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The State of Employment among English-speaking Quebecers

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About the Provincial Employment Roundtable (PERT)

Vision
PERT's vision is of a Québec where all Quebecers are actively living, working, and thriving while making our contribution to a strong and vibrant Québec economy.

Mission
The provincial Employment Roundtable (PERT) is a non-profit policy, research, and engagement organisation that works with employment service delivery organisations, employers, partners in education, and government to research and address employment challenges and opportunities of the English-speaking communities across Québec. PERT is dedicated to building and strengthening employment support networks and ensuring inclusion in Québec's labour market for generations to come.

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FOREWORD

By Nicholas Salter, Executive Director, Provincial Employment Roundtable (PERT)

It is no longer surprising to hear that English-speaking Quebecers face persistent barriers to employment and economic inclusion in Québec. The hard work of the many organizations in Québec's English-speaking community have brought this reality to the forefront of Québec's linguistic and economic policy discussions.

In a province navigating changing linguistic laws, demographic shifts, and global economic pressures, understanding and addressing the employment challenges facing Québec's English-speaking communities is no longer an option, but rather, a matter of necessity that will help secure the future of the French language and deliver prosperity for all.

To date, action on these issues has been inadequate. This is perhaps in part due to the limitations on reliable and up-to-date labour market data available for Québec's English-speaking communities. It may also be due to a lack of information about the economic impact of these employment gaps on Québec's economy.

As is the case for most policy challenges, when you don't fully understand the costs and benefits of an issue, it's hard to prioritize the implementation of its solutions.

To solve this challenge, the Provincial Employment Roundtable commissioned the Social Research and Demonstration Corporation (SRDC) to pilot new methodologies that will provide government and community stakeholders with reliable mechanisms for monitoring the employment outcomes of English-speaking Quebecers between census cycles, helping to address data gaps that have existed for decades. The result is a timely and rigorous re-examination of the state of employment among English-speaking Quebecers – one that provides sharper insights and a basis for more informed public policy.

This study confirms what community advocates and past census data have long suggested: even when comparing English and French speakers using more direct comparison – that is, adjusting for differences in age, education, and immigration status among other factors – employment and income disparities persist. These inequities are not minor statistical differences; they translate into an estimated $1.5 billion in lost income annually. That is $1.5 billion that is not benefitting Québec's economy, supporting regional vitality, or being taxed to fund our social model.

The projections outlined in this study offer little indication that these gaps will close on their own, even under varying economic growth scenarios. Closing these gaps would not only improve

the well-being of individuals and communities but also strengthen the province's overall competitiveness and prosperity.

Equally important, this research establishes new tools to monitor trends and respond proactively to emerging challenges. As Québec continues to balance its economic ambitions with its linguistic and social objectives, this report offers a basis for evidence-based policy and collaboration with English-speaking communities.

Its message is straightforward: when every Quebecer can contribute fully, Québec will thrive. We urge Québec policymakers to heed this message.

EXECUTIVE SUMMARY

The full inclusion of all Quebecers in the economy benefits individuals, businesses, and society as a whole. However, research has shown that English speakers in Québec experience heightened socioeconomic precarity compared to their French-speaking peers. In this report, we compare the employment outcomes of English speakers in 2021 using the Census and develop a methodology that constructs labour market indicators in non-census years. We use that methodology to predict employment outcomes until 2025 and to project them in the medium-term under three hypothetical scenarios for labour force growth in Québec: (1) status quo, (2) slower growth, and (3) stagnated growth.

We show that, on average, English speakers are younger, more educated, and more likely to be located in Montréal and surrounding municipalities compared to their French-speaking peers. These differences are important determinants of employment outcomes and should be taken into account in discussions of employment outcome gaps between the two groups. Once these differences are accounted for, as well as other differences in characteristics that are related to labour market outcomes, we find important employment and income disparities for English speakers. If English speakers received the same returns to their characteristics as French speakers, and assuming that employment outcome differences due to linguistic differences alone can be eliminated, their total income, and as such, the economy of Québec could benefit from an additional $1.51 billion annually.

The research presented in the report also showcases two important methodological innovations for the analysis of English speakers' employment outcomes in Québec. Firstly, it highlights the importance of taking into account labour market determinants, such as education, when investigating gaps in employment and earnings. Secondly, it enables researchers and policy makers to predict employment outcomes in non-census years. Depending on the industry and stagnation scenario, the results predict that, in 2028, certain industries will struggle to hire qualified employees. Our projected values for 2028 also show that unemployment rate gaps persist across all three labour market scenarios.

We make the following two key recommendations to government and community stakeholders:

▪ We recommend that the Québec government work in collaboration with key stakeholders to develop and implement a targeted strategy to close the employment and income disparities between English and French speakers.

▪ In order to mitigate predicted labour shortages in key industries, we recommend the Québec government develop, implement and promote policies to attract, employ, and retain English speakers in Québec.

INTRODUCTION

The full inclusion of all Quebecers in the economy benefits individuals, businesses, and society as a whole. Past research by the Provincial Employment Roundtable (PERT) has shown that English speakers[1] in Québec experience heightened socioeconomic precarity compared to their French-speaking peers. This research, which uses 2021 Census data, shows that English speakers have lower labour market outcomes than French speakers (PERT, 2023). In particular,

- English speakers had a four percentage point higher unemployment rate than French speakers.

- Both median after-tax employment income and median employment income were lower for English speakers compared to French speakers.

- The poverty rate for English speakers was almost twice as high as the rate for French speakers.

While the census is essential as it is the only source of regularly collected linguistically disaggregated economic and labour force data, it is only administered at five-year intervals. It, therefore, may be slow to reflect policy and/or economic changes (e.g. Québec's Law 14, American tariffs) in the intervening years. As such, more accessible and regularly-collected linguistic data is needed to understand the contemporary economic situation of English speakers in Québec and to develop responsive policies and programs.

This research, commissioned by PERT, aims to address these data gaps. The analysis conducted by PERT (2023) is revisited and differences in labour market outcomes between English speakers and French speakers in Québec are estimated while taking into account the differences in their labour market characteristics. This allows us to estimate more accurate employment outcome gaps associated with only the linguistic differences between the two groups. We then address the significant challenge of tracking and monitoring the employment of English speakers in Québec outside of census years. Our goal here is to develop strategies that can provide ongoing insights into the employment and unemployment status of English speakers.

The research findings show that, on average, English speakers are younger, more educated, and more likely to be located in Montréal and surrounding municipalities compared to their French-speaking peers. Once these differences are accounted for, as well as other differences in characteristics that are related to labour market outcomes, we find important employment and

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[1] This report uses the definition of English speakers consistent with existing research by PERT. In the data, individuals are assigned their first official language as English, French, both or neither; and individuals who speak both official languages are divided evenly between the English first Official Language spoken (FOLS) and French FOLS populations.

income disparities for English speakers. If English speakers received the same returns to their characteristics as French speakers, and assuming that employment outcome differences due to linguistic differences alone can be eliminated, their total income, and as such, the economy of Québec could benefit from an additional $1.51 billion annually.

We also pilot a methodology, and present the results, of constructing labour market indicators that estimate the up-to-date state of English speakers' employment outcomes using publicly available data. We leverage this methodology to project medium-term employment outcome trends for English speakers under three hypothetical scenarios for labour force growth in Québec: (1) status quo, (2) slower growth, and (3) stagnated growth.

This report is organized into the three parts described above, framed by a description of the context and the data used in the analysis. We then present the findings in three parts: 1) a more nuanced look at the employment of English speakers in Québec, 2) the total earnings gap between English and French speakers, and 3) predictions and projections. Within each of these sub-sections, we present the methodology and the complete results. The report concludes with recommendations for policy and future research based on the findings presented.

CONTEXT

Existing research using census data shows that English speakers have low labour market outcomes compared to their French-speaking counterparts (PERT, 2023). These differences may suggest potential economic benefits for the Québec economy from closing the English-French labour market gaps. For example, in 2021, there were 699,015 English speakers in the Québec labour force (PERT, 2023). If the four percentage point unemployment rate gap found in PERT's analysis were closed, nearly 28,000 additional English speakers would be in employment. However, this straightforward calculation does not account for differences in the characteristics between English and French speakers that may influence their labour market outcomes. In this report, we account for these differences and estimate the cost to the Québec economy of the lack of full inclusion of English speakers in the labour market.

The Canadian Census of Population is the only source of regularly collected linguistically disaggregated economic data. However, due to its five-year frequency, it cannot truly reflect the employment situation of English speakers in intervening periods. Moreover, the employment situation of English speakers may experience substantial changes in these intervening periods resulting from changing demographics and the economic and political environment.

Our modelling approach integrates additional sources of labour force data to help better triangulate the current status of English and French speakers.

DATA SOURCES

CANADIAN CENSUS PUBLIC USE MICRODATA FILES

The Canadian Census Public Use Microdata Files (PUMF) are publicly available datasets that provide data for a representative sample of the Canadian population including a comprehensive subset of social, demographic, and economic variables from the Canadian Census. Several variables related to respondents' linguistic backgrounds are included in the PUMF: mother tongue, knowledge of official languages, language used most often at work or at home, and first official language spoken. Following PERT's previous work, first official language spoken is used in this analysis to identify the linguistic backgrounds of individuals, which is derived based on knowledge of official languages, mother tongue, and language spoken most often at home.[2]

This analysis uses data from both the 2016 and 2021 Census PUMF datasets. There are 186,111 observations representing the Québec population aged 15 or over in the 2021 Census PUMF data and 178,056 observations in the 2016 Census PUMF data. The PUMF includes weights indicating the number of individuals represented by each observation to produce statistics that describe the population of interest.

LABOUR FORCE SURVEY PUBLIC USE MICRODATA FILES

Statistics Canada conducts the Labour Force Survey (LFS) to collect monthly data on the labour market activities of Canadians, including employment, wages, hours of work, occupation, industry as well as personal characteristics such as age, gender and education. However, linguistic information of respondents is unavailable in the LFS. The publicly-available version of the dataset provides a representative sample of the working age population in Canada with a comprehensive subset of variables available in the LFS. For this analysis, we use data from January 2016 until May 2025.

PERSPECTIVES D'EMPLOI PAR INDUSTRIE

The Ministère de l'emploi et de la solidarité sociale (MESS) of the Québec government forecasts yearly labour market outcomes, including employment by industry and occupation, labour market participation, and unemployment in the medium (five years) and long term (ten years) based on economic forecasts from the Conference Board of Canada. This data provides

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[2]   The derivation of first official language spoken is illustrated in
https://www.statcan.gc.ca/en/concepts/definitions/first-language-figure1.

annualized employment growth rates by industry for the province, as well as forecasts broken down by region. For this analysis, the forecasts for the 2024-2028 period are used.

PART A: ADJUSTED FIGURES: A MORE NUANCED LOOK AT THE EMPLOYMENT OF QUÉBEC'S ENGLISH SPEAKERS IN 2021

In this section, we use 2021 Census data to describe the characteristics and employment outcomes of English speakers in Québec and compare them to those of French speakers. We present adjusted figures that account for these differences in their labour market profiles to get a clearer picture of the gaps.

METHODOLOGY

Multivariate regression models describe quantitatively how the indicators of interest (dependent variables) are related to their factors (explanatory variables) (see the lists below). By modelling the dependent variables as a function of explanatory variables in a single equation, we can identify the quantitative relationship between the dependent variable and each explanatory variable while other explanatory variables are held constant. Regression models estimate results for the average of the dependent variable when the variable is continuous (earnings in dollars) and percentage points when the variable is binary (employment and unemployment status). In our context, this method allows us to estimate the differences between English and French speakers[3][4] who otherwise have the same labour market profiles.[5]

The labour market outcome indicators examined here are:

- Employment rate: Number employed/Number aged 15+ (both those in the labour force and those not in the labour force)

- Unemployment rate: Number unemployed/Number in the labour force

- Average employment earnings in Canadian dollars

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[3] Following PERT (2023), the classification of English and French speakers is based on the Official Language spoken variable in the census, with those who speak both English and French randomly assigned to either English or French equally, unless earnings differences between the two groups are analysed.

[4] When analyzing earnings, individuals who speak both English and French are excluded from the analysis.

[5] In this analysis, individuals in the public administration sector are excluded as the employment of unilingual English speakers in the public sector is unrealistic for full inclusion.

- Logarithm of employment earnings (log earnings)[67]

  o Gaps in log earnings can be interpreted as differences in earnings in percentage terms

In addition to the indicator for English speakers and a constant term, the regression models include a set of indicator variables representing each of the following explanatory variables: [8]

- Age

- Gender

- Location

- Highest level of education

- Immigration status

- Industry affiliation

This model assumes that these explanatory variables, listed above, are the only determinants of the outcome of interest, employment and earnings. Part of the estimated English–French gap may reflect differences in characteristics not available in the data (see detailed variable descriptions in Appendix A) and thus not captured in the model, if such characteristics differ notably between the two groups.

FINDINGS

Table 1 presents the demographic and labour market characteristics of English and French speakers among the Québec population aged 15 and above from the 2021 Census PUMF data.

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6 The log earnings model reduces the influence of outlier earnings observations in the estimation (in our context, unusually high earners).

7 For observations with non-positive earnings, the dependent variable is replaced with the logarithm of $1 (equaling 0).

8 The full list of categories included in the regression models is available in Appendix A.

Table 1   Profiles of English speakers and French speakers in Québec (%)

	English speakers	French speakers
Age		
15-29	24.5	19.7
30-54	42.9	38.2
55+	32.6	42.1
Gender		
Woman	48.8	50.8
Man	51.2	49.2
Location		
Québec City CMA	1.6	11.4
Montréal CMA	80.7	44.7
Elsewhere in Québec	17.7	43.8
Highest level of education		
Less than high school	14.6	18.3
High school diploma	23.8	21.1
PSE below bachelor's degree	28.1	38.8
Bachelor's degree or higher	33.4	21.8
Immigration status		
Non-immigrants	56.5	86.2
Immigrants	36.9	12.1
Non-permanent residents	6.6	1.7
Industry (top 5 among English speakers)		
Retail trade	11.4	12.4
Professional, scientific and technical services	11.2	7.2
Health care and social services	10.1	14.9
Manufacturing	9.3	10.1
Educational services	8.6	7.9

Note: CMA denotes Census Metropolitan Area and PSE denotes post-secondary education.

Despite their lower labour market outcomes, English speakers have higher education attainment compared to French speakers, with 33.4% compared to 21.8% of French speakers having a Bachelor's degree or higher. They are also younger than French speakers and much more likely to be an immigrant to Canada (36.9% compared to 12.1%). We also observe differences in industry representation and location between the two language groups that likely also influence labour market outcome gaps. For example, 80.7% of English speakers live in the Montréal Census Metropolitan Area (CMA)[10] compared to 44.7% of French speakers. All of these differences in characteristics between English and French speakers are statistically significant at the 1% level.

