



PERSPECTIVES

EDUCATION AND WORKFORCE: FOR A MORE PRODUCTIVE AND EQUITABLE SOCIETY

A decade of worsening labour-market mismatch in Quebec

FABIAN LANGE

Professor,
Department of Economics,
McGill University
CIRANO Researcher and Fellow

BRENNAN MCLACHLAN

Ph. D. Candidate,
Department of Economics,
McGill University

MARKUS POSCHKE

Professor,
Department of Economics,
McGill University
CIRANO Researcher and Fellow

When the labour market deteriorates and unemployment rises, political discourse tends to focus on the mismatch between job seekers and vacancies. A mismatch can arise when job seekers are predominantly concentrated in sectors where the chances of finding employment are limited. This can result from the small number of available positions in these sectors or because these sectors face high obstacles in matching candidates' skills with employers' needs.

In a CIRANO study (Lange et al, 2026), the authors analyze the mismatch between job seekers and the vacancies in Quebec from 2016 to 2024, using data from Statistics Canada surveys.

They conclude that the increase in the mismatch between job seekers and job openings during this period is small compared to the overall unemployment rate. A significant share of the rise in mismatch comes from the growing proportion of job vacancies in the health and social assistance sector without a corresponding increase in job seekers. Conversely, the wholesale and retail trade sector saw a decline in the number of new openings while the number of job seekers in these sectors did not decline.

Labour-market mismatch occurs when the number of job seekers across different sectors deviates from the optimal distribution of those looking for work. This depresses the total number of new hires because those looking for work will apply to sectors where the chances of finding a job are relatively low.

A useful approach to examining the phenomenon of mismatch is to calculate a *mismatch index*. Such an index makes it possible to quantify the gap between the observed probability of finding a job and the maximum that would be achieved if job seekers were optimally distributed across the various sectors.

The model by Sahin et al. (2014)

We used the model by Sahin et al. (2014) for our mismatch index. We compare the *observed* distribution of job seekers with that of an *idealized* economy where job seekers are distributed across sectors in ways that maximize their chances of finding a job and reduce the overall unemployment rate. The methodology chosen summarizes in a single index the consequences of the mismatch between job seekers and vacancies in a given sector. It makes it possible to identify situations where that misalignment, between job seekers and vacancies, changes over time.

The mismatch index ranges from zero to one. The index is equal to zero when the observed number of hires equals the counterfactual optimal number of hires. It is equal to one when the observed number of hires is zero. A higher index indicates a greater mismatch, and thus a greater loss of hires relative to the optimum.

Analyses based on the mismatch index developed by Sahin et al. (2014) have certain limitations.

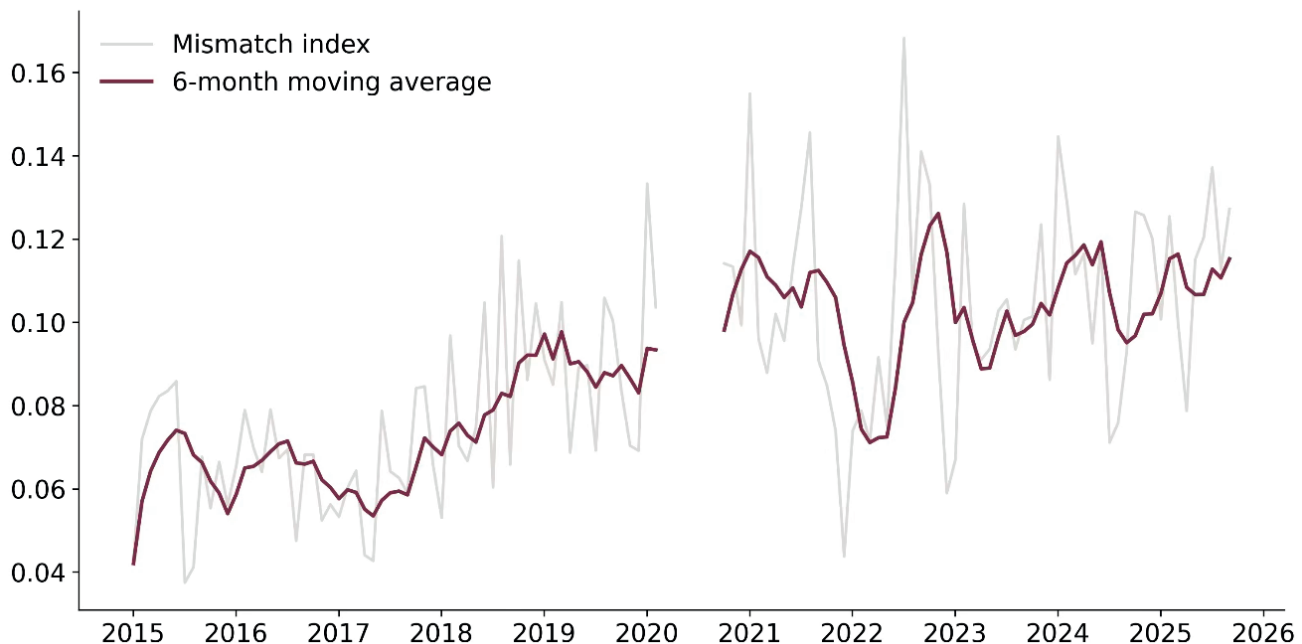
Firstly, the index compares the observed distribution of job seekers with that of an idealized economy of job seekers optimally distributed across sectors. That ideal set of conditions increases the job seekers' chances of finding employment and reduces the overall unemployment rate. In reality, all economies exhibit a certain degree of mismatch, with a lack of qualifications and other barriers making a well-matched system impossible to achieve.

