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EDUCATION, SKILLS AND LABOUR MARKET POLICY

The Growing Data Gap on Canada's Temporary Resident Workforce

by Mikal Skuterud

- Statistics Canada's Labour Force Survey (LFS) underestimates the rapidly growing non-permanent resident (NPR) population. This undercount potentially distorts important economic indicators, such as nominal wage growth and unemployment rates, because NPRs disproportionately influence these measures as a growing share of new labour market entrants.
- To address this data gap, this E-Brief recommends revising the LFS to better identify NPRs by including specific questions about study or work permits and exploring the possibility of linking survey data to immigration records for improved accuracy.

Introduction

Canada has experienced a dramatic increase in its non-permanent resident (NPR) population, also referred to as temporary residents, in recent years. Before 2020, NPRs never comprised more than 3 percent of Canada's population. As of October 2024, they comprised 7.4 percent of the population. While initial concerns over runaway NPR population growth were focused on overheating housing markets, by mid-2024, worries turned to the contribution of NPRs – particularly international students – to rising youth unemployment rates.

Evaluating the labour market impacts of Canada's growing NPR population requires timely, high-quality data on Canada's labour force. It is well known that Statistics Canada struggles to sample NPRs, in part due to challenges related to how Statistics Canada's Labour Force Survey (LFS) sampling frame is constructed. The LFS samples dwellings, not individuals, and gathers data on all persons usually living at the sampled address, including NPRs. There may be ambiguity about whether the address where NPRs are sampled is their usual residence, resulting in their exclusion from the survey.¹ Skuterud (2023) highlighted a significant and widening discrepancy between

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1 See: "Recent immigrants and non-permanent residents missed in the 2011 Census," Statistics Canada, Catalogue no. 89-657-X2019008, May 2019.



the share of NPRs in Canada's labour force estimated using the LFS and administrative data from Immigration, Refugees and Citizenship Canada (IRCC).² With continued growth in the NPR population since 2023, there is reason to believe this discrepancy has grown.

Why does this matter? The accuracy of the LFS's estimates of nominal wage growth and unemployment rates are critical in informing the Bank of Canada's monetary policy decisions and collective bargaining negotiations across the country. As IRCC introduces policies to rein in NPR entries, understanding whether international students are, in fact, crowding out and suppressing the wages of existing residents is essential.

This E-Brief examines the impact of Canada's surging NPR population on the quality of the LFS data by comparing the LFS's population estimates with official population estimates from Statistics Canada's Centre for Demography. The results reveal a substantial and growing divergence in official and LFS population estimates starting in 2021. While it is unclear to what extent this is affecting estimates of wage growth and unemployment, the growing discrepancies suggest there is reason for concern.

Population Estimates

This section provides an overview of population estimates between 2006 and 2024 for four groups in Canada. The groups are: (i) all Canadian residents; (ii) residents aged 15 and over; (iii) NPRs of all ages; and (iv) international students aged 15 and over (see Table A1 for details regarding the sources of these estimates.)

The official estimates of the first three groups are publicly available data from Statistics Canada, produced by the Centre for Demography, either quarterly or annually on July 1. For the fourth group, estimates of the number of study permit holders on December 31 of each year are published by IRCC on the federal government's Open Data Portal. To produce comparable estimates from LFS data, I accessed LFS master files through the Canadian Research Data Centre Network.

Comparisons begin in 2006, which is the first year that the LFS asked respondents where they were born, and for those who were born outside Canada, whether they are a landed immigrant (i.e., permanent resident). NPRs are defined as individuals who indicate they were born outside Canada and have never been a landed immigrant. This group also includes foreign-born individuals who were Canadian citizens at birth (e.g., children of foreign diplomats), but this population is small and likely stable over time.³ To estimate the international student population in the LFS, I identify NPR respondents in the LFS who report being full-time students at any level of schooling.⁴

2 For more information on the methodology used by the Labour Force Survey to produce its population estimates, see: "Interpreting population totals from the Labour Force Survey," Labour Statistics: Technical Papers, Statistics Canada, September 20, 2024.

3 In the 2021 census, foreign-born individuals who were Canadian citizens at birth comprised 0.9 percent of the population (322,530 of 36,228,480) and 19.8 percent of the foreign-born population who are not landed immigrants. See: Statistics Canada table 98-10-0361-01.

4 Part-time students are excluded because many NPRs who are enrolled in part-time studies will not be study permit holders, such as spouses and dependents of work and study permit holders, as well as asylum claimants and their dependents. In addition, LFS data suggests that the share of NPR students who were enrolled in part-time, as opposed to full-time, studies decreased from 13.1 to 9.8 percent between 2006 and 2023, implying that the surging post-2021 LFS shortfall in international students, shown in Figure 1, would be even bigger if part-time students were included.