To account for these differences and estimate gaps associated with linguistic differences (adjust the outcomes figures), we estimate multivariate regression models[11] using the 2021 Census PUMF data.

Figure 1 presents the unadjusted and adjusted differences in employment and unemployment rates between English speakers and French speakers. A positive difference in the figure means that the rate for English speakers is higher than that of French speakers.

Figure 1   Employment and unemployment rate differences

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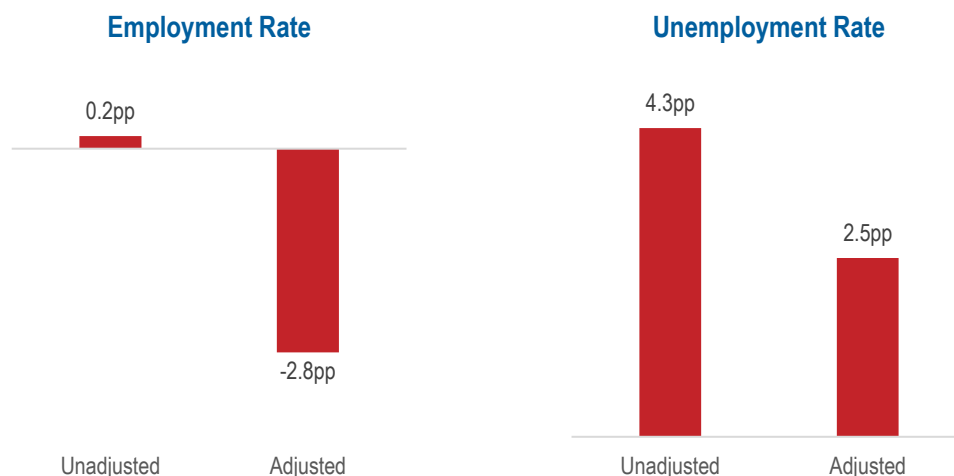
[10]   The Montréal CMA includes the Island of Montréal, Laval, Longueuil, and other surrounding municipalities (https://www12.statcan.gc.ca/census-recensement/2021/as-sa/fogs-spg/Page.cfm?lang=e&topic=1&dguid=2021S0503462).

[11]   In other words, we quantify the relationship between language and the employment outcomes, controlling for the other variables (education, immigration status, age, etc.), and use it to predict the earnings and employment rates of English and French speakers with the same returns to their characteristics.

Without adjusting for differences in characteristics, English speakers have a slightly higher employment rate than French speakers (by 0.2 percentage points). However, this difference is not statistically significant, meaning that the unadjusted employment rate is virtually the same for English and French speakers. The regression-adjusted results show that the employment rate among English speakers is 2.8 percentage points lower than the rate for French speakers once characteristics related to labour market outcomes are accounted for. The difference is statistically significant at the 1% level.

Both with and without adjusting for differences in characteristics, the unemployment rate is higher for English speakers than French speakers. The regression adjustment narrows the gap from 4.3 percentage points to 2.5 percentage points, but the gap is still statistically significant at the 1% level.

Figure 2 presents unadjusted and adjusted differences in employment earnings and log earnings for English and French speakers. As in Figure 1, a positive difference in the figure means that earnings are higher for English speakers compared to French speakers.

Figure 2   Employment earnings and log earnings differences
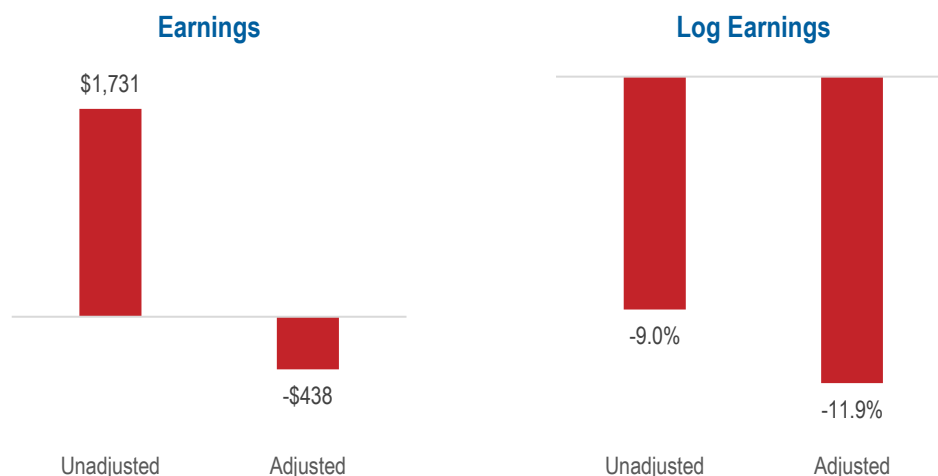
Without the regression adjustment, English speakers have higher average employment earnings, of $1,731, compared to French speakers. However, this difference reverses direction with the regression adjustment, resulting in English speakers having lower average annual employment income by $438. However, this difference in dollars is not statistically significant at conventional levels (10% or less). In percentage terms, estimated using log earnings, English speakers have nine percent lower earnings compared to French speakers before the regression adjustment. The gap widens after the adjustment to 11.9% and is statistically significant at the 1% level.

Main Findings

- The differences in the employment rates, the unemployment rates, and employment earnings between English and French speakers persist after accounting for individual characteristics.

- In fact, the gaps widen for all outcomes aside from the unemployment rate.

PART B: TOTAL MISSED EARNINGS: WHAT CAN BE GAINED BY CLOSING THE GAPS

Based on the results of Part A, we estimate the annual loss in income resulting from the differential returns to English speakers' characteristics, compared to French speakers, in both employment and income.

METHODOLOGY

Using the adjusted figures calculated in Part A, we calculate the aggregate increase in annual earnings if English speakers' employment and income levels matched those of their French-speaking peers with the same characteristics:

Total earnings gap = Population of English speakers x Average earnings x Estimated employment rate gap (adjusted).

See Appendix B for a full breakdown of the calculation.

This total earnings gap represents a loss of GDP to the province, consistent with an income-based approach to calculating GDP.

FINDINGS

For English speakers and, more broadly, the province of Québec, eliminating the differences in the employment rates and employment earnings between English speakers and French speakers would generate significant economic benefits. Specifically, the Census 2021 PUMF data estimates that there were 1,044,960 English speakers aged 15 or older in the province. Eliminating the employment rate and earnings gaps would add $1.29[12] billion, in 2020 dollars, to English speakers' employment earning annually. In 2024 dollars[13], this is an annual cost of $1.51 billion.[14] Eliminating these differences implies eliminating both underemployment and overqualification,[15]

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[12]   The $438 estimated increase in average earnings is not statistically significantly different from zero, therefore, we do not use it in the calculation. Including it yields a gain of $1.55 billion in constant 2020 dollars.

[13]   The 2025 Consumer Price Index (CPI) was not available at the time of this research.

[14]   Or $1.83 billion (in 2024 dollars) when the non-statistically significant increase in average earnings is included.

[15]   Overqualification of education and experience are accounted for because the calculation is based on the figures that are adjusted for the differences in education and age (as a proxy for experience) between English and French speakers.

and English speakers receiving the same returns to their characteristics (the variables we adjusted for earlier such as age, immigration status, and education level) as French speakers in Québec.

Main Findings

- **Eliminating the employment rate and earnings gaps would add $1.51 billion to English speakers' total annual compensation, and, therefore, annually to the Québec economy.**

PART C: PREDICTIONS AND PROJECTIONS: CURRENT AND FUTURE EMPLOYMENT GAPS

In this section, we present a methodology, and the results, of constructing labour market indicators that estimate the up-to-date state of English speakers' employment outcomes. We leverage this methodology and present the results for projected medium-term employment outcome trends for English speakers under three hypothetical scenarios for labour force growth in Québec: (1) status quo, (2) slower growth, and (3) stagnated growth.

METHODOLOGY

The analysis for this research component consists of two elements: predictions and projections. Although both terms are used synonymously in certain contexts, each is used distinctly in this analysis. The prediction element involves predicting the employment and unemployment rates for English and French speakers outside census years using publicly available historical data. The projection element involves forecasting employment and unemployment rates into the medium-term future (until 2028). The predictions and projections presented in this report are unadjusted[16] for differences in observable characteristics between English and French speakers.

Prediction method

We develop quantitative models associating English speakers' employment and unemployment rates to their corresponding province-wide statistics. To predict an outcome indicator for English speakers, the model includes the following key predictors: (1) the same indicator for the overall provincial working-age population (15+) at the same point in time and (2) historical values from the 2016 Census. A linear regression model links the indicator of interest to these predictors.[17] Model parameters are estimated using data from the 2016 and 2021 Census PUMF. These estimated relationships are then applied to LFS PUMF data to predict the indicator for English

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[16]   Using unadjusted values in the predictions and projections allows for comparison to the actual values (which we did in this research using May 2025) and requires fewer assumptions.

[17]   The prediction methodology initially proposed was to link the change in outcome indicator for English speakers to the overall provincial counterpart from 2016 to 2021 and then to extrapolate the relationship beyond 2021. However, the predictions based on this method are very sensitive to small changes in English speakers' employment outcomes when the overall outcome remains stable, which results in highly unlikely fluctuations in predictions. As a result, we adopted the regression modelling approach presented in this report.

speakers outside of census years, based on corresponding provincial outcomes.[18] The details of this methodology are described in Appendix C.

One of the modelling assumptions implicit in the prediction model is that both English speakers' and French speakers' outcomes evolve in parallel with those of the province-level results. This assumption effectively holds the English–French gap constant over time, reflecting what has been consistently observed in historical data (Advisory Committee for English-speaking Quebecers (ACESQ), 2024). In other words, our results mirror a reality in which the gap has remained relatively stable despite shifts in external factors such as labour market dynamics, immigration, or changes in English speakers' French language levels and workplace inclusion.

The modeling is disaggregated by industry[19] and education levels. At the industry level, we carry out predictions for the following 13 industry groupings:[20]

- Construction

- Manufacturing

- Wholesale trade

- Retail trade

- Transportation and warehousing

- Finance and insurance / Management of companies and enterprises / Administrative support, waste management and remediation

- Professional, scientific, and technical services

- Educational services

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[18]   In order to remove excessive month-to-month fluctuations in predictions, the prediction model is estimated after adjustments to predictor values by taking three-month moving averages.

[19]   In both the census and LFS data, some observations have missing industry information due to either non response to the corresponding question or because of no recent employment. When estimating overall predictions, simply aggregating the predicted industry-specific rates would overstate the province-wide employment rate and understate the province-wide unemployment rate. To account for missing industry observations, the overall predictions are the weighted averages of the employment and unemployment rates among those with industry information and those without. The weights, as well as the employment and unemployment rates for those without industry information, are calculated based on the 2021 Census PUMF data.

[20]   These groupings are based on the North American Industry Classification System. In consultation with PERT, the 12 largest industries among English speakers (based on number employed) are included as distinct categories and the remaining industries are grouped into one single category because of small sample sizes.

- Health care and social assistance

- Accommodation and food services

- Other services (except public administration)

- Public administration

- Industries not elsewhere classified

Education level is grouped into four categories:[21]

- Less than high school diploma

- High school diploma

- Post-secondary education below bachelor's degree

- Bachelor's degree or higher

In order to test the performance of the prediction model, the actual statistics from the 2016 Census and the predicted values for the same period are compared. The predicted employment rate among English speakers for May 2016 is 63.2% while the corresponding rate based on the 2016 Census data is 59.8%, resulting in a prediction error of 3.4 percentage points. For French speakers, the prediction error in the employment rate is 2.1 percentage points (62.1% versus 60.0%) for the same period. The predicted unemployment rate for May 2016 is 10.1% for English speakers while the actual unemployment rate for the same period is 8.8%, resulting in a prediction error of 1.3 percentage points. The prediction error in the unemployment rate for French speakers is -0.6 percentage points (6.3% versus 6.9%) for the same period. The size of the prediction error for the unemployment rate is relatively high compared to its value. The upcoming Census 2026 would provide an additional data point to assess the performance of the prediction models. In addition, data from the Survey on the Official Language Minority Population 2022[22] might also provide data that could be used to test the performance of the models.

As noted earlier, the predicted differences between English and French speakers are held constant over the analysis period. As a result, the predictions for specific points in time could diverge significantly from their actual values if the employment situations of the two groups

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[21] Education levels are coded differently in the census and LFS PUMF data. These four groupings align the categories across both datasets.

[22] https://www150.statcan.gc.ca/n1/pub/89-657-x/89-657-x2024009-eng.htm. Data are not yet publicly available.

differ substantially from their levels in 2021. This indicates that the prediction model would benefit from more data to improve its flexibility; data which is not currently publicly available.

As with the overall results, we also investigate the accuracy of the methodology by comparing the actual and predicted employment rates for English speakers in May 2016 by industry and by education level. The prediction errors for the five industries range from 0.0 to 2.8 percentage points for the employment rate and -0.8 to 2.4 percentage points for the unemployment rate.[23] The prediction errors in May 2016 for English speakers by educational attainment range from -1.6 to 5.4 percentage points for the employment rate, and from -0.7 to 2.1 percentage points for the unemployment rate. The prediction errors for the estimates by educational attainment are relatively large in comparison to their values, especially for the unemployment rates.[24]

Projection method

The projection method consists of two primary steps. First, we forecast province-wide employment and unemployment rates in the medium term (annually for 2024-2028), using the LFS data and the industry-specific employment forecasts available from MESS. Three scenarios for labour force growth are considered. These scenarios were chosen as realistic possibilities based on current and expected Québec birth rates and immigration policy.

- Scenario 1 (status quo): the labour force will grow at the same rate as in the past 10 years.

- Scenario 2 (slower labour force growth): the labour force growth rate will be half the rate of the past 10 years.

- Scenario 3 (stagnated labour force growth): There will be no labour force growth.

Once province-wide projected employment and unemployment rates are forecasted, the prediction models, described earlier, are used to produce employment and unemployment rate projections from 2025 to 2028 for English and French speakers. A full description of the methodology is presented in Appendix D.

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[23] The prediction errors for all industries range from -4.7 to 9.1 percentage points for the employment rate and -4.7 to 6.6 percentage points for the unemployment rate.

[24] Unemployment rates are typically small values. Since the error can be twice as high as the actual value (2.1% versus 4.2%), in some contexts, the errors are substantial.

FINDINGS

Overall predicted employment and unemployment rates

Figure 3 presents the predicted employment and unemployment rates of English and French speakers between 2016 and 2025, obtained by aggregating the predicted rates across all industries.

