Capitale-Nationale

In %
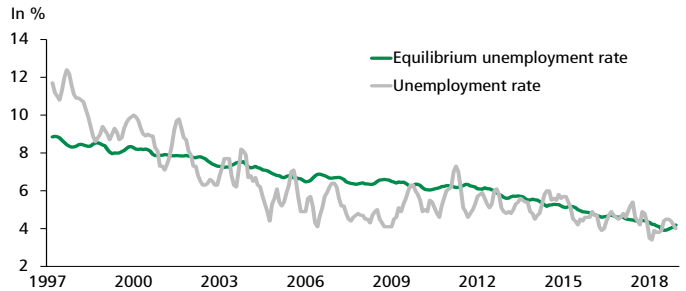
Sources: Economics Department, Université Laval and Desjardins, Economic Studies
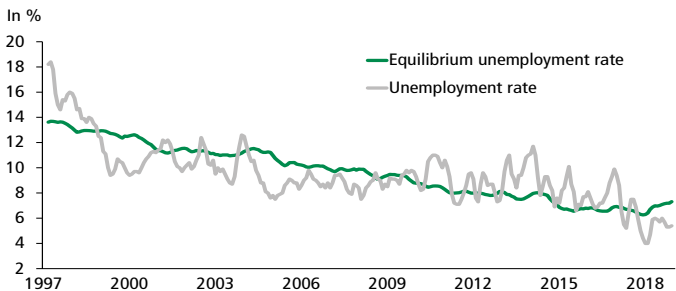
GRAPH 14
Abitibi-Témiscamingue

In %
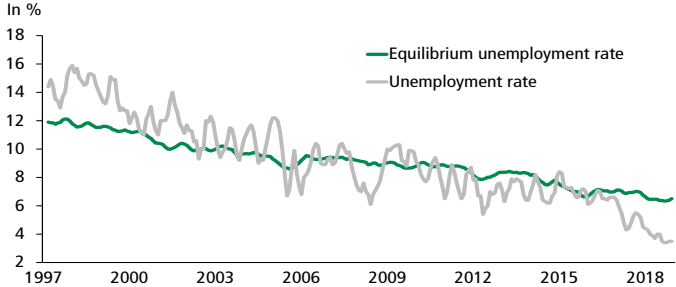
Sources: Economics Department, Université Laval and Desjardins, Economic Studies
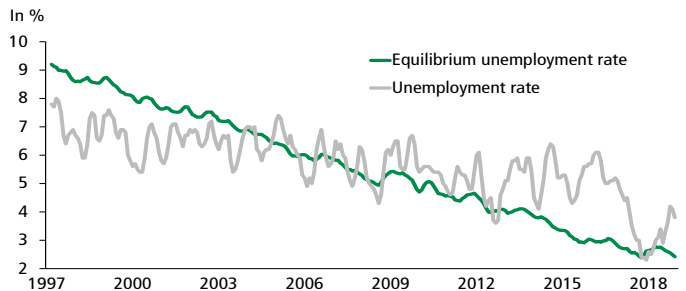
GRAPH 17
Centre-du-Québec

In %
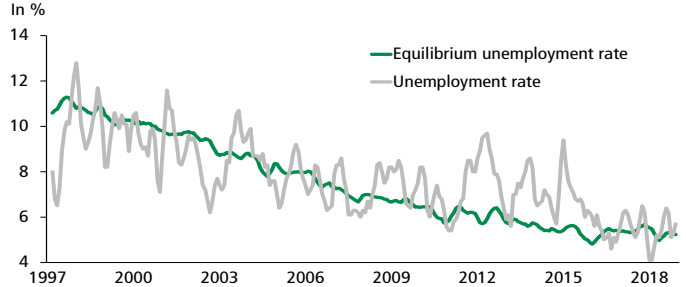
Sources: Economics Department, Université Laval and Desjardins, Economic Studies