Secondly, to construct the index, we need to identify which sector a given job seeker is searching in. However, the data at our disposal only allow us to do this based on the sector of their *most recent* employment. In other words, we assume that a job seeker looks for work in the sector where they held their last job; it does not take into account job searches carried out by people entering a new sector or, for example, moving to another province.

The mismatch increased significantly in Quebec between 2016 and 2024

The figure below shows the mismatch index for Quebec. Data exclude the period corresponding to the peak of the COVID-19 pandemic, namely from March 2020 to August 2020. The grey line represents the monthly values of the index.

Given the volatility of these data, we also show a six-month moving average, illustrated by the red line. The mismatch index ranges from 0.06 to 0.11, with an average of 0.086. This means that 6%-11% of potential hires do not occur due to a mismatch between the number of job seekers and the number of vacancies across different sectors of activity. The index rises significantly over time. Until 2017, it fluctuated between 6% and 7% and then rose to around 8.5%. Following the recession caused by the COVID-19 pandemic, the index has become more volatile and is hovering around the higher rate of approximately 10%.



Mismatch index in Quebec

Source : Authors' calculations using data from Statistics Canada, Tables 14-10-0442-01 and 14-10-0022-01, and confidential longitudinal microdata from the Labour Force Survey

Data

Data on job vacancies, job seekers, and hires for each sector and each period are needed to construct the mismatch index. Data on job seekers and job vacancies are drawn from the Labour Force Survey (LFS) and the Job Vacancies and Wages Survey (JVWS). The LFS collects monthly information on labour force participation of the Canadian working-age population, and the JVWS collects monthly data on the number of job vacancies. As the JVWS was not conducted in the second and third quarters of 2020—at the height of the recession caused by the COVID-19 pandemic—the analyses exclude this period. Data for March 2020, during which the unemployment rate rose sharply due to lockdowns, are also excluded.

Data on hiring are not available in the LFS's Public Use Microdata Files (PUMFs). They have therefore been drawn from the LFS's confidential longitudinal microdata, which are available only at Statistics Canada's research data centres.

Data on key aggregates are drawn from the national accounts, the LFS and CPI data. Data relating to national accounts (GDP, expenditure and income aggregates) are available on a quarterly basis for Canada as a whole, but only Quebec and Ontario produce disaggregated quarterly national accounts. Data on employment and the CPI are available on a monthly basis and are fully disaggregated at the provincial level.

