

Champagne, Julien; Poulin-Moore, Antoine; Long, Mallory

Working Paper

The shift in Canadian immigration composition and its effect on wages

Bank of Canada Staff Discussion Paper, No. 2025-8

Provided in Cooperation with:

Bank of Canada, Ottawa

Suggested Citation: Champagne, Julien; Poulin-Moore, Antoine; Long, Mallory (2025) : The shift in Canadian immigration composition and its effect on wages, Bank of Canada Staff Discussion Paper, No. 2025-8, Bank of Canada, Ottawa,
<https://doi.org/10.34989/sdp-2025-8>

This Version is available at:

<https://hdl.handle.net/10419/322438>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



BANK OF CANADA
BANQUE DU CANADA

Staff Discussion Paper/Document d'analyse du personnel—2025-8

Last updated: May 9, 2025

The Shift in Canadian Immigration Composition and its Effect on Wages

Julien Champagne

Canadian Economic Analysis Department
Bank of Canada
champagnej@bankofcanada.ca

Antoine Poulin-Moore

Canadian Economic Analysis Department
Bank of Canada
apoulin-moore@bankofcanada.ca

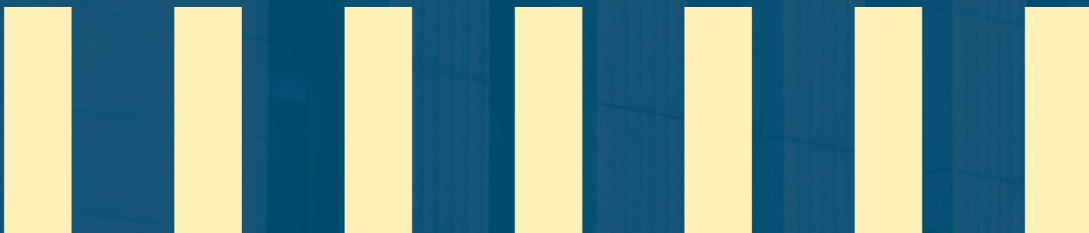
Mallory Long

Western University
Mlong48@uwo.ca

Bank of Canada staff discussion papers are completed staff research studies on a wide variety of subjects relevant to central bank policy, produced independently from the Bank's Governing Council. This research may support or challenge prevailing policy orthodoxy. Therefore, the views expressed in this paper are solely those of the authors and may differ from official Bank of Canada views. No responsibility for them should be attributed to the Bank.

DOI: <https://doi.org/10.34989/sdp-2025-8> | ISSN 1914-0568

© 2025 Bank of Canada



Acknowledgements

We thank Alexander Ueberfeldt, Christopher Hajzler and Youngmin Park for their comments, Mark Kim for his research assistance, and Jordan Press for his editorial assistance. The views expressed in the paper are solely those of the authors. No responsibility for them should be attributed to the Bank of Canada.

Abstract

We document recent changes in Canadian immigration, marked by an increasing prevalence of temporary residency. Using microdata from Statistics Canada's Labour Force Survey, we show that temporary workers' characteristics and nominal wages have diverged from those of Canadian-born workers. Between 2015 and 2024, temporary workers have become younger, less experienced and more likely to migrate from lower-income countries. As well, the shares of temporary workers in skilled occupations have declined moderately. Throughout this period, the average nominal wage gap between temporary and Canadian-born workers has more than doubled, widening from -9.5% to -22.6%. Further, we estimate Mincer regressions to assess how these evolving characteristics have contributed to the growing wage gap. Our findings show that this increase can be explained by observable characteristics. Our results suggest that aggregate nominal wages would have been, on average, 0.7% higher in 2023–24 had the characteristics of temporary workers remained unchanged over the past decade.

Topics: Labour markets; Productivity

JEL codes: J20, J24, J61

Résumé

Nous documentons les changements récents dans l'immigration canadienne, marqués par une prévalence croissante de la résidence temporaire. En utilisant les microdonnées de l'Enquête sur la population active de Statistique Canada, nous montrons que les caractéristiques et les salaires nominaux des travailleurs temporaires ont divergé de ceux des travailleurs nés au Canada. Entre 2015 et 2024, les travailleurs temporaires sont devenus plus jeunes, moins expérimentés et plus susceptibles de migrer en provenance de pays à faible revenu. De plus, la part des travailleurs temporaires occupant des emplois qualifiés a diminué modérément. Tout au long de cette période, l'écart salarial nominal moyen entre les travailleurs temporaires et les travailleurs nés au Canada a plus que doublé, passant de -9,5 % à -22,6 %. De plus, nous estimons des régressions de Mincer pour évaluer comment l'évolution de ces caractéristiques a contribué à l'élargissement de l'écart salarial. Nos résultats montrent que cette augmentation peut être expliquée par des caractéristiques observables. Nos analyses suggèrent que les salaires nominaux agrégés auraient été, en moyenne, supérieurs de 0,7 % en 2023–2024 si les caractéristiques des travailleurs temporaires étaient restées inchangées au cours de la dernière décennie.

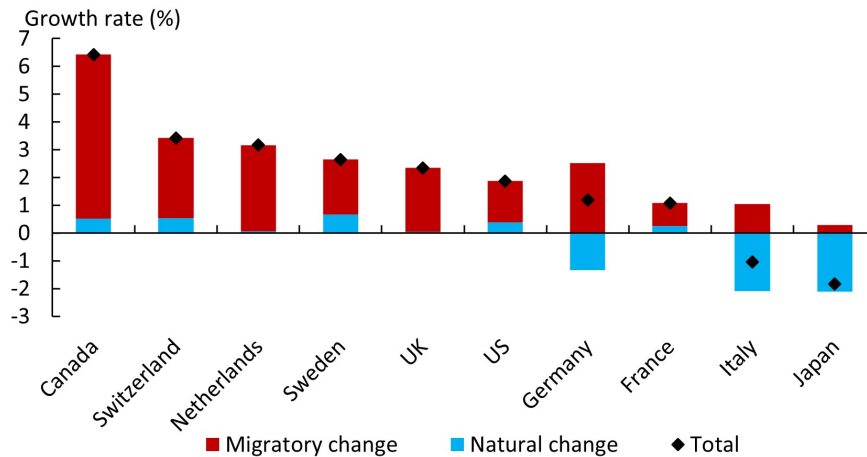
Sujets : Marchés du travail; Productivité

Codes JEL : J20, J24, J61

1 Introduction

Canada's immigration flows have been generally stable and predictable over history. Between the 1970s and 2019, net annual migration to Canada as a share of the total population remained broadly between 0.5% and 1%. However, immigration has surged to unprecedented levels since the end of the COVID-19 pandemic, with the net migration to population ratio rising to 3.2% in 2023. As a result, Canada's population growth has substantially outpaced the population growth observed in other developed countries. **Chart 1** shows the cumulative change in populations for the G7 countries, Sweden, the Netherlands and Switzerland between 2019 and 2023. As we can observe, Canada registered, by far, the largest increase in population among these countries, mainly driven by international migration.

Chart 1: Cumulative change in populations by migratory and natural changes, 2019–23



Note: The chart displays the cumulative change in population between 2019 and 2023 by migratory changes and natural changes (births minus deaths) for selected advanced economies. Sources: Statistics Canada, Congressional Budget Office and United Nations

How is the Canadian economy affected by such sudden and massive immigration inflows? Additionally, how effectively will these newcomers integrate economically? Many studies suggest that the economic impact of immigration is highly context-dependent and relies on the characteristics of the newcomers (e.g., [Doyle et al. \(2025\)](#)). For instance, the economic integration of immigrants depends on numerous factors including their level of education,

prior work experience, proficiency in domestic languages, and if their skills complement or substitute those of the locally born workforce.

In this paper, we document economically relevant changes in the composition of the Canadian immigrant workforce over the previous two decades. Since 2015, non-permanent residents have become a primary driver of Canadian immigration inflows, reversing previous trends where this group was small and permanent residents played a predominant role. Public data suggest that this surge in temporary immigration mostly reflects a sharp rise in the International Mobility Program work permits, which are generally granted without any requirement for labour market impact assessments, and a pick-up in international study permits. We then describe the compositional shifts in the temporary workforce using microdata from the Labour Force Survey. Our results show that temporary workers have become younger, less experienced and more likely to come from lower-income countries than previous waves of immigrants. We also find a moderate decline in the share of newcomers holding skilled occupations.

We also assess how these compositional shifts have impacted recent wage dynamics among non-permanent residents relative to Canadian-born workers. To do so, we estimate Mincer-type regressions and conduct wage-difference decompositions. We show that the wages of non-permanent residents were, on average, 9.5% lower than Canadian-born workers between 2006 and 2014, with observable characteristics largely explaining this gap. Immigrants' region of birth was, by far, the largest driver of this wage gap. Other important contributors include potential experience, job tenure, industry and the share of workers with a skilled occupation. We also show that this negative wage gap more than doubled between 2006–14 and 2023–24 to 22.6%. This widening of the wage gap is due to changes in the relative observable characteristics between non-permanent residents and Canadian-born workers. Finally, we conduct a counterfactual exercise by assuming that the average characteristics of non-permanent residents over 2023 and 2024 had remained at their 2006–14 average levels. The results of the exercise suggest that this group's counterfactual wages would be 7.5% higher than their actual wages over 2023–24, leading to an increase of 0.7% in the aggregate wage.

These results have important implications for the Canadian economy. For instance, if newcomers' conditional wages reflect their labour productivity, the productive capacity of the Canadian economy grew less than it would have if recent newcomers had the same socio-economic characteristics as in the past.

Our paper relates to recent studies highlighting the changing nature of immigration in Canada. For example, [O'Donnell and Skuterud \(2022\)](#) analyze changes to Canada's Temporary Foreign Worker Program over time, particularly its expansion and its shifting role in meeting labour shortages. The authors highlight how the growing reliance on non-permanent residents (temporary workers) has reshaped the composition of Canada's immigrant workforce and raised concerns about pathways to integration. [Picot and Hou \(2024\)](#) document the role of immigration in shaping the change in the occupational structure of the Canadian labour market over the past two decades. Notably, they document that while immigrants have taken more professional and technically skilled jobs, they also accounted for a larger share of workers in low-skilled occupations, replacing Canadian-born workers who moved out of these jobs. Lastly, using different data sources and methodological tools, [Champagne et al. \(2023\)](#) explore key channels through which an increase in the number of newcomers is changing both supply and demand factors in Canada.

Other papers in the literature argue that the composition of immigrants is important to understand its economic implications. For example, [Brell et al. \(2020\)](#) argues that refugees integrate less (and slower) than economic immigrants in high-income countries. Refugees start at markedly lower wages and do not catch up with other immigrants' wages. [Borjas and Cassidy \(2019\)](#) show that the large wage difference between undocumented and legal immigrants in the United States is largely due to differences in socio-economic characteristics. These different economic outcomes potentially carry important macroeconomic implications for host countries. For example, [Olovsson et al. \(2021\)](#) characterize the dynamic macroeconomic effects of refugee and economic immigrant shocks to highlight composition effects. On one hand, immigrants are relatively younger than the host country's population, which improves the old-age dependency ratio and increases gross domestic product (GDP) per capita. On the other hand, the slow and gradual integration of immigrants into the labour market

provides an offsetting effect. The initial difference in productivity between refugees and economic immigrants will thus dictate which effect will dominate and for how long. [Smith and Thoenissen \(2019\)](#) show that migration shocks contribute materially to the volatility of macroeconomic aggregates such as GDP per capita, consumption, investment and house prices. These effects differ depending on an immigrant’s level of human capital. When the average migrant has more human capital than locals have, a migration shock has an expansionary effect on GDP and its components. [Busch et al. \(2020\)](#) simulate the effects of the refugee wave in Germany over 2015–18. They find that while the economy benefits overall, low-skilled workers suffer welfare losses and other locally born workers gain, implying substantial distributional effects in the host economy. Finally, [Lewis \(2011\)](#) uses variations in the supply of lower-skilled workers across US metropolitan areas due to immigration to empirically show that firms in areas with high growth in labour supply invested less in machinery per unit of output. This implies that firms were hiring lower-skilled immigrants instead of investing in machinery.