The LFS is a monthly survey of roughly 60,000 households.⁵ To produce population estimates, it uses sampling weights calibrated to official population estimates from the Centre for Demography. While this calibration ideally ensures alignment with the official population estimates, differences arise due to methodological factors. For example, the NPR component of the LFS population control totals is adjusted using a 12-month moving average to smooth out seasonal fluctuations, such as month-to-month variation in the number of temporary foreign workers.⁶ Furthermore, while the LFS estimates are calibrated to match official population estimates for 24 age and sex groups across provinces, regions, and cities, they are not calibrated to match the NPR population. These methodological factors contribute to the observed discrepancies.

As a result, population growth that is driven by a surge in Canada's NPR population, as we have seen in the past two years, takes time to be captured in the LFS data. More importantly, because NPRs are underrepresented in the unweighted LFS data (see Figure 2 below), the sampling weights of non-NPRs are inflated to ensure that the LFS population estimates match the official population estimates. How these inflated weights are allocated across non-NPRs is unclear, but it could introduce biases in the estimates beyond the NPR population.

It is, however, important to note that official and LFS population estimates will differ for reasons unrelated to the surging NPR population. First, the LFS sampling frame excludes individuals living on reserves, institutional residents, and full-time members of the Canadian Armed Forces. Second, the LFS estimates are based on the week containing the 15th day of each month, whereas the official quarterly estimates are for the first day of January, April, July, and October. Last, the official estimates of the NPR population are based on counts of temporary permits that are currently valid. It is possible that permits are issued to individuals who never arrive in Canada, emigrate before their permits expire, or remain in Canada after their permits expire.⁷

To make the results as comparable as possible, LFS estimates for each quarter are derived from the respective January, April, July, and October LFS files, while annual population estimates are produced using the July files only. The December files are used to compare IRCC's international student population estimates for December 31 of each year. These adjustments do not address the limitation posed by the LFS's sampling exclusions, but there is no evidence that the excluded populations, such as institutional residents and armed forces personnel, have surged in recent years.

Results

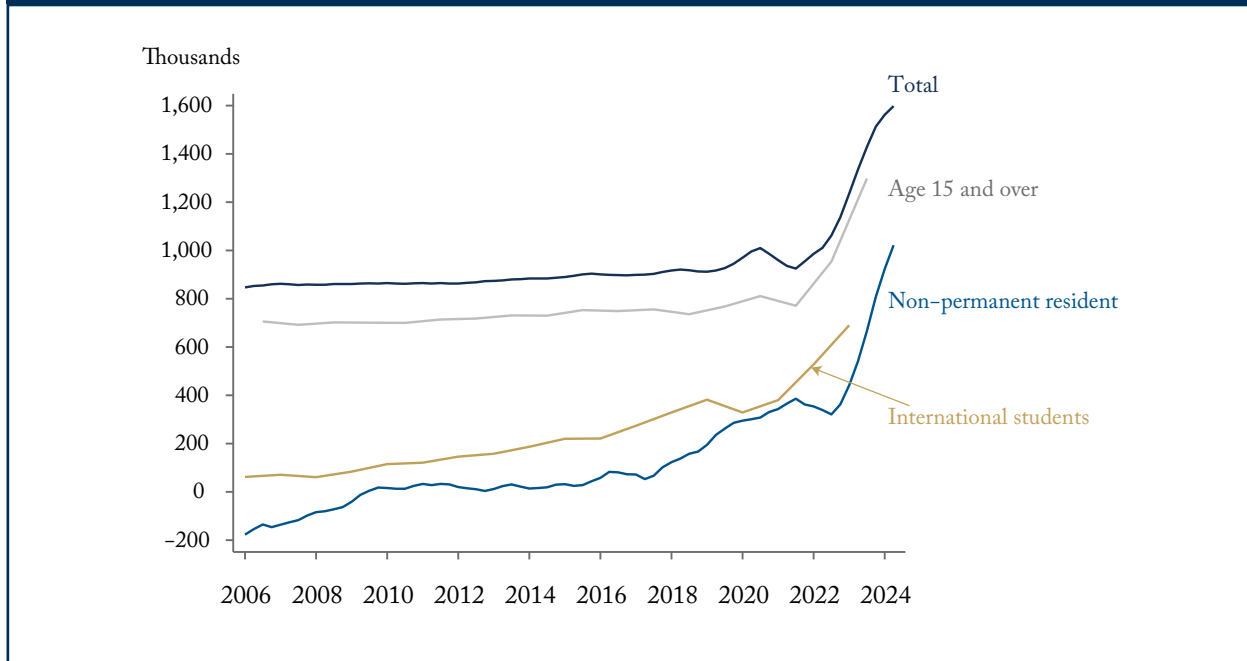
Figure 1 shows the difference between the official and LFS population estimates from 2006 to 2024. It indicates that the LFS population was consistently about 900,000 below the official population between 2006-2021, a shortfall of 2.5 percent. This gap presumably reflects the exclusion of some groups, such as institutional residents,

5 While the LFS's target population are individuals aged 15 and over, the master files identify all members of sampled households making it possible to produce all-age population estimates.