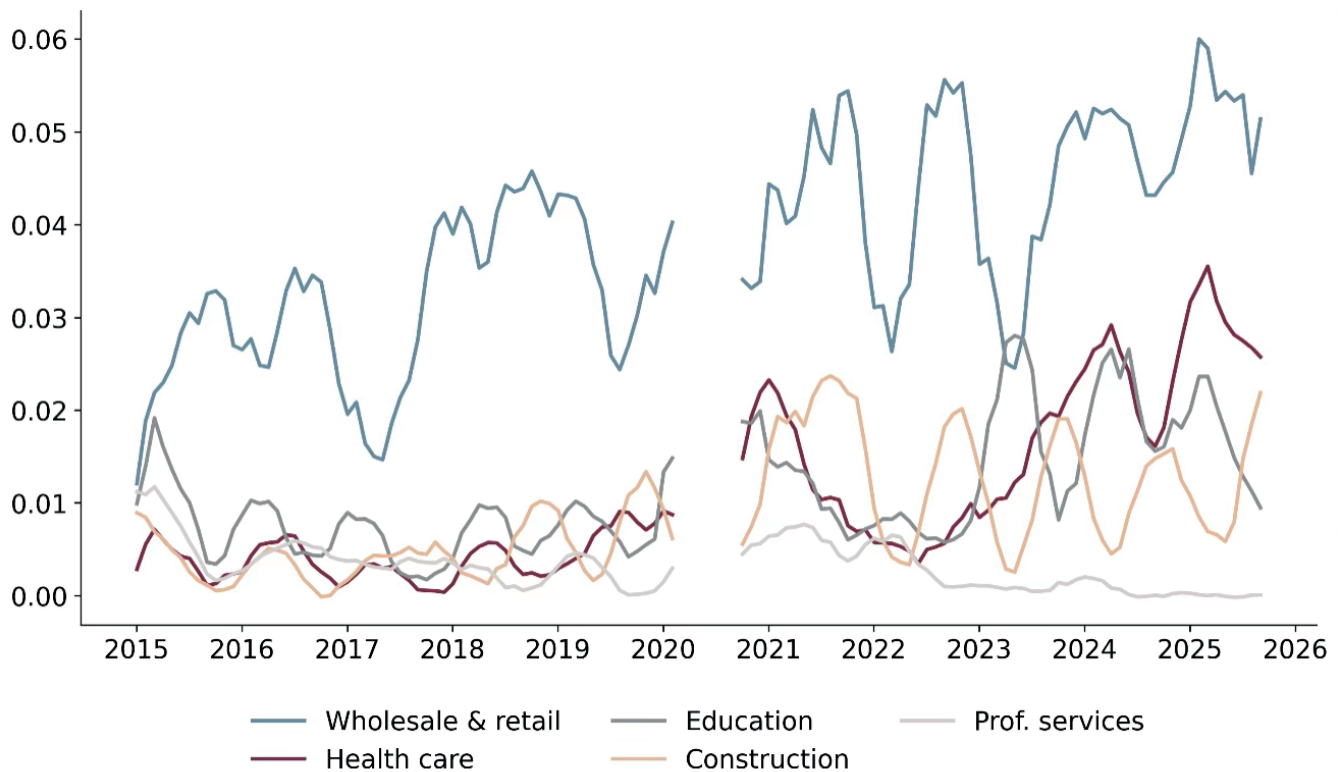
Why has the mismatch increased over time?

Since the mismatch index is a cross-sectoral aggregate, it is possible to isolate the contributions by sector. We can therefore present results that illustrate how the gap between the optimal and observed number of unemployed people contributes, sector by sector, to the total mismatch rate.

There are two reasons why a sector of activity may contribute significantly to the mismatch index. Firstly, there may be an imbalance between the number of job seekers and the number of vacancies. Second, too many individuals may be seeking jobs in sectors with very low matching efficiency. To understand the extent of the mismatch, we need to do more than simply compare the distribution of job vacancies with the actual job seekers across different sectors. It is also essential to take into account variations in matching efficiency across different sectors.

The figure on the following page shows the sectoral contributions to the total mismatch for the five sectors with the largest changes. We can see that the rise in the Quebec mismatch since 2016 mainly reflects developments in three sectors, in order of importance: health care and social assistance, retail and wholesale, and educational services.

In the health and social assistance sector, the contribution to the mismatch has risen significantly and now represents the largest increase across all sectors. Educational services also show an increase in its contribution to the mismatch, albeit a more modest one. By contrast, the contribution of the wholesale and retail trade sector to the mismatch, while generally volatile, shows a clear upward trend over time.