The remainder of this paper is organized as follows. **Section 2** provides a brief overview of Canadian immigration policies and documents the recent changes in immigration flows. **Section 3** presents the Labour Force Survey microdata and provides key descriptive statistics. **Section 4** introduces our statistical framework to estimate wage decompositions. **Section 5** shows our empirical results. Finally, **section 6** concludes and discusses implications for aggregate wage in Canada.

2 The recent shift in Canadian immigration

Immigrants entering Canada are either permanent residents (PRs) or non-permanent residents (NPRs). Permanent residency is the most conventional type of immigration. It refers to migrants who have been granted the right to live permanently in Canada but who have not yet become Canadian citizens. The majority of PRs immigrate through economic programs, while some of them are accepted as immigrant family members or refugees. Each year, the federal government publishes the targeted levels for each of these

PR programs. In contrast, NPRs are migrants, and their relatives, who have been granted a temporary work or study permit or who are seeking refugee status. Historically, NPRs came into Canada as temporary foreign workers (TFWs) to provide employers with qualified labour when Canadian citizens or PRs were not available. TFWs emerged in the 1960s with the creation of the Seasonal Agricultural Worker Program. Over the years, the number of TFW programs proliferated, diversifying the variety of immigrant labourers available for employers. For instance, high-skill workers, live-in caregivers and a broader variety of low-skilled workers were gradually allowed to immigrate to Canada between the 1970s and the early 2000s ([Employment and Social Development Canada, 2021](#)).

Following controversy around working conditions and other abuses in the late 2000s, the federal government conducted a substantial immigration reform in 2014 by amending the *Immigration and Refugee Protection Act*. Among the key objectives of this policy change were reducing employers' reliance on TFWs and streamlining the existing branches. In particular, all TFW streams would now be categorized into two distinct programs: the Temporary Foreign Worker Program (TFWP) and the International Mobility Program (IMP) ([Government of Canada, 2014](#)). The main distinction is that work permits under the TFWP became subject to stricter labour market impact assessments (LMIAs), while the IMP permits would now be generally exempted from LMIAs. The TFWP became subject to additional constraints, including caps on the number of low-wage foreign workers firms could hire, restrictions based on regional unemployment rates and a reduced duration of work permits. The IMP's objective was to advance Canada's economic and cultural interests by reducing the hiring-related costs and barriers faced by employers.¹ As explained by [O'Donnell and Skuterud \(2022\)](#), separating LMIA-exempt permits from the TFWP simultaneously achieved two objectives: "it addressed calls for increased scrutiny of work permits for low-skilled workers, while at the same time providing a less onerous process for employers to access less controversial sources of foreign workers, such as temporary intra-company employee transfers and international student graduates of

¹On one hand, the TFWP is comprised of five streams: high-wage, low-wage, primary agriculture, global talent and caregivers. On the other hand, the IMP has over 20 sub-programs that can be categorized into international agreements, Canadian interests (e.g., post-graduate work program) and other various IMP participants.

Canadian post-secondary institutions.”

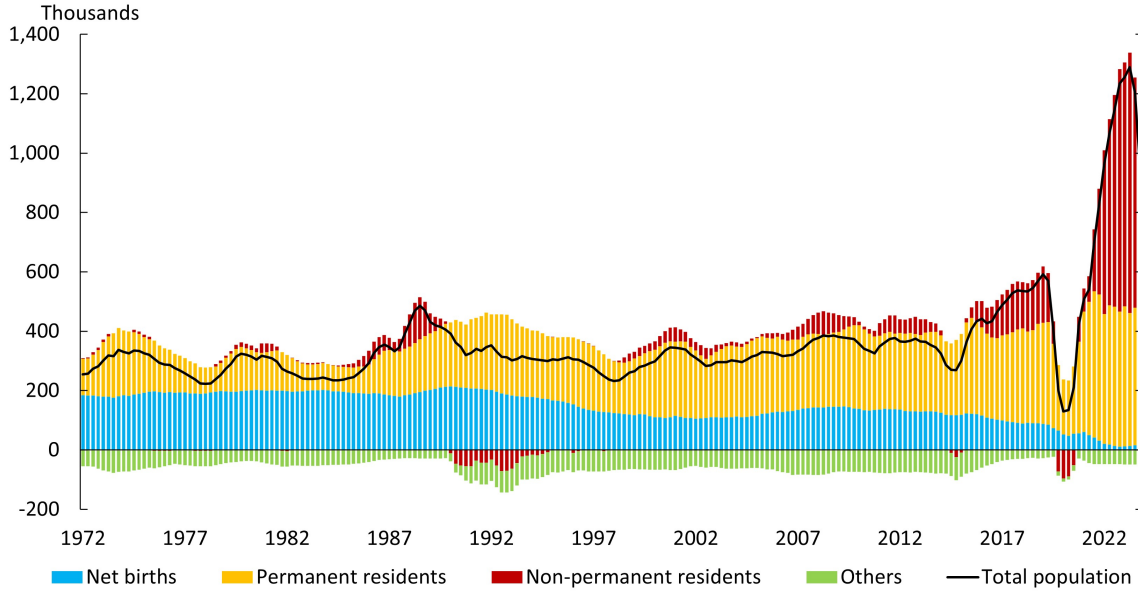
Following the COVID-19 pandemic, policy changes were made to facilitate employers’ access to temporary foreign workers. In April 2022, the federal government announced changes to the TFWP that would ease hiring caps for low-wage workers, remove hiring restrictions based on regional unemployment and extend work permits ([Employment and Social Development Canada, 2022](#)). Additional measures were announced later in 2022, including a possible 18-month extension for post-graduate workers whose permit did or would expire between September 2021 and December 2022 ([Immigration, Refugees and Citizenship Canada, 2022](#)).

Chart 2 shows the annual growth in Canada’s population between the first quarter of 1973 and the third quarter of 2024 (black line), along with the contributions from the natural population change (births minus deaths, blue bars); newcomers entering as permanent residents (yellow bars); newcomers entering as NPRs less NPRs leaving the country (red bars). The other category (green bars) includes minor flows, such as emigrants and returning emigrants.² Several observations stand out. First, population growth has been relatively stable over history, before picking up in the mid-2010s, leaving population growth almost 80% higher in 2019 relative to its historical average. Second, the contribution of natural change (births less deaths) has been gradually fading, going from the main driver of population growth between the 1970s to the early-1990s, to being negligible in 2024.³ Third, permanent residents have been the largest contributor to population growth from the mid-1990s to 2020. Finally, while the contribution of NPRs to population growth was historically negligible, it started to increase in the mid 2010s, explaining close to one-third of population growth in 2019. After a marked slowdown due to pandemic-related restrictions on international mobility, the number of NPRs has grown dramatically since mid-2022, accounting for almost two-thirds of population growth by mid-2024. This represents a sharp divergence from historical immigration patterns.

²A PR or a naturalized Canadian citizen leaving Canada are counted in the other category, while those who have died are counted in the natural change category. As a result, the PR category does not represent net flows like the NPR category does.

³This trend, also observed across other advanced economies, could reflect various social and historical factors, including the introduction of contraceptive methods and abortion rights. You can refer to [Statistics Canada \(2024\)](#) for an in-depth analysis of the negative fertility rate trend in Canada.

Chart 2: Contributions to annual population growth



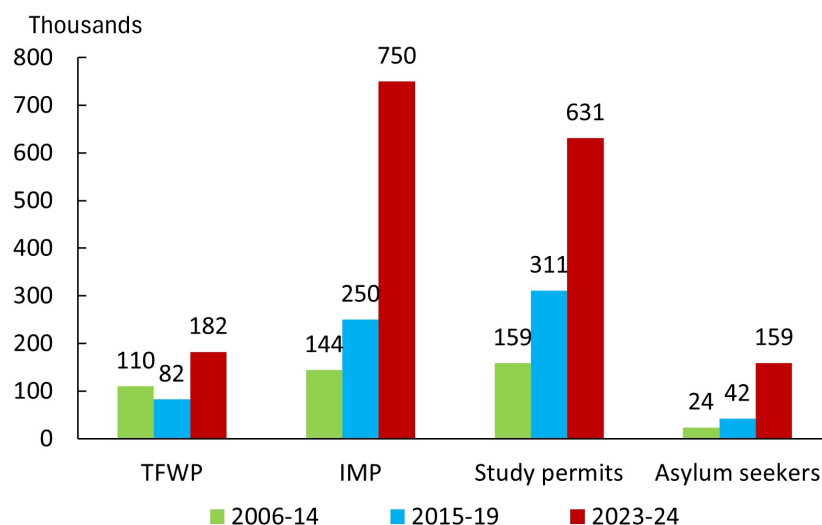
Note: The chart displays contributions to annual changes in Canada's population. *Others* includes minor flows such as emigrants and returning emigrants. *Net births* is the number of births minus the number of deaths. Source: Statistics Canada population estimates (Tables 17-10-0009-01, 17-10-0040-01 and 17-10-0059-01) Last observation: 2024Q3

To investigate this surge in NPRs, we look at data on temporary permits holders by Immigration, Refugees and Citizenship Canada (IRCC). **Chart 3** shows the evolution of work permit holders under the TFWP and the IMP, the number of study permit holders and the number of asylum seekers averaged over the following periods: 2006–14, 2015–19 and 2023–24. We chose these periods because of the two key developments in immigration policy described previously, namely the 2014 reforms and the surge in newcomers following the COVID-19 pandemic.⁴ IRCC data suggest that IMP and study permit holders have largely driven the increase in NPR entries since 2015. In contrast, migrants entering Canada through the TFWP decreased during the 2015–19 period, potentially reflecting the impacts of the 2014 reforms. More specifically, between the 2015–19 and 2023–24 periods, IMP permit holders increased by close to 200%; study permit holders increased by 102%; TFWP

⁴We exclude the 2020–22 period from our sample since immigration flows were disrupted during the COVID-19 pandemic. Moreover, as described above, many immigration policies changed in 2022. Consequently, the 2023–24 period provides a more adequate sample to assess the recent changes in immigration.

rebounded by 120%; and asylum claims rose by 280%.