**Figure 3   Overall predicted employment and unemployment rates (2016-2025)**
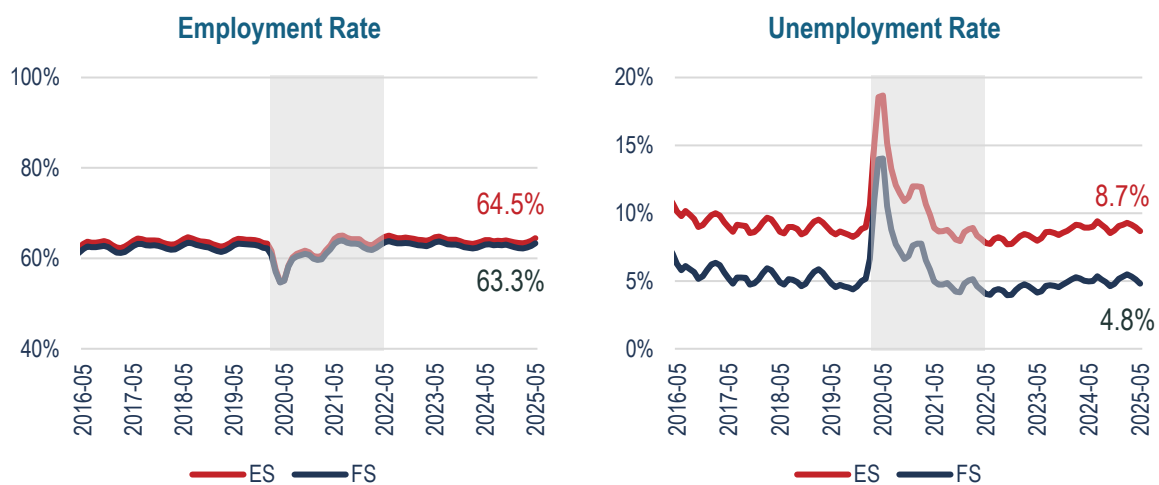
Note: ES denotes English speakers and FS denotes French speakers. The shaded period (March 2020 to May 2022) represents the Covid-19 pandemic period.

The predicted employment rate among English speakers is 64.5% in May 2025, 5.2 percentage points higher than its corresponding value in May 2021, while the predicted unemployment rate among English speakers is 8.7%, 2.4 percentage points lower than the corresponding rate from the 2021 Census. Unsurprisingly, the Covid-19 pandemic affected both English and French speakers considerably. The predicted unemployment rate spiked to 18.7% for English speakers, and to 14.0% for French speakers in May 2020. The predicted gaps between English speakers and French speakers remain stable, by model construction, which reflects and maintains the historically observed status-quo gaps. In this model, English speakers continue to show a higher employment rate (by 1.2 percentage points) and a higher unemployment rate (by 3.9 percentage points). In other words, the projections illustrate a scenario where both groups are equally affected by overall labour market changes, and the underlying historical gap remains unchanged. The results, therefore, represent updated estimates of what can be expected if past patterns persist into the future.

Figure 4 presents the overall projected employment and unemployment rates in 2028 under the three hypothetical labour force growth scenarios.

Figure 4   **Overall employment and unemployment rate projections (2028)**
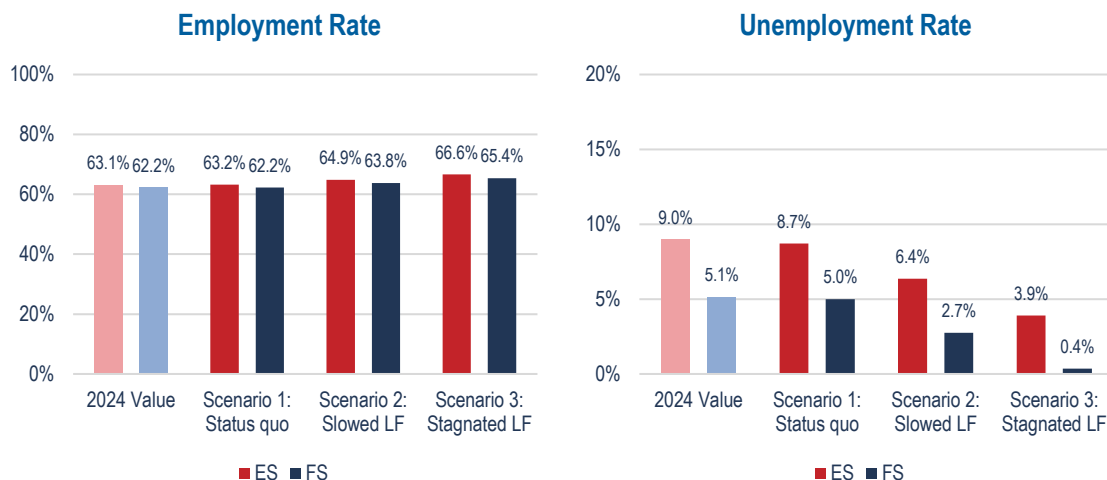
Note: ES denotes English speakers, FS denotes French speakers and LF denotes labour force.

Overall, under the status quo labour force growth scenario, the employment and unemployment rates are projected to be the same as in 2024 for both English and French speakers, while the two slower labour force growth scenarios project tighter labour markets with lower unemployment rates.

Employment and unemployment rates by industry

In this section, we present the employment and unemployment rates of English speakers by industry for the five industries where English speakers were most likely to be employed in May 2021:[25]

▪ Professional, scientific and technical services

▪ Health care and social assistance

▪ Retail trade

▪ Manufacturing

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[25] Based on Census 2021.

- Educational services

These five industries account for over 50% of industry affiliation among English speakers. The results for the remaining industries are presented in Appendix E.
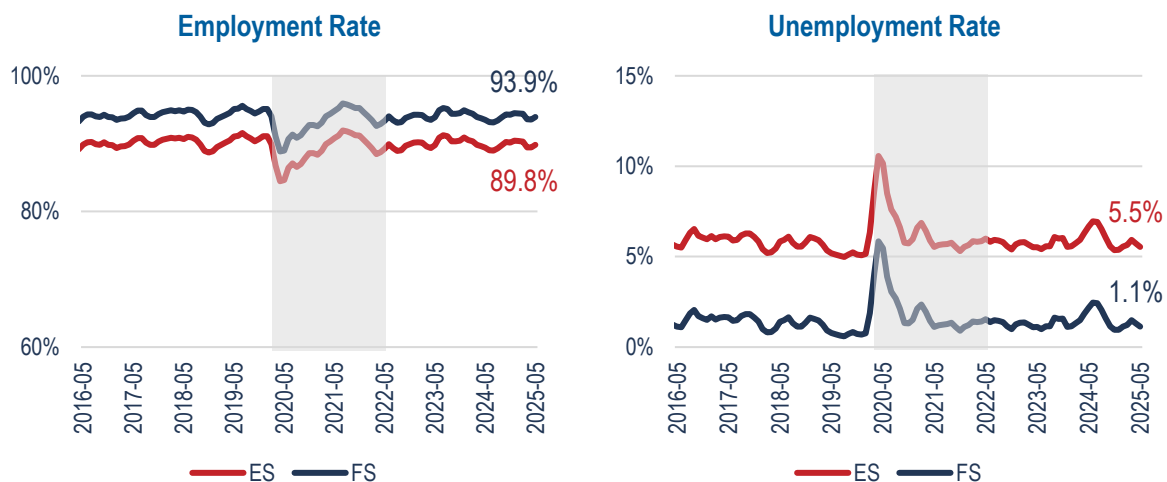
Figures 5 to 9 present the predicted employment and unemployment rates for English and French speakers from 2016 to 2025 by industry.

Figure 5   **Predicted employment and unemployment rates (2016-2025): Professional, scientific and technical services**
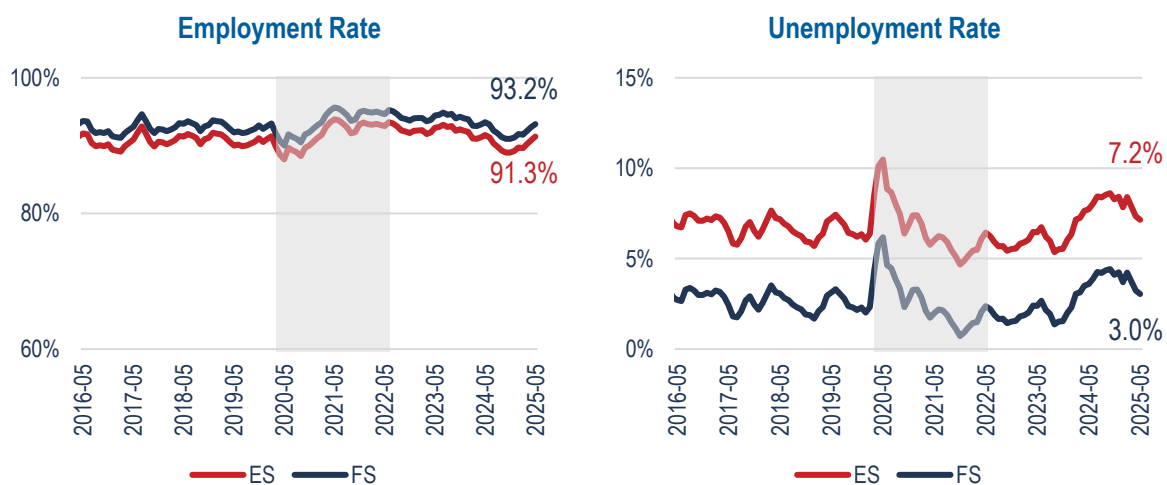
Note: ES denotes English speakers and FS denotes French speakers. The shaded period (March 2020 to May 2022) represents the Covid-19 pandemic period.

Figure 6 **Predicted employment and unemployment rates (2016-2025): Health care and social assistance**

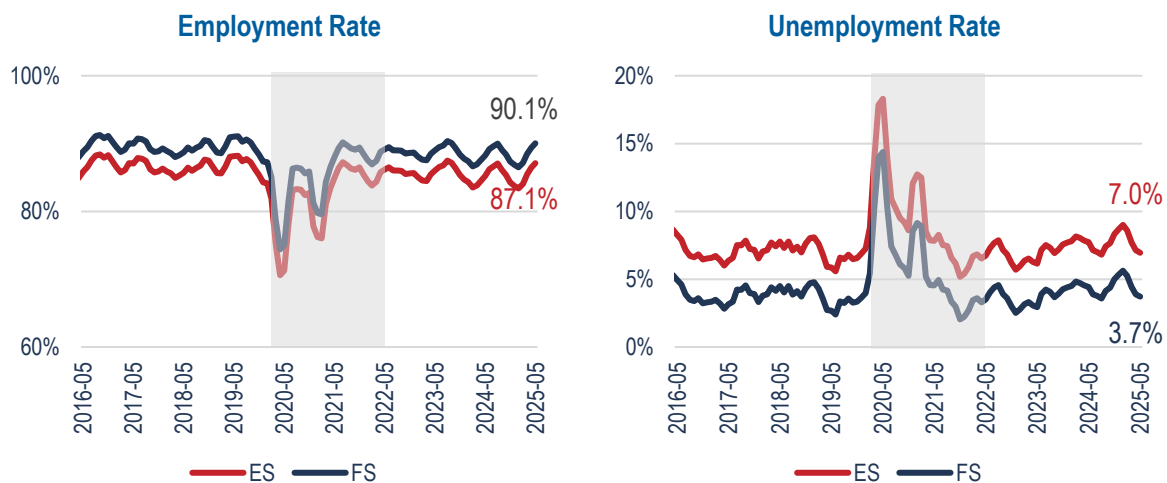### Employment Rate

Unemployment Rate

Note: ES denotes English speakers and FS denotes French speakers. The shaded period (March 2020 to May 2022) represents the Covid-19 pandemic period.

Figure 7 **Predicted employment and unemployment rates (2016-2025): Retail trade**

Employment Rate

Unemployment Rate

Note: ES denotes English speakers and FS denotes French speakers. The shaded period (March 2020 to May 2022) represents the Covid-19 pandemic period.

Figure 8 **Predicted employment and unemployment rates (2016-2025): Manufacturing**

Note: ES denotes English speakers and FS denotes French speakers. The shaded period (March 2020 to May 2022) represents the Covid-19 pandemic period.
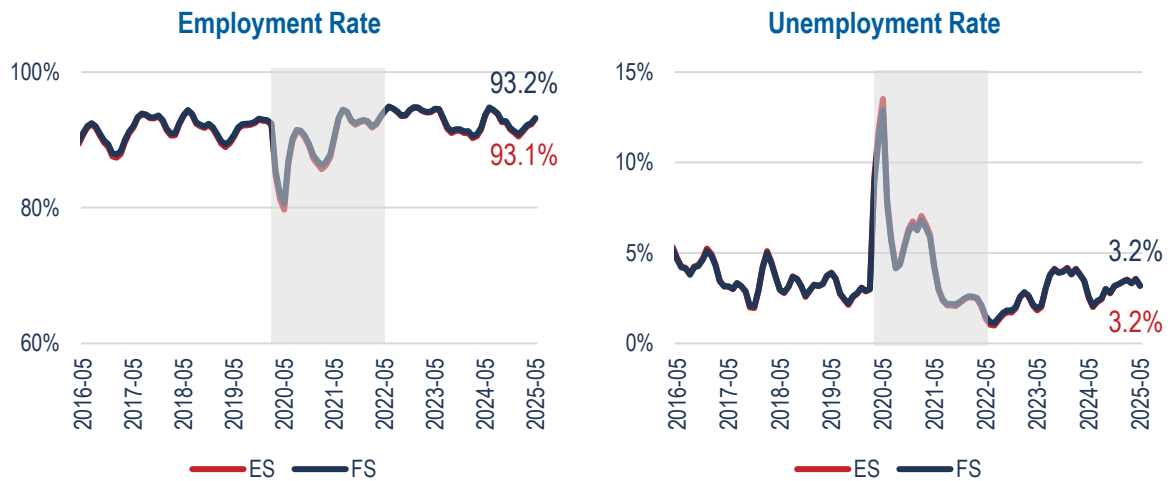
Figure 9 **Predicted employment and unemployment rates (2016-2025): Educational services**