6 See: "Interpreting population totals from the Labour Force Survey," Statistics Canada, Catalogue no. 75-005-M, September 2024.

7 A recent Statistics Canada study found that one-quarter of valid study permit holders in 2019 were not enrolled in any publicly funded postsecondary education. The study is, however, unable to identify to what extent the discrepancy reflects enrolments in private career colleges or study permit holders who never arrived in Canada or who left Canada before their permits expired. See: "Characteristics of postsecondary international students who did not enrol in publicly funded postsecondary education programs," Economic and Social Reports, Statistics Canada, November 22, 2023.

Figure 1: Difference Between Official and LFS Population Estimates



Source: Official estimates from Statistics Canada tables Table 17-10-0009-01, 17-10-0005-01, 17-0121-01, and 17-10-0004-01, as well as IRCC Open Data. Labour Force Survey estimates from LFS master files.

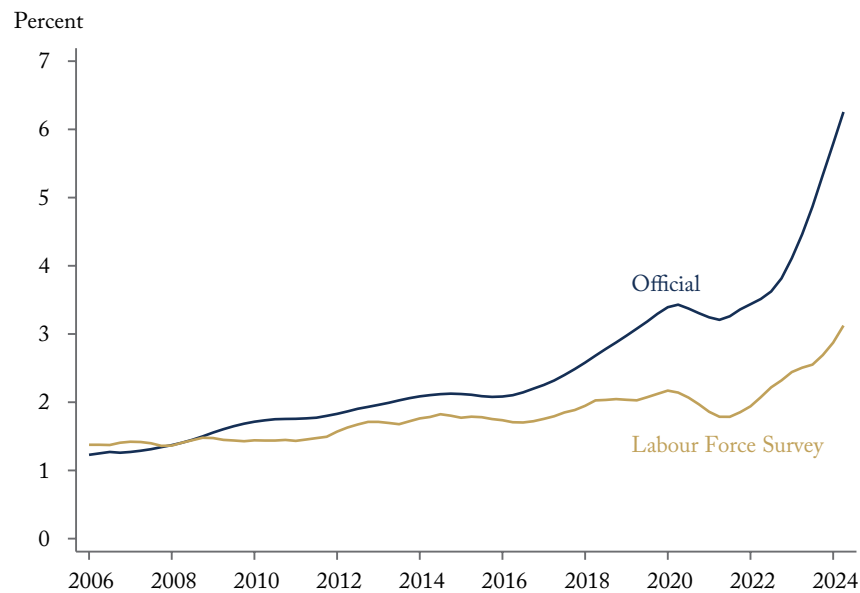
from the LFS target population. However, from late 2021 onward, the difference grows sharply, with the LFS population lagging by 3.9 percent compared to the official population estimate of 41,012,563 in the second quarter of 2024. When focusing on the population aged 15 and over, the LFS population was similarly 3.8 percent below the official estimate of 33,906,265 in July 2023.⁸ This divergence coincides with surging NPR population growth.

Examining the estimates of the NPR population reveals that the shortfall in the LFS estimates that spiked after 2021 is entirely explained by the LFS's underestimation of the NPR population. By the second quarter of 2024, the LFS estimated 1 million fewer NPRs in Canada than the official estimate of 2.8 million. This amounts to a 36 percent shortfall. Prior to 2018, the LFS showed no shortfall in estimating the NPR population. In fact, between 2006 and 2010, the LFS estimates of the NPR population exceeded the official estimates. What changed?

Part of the answer lies in the growth of international students. According to IRCC data, there were 122,620 study permit holders on December 31, 2006, comprising 0.37 percent of the population. By December 31, 2023, that number had increased to 1,040,985 or 2.55 percent of the population – more than a six-fold increase. The

⁸ In January 2025, Statistics Canada released a revised LFS data series based on new population control totals. The revised series incorporates population estimates from the 2021 Census and a slightly different approach for smoothing changes in the NPR population. These changes result in non-trivial upward revisions to the 15 and older population over the 2021–2024 period. However, the revisions are not large enough to eliminate the surging gaps, as shown in Figure 1. For example, in July 2023, the LFS population aged 15 and older was revised upward by 178,000, reducing the LFS gap for this group from 3.8 percent to 3.3 percent. For more details on the LFS revisions, see: Statistics Canada (2025).

Figure 2: Non-Permanent Resident Share of Official Population and Unweighted LFS Sample



Source: Official estimates from Statistics Canada tables Table 17-10-0009-01, 17-0121-01, and 17-10-0004-01. Labour Force Survey estimates from LFS master files.