Chart 3: Average annual inflow of non-permanent resident permit holders and asylum seekers, by program



Note: The chart displays the inflow of migrant permit holders and asylum seekers, by broad programs and year in which the permits became effective. This measure is a unique count of all people who held one or more permits in a given year. TFWP is Temporary Foreign Worker Program; IMP is International Mobility Program. Source: Immigration, Refugees and Citizenship Canada

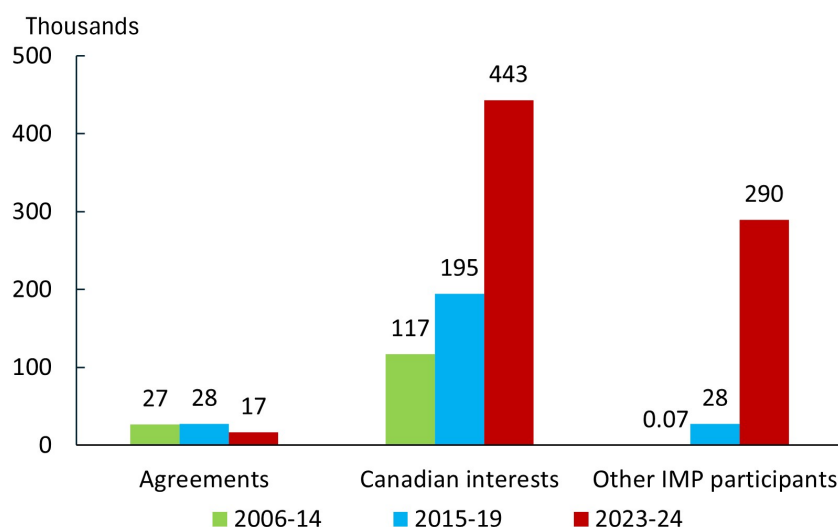
Chart 4 breaks down the increase in IMP permit holders into three major sub-categories:

- i. *Agreements*, which comprises more than a dozen labour mobility programs such as those under the Canada-United States-Mexico Agreement (CUSMA) and the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP)
- ii. *Canadian interests*, which includes programs such as the Post-Graduation Work Program, various research, educational or training programs and significant benefits
- iii. *Other IMP participants*, which reflects various IMP participants and vulnerable workers⁵

Three observations stand out: first, *Agreements* captures a very small share of all IMP work permit holders, and this share has been decreasing over time. Second, *Canadian*

⁵Note that this category includes the immigrants entering through the Canada-Ukraine authorization for emergency travel (CUAET) in 2023 and 2024.

Chart 4: Average annual inflow of International Mobility Program work permit holders by sub-category



Note: The chart displays the inflow of work permit holders under the International Mobility Program (IMP), broken down by sub-category and year in which the permits became effective. This measure is a unique count of all people who held one or more permits in a given year. Source: Immigration, Refugees and Citizenship Canada

interests is by far the largest category, with the number of permit holders in this sub-category having increased by about 54% between 2019 and 2024. Third, the contribution from other IMP participants and vulnerable workers to IMP work permits was negligible until the 2015–19 period. The contribution from this sub-category then increased markedly to represent approximately 38% of all IMP work permit holders in 2023–24.⁶

In sum, the number of new immigrants to Canada increased dramatically over 2023 and 2024. The composition of newcomers has changed such that NPRs have replaced PRs as the main contributor to population growth. This growth in NPRs has been driven mostly by increases in the number of IMP work permits and international students. In the next section, we investigate how this shift in immigration inflows has affected the composition of the Canadian workforce by leveraging microdata from the Labour Force Survey (LFS).

⁶Notably, an increasingly larger share of work permits in the *Canadian interests* category has been held by study permit holders who transitioned into the IMP using the Post-Graduation Work Program (e.g., (Skuterud, 2023))

3 Data and descriptive statistics

We start by describing the LFS microdata we use to analyze the composition of the Canadian workforce.⁷ Next, we define sample restrictions and then provide descriptive statistics for Canadian-born, NPR and PR workers.

3.1 Labour Force Survey microdata

The LFS is a monthly survey of households conducted by Statistics Canada and is considered the official data source on Canadian employment. Data collection takes place each month in the 10 days following the LFS reference week. The survey asks respondents about their labour force status, hours worked and wages, which are used to compute key indicators of the labour market, such as the unemployment rate, labour force participation rates, average weekly earnings and hours worked. In addition, the LFS data cover a wide variety of socio-demographic characteristics such as age, level of education and marital status. Since 2006, and importantly for our analysis, respondents have been asked questions regarding their immigration status. In particular, two key questions relate to the respondent's country of birth, and if they have ever been a PR.⁸ These questions allow us to classify respondents as Canadian-born, PRs or NPRs.⁹

It is important to note the challenges facing the LFS in properly capturing the NPR workforce. According to [Skuterud \(2023\)](#), inadequate sampling weights, a lower likelihood of being contacted and other measurement errors could result in a negatively biased estimate of NPR employment.¹⁰ Moreover, NPRs who have higher wages and skill levels are more likely to be sampled by the LFS than their low-skill counterparts. In **Appendix C**, we compare the summary statistics from **section 3.2** with Census data over available years

⁷Note that we use the confidential LFS microdata files through secured access from Statistics Canada. See [Statistics Canada \(2017\)](#) for more information.

⁸See **Table A.2** in the **Appendix A** for more details on these questions.

⁹Note that the LFS data do not allow to differentiate between NPR migrants and those that are Canadian citizens by descent. Consequently, these latter individuals will be classified as NPRs in our dataset.

¹⁰According to [Skuterud \(2023\)](#), these limitations have partly contributed to the widening gap in the NPR employment data provided by the LFS and by IRCC. In particular, the author notes the data from the LFS suggest the NPR employment share increased from 0.7% to 2.5% between 2006 and 2022, while the IRCC data suggest an increase from 1.5% to 7.6% over the same period.

(2006, 2011, 2016 and 2021). We find that NPRs in the LFS are older, more experienced and have slightly more years of schooling relative to the NPRs in the Census.¹¹ Consequently, we believe the patterns of interest described in the following sections would likely be more pronounced without this sampling bias. Overall, despite its limitations covering the NPR population, we think that the LFS provides relevant information about the socio-economic characteristics and wage dynamics of NPRs, and that our results provide lower bound estimates.

3.2 Descriptive statistics

We restrict our sample to all employed respondents. We start by summarizing the evolution of various characteristics by computing their averages by immigration status for 2006–14, 2015–19 and 2023–24 (**Table 1**).¹² As previously mentioned, we chose these periods because of two key developments in immigration policy: the 2014 immigration reforms and the immigration surge following the COVID-19 pandemic. We exclude 2020–22 because immigration flows were disrupted during the pandemic and immigration policies were changed in 2022.

In line with the dynamics described in **section 2**, we first observe that the shares of total employment for both PRs and NPRs have increased significantly since 2006. In particular, the share of employment for NPRs increased by about 0.5 percentage points between the first two periods. This upward pattern was amplified following the pandemic, so that for the 2023–24 period, the share of total employment of NPRs increased by 2.2 percentage points from the 2015–19 period. The share of employment for PRs has increased by 6.8 percentage points between the 2006–14 and the 2023–24 periods. As well, we observe that the average age has evolved differently across groups. On one hand, while the Canadian-born workforce has been aging, the average age of NPR workers fell by 3.5 years over the sample. A key reason for this decline is the sizable increase in students among the NPR workforce. In 2023–24, the share of NPR workers studying either part-time or full-time reached 16.4%,

¹¹Note that the composition of NPRs captured in the Census and in the LFS could vary due to other factors, including the difference in the data collection periods and coverage adjustment.

¹²See **Table A.4** (columns 1 and 2) for detailed descriptions of these characteristics.

an increase of 6.6 percentage points from 2006–14. On the other hand, the average age of PRs has remained stable over the sample, and the share of students among PRs has stalled around 6.0%. Similarly, we observe that NPR workers had on average about one more year of education than Canadian-born workers between 2006 and 2014, with this gap increasing slightly over time. This higher proportion of youth among NPRs is also reflected in lower levels of potential work experience than PRs. As well, these levels declined over the sample.¹³ More precisely, the average potential experience of NPRs fell from 15.7 years to 11.5 years, while the average experience of PRs fell by only 0.8 years.

Table 1: Workforce summary statistics across immigration status and sub-periods

	Canadian-born			NPR			PR		
	2006–14	2015–19	2023–24	2006–14	2015–19	2023–24	2006–14	2015–19	2023–24
Employment share (%)	77.6	73.8	68.1	1.7	2.2	4.4	20.7	24.0	27.5
Age	39.8	40.8	41.1	36.1	34.6	32.6	43.8	44.0	43.7
Years of schooling	13.6	13.8	14.1	14.4	14.7	15.1	14.2	14.6	14.9
Potential experience	20.2	21.0	21.1	15.7	13.9	11.5	23.6	23.5	22.8
Female (%)	47.6	47.7	47.9	45.7	44.7	43.1	46.7	47.0	47.3
Student (%)	8.2	7.7	7.8	9.8	13.8	16.4	6.0	5.8	5.9
Skilled occupation (%)	66.0	68.5	72.5	61.5	63.0	61.1	64.0	67.2	71.9
Log wage gap (%)	0.0	0.0	0.0	−9.5	−14.2	−22.6	−3.9	−4.8	−3.4

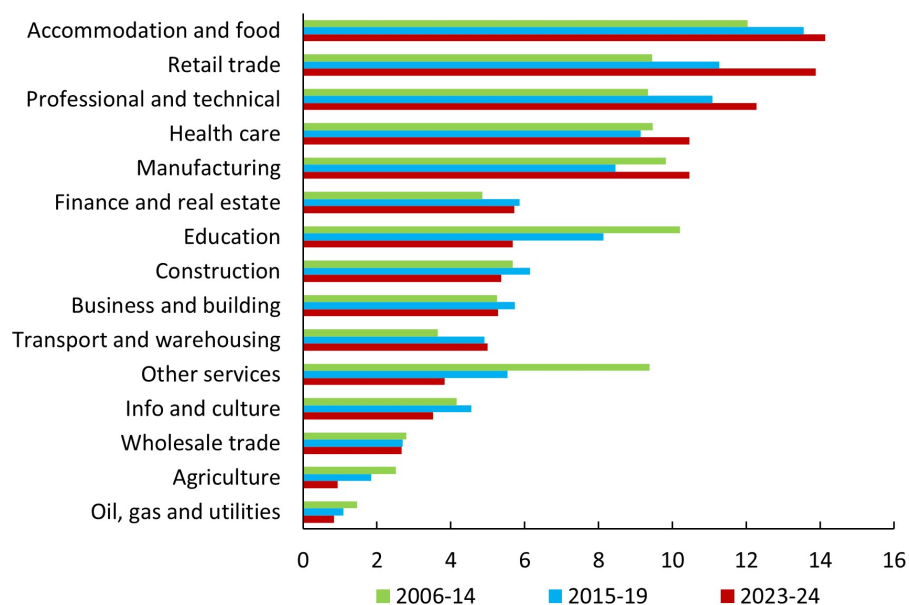
Note: The table displays average values of selected variables by immigration status across three periods: 2006–14, 2015–19 and 2023–24. The first row shows the share of total employment, while rows 2 to 8 show the averages of different characteristics. For details on the variable descriptions, refer to **Table A.4** (columns 1 and 2). The log wage gap is calculated using the difference of mean log wages. We restrict the sample to employed respondents. Source: Statistics Canada.

The shares of Canadian-born and PR workers employed in a skilled occupation have increased markedly over the sample. In contrast, the average share of NPRs in these occupations has fallen modestly. Additionally, the distribution of NPR workers has increased in certain low-wage industries, such as accommodation and food services and retail trade (**Chart 5**). Although the concentration of TFWs in these sectors was already elevated, this phenomenon has recently been accentuated. This finding can also be observed through the evolution of the share of sectoral employment occupied by NPRs (**Chart C.5**). We can observe that the reliance on temporary workers has increased across all sectors, in line with

¹³Potential work experience is defined as age minus years of schooling minus six. Note that years of schooling include higher education.

the larger share of NPRs in aggregate employment. However, this gain has been particularly acute for certain industries such as accommodation and food services, business, building and other support services, and retail trade. Labour productivity in these industries—which are comprised of a sizable share of lower-skilled occupations—is lower than the average in the business sector (**Table A.6**).¹⁴ The manufacturing and professional and technical services sectors also saw notable increases in their shares of NPR workers.