Note: ES denotes English speakers and FS denotes French speakers. The shaded period (March 2020 to May 2022) represents the Covid-19 pandemic period.
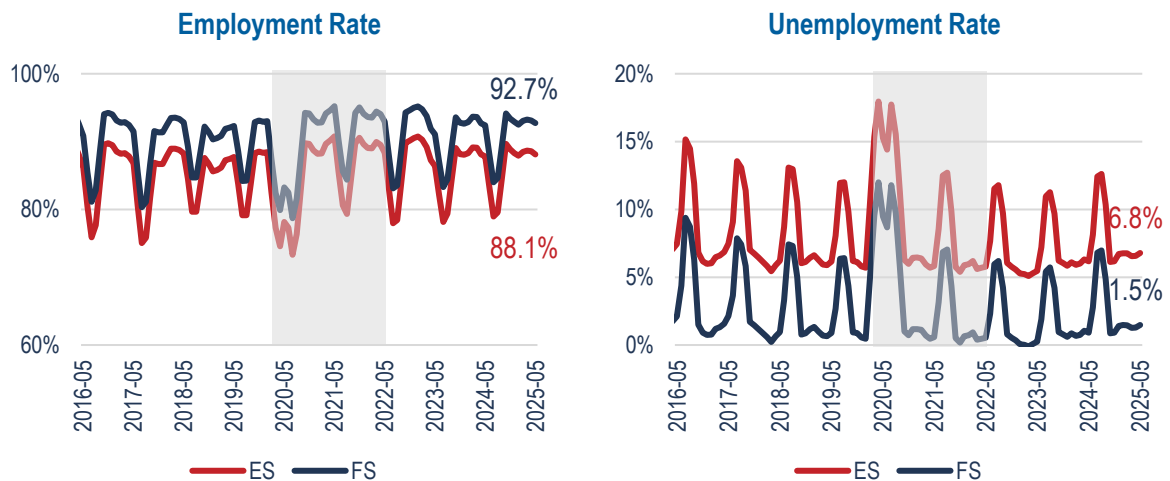
The predicted employment rate among English speakers in May 2025 is 91.3% in professional, scientific and technical services, 89.8% in health care and social assistance, 87.1% in retail trade, 93.1% in manufacturing, and 88.1% in educational services. The corresponding predicted

unemployment rate in May 2025 is 7.2% in professional, scientific and technical services, 5.5% in health care and social assistance, 7.0% in retail trade, 3.2% in manufacturing, and 6.8% in educational services. These employment and unemployment rates fluctuate differently across industries and over time. Educational services experience highly seasonal variation in which the employment rates drop (and the unemployment rise) during the summer months. Monthly fluctuations are more muted in other industries.

Moreover, industries reacted differently to the Covid-19 pandemic, with retail trade and manufacturing most affected. Between March 2020 and May 2022, both industries experienced two peaks in unemployment, one in Spring 2020 and the other in Winter 2021, corresponding to the first and second waves of Covid cases.

The differences in employment and unemployment rates between English and French speakers also vary across industry. With the exception of manufacturing for which the gaps in employment and unemployment rates are virtually zero, the employment rate of English speakers is lower than that of French speakers (conversely, the unemployment rate is higher for English speakers). These differences are highest in educational services (4.6 percentage points for the employment rate and 5.3 percentage points for the unemployment rate).

Figures 10 to 14 present the projected employment and unemployment rates by industry in 2028.

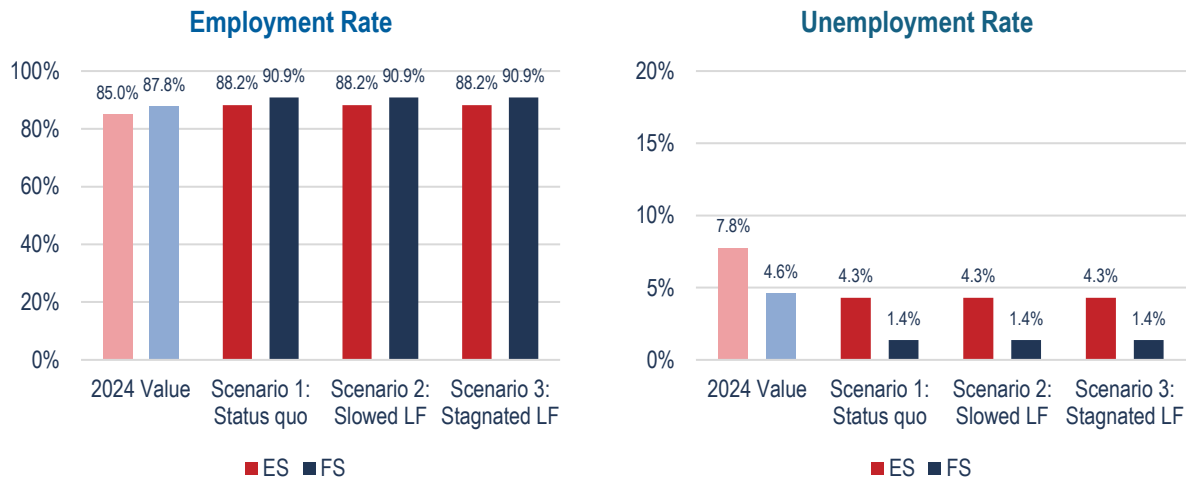**Figure 10   Employment and unemployment rate projections (2028): Professional, scientific and technical services**
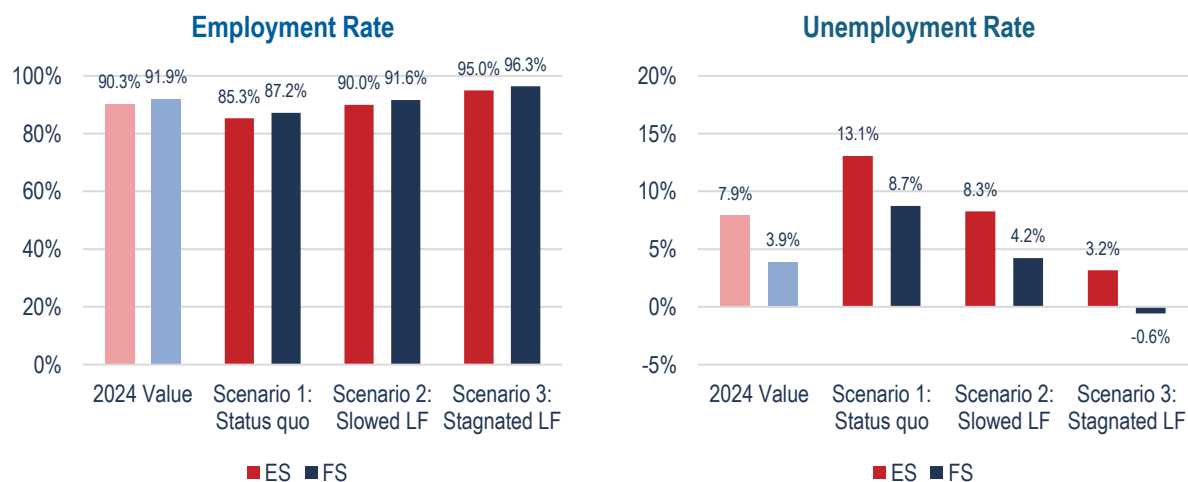
Note: ES denotes English speakers, FS denotes French speakers and LF denotes labour force.

Figure 11   **Employment and unemployment rate projections (2028): Health care and social assistance**
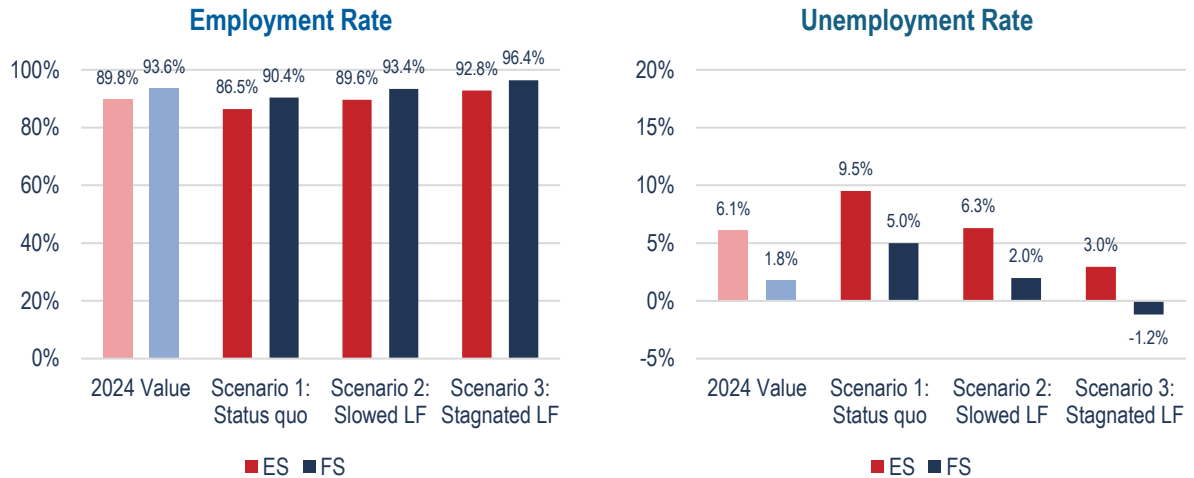
Employment Rate

Unemployment Rate

Note: ES denotes English speakers, FS denotes French speakers and LF denotes labour force.

Figure 12   **Employment and unemployment rate projections (2028): Retail trade**

Employment Rate

Unemployment Rate

Note: ES denotes English speakers, FS denotes French speakers and LF denotes labour force.

Figure 13   Employment and unemployment rate projections (2028): Manufacturing
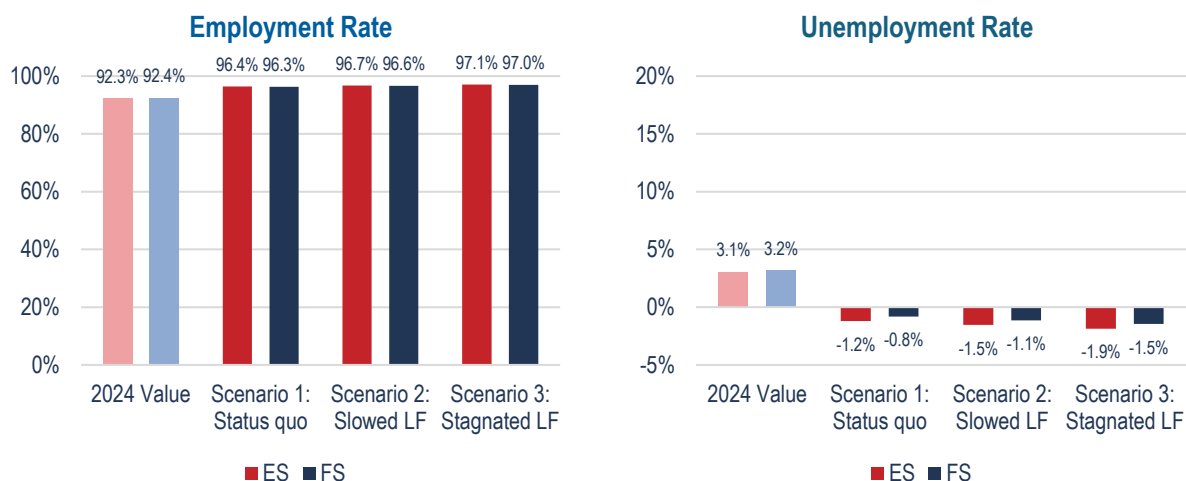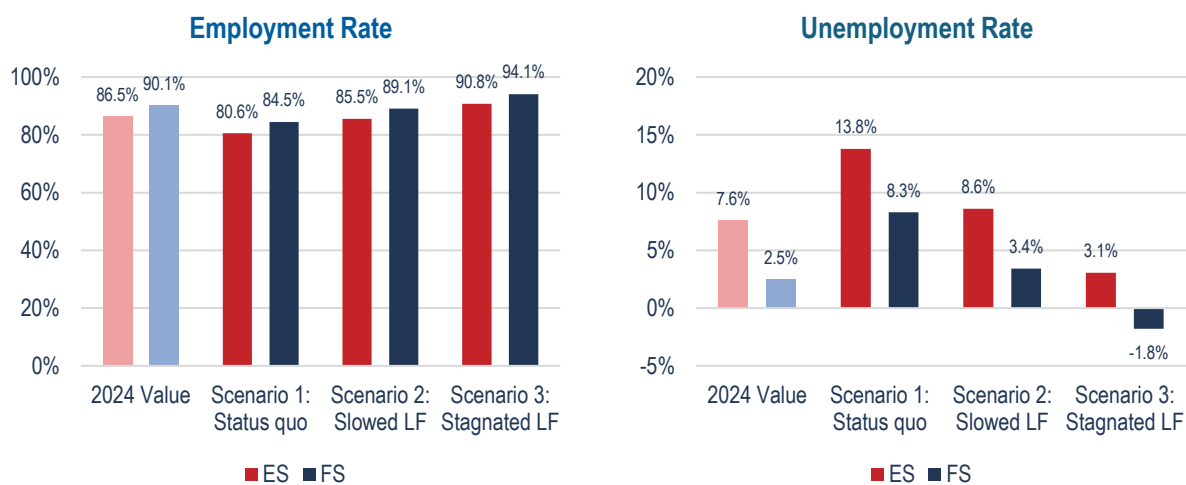

Note: ES denotes English speakers, FS denotes French speakers and LF denotes labour force.

Figure 14   Employment and unemployment rate projections (2028): Educational services

Note: ES denotes English speakers, FS denotes French speakers and LF denotes labour force.

Both manufacturing and retail trade are projected to have tight labour markets. In all three scenarios, the projected employment rate is higher than the 2024 value (and conversely the projected unemployment rate is lower).[26]

For professional, scientific, and technical services, health care and social assistance, and educational services, the employment and unemployment rates are projected to be similar to their 2024 values under scenario 2 (slow labour force growth). Under the status quo labour force growth, their employment rates are lower and their unemployment rates are higher compared to 2024 values, while with a stagnated labour force would lead to tighter labour markets.

Employment and unemployment rates by educational attainment

Figures 15 to 18 present the predicted employment and unemployment rates for English and French speakers from 2016 to 2025 by educational attainment level.