GRAPH 15
Bas-Saint-Laurent

In %

Sources: Economics Department, Université Laval and Desjardins, Economic Studies

GRAPH 18
Chaudière-Appalaches

In %

Sources: Economics Department, Université Laval and Desjardins, Economic Studies
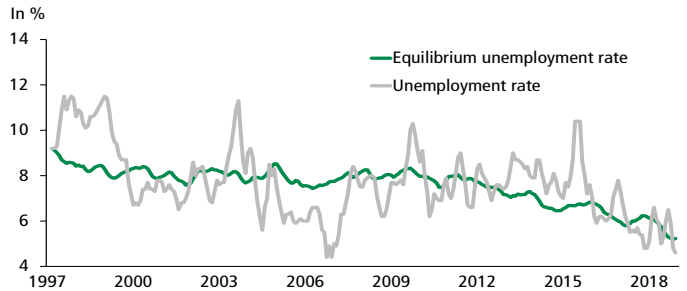
Appendix (cont.)
Unemployment Rates of the Administrative Regions
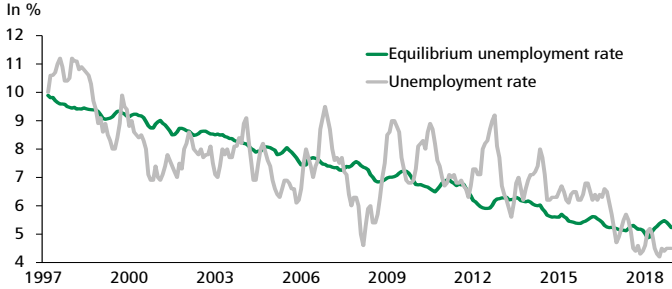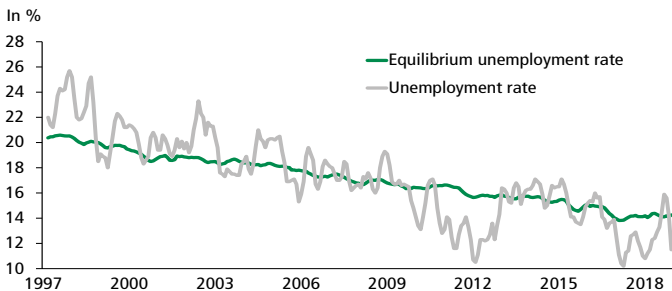
GRAPH 19
Côte-Nord and Nord-du-Québec

In %

— Equilibrium unemployment rate
— Unemployment rate

Sources: Economics Department, Université Laval and Desjardins, Economic Studies

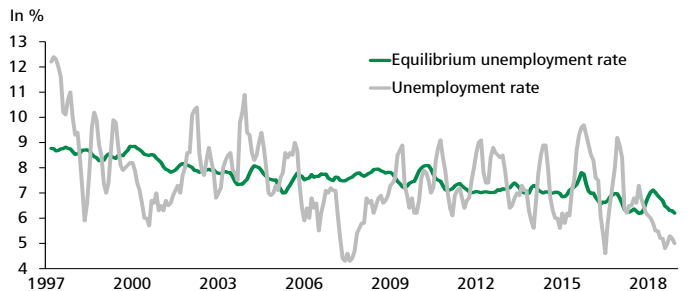**GRAPH 20**
Estrie

In %

— Equilibrium unemployment rate
— Unemployment rate

Sources: Economics Department, Université Laval and Desjardins, Economic Studies

GRAPH 21
Gaspésie–Îles-de-la-Madeleine

In %

— Equilibrium unemployment rate
— Unemployment rate
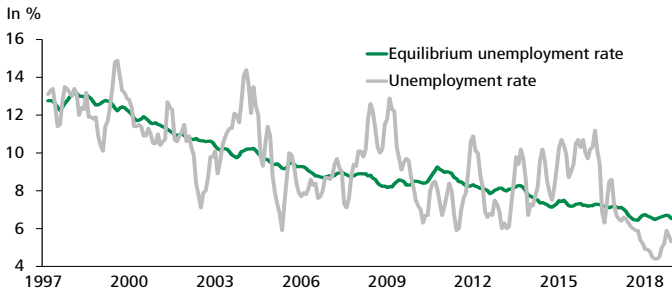
Sources: Economics Department, Université Laval and Desjardins, Economic Studies