Chart 5: Distribution of non-permanent resident workers across industries (%)



Note: The chart displays the distribution of non-permanent resident workers across 15 North American Industry Classification System sectors for selected periods. Those sectors are described in **Table A.5**. Source: Statistics Canada

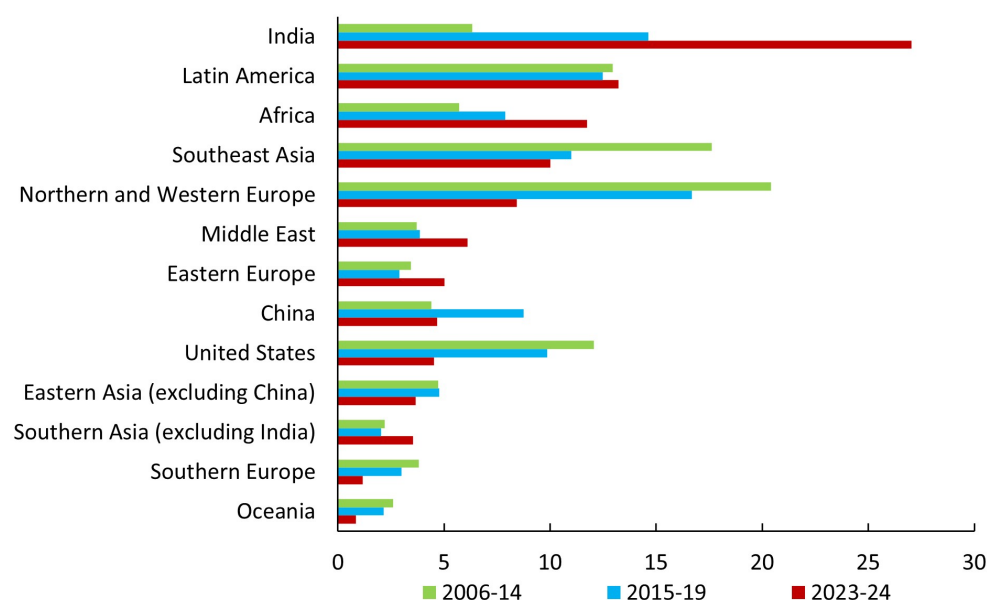
Another interesting feature is the change in the distribution of NPR workers across birth regions.¹⁵ **Chart 6** shows the shares of TFWs by birth regions over the sub-periods analyzed. Three observations stand out. First, India was by far the birth country most represented in 2023–24, accounting for more than one-quarter of all NPR workers. India became the most important source of temporary workers, surpassing Northern and Western Europe, which accounted for about 20% of the TFW workforce between 2006 and 2014.

¹⁴Examples of lower-skilled occupations in these sectors include cashiers, cleaners and retail salespersons, respectively.

¹⁵The regions are based on the 2019 Standard Classification of Countries and Areas of Interest for Social Statistics. Some small territories have been excluded for simplicity.

Second, other regions such as Africa, the Middle East and Eastern Europe increased their shares of the temporary workforce. In contrast, China’s share fell in 2023–24 after recording an important rise prior to the COVID-19 pandemic. Lastly, the share of NPRs born in regions with advanced economies has declined significantly relative to earlier periods. For example, the combined share of NPR workers from Northern and Western Europe and the United States in 2023–24 was less than half of the combined share in the 2006–14 period. Finally, wage dynamics have also diverged across immigration groups. The last row of **Table 1** shows the log average wage gap between NPR and Canadian-born workers for the three selected time periods. We see that NPR workers earned lower wages than the Canadian-born counterparts, and that this difference more than doubled between 2006–14 and 2023–24, going from -9.5% to -22.6%.

Chart 6: Share of non-permanent resident workers by birth region (%)



Note: The chart displays the shares of non-permanent resident workers by birth region for selected periods. The regions are based on the 2019 Standard Classification of Countries and Areas of Interest for Social Statistics. Source: Statistics Canada

To summarize, the sharp increase in the NPR workforce in 2023–24 coincided with an important compositional change for this group. In contrast with Canadian-born and PR workers, NPR workers have become significantly younger and less experienced, and saw

their share in skilled occupations decrease modestly. In addition, an increasing number of NPRs have been migrating from lower-income regions, and their wages have reduced significantly relative to Canadian-born workers. In the next section, we present a statistical decomposition to more formally assess how these compositional changes over time affect the wage gap between immigrant and Canadian-born workers.

4 The statistical framework

To assess how much these compositional changes have affected wage dynamics, we conduct an empirical decomposition of the wage gap between immigrant and Canadian-born workers. We start by defining the individual wage setting using the following Mincer equation:

$$\ln w_{i,t} = \alpha + \gamma_t + \delta M_i + X'_{i,t} \beta + \varepsilon_{i,t} , \quad (1)$$

where $\ln w_{i,t}$ is the log nominal hourly wage of individual i at period t ; M_i is an immigrant dummy variable equal to one if an individual is an immigrant and zero otherwise; $X_{i,t}$ is a vector of observable characteristics; and $\varepsilon_{i,t}$ is an error term. The parameters α and β are the intercept and the returns to observable characteristics, respectively, and δ represents the wage difference between immigrant workers and observationally equivalent Canadian-born workers. The parameter γ_t captures year and month fixed effects. Finally, we assume that equation (1) respects the standard additive linearity and zero conditional mean assumptions.

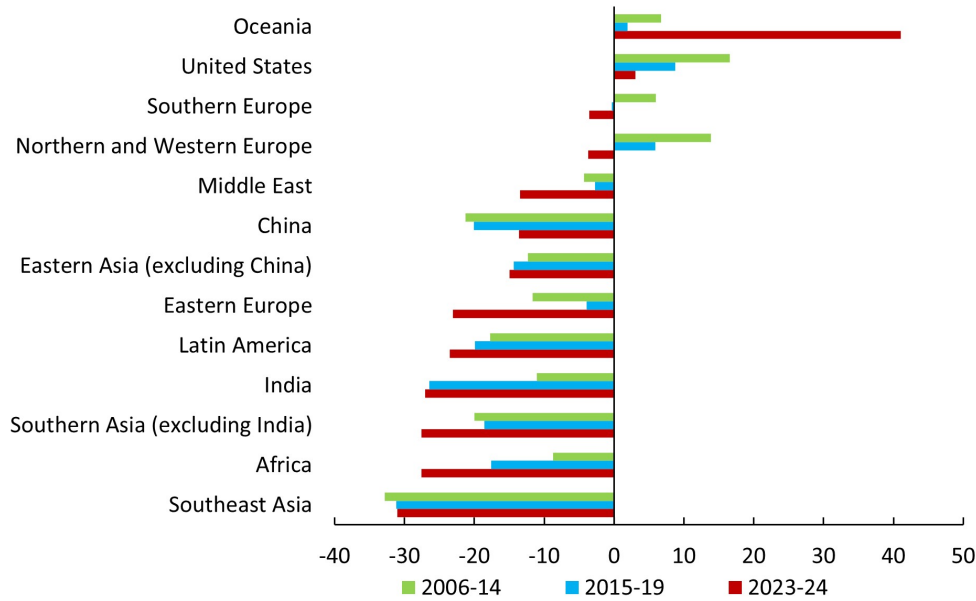
The vector of observables $X_{i,t}$ in our baseline specification contains standard human capital variables, including years of schooling, potential experience and job tenure, along with other socio-economic characteristics such as gender and student status. It also includes individuals' census metropolitan area (CMA), industry and skill level related to their occupation.

Limiting our analysis to these observables has two main caveats. First, it assumes that immigrants' levels of schooling and amount of work experience have equivalent qualities, regardless of the home country where they were acquired. However, as highlighted by [Lagakos et al. \(2018\)](#), the quality of human capital can differ considerably between countries.

Second, [Borjas \(1987\)](#) argues that immigrants do not make up a random sample of their home country’s population. According to this framework, migrating can be seen as an economic decision where a person weighs the expected conditions in the host country—such as labour income, quality of schooling and wealth inequalities—against the same conditions in their home country. The importance of these trade-offs depends on the characteristics of an individual, his home country and the available host countries. For example, an immigrant worker from a low-income and economically unequal country might have an incentive to migrate to Canada if they are looking for a quality education or a generous social safety net. Other immigrant workers might have a larger incentive to migrate to the United States if they believe their skills will be better rewarded in that country. Therefore, this self-selection reflects the interaction between host-country-specific factors and individuals’ characteristics—some of which may be unobservable—that will ultimately influence a newcomer’s initial wages upon entry.

To illustrate how NPR wages differ depending on an NPR’s birth region, **Chart 7** plots the evolution of the average wage gap between NPRs from different regions and Canadian-born workers. We note some interesting observations. First, considerable heterogeneity in wage gaps exists across regions. While NPRs that come from certain regions with advanced economies—such as Oceania, the United States, and Northern and Western Europe—have higher wages than Canadian-born workers for most time periods, wages of NPRs born in emergent or developing countries have been substantially lower. Second, the wage gaps between NPRs and Canadian-born workers have widened for most regions compared with the 2006–14 period. For example, the wage gaps of Northern and Western Europe and Southern Europe have gone from positive between 2006 and 2014 to negative over 2023–24. In addition, the wage gaps widened for lower-income regions, such as Eastern Europe, India and Africa.

Chart 7: Wage gaps (%) between Canadian born workers and non-permanent residents, by birth region



Note: The chart displays the average wage gap, by birth region of non-permanent residents for selected periods. The regions are based on the 2019 Standard Classification of Countries and Areas of Interest for Social Statistics. Source: Statistics Canada

These important wage differences across home regions lead us to find proxies for unobserved characteristics, such as human capital quality and self-selection. We consider two alternative specifications to our baseline model (specification I) where we include separately as additional regressors an immigrant's GDP per capita ratio (specification II) and a fixed effect for birth region (specification III).¹⁶ [Coulombe et al. \(2014\)](#) argue that the GDP per capita ratio is a strong predictor of an immigrant's entry wage in Canada because the ratio reflects the quality of education and work experience they acquired in their home country.¹⁷ Similarly, a birth country's fixed effect conveys information about schooling and work experience an individual has acquired, but can also reflect unobserved characteristics that have influenced an individual's decision to migrate.

Following [Fortin et al. \(2011\)](#), we take expectations of equation (1) conditional on the

¹⁶The GDP per capita ratio is calculated as the ratio between the average GDP per capita in an immigrant's birth region and Canada's GDP per capita in a given year. See [Table A.4](#) in the [Appendix A](#) for the descriptions of the other variables in each model specification.

¹⁷In [Chart A.1](#), we verify this relationship for the NPR workforce using LFS data for 2023 by plotting the wage gap as a function of the GDP per capita ratio for the 13 birth regions.

immigration status and express the wage gap between immigrants and Canadian-born workers into contributions from the observables — the explained effect — and a residual unexplained effect. Using the ordinary least squares estimates from equation (1), we can write the estimated wage gap between immigrants and Canadian-born workers ($\hat{\Delta}_t^w$) as:

$$\hat{\Delta}_t^w = \underbrace{(\bar{X}_{m,t} - \bar{X}_{n,t})' \hat{\beta}}_{(\hat{\Delta}_t^x)} + \hat{\delta}, \quad (2)$$

where $\bar{X}_{m,t}$ and $\bar{X}_{n,t}$ are the sample averages of the observable characteristics of immigrant and Canadian-born workers in period t , while $\hat{\Delta}_t^x = (\bar{X}_{m,t} - \bar{X}_{n,t})' \hat{\beta}$ and $\hat{\delta}$ are the estimated explained and unexplained effects, respectively.