Figure 15   Employment and unemployment rates (2016-2025): Less than high school
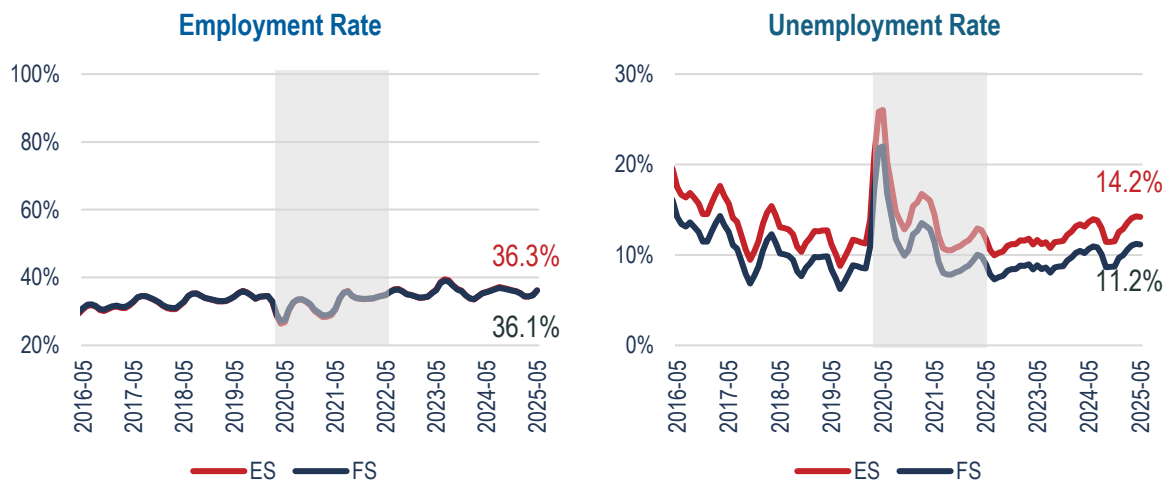
Note: ES denotes English speakers and FS denotes French speakers. The shaded period (March 2020 to May 2022) represents the Covid-19 pandemic period.

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26   The reasons for their tight labour market conditions are slightly different. For retail trade, the projected slow labour force growth for this industry is the primary reason, while the primary reason for manufacturing is the higher projected growth in employment, compared to retail trade, in the forecast by MESS.
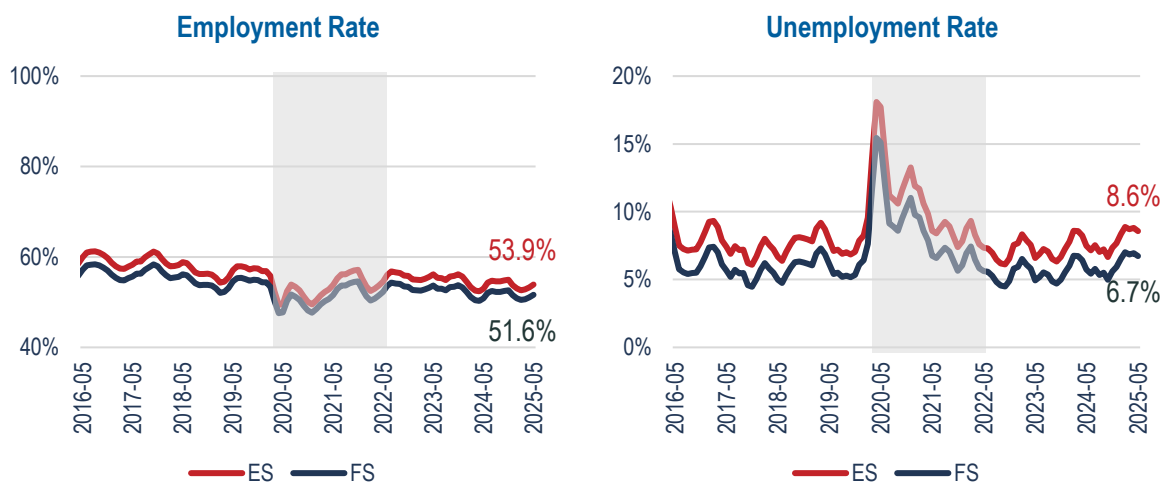
Figure 16   Employment and unemployment rates (2016-2025): High school diploma

Note: ES denotes English speakers and FS denotes French speakers. The shaded period (March 2020 to May 2022) represents the Covid-19 pandemic period.

Figure 17   Employment and unemployment rates (2016-2025): PSE below bachelor's degree

Note: ES denotes English speakers, FS denotes French speakers and PSE denotes post-secondary education. The shaded period (March 2020 to May 2022) represents the Covid-19 pandemic period.

Figure 18   Employment and unemployment rates (2016-2025): Bachelor's degree or higher

Note: ES denotes English speakers and FS denotes French speakers. The shaded period (March 2020 to May 2022) represents the Covid-19 pandemic period.
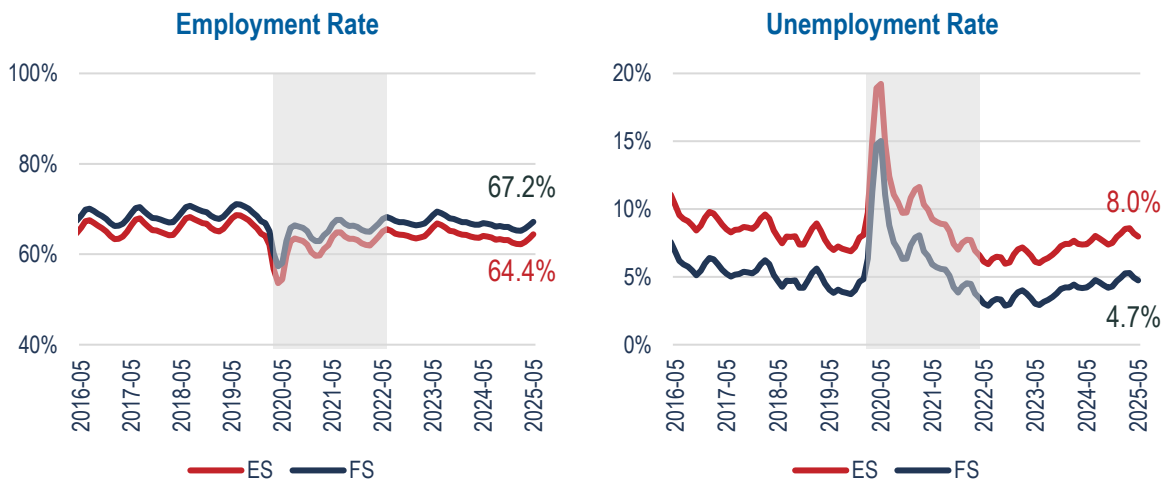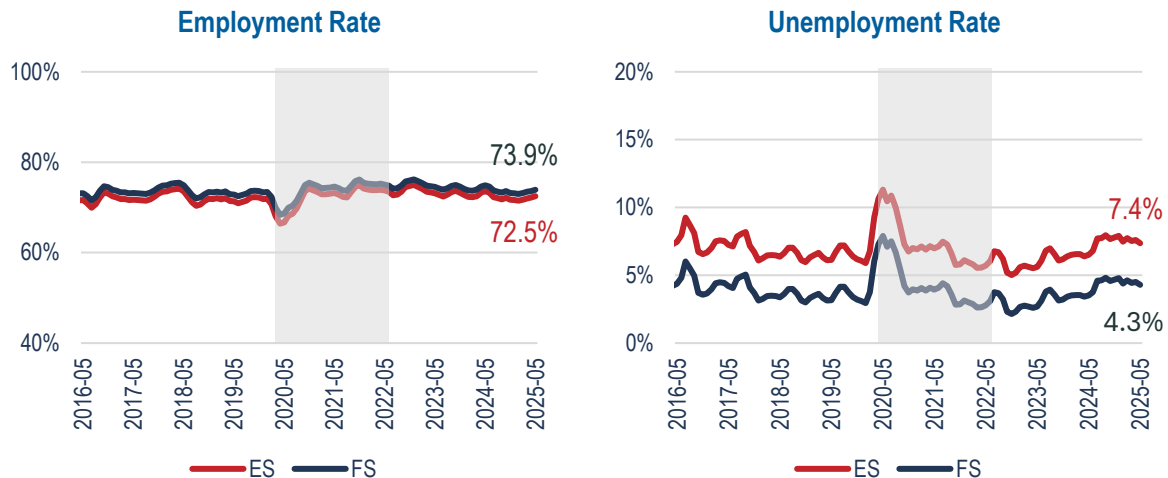
Employment rates are positively related to educational attainment, with a predicted employment rate of only 36.3% for English speakers with less than a high school diploma, 53.9% for those with a high school diploma, 64.4% for those with PSE below a bachelor's degree, and is the highest, at 72.5%, for those with a bachelor's degree or higher. Conversely, unemployment rates are negatively related to educational attainment, with the predicted unemployment rate highest, at 14.2%, for English speakers with less than high school, followed by 8.6% for those with a high school diploma, 8.0% for those with PSE below a bachelor's degree, and finally lowest, at 7.4%, for those with a bachelor's degree or higher.

The magnitude and direction of the gap in the employment rate between English and French speakers varies across education levels. There is virtually no difference between English and French speakers with less than a high school diploma. Among those with a high school diploma and no further education, English speakers have a 2.3 percentage point higher employment rate compared to French speakers. In contrast, the employment rates are lower for English speakers with PSE education (by 2.8 percentage points for PSE below a bachelor's degree and by 1.4 percentage points for those with a bachelor's degree or higher) compared to French speakers.

Conversely, the direction of the gap in the unemployment rate is consistent across education levels with English speakers having a higher unemployment rate than French speakers at every educational attainment level; by 3.0 percentage points for those with less than high school, 1.9 percentage points for those with a high school diploma, 3.3 percentage points for those with PSE

below a bachelor's degree, and 3.1 percentage points for those with a bachelor's degree or higher.

Main Findings

- While the predicted employment rate for English speakers is higher than for French speakers for some industries, the rate is lower in other industries and virtually zero in others.

- Similarly, the gaps in employment rates between English and French speakers across educational attainment levels is mixed. In contrast, the predicted unemployment rate is higher for English speakers for all educational attainment levels.

CONCLUSIONS AND RECOMMENDATIONS

The research findings presented here show that, on average, English speakers are younger, more educated, and more likely to be located in Montréal and surrounding municipalities compared to their French-speaking peers. These differences are important determinants of employment outcomes and should be taken into account in discussions of employment outcome gaps between the two groups. Once these differences are accounted for, as well as other differences in characteristics that are related to labour market outcomes, we confirm important employment and income disparities for English speakers.

Our education-level and industry-level predictions of these outcomes show that these gaps are present in some key industries. English speakers' unemployment rates lag behind their French-speaking peers at all education levels, signalling important areas for intervention.

If English speakers received the same returns to their characteristics as French speakers, and assuming that employment outcome differences due to linguistic differences alone can be eliminated, their total income, and as such, the economy of Québec, could benefit from an additional $1.51 billion annually.

In this report, we also develop a methodology of constructing labour market indicators that estimate the up-to-date state of English speakers' employment outcomes using publicly available data and leverage this methodology to project medium-term employment outcome trends for English speakers under three hypothetical scenarios for labour force growth in Québec: (1) status quo, (2) slower growth, and (3) stagnated growth. Depending on the industry and stagnation scenario, the results presented here predict that, in 2028, certain industries will struggle to hire qualified employees.

We make the following recommendations to government and community stakeholders:

▪ We recommend that the Québec government work in collaboration with key stakeholders to develop and implement a targeted strategy to close the employment and income disparities between English and French speakers.

▪ In order to mitigate predicted labour shortages in key industries, we recommend the Québec government develop, implement and promote policies to attract, employ, and retain English speakers in Québec.

FUTURE RESEARCH

The research presented here showcases two important methodological innovations for the analysis of English speakers' employment outcomes in Québec. Firstly, it highlights the

importance of taking into account labour market determinants, such as education, when investigating gaps in employment and earnings. Secondly, it enables researchers and policy makers to predict employment outcomes in non-census years. Future research should, once available, use Census 2026 data to test and validate the current prediction methodology. Customized data from Statistics Canada could also be used for validation.

Secondly, our modelling assumes that linguistic-based gaps will remain constant between English and French speakers, or in other words, we present results for what outcomes may be if nothing causing the gaps changes. For existing insights on some of these factors, please see PERT research.[27] Although outside the scope of data availability to fully quantify and thus account for these factors in an economic model, understanding the causes of these gaps is essential for identifying ways of closing them. Specifically, statistical data on the French language abilities or levels is not captured in publicly available sources such as the Census or Labour Force Survey. We recommend continued research and data collection in this area to support future economic modelling possibilities.

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[27] See, for example, Provincial Employment Roundtable, "2021 Employment Survey of English-speaking Quebecers and Organizations," 2022, https://pertquebec.ca/wp-content/uploads/2022/09/PERT_MC_Design_SRQEA_CORE_EINR_D5R02_20220823_EN_Web.pdf; Provincial Employment Roundtable, "User journeys of language learners navigating Québec's French language training ecosystem," 2024, https://pertquebec.ca/wp-content/uploads/2024/12/User-journeys-of-language-learners-navigating-Quebecs-French-language-training-ecosystem-1.pdf; Advisory Committee for English-speaking Quebecers, "Portrait of the clientèle," 2024, https://ccqea.ca/wp-content/uploads/ACESQ-Portrait-of-the-clientele-July-30.pdf; Advisory Committee for English-speaking Quebecers, "Employer Perceptions of English-speaking Employees," January 21, 2025, https://ccqea.ca/wp-content/uploads/16456-002_CCQEA_Rapport_Final_EN_QA.pdf.

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APPENDIX A: VARIABLE DESCRIPTION

Table A.1   List of characteristic categories in the regression

Characteristics	Categories
Official language spoken	▪ English ▪ French*
Age	▪ 15 to 17 years* ▪ 18 to 19 years old ▪ 20 to 24 years old ▪ 25 to 29 years old ▪ 30 to 34 years old ▪ 40 to 44 years old ▪ 45 to 49 years old ▪ 50 to 54 years old ▪ 55 to 59 years old ▪ 60 to 64 years old ▪ 65 to 69 years old ▪ 70 to 74 years old ▪ 75 to 79 years old ▪ 80 to 84 years old ▪ 85 years and over
Gender	▪ Woman* ▪ Man
Location (CMA)	▪ Québec City* ▪ Montréal ▪ Sherbrooke – Trois-Rivières ▪ Gatineau ▪ Rest of Québec
Immigration status	▪ Non-immigrants* ▪ Immigrants ▪ Non-permanent residents
Highest level of education	▪ No certificates, diploma or degree* ▪ High (secondary) school diploma or equivalency certificate ▪ Non-apprenticeship trades certificates or diploma ▪ Apprenticeship certificate ▪ Program of 3 months to less than 1 year (college, CEGEP and other non-university certificates or diplomas ▪ Program of 1 to 2 years (college, CEGEP and other non-university certificate s or diplomas) ▪ Program of more than 2 years (college, CEGEP and other non-university certificates or diploma)

Characteristics	Categories
	▪ University certificate or diploma below bachelor level
	▪ Bachelor's degree
	▪ University certificate or diploma above bachelor level
	▪ Degree in medicine, dentistry, veterinary medicine or optometry
	▪ Master's degree
	▪ Earned doctorate
Industry affiliation	▪ Agriculture, forestry, fishing and hunting*
	▪ Mining, quarrying, and oil and gas extraction
	▪ Utilities
	▪ Construction
	▪ Manufacturing
	▪ Wholesale trade
	▪ Retail trade
	▪ Transportation and warehousing
	▪ Information and cultural industries
	▪ Finance and insurance / management of companies and enterprises
	▪ Real estate and rental and leasing
	▪ Professional, scientific and technical services
	▪ Administrative and support, waste management and remediation services
	▪ Educational services
	▪ Health care and social assistance
	▪ Arts, entertainment and recreation
	▪ Accommodation and food services
	▪ Other services (except public administration)
	▪ Public administration

Note: * indicates the omitted category in the regression. In the employment gap analysis, the raw categories are used to represent individual characteristics without aggregation since there are sufficient observations in each category.