GRAPH 22
Lanaudière

In %

— Equilibrium unemployment rate
— Unemployment rate

Sources: Economics Department, Université Laval and Desjardins, Economic Studies

GRAPH 23
Laurentides

In %

— Equilibrium unemployment rate
— Unemployment rate

Sources: Economics Department, Université Laval and Desjardins, Economic Studies

GRAPH 24
Laval

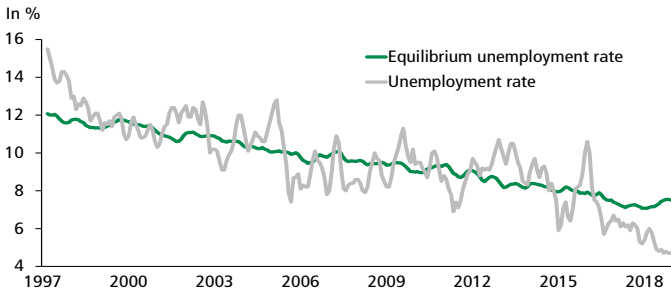In %

— Equilibrium unemployment rate
— Unemployment rate

Sources: Economics Department, Université Laval and Desjardins, Economic Studies
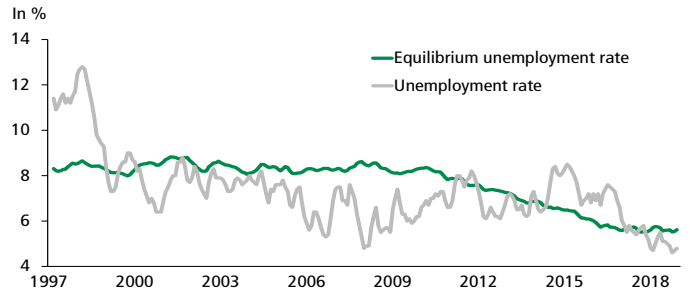
Appendix (cont.)
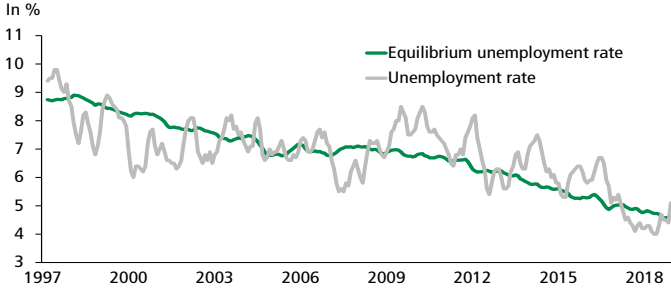## Unemployment Rates of the Administrative Regions

GRAPH 25
Mauricie

In %

Sources: Economics Department, Université Laval and Desjardins, Economic Studies
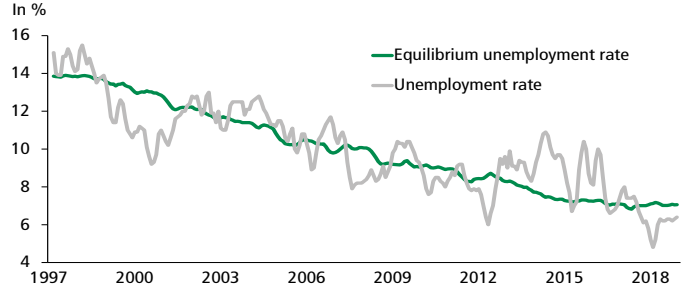
GRAPH 28
Outaouais

In %

Sources: Economics Department, Université Laval and Desjardins, Economic Studies
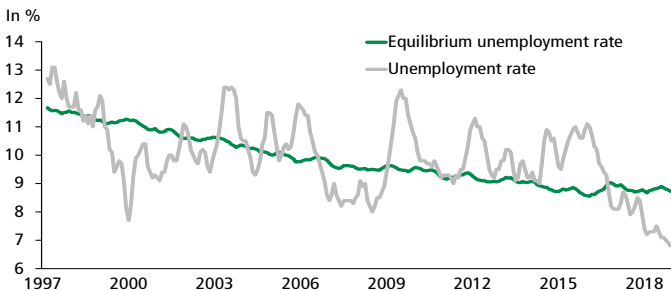
GRAPH 26
Montérégie

In %

Sources: Economics Department, Université Laval and Desjardins, Economic Studies

GRAPH 29
Saguenay–Lac-Saint-Jean

In %

Sources: Economics Department, Université Laval and Desjardins, Economic Studies

GRAPH 27
Montréal

In %

Sources: Economics Department, Université Laval and Desjardins, Economic Studies