5 Empirical analysis

We start by estimating the decomposition of the wage gap over the 2006–14 period for specification I, as described in **section 4**. As previously discussed, this baseline model includes years of schooling, potential experience and other socioeconomic characteristics, but does not include variables related to the region of birth. The first column of **Table 2** presents the results. We note several observations. First, NPR wages were on average 9.5% lower than their Canadian counterparts between 2006 and 2014. Second, the model’s observed characteristics fail to explain the negative wage gap because they imply that NPR wages should have been 2.8% higher relative to Canadian-born workers. Third, we note important heterogeneity in the contributions of the different observable characteristics:

- As discussed in **section 2**, NPRs have, on average, lower potential experience and job tenure than Canadian-born workers, which explains about half of the difference in wages. A lower proportion of skilled occupations and a higher share of students among the NPR workforce also contribute about 1 percentage point to the wage gap. The sectoral allocation of NPRs is skewed toward industries with a higher prevalence of lower-paid jobs. This explains about one-quarter of the difference in average hourly earnings.

- However, some characteristics provide positive support to NPR wages, more than offsetting the negative contributions. Between 2006 and 2014, NPR workers had on average about one more year of education than Canadian-born workers. All else equal, this higher level of education suggests that the average wage for NPRs should have been 5.7 percentage points higher than for their Canadian-born counterparts.
- Other differences in characteristics relative to Canadian-born workers, such as a higher concentration of the population in dense CMAs and a higher proportion of males, suggest that wages for NPRs should be higher than wages for Canadian-born workers.¹⁸

Table 2: Estimated wage gap decomposition (%) for non-permanent residents for each specification, 2006–14

	I	II	III
Difference	−9.5***	−9.5***	−9.5***
Explained	2.8***	−6.4***	−9.5***
Unexplained	−12.3***	−3.1***	0.0
Part explained by:			
Potential experience	−1.3***	−1.3***	−1.3***
Years of schooling	5.7***	5.7***	5.7***
Job tenure	−3.6***	−3.6***	−3.6***
Skilled occupation	−0.8***	−0.8***	−0.8***
Industry	−2.5***	−2.5***	−2.5***
Student	−0.1***	−0.1***	−0.1***
Female	0.4***	0.4***	0.4***
Time	0.9***	0.9***	0.9***
CMA	4.0***	4.0***	4.1***
GDP		−9.3***	
Region of birth			−12.4***

Note: The table displays the results of the estimated wage gap decomposition between non-permanent resident and Canadian-born workers over 2006–14 for the three specifications described in **section 4**. See **Table A.4** for a detailed description of the variables included in these specifications.

¹⁸ [Albert and Monras \(2022\)](#) suggest a mechanism where immigrants move economic activity toward expensive, high-productivity locations.

Controlling for the region of birth. As discussed in [section 4](#), this first specification leaves out the quality of immigrants’ human capital and other self-selection determinants. We first attempt to control for these factors by adding to the equation the ratio of an immigrant’s birth region GDP per capita to Canada’s GDP per capita ([Table 2](#), second column). We can see that including this ratio reduces by three-quarters the previously unexplained portion of the wage gap between NPRs and Canadian-born workers. Consequently, the explained effect now represents about two-thirds of the difference in wages. As mentioned in [section 4](#), the GDP per capita ratio might not capture all of the unobserved characteristics related to the birth region. We create a proxy for these additional factors by replacing the GDP per capita ratio with a fixed effect for region of birth ([Table 2](#), third column). Due to collinearity with the immigrant dummy variable M_i , we set the United States as the omitted category, notably because it is closest to Canada in terms of culture and living standards. Consequently, the birth region fixed-effect parameters now reflect the marginal impacts on wage of being a NPR who was born in a country other than the United States. In addition, the unexplained effect δ now represents the wage difference between an observationally equivalent US NPR and a Canadian-born worker. Using this third specification, we see that the contribution of the birth region is very important (-12.4 percentage points), explaining more than the total wage gap between NPRs and Canadian-born workers. We also note that the unexplained effect δ disappears, suggesting that conditional on observables, the wages of US NPRs and Canadian-born workers are equivalent over the 2006–14 period.¹⁹

Wage gaps over time. Next, we assess how these wage gaps have evolved over time. The first column of [Table 3](#) shows the decomposition of the wage gap for the third specification estimated between 2006 and 2014, as previously presented. Columns 2 and 3 present the same specification estimated over the two subsequent periods (i.e., 2015–19 and 2023–24). We note several interesting results. First, the average negative wage gap between NPRs

¹⁹We can further examine the importance of birth region as a determinant of migrant wages by estimating equation (1) with NPR workers only. [Table B.1](#) in the [Appendix](#) shows that, all else equal, the birth region is a strong determinant of NPR wages. For instance, even after controlling for other observables, the effect of the birth region on wages can range from 3% higher (Oceania) to more than 20% lower (Southeast and Southern Asia) relative to US NPR wages over the 2006–14 period.

and Canadian-born workers has widened over time, from -9.5% between 2006 and 2014 to -22.6% in 2023–24 (**Table 3, left panel**). Second, while the decrease in the wage gap was exacerbated in 2023–24, this dynamic started before the pandemic as the average wage gap had declined by almost 5 percentage points between the 2006–14 and 2015–19 periods. Third, observable characteristics can explain all of the increase in the wage gap between 2006–14 and 2023–24. Fourth, the largest driver among these observable characteristics is the region of birth fixed effect, which contributed 6.2 percentage points to the decline in the wage gap between 2006–14 and 2023–24. The other main driver of the decline has been potential experience, which contributed 3.1 percentage points to the drop in the wage gap between these periods. This finding is consistent with the evidence documented in **section 3** that recent NPRs have been younger than previous waves of NPRs in Canada, while the Canadian-born population has become older. Fifth, other factors contributed importantly to the widening of the wage gap, such as the declining concentration of NPRs relative to Canadian-born workers in large CMAs (2.1 percentage points) and the stabilizing share of NPRs in skilled occupations (1.7 percentage points). Sixth, the advantage NPRs hold over Canadian-born workers in years of schooling has increased, narrowing the wage gap by about 1 percentage point. Finally, the unexplained effect increased by 0.5 percentage points relative to 2006–14, reflecting an increase in the wages of US NPRs relative to Canadian-born workers, conditional on the other observables.

Wage gap between permanent residents and Canadian-born workers. Next, we replicate the wage gap decomposition using PRs who have been in Canada for five years or less.²⁰ We focus on PRs that arrived recently to mitigate the cohort effects and make them more comparable with NPRs in terms of their length of stay in Canada. Despite arriving recently, new PRs can potentially differ from NPRs both in terms of observable and unobservable characteristics. The reason is that PRs are selected based on a points system and thus go through different immigration pathways. The right panel of **Table 3** (columns 4 to 6) shows the corresponding decomposition results. We note three findings of interest. First, between 2006 and 2014, recent PRs not only had substantially lower wages than

²⁰Note that the PR sample used in this section differs from the one used for **Table 1** in **section 3**.

Table 3: Evolution of the estimated wage gap decomposition (%), specification III, by periods

	NPR			PR		
	2006–14	2015–19	2023–24	2006–14	2015–19	2023–24
Difference	−9.5***	−14.2***	−22.6***	−22.5***	−20.6***	−13.1***
Explained	−9.5***	−12.0***	−23.1***	−18.8***	−19.5***	−16.0***
Unexplained	0.0	−2.2	0.5	−3.7*	−1.1	2.9
Part explained by:						
Potential experience	−1.3***	−3.6***	−4.4***	−0.2*	−0.7***	−1.5***
Years of schooling	5.7***	6.2***	6.7***	7.4***	7.3***	8.7***
Job tenure	−3.6***	−4.0***	−4.1***	−5.6***	−5.3***	−4.4***
Skilled occupation	−0.8***	−1.1***	−2.5***	−2.4***	−2.1***	−0.9***
Industry	−2.5***	−2.8***	−2.9***	−2.8***	−3.1***	−1.1***
Student	−0.1***	−0.2***	−0.2***	−0.1***	−0.1***	0.0***
Female	0.4***	0.4***	0.5***	0.5***	0.4***	0.2**
Time	0.9***	0.5***	0.4***	0.3***	0.3***	0.3***
CMA	4.1***	3.1***	2.0***	4.6***	3.6***	2.3***
Region of birth	−12.4***	−10.6***	−18.6***	−20.5***	−19.8***	−19.6***

Note: The table shows the estimated wage gap decompositions between non-permanent residents, permanent residents and Canadian-born workers for specification III described in [section 4](#). The decompositions are provided for the 2006–14, 2015–19 and 2023–24 sub-periods. CMA is census metropolitan area.

Canadian-born workers, but also lower than NPRs. Differences in observable characteristics explain more than three-quarters of this negative difference between the PR and NPR wage gaps. Second, the wage gap between PRs and Canadian-born workers has narrowed substantially from -22.5% between 2006 and 2014 to -13.1% in 2023–24. This contrasts sharply with the widening of the difference in wages between NPRs and Canadian-born workers. Third, recent PRs experienced an improvement in their observable characteristics, providing a modest positive support to reducing the wage gap with Canadian-born workers, and contrasting with the deterioration of NPRs’ characteristics. In summary, PRs who have been in Canada for five years or less have not witnessed the same deterioration in the wage gap with Canadian-born workers as NPRs have witnessed. This partly reflects diverging patterns in average observables characteristics.

As mentioned in the previous section, the unexplained effect in our preferred specification

is captured by the conditional wage gap between US immigrants and Canadian-born workers. Using another omitted category in our decomposition, such as a region with very different characteristics than domestically born workers, would obviously change the unexplained part of the decomposition. Consequently, to further check the robustness of our results, we perform the decomposition across the different periods using specification II which controls for the GDP per capita ratio instead of the birth region dummy variables. **Table B.2** presents the corresponding results. Looking at this specification, changes in observables remain the key contributors to the widening in the wage gap, although to a lesser extent. This can be explained by the fact that the contribution of the GDP per capita ratio declined modestly since the 2006–14 period, while the contribution from the birth region fixed effect increased substantially in specification III (**Table 3**).²¹ As a result, the wage gap between NPR and Canadian-born has been less correlated with GDP per capita across regions, in contrast to the region dummies.

Overall, our decompositions show that the recent decrease in the wage gap between NPRs and Canadian-born workers is broadly due to a deterioration in observable characteristics. We point out that while the region of birth fixed effects are by far the main driver of this wage gap, the ratio of GDP per capita gives mixed results regarding the contribution to the change in the explained effect. What this potentially implies is that other factors that are not necessarily related to the GDP of an immigrant’s birth region, such as rising inequality, could have led to higher migration from these regions. Alternatively, changes in Canada’s immigration policies could have affected the type of immigrants that decided to migrate from all regions. Our analysis does not allow us to clearly disentangle these two hypotheses, but they are an interesting areas for future research.

Implications for aggregate wages. Finally, we want to answer the following question: what is the impact of these documented composition changes on aggregate wages? One way to answer this question is to estimate how the wages of NPRs would have changed if their observable characteristics had stayed at the average levels from 2006–14. To do this,

²¹Consequently, the unexplained effect in the GDP per capita specification is larger for the 2023–2024 period.

we perform a counterfactual exercise in the spirit of DiNardo et al. (1996) by reweighting the NPR observations in 2023 and 2024 such that their average observable characteristics are similar to the average values over 2006–14. First, we pool together the data between 2006 and 2014 and between 2023 and 2024. Then, we define a binary variable, P_1 , such that $P_{1,i} = 1$ if the observation i belongs to the 2006–14 period and is zero otherwise, and a similar binary variable P_2 for the 2023–24 period. Next, we run two logit regressions where $P_{1,i}$ and $P_{2,i}$ are the respective dependent variables. The covariates $X_{i,t}$ used in the regressions are the same as in the wage-setting equation (1). We then compute propensity scores $\hat{P}_{1,i}$ and $\hat{P}_{2,i}$ using the estimated logit regression coefficients, yielding probabilities that an NPR belongs to a given period conditional on their observable characteristics, $X_{i,t}$. Finally, we can compute the reweighting factor ω_i as:

$$\omega_i = \hat{P}_{1,i} / \hat{P}_{2,i}, \quad (3)$$

and reweight the NPR observations in the 2023–24 period by multiplying the LFS sampling weights by ω_i . The counterfactual average NPR wage for the 2023–24 period can then be computed directly using these new weights.