APPENDIX B: TOTAL MISSED EARNINGS CALCULATION

The status quo of the total employment earnings of English speakers can be expressed as:

$$\#English\ speakers\ \times Employment\ Rate\ \times Average\ Earnings.$$

We define $\Delta Employment\ rate$ and $\Delta Average Earnings$ to be the differences in the employment rate and employment earnings between English and French speakers. Then English speakers' total earnings without these gaps would be:

$$\#English\ speakers\ \times (Employment\ rate + \Delta Employment\ rate)$$
$$\times (Average Earnings + \Delta Average Earnings).$$

The differences between these monetary values represent the missed employment income, and is expressed as:

$$\#English\ speakers\ \times\ Employment\ Rate\ \times \Delta Average\ Earnings$$
$$+\ \#English\ speakers\ \times \Delta Employment\ rate \times (Average\ Earnings$$
$$+\ \Delta Average\ Earnings).$$

If the gap in employment earnings is set to zero on the grounds that it is not statistically significant, the above expression reduces to:

$$\#English\ speakers\ \times\ \Delta Employment\ rate \times Average\ Earnings.$$

Since the analysis in Part A excluded workers in the public administration sector, this calculation is also based on the population size of English speakers working outside of that sector. The census 2021 PUMF data estimates that there were 1,044.960 English speakers in the province and public administration represented the industry of 4.68% of English speakers. Thus

$$\#English\ speakers =\ 1{,}044{,}960\ \times\ (\ 1 -\ 0.0468\ ) =\ 996{,}056\ .$$

In addition, using the 2021 census PUMF data, we estimate that the employment rate of English speakers is 58.24% and that their average employment earnings are \$45,703.

Table B.1 summarizes the values necessary for the calculation.

Table B.1   Calculation values for missed Income

Statistics	Value
# English speakers	996,056
Employment rate	0.5824
Employment rate gap (ΔEmployment rate)	0.0283
Average earnings	$45,703
Earnings gap (ΔAverage earnings)	$438

Using these values, the equations above, and assuming that the gap in employment earnings is set to zero, the missed income amounts to $1,288,293,751. The employment earnings reported in the 2021 census are the annual employment earnings in 2020. Converted into 2024 constant dollars, the missed total employment earnings are $1,513,039,887.[28]

With the estimated earnings gap included in the calculation, the missed total earnings amount to $1,554,725,383, equivalent to $1,825,951,198 in constant 2024 dollars.

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[28] The annual consumer price index in 2020 is 137.0 while it is 160.9 in 2024.

APPENDIX C: THE PREDICTION METHODOLOGY

The prediction methodology is based on a regression model relating English speakers' employment outcomes (employment and unemployment rates) at a specific point in time to the overall Québec counterpart and to the same outcome in 2016 for English speakers and for the province overall, as well as controlling for education and industry dummy variables. For example, for May 2021, this relationship can be expressed as:

$$Y_{ieal}^{E,2021} \; = \; \alpha \; + \; \beta Y_{ieal}^{A,2021} + \; \gamma Y_{ieal}^{E,2016} \; + \; \delta Y_{ieal}^{A,2016} \; + \; \sum_i \lambda_i Industry_i + \; \sum_e \eta_e Educ_e \; + \; \epsilon,$$

where subscript i represents industry, e represents education level, a represents age group (15-29 years old, 30-54 years old, and 55+ years old), and l represents location (Montréal CMA, Québec CMA, and the rest of Québec). $Y_{ieal}^{E,t}$ represents a given employment outcome indicator for English speakers in a given industry, education, age and location combination for period t. Similarly, $Y_{ieal}^{A,t}$ represents the corresponding indicator value for the working-age population of all Québec. The variable $Industry_i$ is a dummy variable representing a specific industry category. The variable $Educ_e$ is a dummy variable representing a specific education attainment level.

The indicators $Y_{ieal}^{E,t}$ and $Y_{ieal}^{A,t}$ are calculated using the Census 2016 and Census 2021 PUMF data and then the regression model above is estimated to obtain parameter estimates.

After the estimation, the employment indicator for a given industry and education combination for English speakers for each month from 2016 to 2025 ($Y_{ie}^{E,t}$) is predicted by

$$Y_{ie}^{E,t} \; = \; \hat{\alpha} \; + \; \hat{\beta} Y_{ie}^{A,t} \; + \; \hat{\gamma} Y_{ie}^{E,2016} \; + \; \hat{\delta} Y_{ie}^{A,2016} \; + \hat{\eta}_e \; + \; \hat{\lambda}_i,$$

where $Y_{ie}^{A,t}$ is calculated from LFS PUMF data for each industry and education combination.

The predicted outcome indicator in a given industry is obtained by aggregating over education attainment levels.

$$Y_i^{E,t} \; = \; \hat{\alpha} \; + \; \hat{\beta} Y_i^{E,2016} + \; \hat{\gamma} Y_i^{A,t} \; + \; \hat{\delta} Y_i^{A,2016} \; + \sum_e \omega_e \hat{\eta}_e \; + \; \hat{\lambda}_i,$$

where ω_e represents the proportion of observations with educational attainment level e in industry i. Similarly, the predicted outcome indicator for a given educational attainment level is obtained by calculating the following:

$$Y_e^{E,t} \; = \; \hat{\alpha} \; + \; \hat{\beta} Y_e^{E,2016} + \; \hat{\gamma} Y_e^{A,t} \; + \; \hat{\delta} Y_e^{A,2016} \; + \hat{\eta}_e \; + \sum_i \pi_i \hat{\lambda}_i,$$

where π_i represents the proportion of observations in industry i for education attainment e.

APPENDIX D: THE PROJECTION METHODOLOGY

While we approach employment and unemployment projections in the same way, we describe the methodology for the unemployment rate projection first as it requires fewer assumptions.

Unemployment rate projections

To project the future unemployment rate for English speakers, we first project the unemployment rate for all Québec workers. The unemployment rate in period t is by definition:

$$Unemployment\ Rate_t\ =\ 1\ -\ \frac{\#employed_t}{\#labourforce_t}.$$

where $\#employed_t$ is the number of employed English speakers in period t and $\#labourforce_t$ is the number of English speakers in the labour force in period t. Assume that both the numerator and the denominator of the second term grow at constant rates. Letting e and ℓ denote the annual growth rates of employment and of the labour force, we have:

$$\frac{\#employed_t}{\#labourforce_t} = \frac{\#employed_{2024}(1+e)^{t-2024}}{\#labourforce_{2024}(1+\ell)^{t-2024}}$$

$$= (1\ -\ Unemployment\ Rate_{2024})\left(\frac{1+e}{1+\ell}\right)^{t-2024}.$$

The unemployment rate in 2024 can be estimated from the labour force survey. The growth rate in employment by industry (i.e., e) can be obtained from the industry level projections from MESS.

There is no publicly available forecast for labour force growth by industry. To address this lack of data, it is extrapolated from historical data from the LFS. This implies the assumption that the labour force grows at the same rate as it has in the past 10 years. However, this assumption may not hold, as population growth is expected to slow in the short term due to a reduction of permanent residents admitted to Québec and a decrease in non-permanent residents.[29] Therefore, we consider three potential scenarios to obtain a range of projections:

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[29] https://www150.statcan.gc.ca/n1/daily-quotidien/250121/dq250121c-eng.htm

- Scenario 1 (status quo/the benchmark scenario): The annual growth rate is given by $\ell^b = \left(\frac{\#labour\ force_{2024}}{\#labour\ force_{2014}}\right)^{\frac{1}{10}} - 1$

- Scenario 2 (slower labour force growth): The projected labour force growth rate is half of the status quo growth rate if it was positive in the past 10 years, i.e., $min(0.5\ell^b, \ell^b)$.

- Scenario 3 (no labour force growth): The projected labour force growth rate is zero if it was positive for the past 10 years, i.e., $min(0, \ell^b)$.

Once the overall unemployment rate is projected, the prediction methodology outlined in Appendix B is applied to generate unemployment projections for English speakers.

Employment rate projections

The employment rate in period t is, by definition, the ratio between the number of employed individuals and the number of individuals both in the labour force and out of labour force (who are 15 years or older):

$$Employment\ Rate_t = \frac{\#employed_t}{\#labourforce_t + \#outoflabourforce_t}.$$

In addition to assuming constant growth rates for both the number of individuals employed and the number of individuals in the labour force, we assume that the number of individuals out of the labour force also grows at a constant rate, denoted by o. Then, the employment rate in period t can be expressed by:

$$Employment\ Rate_t$$
$$= \frac{\#employed_{2024}(1+e)^{t-2024}}{\#labourforce_{2024}(1+\ell)^{t-2024} + \#outoflabourforce_{2024}(1+o)^{t-2024}},$$

However, there is no publicly available data source for the rate of o. We, therefore, assume that the rate can be proxied by the labour force growth rate, which can be justified if labour force participation behaviour is stable over the period of estimation. Under this assumption, the equation above can be simplified to:

$$Employment\ Rate_t = \frac{\#employed_{2024}(1+e)^{t-2024}}{(\#labourforce_{2024} + \#outoflabourforce_{2024})(1+\ell)^{t-2024}}$$

$$= Employment\ Rate_{2024}\left(\frac{1+e}{1+\ell}\right)^{t-2024}$$

Then, the employment rate in 2024 can be obtained from LFS data and the rate for subsequent years can be projected in a similar way as the unemployment rate.
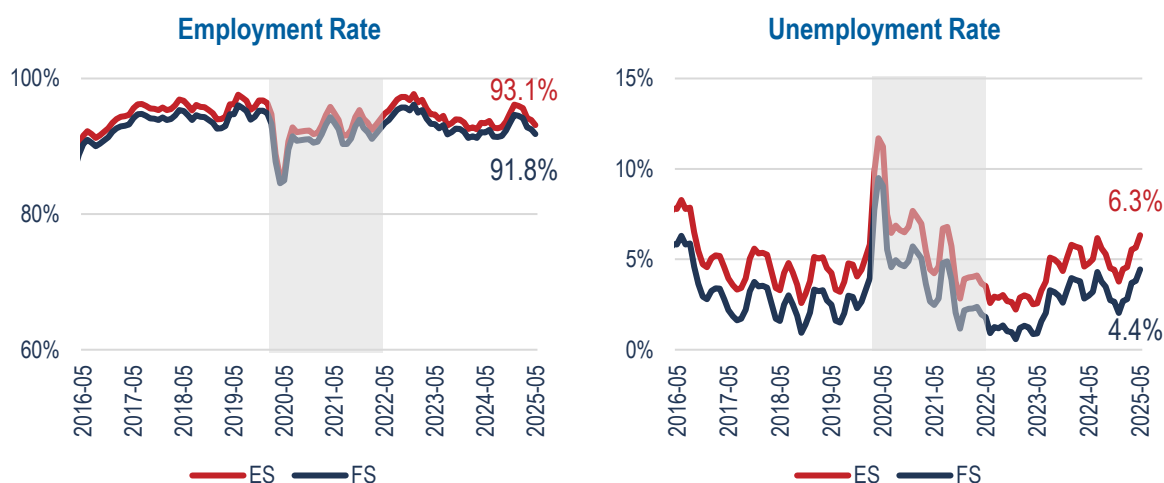
APPENDIX E: ADDITIONAL FIGURES

