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# Assessing the effects of higher immigration on the Canadian economy and inflation

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# Introduction

Canada has seen a significant increase in immigration flows since 2022. While a well-established literature looks at the effects of immigration on specific economic variables or narrowly defined questions, significant gaps remain in our understanding of the broader macroeconomic impacts of a rise in newcomers.<sup>1</sup> Moreover, these effects are likely to vary among countries and over time due to the diversity of immigrant contributions to their host country's economy.

This staff analytical note helps shed light on this complex question. It examines key channels through which the rise in newcomers is changing both supply and demand factors in Canada. Given the complexity and breadth of immigrant contributions, we use a broad range of methodological tools:

- the literature on the macroeconomic effects of immigration
- microdata from the Labour Force Survey to examine the contribution of newcomers to the labour market, including by sector
- special questions and analysis from two of the Bank of Canada's surveys—the Canadian Survey of Consumer Expectations and the Business Leaders' Pulse
- targeted consultations with immigrant organizations
- model simulations using the Large Empirical and Semi-structural model (LENS)<sup>2</sup>

On balance, we find that the immediate impacts of the recent rise in newcomers may have boosted consumption, but the inflationary impacts from this channel do not appear considerable. Moreover, the rise in immigration is significantly raising the non-inflationary growth rate of the economy by boosting the labour supply. The rise in immigration is nonetheless contributing to pressures in inflation components linked to house prices, given that it is adding more to housing demand than to housing supply in the context of structural imbalances in the Canadian housing market.

In this analysis, we note several important caveats:

- Newcomers to Canada are diverse, including in the skills and wealth they bring to the country as well as in their consumption and remittance patterns. These nuances should be kept in mind when drawing lessons from studies outside of Canada and when extrapolating the experiences of individuals into bigger trends. Many international studies show that the economic effects of immigration depend heavily on home-country factors and immigrant characteristics.
- Significant gaps exist in the data. It is easier to get a picture of the labour market contributions of newcomers, but quantitative assessments of their impact on housing and consumption are more challenging. The same is true for assessing their overall effects on supply and demand.

The note is structured as follows: Section 1 provides context on the recent rise in immigration. Section 2 presents a review of related literature, and section 3 describes the methodology we use in this analysis.

<sup>&</sup>lt;sup>1</sup> By newcomers, we mean recent arrivals of both permanent residents and non-permanent residents.

<sup>&</sup>lt;sup>2</sup> LENS is a large-scale Canadian macroeconomic forecasting model used by the Bank of Canada. See Gervais and Gosselin (2014).

Section 4 outlines the effects of higher immigration on key channels of the economy, including housing, consumption and labour. Section 5 provides an initial assessment of the implications for inflation.

## 1. Rising immigration and shifting composition

Canada's population grew by a little bit more than 1 million people, or 3.0% of the population, from July 2022 to July 2023 (**Chart 1**).



Newcomers have driven most of the increase, with the largest rise among non-permanent residents (NPRs), who now represent around 60% of immigration into Canada. This group reflects a mix of students, low- and high-skilled temporary workers, and asylum seekers (**Chart 2**), and increases have been large across all NPR categories.

#### Chart 2: Increased newcomer inflows are driven by non-permanent residents

Permanent and non-permanent resident aggregates and programs, annual arrivals



Note: Data are for gross annual arrivals by program and may therefore include arrivals who were previously in a different program, such as permanent residents who transitioned from a temporary work or study permit. "TFWP" stands for Temporary Foreign Worker Program; "IMP" stands for International Mobility Program; "CUAET" stands for "Canada-Ukraine Authorization for Emergency Travel.

Sources: Immigration, Refugees and Citizenship Canada (accessed May 2022) and Bank of Canada calculations

Taking into account the differences in newcomer flows is important for understanding their economic effects. For example, a temporary worker in the agricultural industry will have very different labour market and consumption patterns than a university student or a worker in high tech who is permanently moving to Canada.

# 2. Related literature

In our review of the literature on the effects of immigration, we focus on the following categories: price pressures, consumption, wages and vacancies. Overall, results from the literature suggest that the impacts of immigration are highly nuanced and can vary depending on the characteristics of immigrants and the local economy. The results also suggest caution when using generalizations or rules of thumb since the specifics of the host country and immigrant characteristics drive the economic effects. For example, some studies find that house prices fall in response to higher immigration, depending on which sectors benefit the most from the increase in workers.

### **Price pressures**

In the literature, whether an increase in immigration leads to negative or positive price effects depends on the composition of immigrants entering the country and the sectors they are then employed in. Studies based on US data suggest that a rise in the immigrant labour supply can lead to lower prices. This is because increased labour reduces the prices of non-tradable goods and services, which intensively use low-skilled labour in their production (Cortes 2008). The benefits, though, are not uniform across the population. For example, Cortes (2008) also finds that high-skilled non-immigrants who consume more services that use a lot of immigrant labour than the rest of the population benefit more than their low-skilled, non-immigrant counterparts.