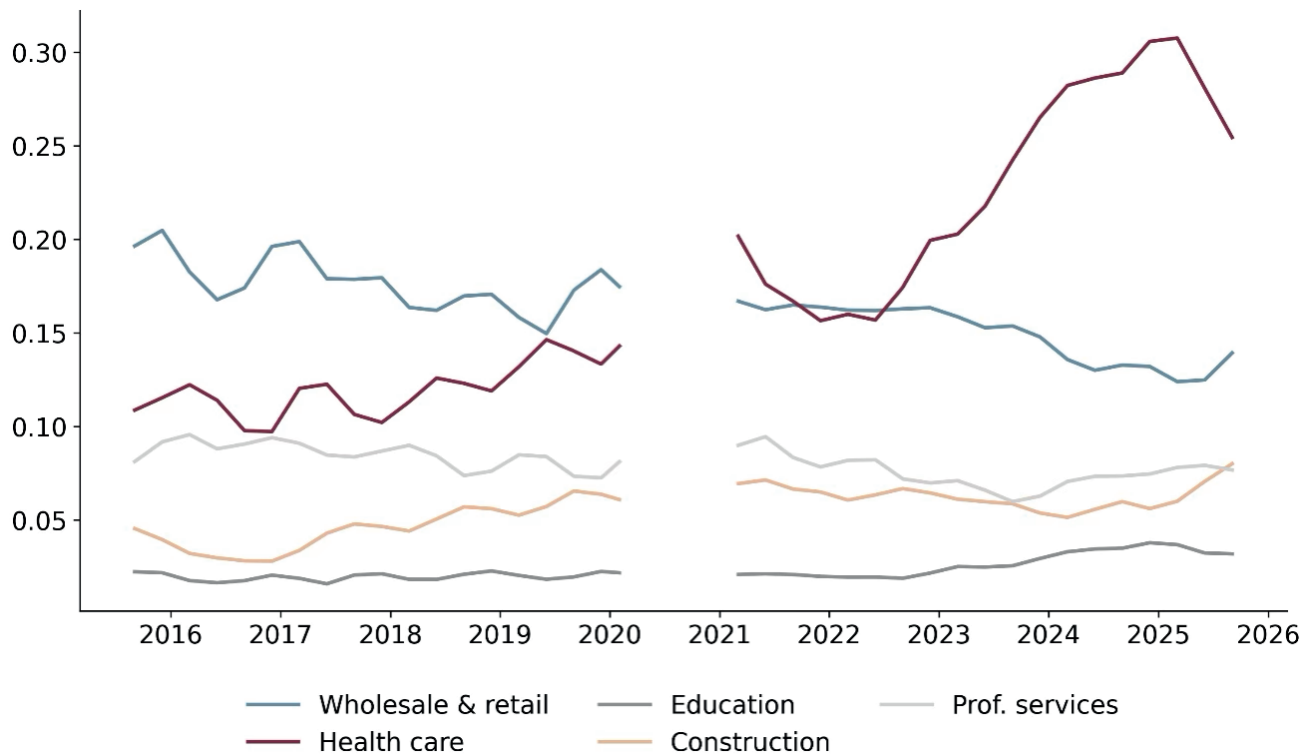


Sectoral contributions to the total mismatch for the five sectors with the largest changes (six-month moving average)

Source : Authors' calculations using data from Statistics Canada, Tables 14-10-0442-01 and 14-10-0022-01, and confidential longitudinal microdata from the Labour Force Survey

These trends are corroborated by data on the shares of job vacancies and job seekers. As shown in the next figure, the share of job vacancies has almost tripled in the health and social assistance sector, rising from around 10% to nearly 30%. The share of job seekers in these sectors has risen only slightly over the same period. In contrast, in the wholesale and retail trade sector, the share of job vacancies fell by around five percentage points—more than a quarter of its initial value—from around 18% to 13%.

The share of job seekers, however, remained stable or even rose slightly. It is this growing imbalance, between a high proportion of job seekers and a declining share of vacancies, that explains the increase in this sector's contribution to the mismatch.