Figure E.1   Predicted employment and unemployment rates (2016-2025): Construction
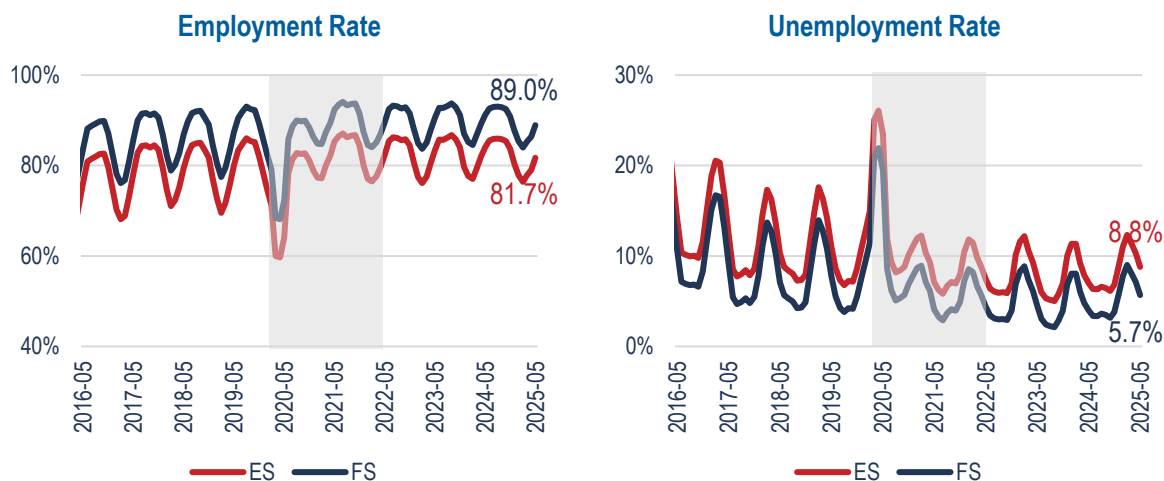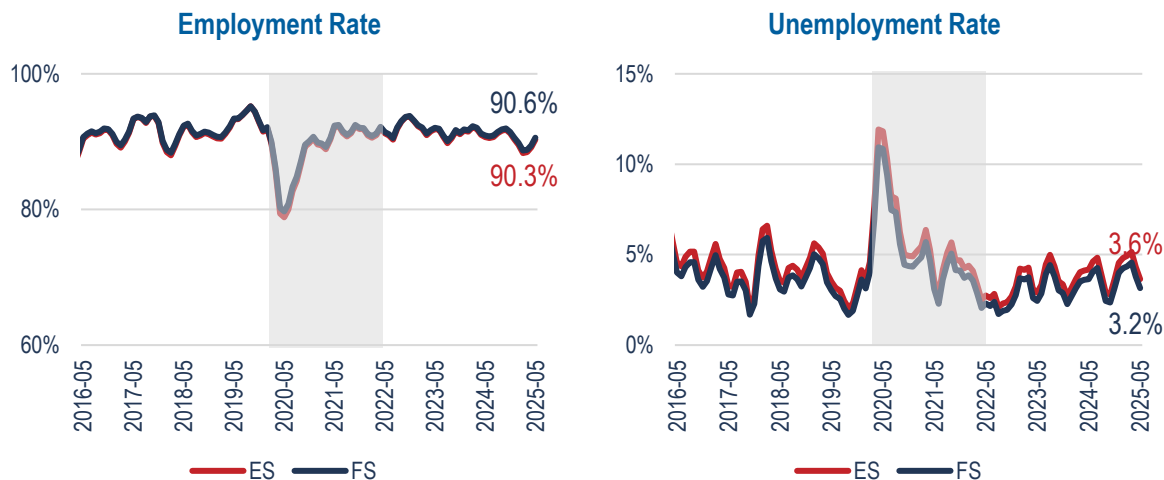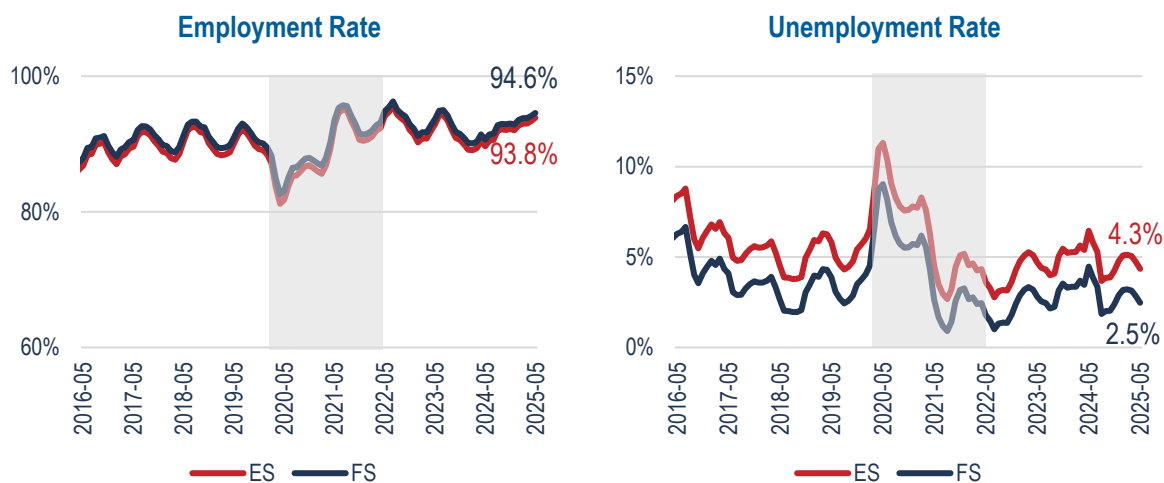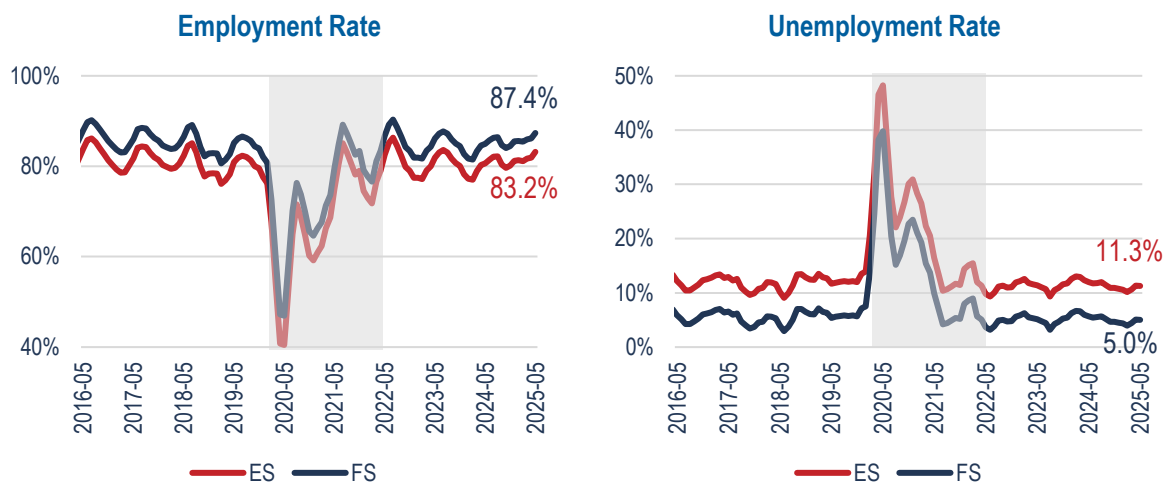

Note: ES denotes English speakers and FS denotes French speakers. The shaded period (March 2020 to May 2022) represents the Covid-19 pandemic period.

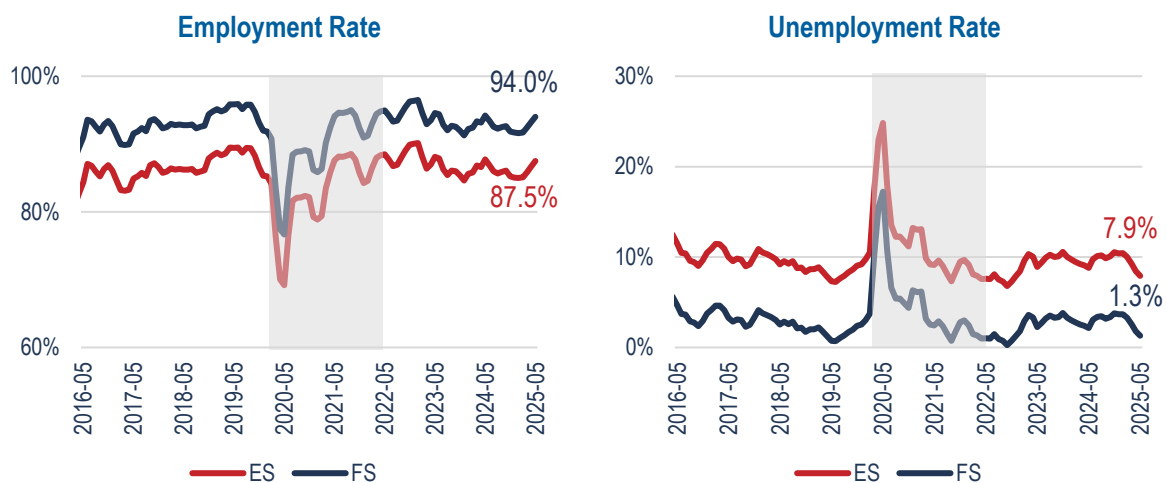**Figure E.2   Predicted employment and unemployment rates (2016-2025): Wholesale trade**

Note: ES denotes English speakers and FS denotes French speakers. The shaded period (March 2020 to May 2022) represents the Covid-19 pandemic period.

Figure E.3 **Predicted employment and unemployment rates (2016-2025): Transportation and warehousing**

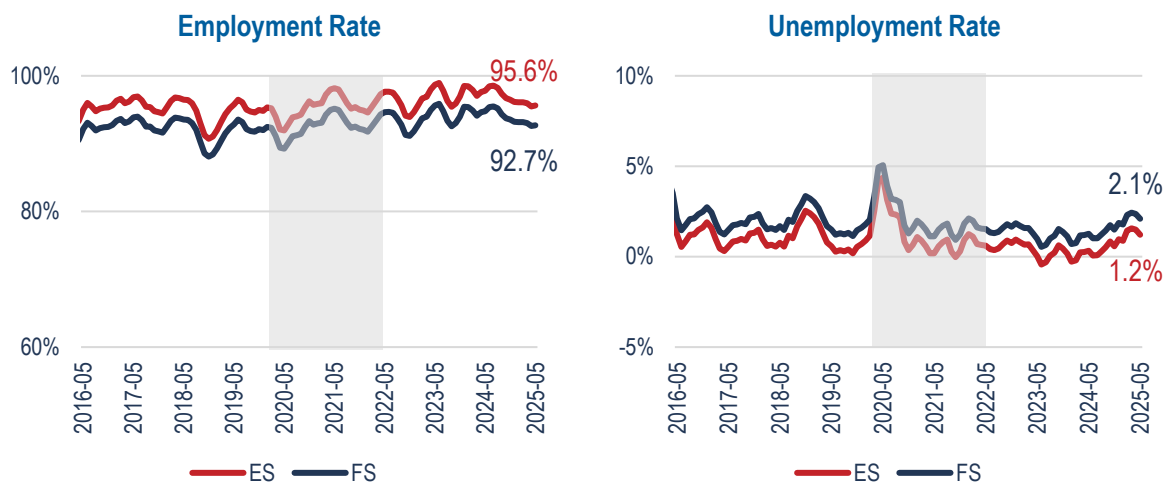**Employment Rate**

Unemployment Rate

Note: ES denotes English speakers and FS denotes French speakers. The shaded period (March 2020 to May 2022) represents the Covid-19 pandemic period.

Figure E.4 **Predicted employment and unemployment rates (2016-2025): Finance and Insurance / Management of companies and enterprises**
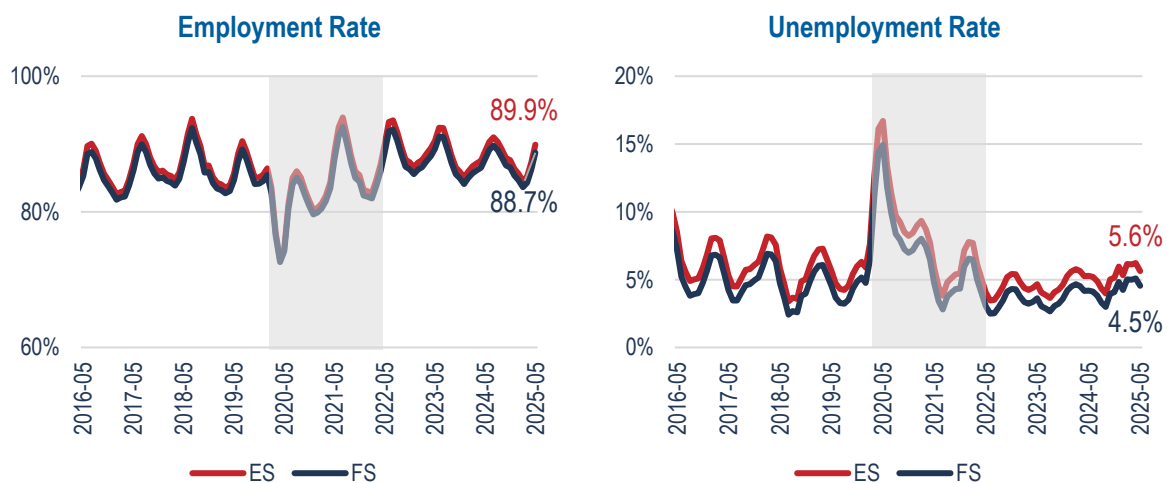
Employment Rate

Unemployment Rate

Note: ES denotes English speakers and FS denotes French speakers. The shaded period (March 2020 to May 2022) represents the Covid-19 pandemic period.

**Figure E.5   Predicted employment and unemployment rates (2016-2025):
Accommodation and food services**

Note: ES denotes English speakers and FS denotes French speakers. The shaded period (March 2020 to May 2022) represents the Covid-19 pandemic period.

**Figure E.6   Predicted employment and unemployment rates (2016-2025): Other services
(other than public administration)**

Note: ES denotes English speakers and FS denotes French speakers. The shaded period (March 2020 to May 2022) represents the Covid-19 pandemic period.

Figure E.7 **Predicted employment and unemployment rates (2016-2025): Public administration**

Employment Rate
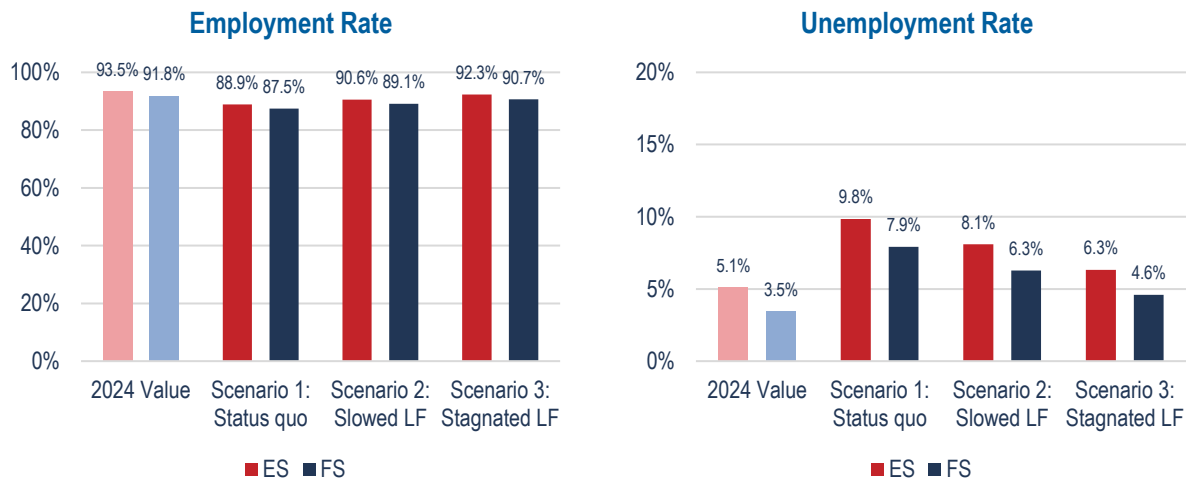

Unemployment Rate

Note: ES denotes English speakers and FS denotes French speakers. The shaded period (March 2020 to May 2022) represents the Covid-19 pandemic period.

Figure E.8 **Predicted employment and unemployment rates (2016-2025): Industries not classified elsewhere**

Employment Rate

Unemployment Rate

Note: ES denotes English speakers and FS denotes French speakers. The shaded period (March 2020 to May 2022) represents the Covid-19 pandemic period.