Moreover, an increase in immigrant labour supply can result in lower prices when retailers actively try to grow their customer base. Lach (2007) finds that immigrants have a higher price elasticity of demand, among other factors, leading retailers to cut prices to attract immigrant consumers.

The literature also finds that immigrant inflows can cause a rise, or fall, in house prices, with studies from the United States and Europe suggesting mixed effects. Using Norwegian data, Furlanetto and Robstad (2019) find little impact on house prices from a rise in immigration. They hypothesize that most immigrants in Norway are unlikely to be able to afford the purchase of a house because they have lower income levels. Focusing on low-skilled immigrants in the United States, Monras (2020) finds that areas that attract high immigration flows tend to see the prices of rental services increase in the short run. Higher rental rates decrease over the long run with increased construction activity fuelled by a rise in immigrant labour. Identifying where most immigrants work is key for analyzing the magnitude of this second long-term effect. In Monras (2020), most low-skilled immigrants flowed into the construction sector, boosting housing supply.

## Consumption

The literature shows some evidence that immigrants' consumption is lower than that of non-immigrants. Dustmann and Mestres (2010) find that immigrants in Germany remit about 10% of their income outside of the country, while Albert and Monras (2022) document a remittance share of 20% for immigrants living in the United States.

Identifying the difference in home- versus host-country prices is also key for understanding immigrants' local consumption patterns. Albert and Monras (2022) find that immigrants from countries with lower home-country prices had lower local consumption expenditures than non-immigrants.

#### Wages

The literature shows that immigration can potentially have both positive and negative effects on overall wages. The change in wages can vary, based on factors like the time period considered, the skill level of the immigrants and the investment response of firms.

In a Solow model (Solow 1956), when all workers are identical, increased immigration leads to lower wages in the short run but does not affect wages in the long run. In the short run, gross domestic product (GDP) rises, per capita GDP falls and real wage rates decline as capital-to-labour ratios fall. Conversely, rental rates of capital increase with the rise in labour supply. Over the long run, this leads to an increase in investment and a recovery in labour productivity and wages.

When taking varying skill levels into consideration, the literature suggests that workers in the same skill group as immigrants see declines in their wages in response to immigration, while non-immigrant workers in other skill groups see their wages rise. Cortes (2008) finds that only non-immigrants that are highly similar to immigrants (e.g., in their language proficiency, education or race) observe negative wage effects. Other studies show mixed results, reflecting how narrowly a skill group can be defined because negative wage effects are expected only if immigrants and non-immigrants are close substitutes. For example, Card (1990) finds negligible wage effects and Borjas (2003) finds a negative effect, while Ottaviano and Peri (2012) find positive effects.

If firms raise investment alongside an increase in immigration, wages may not decline or even rise. In Ben-Gad (2004), higher immigration raises the marginal product of capital, leading firms to invest more in capital goods, suggesting (as in the Solow model) that wages need not fall. Bodvarsson, Van den Berg and Lewer (2008) find that the added consumption demand from immigrants increases overall labour demand—and, simultaneously, rises in both labour supply and demand may result in no significant changes in real wages. Non-immigrant workers may also see productivity benefits from working alongside high-skilled immigrants (spillovers), as Borjas (2019) finds, boosting GDP per capita over all time horizons.

#### Vacancies

The literature shows some ambiguity as to the effects of immigration on job vacancies.

From the viewpoint of a search model, an increase in labour supply can have no impact on labour market tightness in equilibrium. From the perspective of a Diamond-Mortensen-Pissarides search model,<sup>3</sup> a surge in immigrant labour supply causes a proportionate rise in vacancy creation. Intuitively, this is because a higher labour supply means that it is easier to fill a vacancy (a posting provides higher value at the same

<sup>&</sup>lt;sup>3</sup> The Diamond-Mortensen-Pissarides search model refers to a random search model. It is named after the three economists—Peter Diamond, Dale Mortensen and Christopher Pissarides—who won the 2010 Nobel Prize in Economics for their work on markets with search frictions.

cost). Firms are therefore motivated to post more vacancies until the costs and benefits balance out. Vacancy creation can also increase if immigrant labour is less expensive, as discussed in Borjas (2003). This could be the case, for example, if immigrant workers have fewer outside options.

An increase in immigration, however, can reduce vacancies and labour market churn if it limits the effects of a so-called vacancy chain. If a firm poaches an employee from another firm, causing a vacancy, it can trigger a chain of vacancies as firms look to backfill their departing employees (Elsby et al. 2022). This chain would lead to rising wages as firms compete to lure workers. However, if a vacancy is filled by a job-seeking immigrant, no such chain is created.

## 3. Methodology

We use several tools to better understand the channels through which immigration affects the Canadian macroeconomy.