LFS has failed to capture this dramatic population growth, estimating less than 400,000 international students in Canada on December 31, 2023 – more than a 60 percent shortfall from the IRCC’s estimate.

The underrepresentation of the NPR population appears more pronounced in the underlying unweighted LFS data. Figure 2 shows the NPR share of the population based on the official estimates and the unweighted LFS samples. The results are striking – while NPRs comprised slightly more than 1 percent of both the official population and LFS samples in 2006, by the second quarter of 2024, NPRs comprised slightly more than 6 percent of the population but only 3 percent of the LFS sample. The underrepresentation of NPRs in the LFS is, therefore, even greater in the unweighted data.

It is worth noting that overall response rates in the LFS dropped during the COVID-19 pandemic and have yet to recover. Specifically, they averaged 87 percent in 2019 but only 71 percent in 2023. The estimates in Figure 2 imply that the surging NPR population, combined with persistent challenges in sampling NPRs, has likely contributed to this decline.

Conclusion

By the second quarter of 2023, NPRs comprised 6.8 percent of Canada’s population but only 3 percent of individuals sampled by the LFS. The undersampling of NPRs in the LFS is not inherently problematic. The problem arises because the LFS sampling weights fail to correct for the lower response rates of NPRs. NPRs are a distinct demographic group that is younger and, in recent years, are likely to be concentrated in the low-wage service

sector. Because their employment patterns and wage outcomes are different, their underrepresentation inevitably skews LFS results.

More importantly, changes over time in average wage rates and unemployment rates are not driven by workers who are established in their jobs. Rather, these changes are driven by new labour market entrants. In recent years, this has overwhelmingly been NPRs in Canada. The fact that the LFS is unable to identify this growing segment of the population is a first-order problem that needs to be addressed.

The growing underrepresentation of NPRs in the LFS highlights a fundamental limitation of the survey in capturing this increasingly significant demographic group. While such limitations may have been acceptable when the NPR population was small, the current size and importance of this population make the issue far-reaching. Beyond its implications for government policymakers and economists, this underrepresentation distorts our understanding of labour market dynamics, immigration trends, and economic policy. Addressing this gap is far from a technical improvement – it’s a necessity for informed decision-making in an era of rapid demographic change.

While the federal government plans to lower the NPR share of the population to 5 percent by January 2027, the Bank of Canada is skeptical that they will be successful.⁹ NPRs are likely to comprise a significant share of the Canadian labour force for many years to come.

A first step in improving the representativeness of the NPR population in the LFS is to revise the LFS questionnaire so that NPRs are directly identified. The survey questionnaire first asks all respondents about their country of birth. Those who indicate they were born outside of Canada are then asked whether they are a “landed immigrant” and the year they became one. Foreign-born respondents who indicate they are not landed immigrants should then be asked if they currently hold a study visa or work permit or are asylum claimants. In this way, NPRs would be directly identified in the LFS. For nearly all research purposes, what is most relevant is the date a migrant *arrived* in Canada, rather than when they obtained permanent residency status. This distinction is important because temporary immigration arrivals have increasingly surpassed those through permanent residency. The current question asking landed immigrants when they landed should, therefore, be replaced with a question asking all foreign-born residents, including NPRs, when they first arrived in Canada.¹⁰

Before introducing these changes in the basic monthly questionnaire, an LFS supplement should be used to gauge the measurement error in the current data. This includes determining the extent to which NPRs are mistakenly identified as landed immigrants due to respondent or interviewer misunderstanding of the term “landed immigrant.” Alternatively, Statistics Canada could explore the feasibility of linking LFS respondents’ data to their temporary permits and landing records in the Immigration Longitudinal Database (IMDB).

Increasing the representation of the NPR population, particularly international students, in the LFS survey could significantly improve the accuracy of the LFS’s estimates of nominal wage growth and unemployment rates. It would also clarify whether NPRs are displacing existing residents and suppressing their wages.

9 See Bank of Canada, Monetary Policy Report, July 2024, p. 7.

10 While it is ideal to collect both the “year of arrival” and “year of landing” for analytical purposes, collecting both data points would increase the response burden for immigrant respondents. In cases where only one question can be prioritized, the analytical value of “year of arrival” is higher, given its broader applicability across all foreign-born respondents, including NPRs.

Appendix

Table A1: The Sources of Official Population Estimates

Population Series	Frequency	Source
Total	Quarterly	Table 17-10-0009-01
Age 15 and over	Annual (July 1)	Table 17-10-0005-01
Non-permanent Residents (all ages)	Quarterly	Tables 17-0121-01 (2021Q3-2024Q2) and 17-10-0004-01 (2006Q1-2021Q2)
International Students	Annual (December 31)	Stock of study permit holders (all levels) on December 31, IRCC Open Data

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