Figure E.9   Employment and unemployment projections (2028): Construction
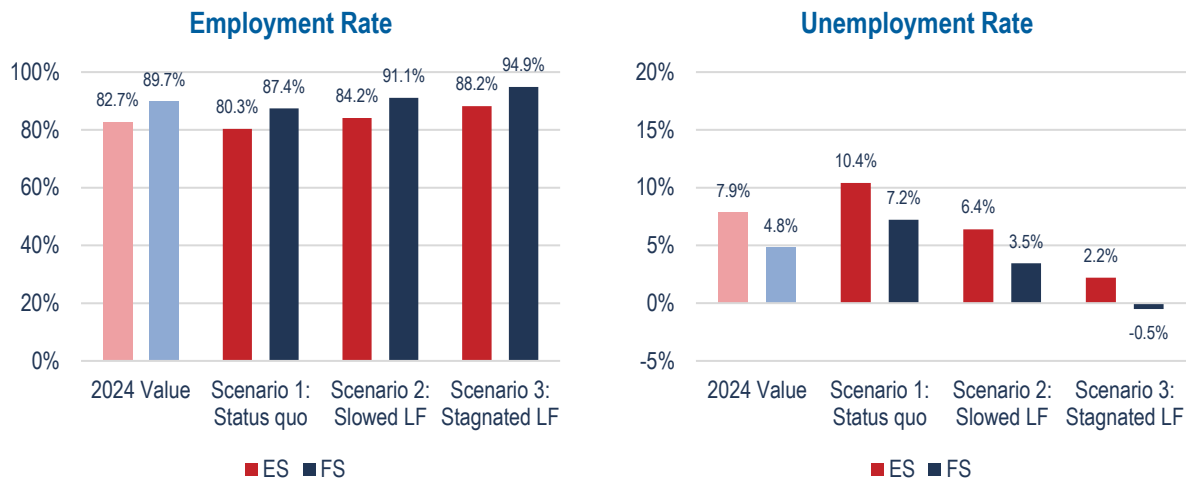
Employment Rate

Unemployment Rate

Note: ES denotes English speakers, FS denotes French speakers and LF denotes labour force.

Figure E.10   Employment and unemployment projections (2028): Wholesale trade

Employment Rate

Unemployment Rate

Note: ES denotes English speakers, FS denotes French speakers and LF denotes labour force

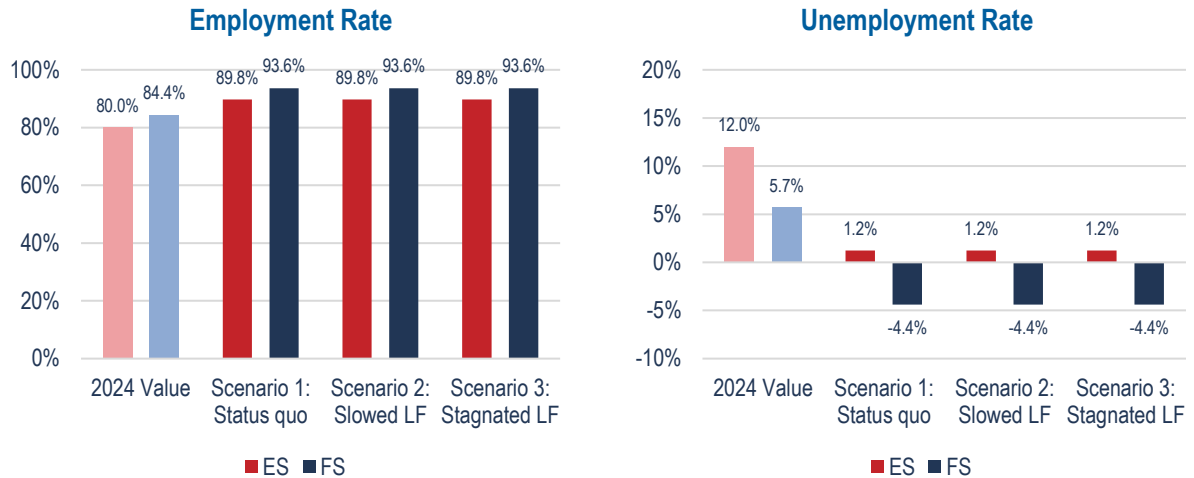**Figure E.11**   **Employment and unemployment projections (2028): Transportation and warehousing**
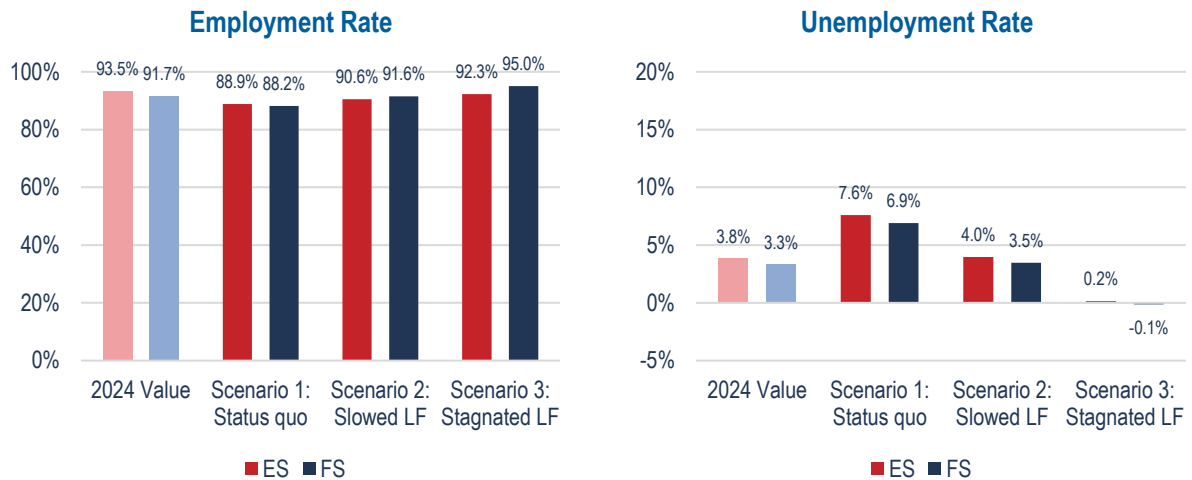
Employment Rate

Unemployment Rate

Note: ES denotes English speakers, FS denotes French speakers and LF denotes labour force.

Figure E.12   **Employment and unemployment projections (2028): Finance and insurance / Management of companies and enterprises**
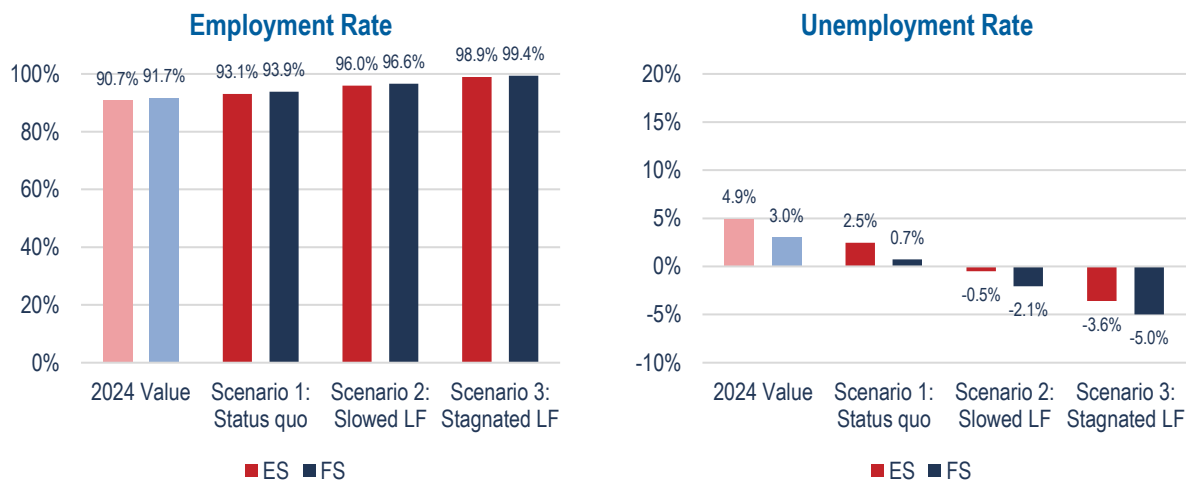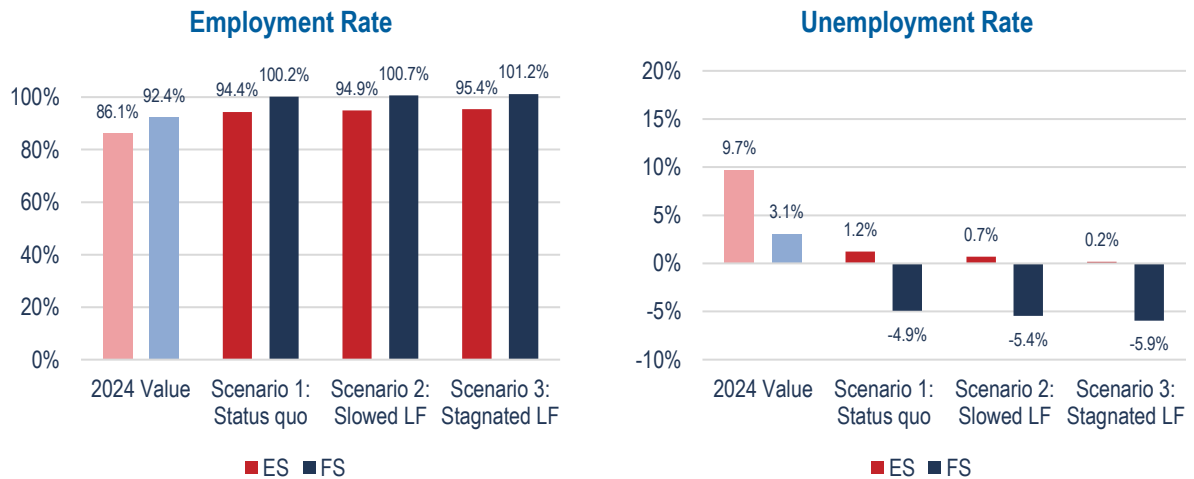
Employment Rate

Unemployment Rate

Note: ES denotes English speakers, FS denotes French speakers and LF denotes labour force.

Figure E.13   Employment and unemployment projections (2028): Accommodation and food services
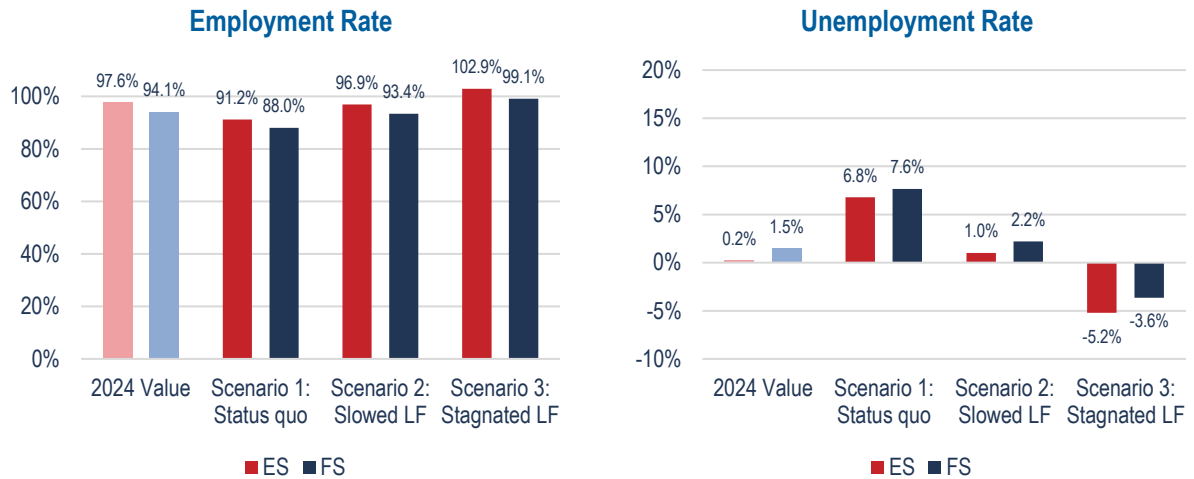
Employment Rate

Unemployment Rate

Note: ES denotes English speakers, FS denotes French speakers and LF denotes labour force.

**Figure E.14   Employment and unemployment projections (2028): Other services (other than public administration)**

Employment Rate

Unemployment Rate

Note: ES denotes English speakers, FS denotes French speakers and LF denotes labour force.

Figure E.15   Employment and unemployment projections (2028): Public administration

Employment Rate

Unemployment Rate

Note: ES denotes English speakers, FS denotes French speakers and LF denotes labour force.

Figure E.16   Employment and unemployment projections (2028): Industries not classified elsewhere

Employment Rate

Unemployment Rate
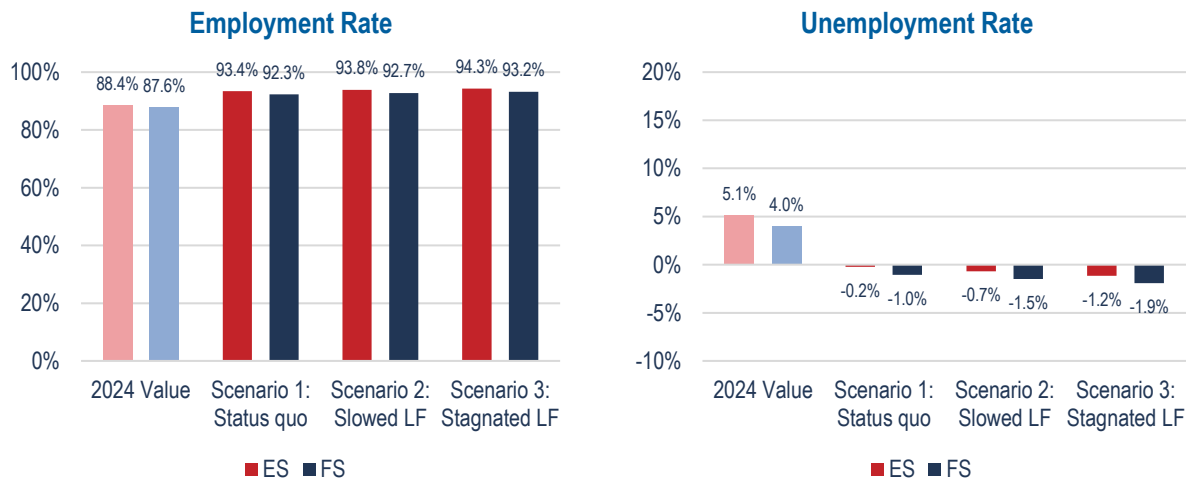
Note: ES denotes English speakers, FS denotes French speakers and LF denotes labour force.

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