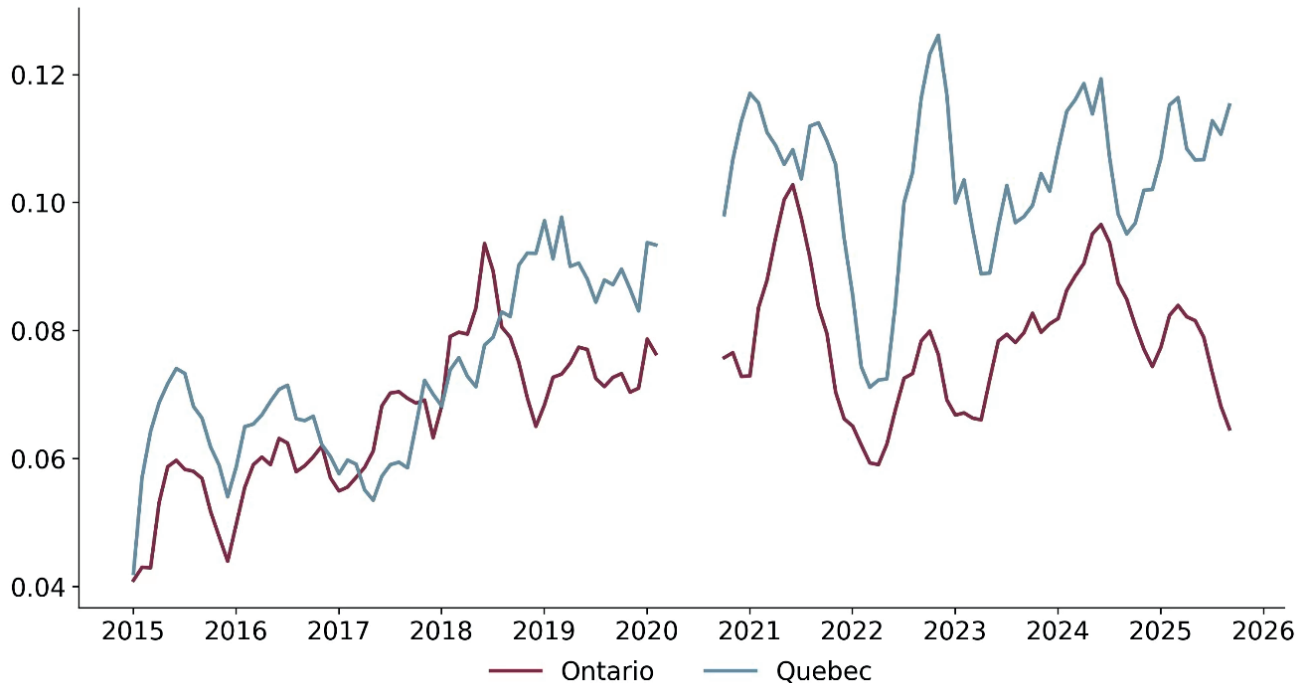
Sectoral share of vacancies over time for the five sectors with largest change in contribution to mismatch (six-month moving average)

Source : Authors' calculations using data from Statistics Canada, Tables 14-10-0442-01 and 14-10-0022-01

Quebec-Ontario comparison

We compared Quebec's mismatch index with that of Ontario. The mismatch was at a similar level in both provinces before the recession caused by the COVID-19 pandemic, with a possible slight increase in Quebec. After the recession, the index remained high in Quebec, where it fluctuated around 10%, whilst it fluctuated around 8% in Ontario.

Overall, the same sectors contribute most to the mismatch in both provinces. However, in Quebec, the wholesale and retail trade sector and the health care and social assistance sector each contribute around one additional percentage point to the mismatch, thus accounting almost entirely for the difference between the two provinces in 2024.



Mismatch index in Quebec and Ontario (six-month moving average)

Source : Authors' calculations using data from Statistics Canada, Tables 14-10-0442-01 and 14-10-0022-01, and confidential longitudinal microdata from the Labour Force Survey

To what extent are our findings sensitive to the methodological limitations of the index?

Time trends in job vacancies and employment suggest that some of those who lost their jobs in wholesale and retail may be looking for work elsewhere, and that some of those who lost their jobs in other sectors may be looking for work in the health and social assistance sector. Compared to what we found, this would imply a lower overall level of mismatch, with these two sectors contributing less to the total.

Nevertheless, the small variations in employment and job losses by sector over the analysis period, compared with those in vacancy shares suggest that such shifts in the job-search sector occur slowly and would only partially mitigate the mismatch trends and the significant contributions coming from the wholesale and retail trade, and health and social assistance sectors, which we have highlighted.

The rise in the unemployment rate in Quebec is partly linked to a mismatch between job seekers and vacancies

We have calculated an index that measures the contribution of this mismatch to unemployment in Quebec. Our findings suggest that the mismatch in Quebec increased between 2016 and 2024, but that this increase is small compared to the overall unemployment rate.

The mismatch index proves to be a useful tool for identifying sectoral imbalances in the labour market. However, a number of complex methodological questions remain: Why has the number of job seekers in the health sector increased so little? What other sectors are seeing an influx of new workers?

How does the rise in online shopping affect retail-sector employment? Which growing sectors of activity can workers turn to?

Answering these questions would require more detailed data on the sectors in which workers are seeking employment. It would also require a more precise assessment of those various sectors' contribution to the overall mismatch rate.

Références

Lange, F., McLachlan, B., & Poschke, M. (2026). L'inadéquation entre l'offre et la demande sur le marché du travail au Québec (2026RP-04, Projects Reports, CIRANO.) <https://doi.org/10.54932/WEJL2343>

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