The first key result from this exercise is that the counterfactual average NPR wage in 2023–24 is 7.5% higher than the actual average NPR wage. Assuming no change in the average wages of Canadian-born and PR workers, this implies a 0.3% drag on aggregate wages for that period. As noted in **section 3**, the LFS underestimates the number of NPRs in the Canadian population, especially in the 2023–24 period. As a result, the implications are likely underestimated for aggregate wages from this exercise. Using Statistics Canada’s Quarterly Demographic Estimates (QDE) data for 2023 and 2024, NPRs’ share of the Canadian population is about 6.3%, substantially higher than the 4.4% in the LFS.²² Therefore, we can scale the LFS weights in 2023–24 to reflect this difference in shares.²³

²²Note that the QDE covers the whole population while the LFS covers the population age 15 years and over.

²³We make two assumptions here. First, we assume that the difference between the QDE and the LFS in the share of the population aged 15 and up is equivalent to the difference in employment shares. Second, we assume that the NPRs not sampled in the LFS have the same average socio-economic characteristics as those sampled in the LFS.

After making this adjustment, we find that the change in the composition of NPRs implies a 0.7% drag on the 2023–24 average aggregate wage. As we argued earlier, this estimate is likely a lower bound since NPRs that are not sampled in the LFS might have markedly different socio-economic characteristics than those sampled in the LFS.²⁴ Assuming that newcomers’ wages—conditional on their observable characteristics—largely reflect their labour productivity, these results have important implications for Canada’s productive capacity and thus potential output.

6 Conclusion

Not only has Canada experienced an unprecedented surge in immigration, but the composition of recent newcomers has been markedly different than in the past. Recent Canadian immigration has been driven mostly by NPRs that have different socio-economic characteristics compared with previous waves. For instance, recent NPRs are younger and less experienced, and have seen their share in skilled occupations fall modestly. The distribution of NPRs across birth regions has also shifted toward lower-income countries, which correlates with lower entry wages in the domestic labour market. These compositional changes have led to a widening of the wage gap between NPRs and Canadian-born workers, which has more than doubled between the 2006–14 and 2023–24 periods. Using Mincer regressions, we show that the change in NPRs’ observable characteristics explain most, if not all, of the widening in the wage gap between the two periods. Finally, we perform a counterfactual exercise where we estimate the average wage of NPRs in 2023–24 by assuming their socio-economic characteristics stayed at the levels seen in 2006–14. The resulting counterfactual NPR wage is 7.5% higher than in the data, translating into a 0.7% increase in the aggregate wage. Assuming that newcomers’ wages reflect their labour productivity, these results have important implications for Canada’s productive capacity and thus potential output.

²⁴This counterfactual exercise for the aggregate wage assumes no indirect negative impact on the wages earned by Canadian-born and PR workers. Relaxing this assumption would result in a larger drag on aggregate wage.

References

- Albert, Christoph and Joan Monras**, “Immigration and spatial equilibrium: the role of expenditures in the country of origin,” *American Economic Review*, 2022, *112* (11), 3763–3802.
- Borjas, George J**, “Self-Selection and the Earnings of Immigrants,” *American Economic Review*, 1987, *77*, 531–533.
- **and Hugh Cassidy**, “The wage penalty to undocumented immigration,” *Labour Economics*, 2019, *61*, 101757.
- Brell, Courtney, Christian Dustmann, and Ian Preston**, “The labor market integration of refugee migrants in high-income countries,” *Journal of Economic Perspectives*, 2020, *34* (1), 94–121.
- Busch, Christopher, Dirk Krueger, Alexander Ludwig, Irina Popova, and Zainab Iftikhar**, “Should Germany have built a new wall? Macroeconomic lessons from the 2015-18 refugee wave,” *Journal of Monetary Economics*, 2020, *113*, 28–55.
- Champagne, Julien, Erik Ens, Xing Guo, Olena Kostyshyna, Alexander Lam, Corinne Luu, Sarah Miller, Patrick Sabourin, Joshua Slive, and Temel Taskin**, “Assessing the effects of higher immigration on the Canadian economy and inflation,” *Bank of Canada Staff Analytical Note*, 2023, *2023-17*.
- Coulombe, Serge, Gilles Grenier, and Serge Nadeau**, “Quality of work experience and economic development: Estimates using Canadian immigrant data,” *Journal of Human Capital*, 2014, *8* (3), 199–234.
- DiNardo, John, Nicole M. Fortin, and Thomas Lemieux**, “Labor Market Institutions and the Distribution of Wages, 1973-1992: A Semiparametric Approach,” *Econometrica*, 1996, *64* (5), 1001–1044.
- Doyle, Matthew, Mikal Skuterud, and Christopher Worswick**, “The economics of Canadian immigration levels,” *Canadian Journal of Economics*, 2025, *58* (1).
- Employment and Social Development Canada**, “Evaluation of the Temporary Foreign Worker Program,” 2021. Accessed: 2024-10-13.
- , “Government of Canada announces Workforce Solutions Road Map - further changes to the Temporary Foreign Worker Program to address labour shortages across Canada,” 2022. Accessed: 2024-10-18.
- Fortin, Nicole, Thomas Lemieux, and Sergio Firpo**, “Decomposition methods in economics,” in “Handbook of labor economics,” Vol. 4, Elsevier, 2011, pp. 1–102.
- Government of Canada**, “Overhauling the Temporary Foreign Worker Program,” 2014. Accessed: 2024-10-13.
- Immigration, Refugees and Citizenship Canada**, “New measures for foreign nationals with expired or expiring post-graduation work permits and applicants to the temporary resident to permanent resident pathways,” 2022. Accessed: 2024-10-18.
- Lagakos, David, Benjamin Moll, Tommaso Porzio, Nancy Qian, and Todd Schoellman**,

- “Life-cycle human capital accumulation across countries: lessons from US Immigrants,” *Journal of Human Capital*, 2018, *12* (2), 305–342.
- Lewis, Ethan**, “Immigration, skill mix, and capital skill complementarity,” *The Quarterly Journal of Economics*, 2011, *126* (2), 1029–1069.
- O’Donnell, Ian and Mikal Skuterud**, “The transformation of Canada’s temporary foreign worker program,” *Canadian Public Policy*, 2022, *48* (4), 518–538.
- Olovsson, Conny, Karl Walentin, and Andreas Westermarck**, “Dynamic macroeconomic implications of immigration,” 2021.
- Picot, WG and Feng Hou**, *Immigration and the Shifting Occupational Distribution in Canada, 2001 to 2021*, Statistics Canada, 2024.
- Skuterud, Mikal**, “Canada’s Missing Workers: Temporary Residents Working in Canada,” *CD Howe Institute e-Brief*, 2023, *345*.
- Smith, Christie and Christoph Thoenissen**, “Skilled migration and business cycle dynamics,” *Journal of Economic Dynamics and Control*, 2019, *109*, 103781.
- Statistics Canada**, “Methodology of the Canadian Labour Force Survey: Chapter 1 Introduction and Overview,” 2017. Accessed: 2024-10-13.
- , “Fertility in Canada, 1921 to 2022,” 2024. Accessed: 2025-02-19.

A Appendix A: Data

Table A.1: Sources and details for Charts 2–4

Figure	Source	Details
2	Statistics Canada	Quarterly population estimates are taken from Tables 17-10-0009-01 , 17-10-0040-01 and 17-10-0059-01 . In a given quarter, the annual population change is the difference between that quarter and the same quarter one year earlier. The change is decomposed into births minus deaths, PRs, NPRs and other, which includes minor flows such as emigrants and returning emigrants.
3	Immigration, Refugees and Citizenship Canada	TFWP permits are employer-specific and require a labour market impact assessment (LMIA): data for before 2015 and since 2015 . Study permits are issued to non-permanent residents to study at a designated learning institution in Canada: data for before 2015 and since 2015 . Asylum claimants are people who have filed for protection in Canada due to danger in their home country: data for before 2015 and since 2015 .
4	Immigration, Refugees and Citizenship Canada	IMP permits can be employer-specific or open and do not require a LMIA. IMP data from before 2015 is provided as Canadian totals. IMP data since 2015 is provided by province and aggregated for each category. The 'Other IMP participants' category includes other IMP participants, vulnerable workers, and all IMP permits without a specified province.

Note: The table provides details on the construction of Charts 2, 3 and 4.

Table A.2: Immigration status classification methodology

Status	Conditions	Yes	No
Canadian-born	1. Born in Canada.	✓	
	2. Have ever been a landed immigrant.		✓
PR	1. Born in Canada.		✓
	2. Have ever been a landed immigrant.	✓	
NPR	1. Born in Canada.		✓
	2. Have ever been a landed immigrant.		✓

Note: The table provides the methodology used to classify respondents between Canadian-born, permanent residents (PRs) and non-permanent residents (NPRs). The conditions we use are based on the two following original questions from the Labour Force Survey (LFS) questionnaire: “In what country were you born?” and, “Are you now, or have you ever been, a landed immigrant in Canada?” Note that the LFS data do not allow us to distinguish between NPRs and Canadians by descent.

Table A.3: Years of schooling imputation methodology

Highest certificate, degree or diploma obtained	Estimated years of schooling
No certificate	8
One or two years of high school	10
Three or four years of high school	11
High school certificate	12
Some post-secondary education	13
Trades, community college or CEGEP certificate	14
University certificate below a Bachelor’s degree	15
Bachelor’s degree	16
University degree above the Bachelor’s level	20

Note: The table provides the methodology to approximate the years of schooling based on the education levels reported in the Labour Force Survey.

Table A.4: Characteristics and variables descriptions

Variable	Description	I	II	III
Potential work experience	Age minus years of schooling minus six.	✓	✓	✓
Years of schooling	Years of schooling imputed on education levels (Table A.3).	✓	✓	✓
Job tenure	Number of years worked at current employer.	✓	✓	✓
Skilled occupation	Occupations are classified based on training, education, experience and responsibility category (TEER), which is the second digit of the National Occupational Classification (NOC). High skilled occupations take a value from zero to three and low skilled occupations from four to five.	✓	✓	✓
Industry	Two digit NAICS code related to current occupation.	✓	✓	✓
Student	Indicator of student status (including full-time and part-time).	✓	✓	✓
Female	Indicator of a respondent being female.	✓	✓	✓
Time	Reference year and month when respondent completed the LFS.	✓	✓	✓
Census metropolitan area (CMA)	Indicate the respondent's CMA of residence (more than 80 covered in the LFS). Some respondents do not belong to any CMA.	✓	✓	✓
GDP ratio	Ratio between the GDP per capita in a respondents' birth region and the GDP per capita in Canada.		✓	
Birth region	Reported countries of birth are classified into 13 regions defined in the LFS.			✓
Nominal hourly wage	This variable is taken directly from the LFS for hourly paid workers and obtained by dividing weekly earnings by weekly usual hours worked for workers who are not paid at a hourly rate.	✓	✓	✓

Note: The first two columns of the table provide the names and descriptions of all variables leveraged in the summary statistics and decompositions. The other three columns indicate with a check mark (✓) if a variable is included in a given specification. The column names I, II and III represent the three specification discussed in **sections 4** and **5**

Table A.5: Industrial sectors descriptions

Sector	NAICS
Agriculture	11
Oil, gas and utilities	21-22
Construction	23
Manufacturing	31-33
Wholesale trade	41
Retail trade	44-45
Transport and warehousing	48-49
Finance and real estate	52-53
Professional and technical	54
Business and building	55-56
Education	61
Health care	62
Info and culture	51-71
Accommodation and food services	72
Other services	81

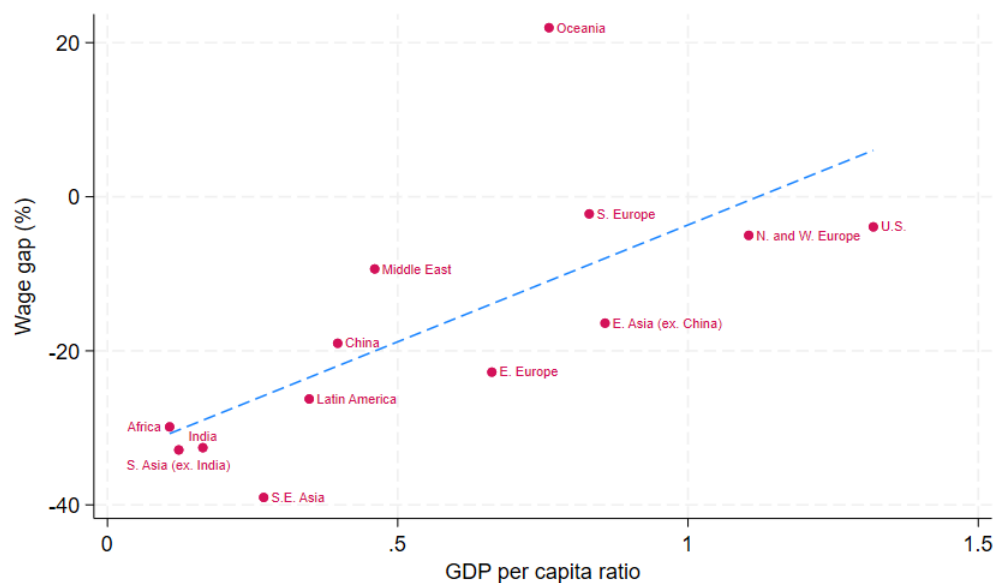
Note: The table provides the North American Industry Classification System (NAICS) codes used in the construction of each of the 15 industry sectors. Industrial sectors labels have been simplified for sake of conciseness.

Table A.6: Sectoral labour productivity levels, 2023

Sector	Labour productivity (chained 2017 \$/hour)	Difference with business sector average (%)
Utilities	196.6	232.7
Mining and oil and gas extraction	196.3	232.1
Real estate, rental and leasing	159.1	169.2
Information and cultural industries	102	72.6
Finance and insurance, and holding companies	87.3	47.7
Wholesale trade	72.2	22.2
Manufacturing	67.2	13.7
Agriculture, forestry, fishing and hunting	58.5	-1.0
Professional, scientific and technical services	58.2	-1.5
Health care and social assistance	48.7	-17.6
Construction	48.6	-17.8
Transportation and warehousing	45.6	-22.8
Administrative and support, waste management and remediation services	36.2	-38.7
Retail trade	35.6	-39.8
Arts, entertainment and recreation	34.9	-40.9
Educational services	33.7	-43.0
Other services	29.3	-50.4
Accommodation and food services	25.3	-57.2
Business sector average	59.1	0.0

Note: The table provides the labour productivity levels in chained 2017 \$/hour in 2023 for two-digit NAICS sectors. The data source is Statistics Canada, [Table 36-10-0480-01 "Labour productivity and related measures by business sector industry and by non-commercial activity consistent with the industry accounts."](#)

Chart A.1: Relationship between the non-permanent resident wage gaps by birth region, and the corresponding ratios of GDP per capita, 2023



Note: The chart displays the wage gap between NPRs and Canadian-born workers and its relationship to GDP per capita ratio by birth region in 2023 (2021 international \$, PPP). The data sources are Statistics Canada's Labour Force Survey for the wage gap and the World Bank for GDP per capita.

B Appendix B: Empirical results

Table B.1: Determinants of wages for non-permanent residents

Category	Variables	2006–14	2015–19	2023–24
Characteristics	Potential experience	0.02***	0.02***	0.02***
	Potential experience squared	0.00***	0.00***	0.00***
	Years of schooling	0.05***	0.04***	0.03***
	Job tenure	0.01***	0.01***	0.02***
	Female	−0.10***	−0.11***	−0.07***
	Student	−0.09***	−0.06***	−0.06***
	Skill	0.27***	0.25***	0.23***
Industry	Mining, quarrying, oil and gas extraction	0.59***	0.51***	0.46***
	Utilities	0.44***	0.47***	0.36***
	Construction	0.24***	0.12***	0.10***
	Wholesale trade	0.18***	0.15***	0.13***
	Finance and insurance	0.30***	0.20***	0.20***
	Real estate and rental and leasing	−0.03	0.02	0.00
	Professional, scientific and technical services	0.31***	0.19***	0.26***
	Educational services	0.12***	0.06***	0.06***
	Health care and social assistance	0.13***	0.04**	0.03
	Accommodation and food services	−0.13***	−0.18***	−0.14***
	Other services (except public admin.)	−0.17***	−0.16***	−0.04**
	Public administration	0.35***	0.27***	0.23***
	Manufacturing	0.19***	0.06***	0.09***
	Retail trade	−0.06***	−0.10***	−0.10***
	Transportation and warehousing	0.13***	0.05***	0.04**
	Information and culture	0.16***	0.05***	0.07***
	Business, building and support	−0.01	−0.07***	−0.04*
Region	Latin America	−0.11***	−0.12***	−0.17***
	Northern and Western Europe	−0.01**	0.01	−0.06***
	Southern Europe	−0.06***	−0.06***	−0.03*
	Eastern Europe	−0.15***	−0.06***	−0.17***
	Africa	−0.11***	−0.14***	−0.18***
	China	−0.18***	−0.12***	−0.13***
	Eastern Asia (exluding China)	−0.13***	−0.07***	−0.13***
	India	−0.14***	−0.13***	−0.16***
	Southern Asia (excluding India)	−0.20***	−0.17***	−0.19***
	Southeast Asia	−0.21***	−0.17***	−0.22***
	West and Central Asia, the Middle East	−0.16***	−0.10***	−0.13***
	Oceania and other	0.03***	0.02	0.15***
	Constant	1.72***	2.12***	2.61***
Observations		89712	61712	50470

Note: The table displays the regression results of non-permanent resident log hourly wages on the set observables from specification III described in [section 4](#) for selected periods. Year, months and census metropolitan area fixed-effects coefficients do not appear in the table. The omitted category for industry is Agriculture, forestry, fishing and hunting, and the United States for birth region.

Table B.2: Evolution of the estimated wage gap decomposition (%), specification II, by periods

	NPR			PR		
	2006–14	2015–19	2023–24	2006–14	2015–19	2023–24
Difference	−9.5***	−14.2***	−22.6***	−22.5***	−20.6***	−13.1***
Explained	−6.4***	−9.8***	−13.2***	−14.1***	−14.0***	−6.2***
Unexplained	−3.1***	−4.5***	−9.4***	−8.5***	−6.5***	−6.9***
Part explained by:						
Potential Experience	−1.3***	−3.6***	−4.4***	−0.2*	−0.7***	−1.4***
Years of schooling	5.7***	6.2***	6.7***	7.4***	7.3***	8.7***
Job tenure	−3.6***	−4.0***	−4.2***	−5.6***	−5.3***	−4.4***
Skills	−0.8***	−1.1***	−2.5***	−2.4***	−2.1***	−0.9**
Industry	−2.5***	−2.8***	−2.9***	−2.8***	−3.1***	−1.0***
Student	−0.1***	−0.2***	−0.2***	−0.1***	−0.1***	0.0***
Female	0.4***	0.4***	0.5***	0.5***	0.4***	0.2**
Time	0.9***	0.5***	0.4***	0.3*	0.3***	0.3***
CMA	4.0***	3.1***	2.0***	4.5***	3.6***	2.3***
GDP	−9.3***	−8.3***	−8.8***	−15.7***	−14.4***	−9.9***

Note: The table shows the estimated wage gap decompositions between non-permanent residents (NPRs), permanent residents (PRs) and Canadian-born workers for specification II described in **section 4**.

C Appendix C: Comparison with Census data

Table C.1: Summary statistics using Census data across immigration status

	2006			2011			2016			2021		
	Canadian born	PR	NPR	Canadian born	PR	NPR	Canadian born	PR	NPR	Canadian born	PR	NPR
Share of employed (%)	78.3	21.1	0.7	76.9	22.1	1.1	75.0	23.7	1.3	71.4	25.5	3.1
Age	39.6	43.4	34.7	40.8	44.3	34.1	41.3	44.6	31.9	41.8	44.7	30.5
Years of schooling	13.0	13.8	14.7	13.4	14.2	15.0	13.4	14.2	15.1	13.7	14.6	15.1
Experience	20.6	23.5	14.0	21.5	24.2	13.1	21.8	24.4	10.9	22.2	24.0	9.4
Female (%)	47.7	46.3	41.5	48.2	47.0	47.8	48.5	47.6	43.2	48.1	47.3	41.8
Student (%)	17.2	14.4	22.7	15.1	12.5	18.6	14.3	11.3	26.7	12.0	8.6	28.8
Employed (millions)	12.5	3.4	0.1	12.8	3.7	0.2	12.9	4.1	0.2	12.3	4.4	0.5

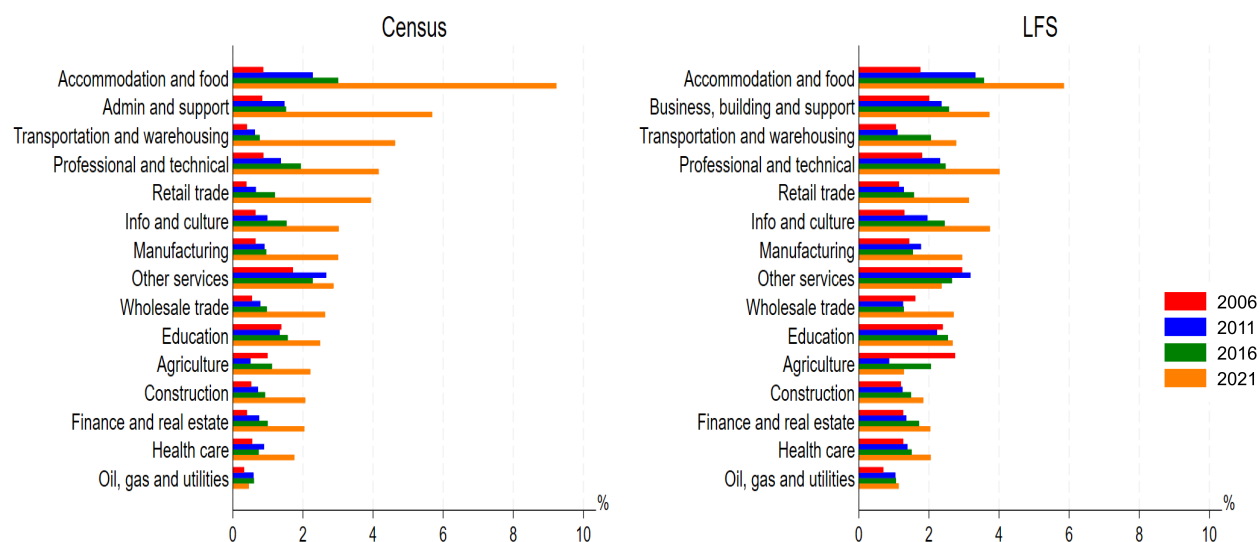
Note: The table displays average values of selected variables by immigration status across four Census years: 2006, 2011, 2016 and 2021. Refer to **Table A.4** (columns 1 and 2) for descriptions of the variables. The Census data from Statistics Canada are restricted to employed respondents with non-missing characteristics.

Table C.2: Summary statistics using Labour Fore Survey data across immigration status

	2006			2011			2016			2021		
	Canadian born	PR	NPR	Canadian born	PR	NPR	Canadian born	PR	NPR	Canadian born	PR	NPR
Share of employment (%)	78.5	19.9	1.6	77.5	20.8	1.8	74.4	23.6	2.0	70.6	26.6	2.8
Age	38.9	43.1	37.3	40.1	44.0	35.9	40.8	44.1	35.6	41.1	43.9	34.1
Years of schooling	13.6	14.2	14.4	13.8	14.6	14.9	14.0	14.9	15.1	14.2	15.2	15.4
Experience	19.3	22.9	16.9	20.3	23.4	15.0	20.8	23.2	14.5	20.9	22.7	12.7
Female (%)	47.3	45.8	43.6	47.6	47.1	45.3	47.9	46.6	47.2	47.5	47.2	45.3
Student (%)	8.4	6.1	9.5	8.1	6.0	9.4	7.7	5.7	12.4	8.0	6.0	14.9
Employed (millions)	12.9	3.3	0.3	13.4	3.6	0.3	13.4	4.3	0.4	13.4	5.0	0.5

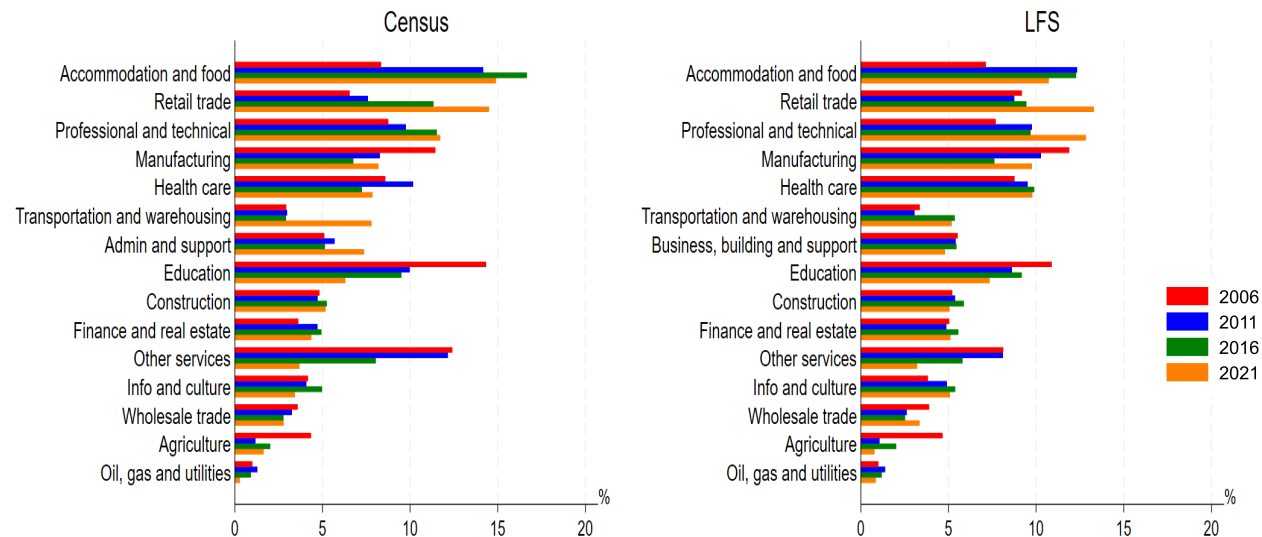
Note: The table displays average values of selected variables by immigration status across four Census years: 2006, 2011, 2016 and 2021. Refer to **Table A.4** (columns 1 and 2) for descriptions of the variables. The Labour Force Survey data are restricted to employed respondents.

Chart C.1: Comparison of employment shares of non-permanent residents between the Census and the Labour Force Survey



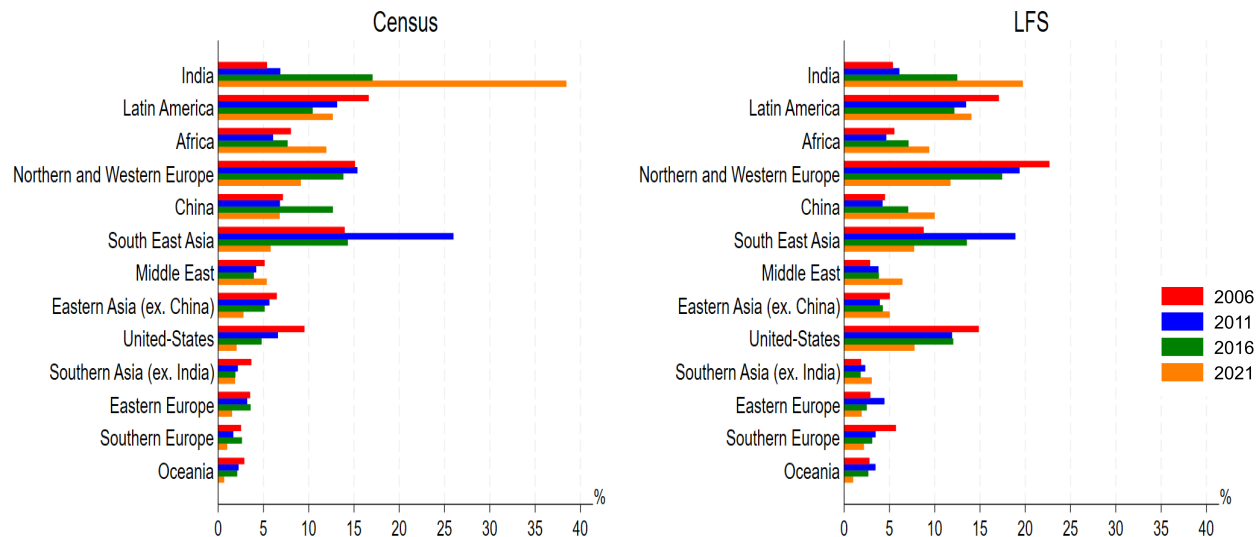
Note: The charts compare the shares of non-permanent residents employed in 15 different sectors across 4 Census years (2006, 2011, 2016 and 2021). The shares from the Census are on the left and from the Labour Force Survey (LFS) are on the right. Refer to **Table A.5** for detailed definitions of these sectors.

Chart C.2: Distribution of employed non-permanent residents from the Census and the Labour Force Survey



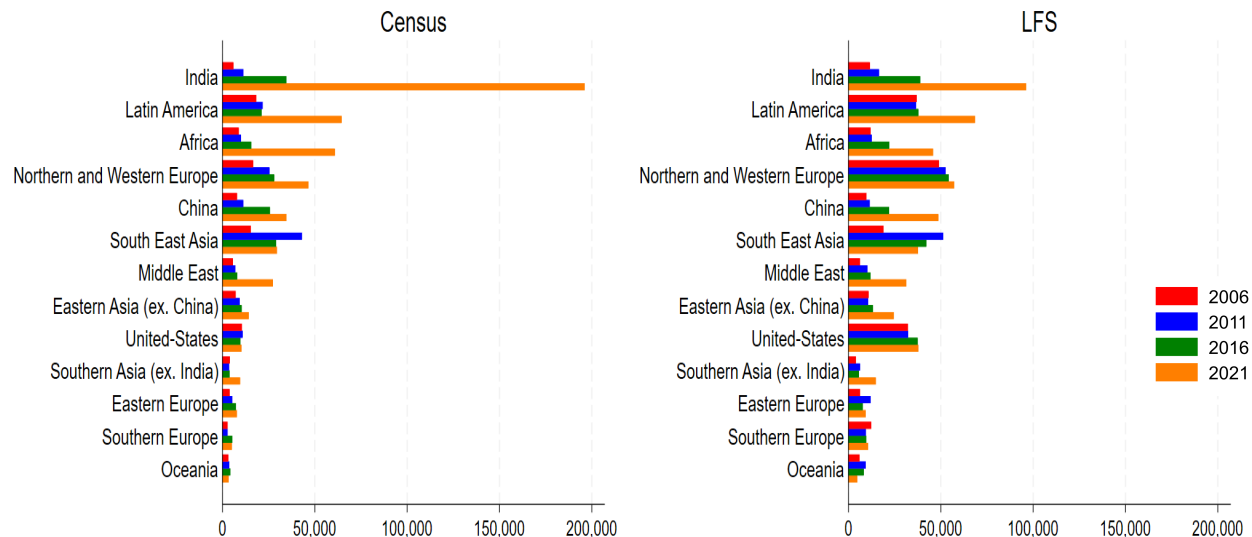
Notes: The charts compare the distribution of non-permanent resident workers across 15 NAICS sectors across four Census years: 2006, 2011, 2016 and 2021. Distributions recorded in the Census are to the left and in the Labour Force Survey (LFS) to the right. Refer to **Table A.5** for detailed definitions of these sectors.

Chart C.3: Shares of employed non-permanent residents in the Census and the Labour Force Survey, by birth region



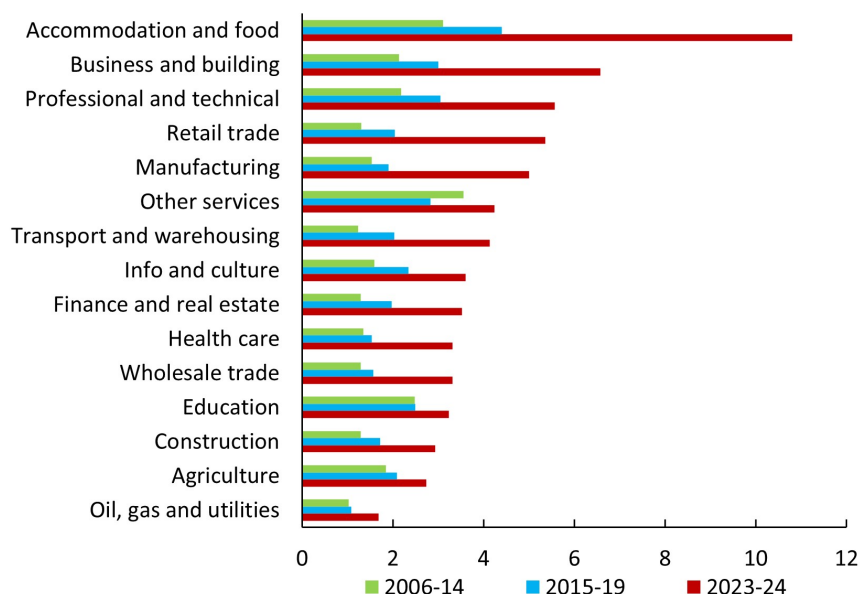
Note: The charts compare the shares of non-permanent resident workers, by birth region, across four Census years: 2006, 2011, 2016 and 2021. The shares from the Census are to the left and from the Labour Force Survey (LFS) on the right. The regions are based on the 2019 Standard Classification of Countries and Areas of Interest for Social Statistics.

Chart C.4: Number of employed non-permanent residents from the Census and the Labour Force Survey, by birth region



Note: The charts compare the number of non-permanent resident workers by birth region across four Census years: 2006, 2011, 2016 and 2021. Results from the Census are to the left and from the Labour Force Survey (LFS) to the right. The regions are based on the 2019 Standard Classification of Countries and Areas of Interest for Social Statistics.

Chart C.5: Employment shares of non-permanent resident by sector (%)



Note: The chart displays the employment shares of non-permanent residents across 15 sectors. Refer to [Table A.5](#) for detailed definitions of these sectors. Source: Labour Force Survey.