### Microdata from the Labour Force Survey

Detailed Labour Force Survey (LFS) microdata help us examine the contribution of permanent residents (PRs) and NPRs to the Canadian labour market. The advantage of using the LFS microdata is that we can gather more detailed characteristics of newcomers in the workforce, such as hours worked, wages and industry of employment. These details are not included in other publicly available data sources. From these data, we can identify whether a respondent was born in Canada or was ever a landed immigrant (PR) and, if the latter, what their landing date was. The LFS defines NPRs as those who were neither a landed immigrant nor born in Canada.<sup>4</sup>

## Survey data and consultations

We draw on special questions and analysis from the Bank of Canada's surveys of businesses and consumers:

- The Canadian Survey of Consumer Expectations is a quarterly survey of consumers started in 2014. Approximately 2,000 participants each quarter respond to questions on inflation, the labour market and their own spending and household finances. The survey also provides rich demographic information, useful for analyzing questions related to immigration.
- The Business Leaders' Pulse (BLP) is an online survey of business decision-makers with a monthly sample of between 300 and 400 firms.<sup>5</sup> It has broad coverage across sectors and includes questions on sales and the overall business outlook. Questions related to employment and other special topics were added to assess how firms are employing newcomers.

<sup>&</sup>lt;sup>4</sup> While this group could also include some Canadians born outside of Canada, census data show that most of the group consists of NPRs.

<sup>&</sup>lt;sup>5</sup> For more information on the BLP, see Chernis et al (2022).

To better understand the economic impacts of increased immigration to Canada, the Bank also conducted targeted consultations in June 2023. Bank staff spoke to a small sample of Canadian organizations that support newcomers as well as a firm that recruits international workers for Canadian businesses.

## Model simulations using LENS

To quantify some of the channels through which immigration impacts the Canadian economy, we turn to the LENS model. LENS is based on a system of semi-structural equations that describe the dynamics of key macroeconomic variables in Canada. The model aims to balance theoretical structure and empirical properties, with most of its behavioural equations embedding forward-looking expectations with adjustment costs. Key elements of the model include blocks for all the components of Canadian GDP (e.g., consumption, housing and investment), a monetary policy reaction function, inflation and wage Phillips curves, and a labour market block.

LENS reacts to higher population growth through several mechanisms. The rise in the labour supply results in an increase in the non-inflationary growth potential of the economy. Housing demand and consumption also increase because there are more people. In turn, increases in both housing demand and consumption lead to a rise in the demand for labour.

In this note, we run simulations calibrated to recent Canadian immigration inflows to help understand some of the net effects on consumption, GDP and inflation.

## 4. Key channels and results

Drawing on the survey data, information gathered through consultations, microdata on the labour market and model simulations described above, we present insights into three channels through which immigration impacts the Canadian economy:

- the labour supply
- housing
- consumption

## Labour supply

The recent rise in immigration has significantly boosted Canada's labour supply. Despite this positive boost, signs exist that the flow of workers into the Canadian labour force could be better aligned. This is evident in the microdata, which show that some sectors of the economy (e.g., the construction industry) are not benefiting as much as others, despite significant shortages of workers. Consultations also reveal widespread underemployment of newcomers based on their past training and experience.

#### Boost to the labour supply

Immigration has markedly increased the labour supply in Canada: PRs and NPRs have driven growth in total hours worked since 2019, despite comprising a far smaller share of the population (**Chart 3**). The rise in total hours has come from an increase in the quantity of PRs and NPRs. Increases in their employment rates and average hours worked have also contributed, but more modestly.



## Chart 3: The contribution of newcomers to growth in total hours worked has risen

Without the increased contribution from newcomers, the aging of the population would have meant a decline in labour supply in Canada, as measured by hours worked. The average hours worked for all workers in fact fell between 2019 and 2022. This effect on average hours was partly offset by the shift in composition toward PRs and non-student NPRs, who tend to work more hours on average than non-immigrants.

Moreover, rising hours worked among international students also helped offset some of the decline. The contributions to the labour supply from international students have increased dramatically (more than two-fold) since 2019 alongside federal government policy changes to the amount of hours they are allowed to work while studying in Canada. However, their contribution to employment is still somewhat modest, at just 0.5%.

Overall, the increase in the labour supply from newcomers has significantly boosted the non-inflationary growth potential of the Canadian economy. Between the beginning of 2022 and middle of 2023 alone, this increase has raised the potential growth rate by up to 2 to 3 percentage points.<sup>6</sup>

#### Sectoral alignment

The increase in the share of employed workers who are either PRs or NPRs has been largely broad-based across sectors. However, some sectors with serious shortages may not be benefiting as much as others from the higher immigration levels (**Chart 4**).

• The largest increases have been in the relatively high-skilled professional, technical and scientific services, followed by information, culture and recreation. Low-wage sectors have also had gains, including in accommodation and food services. However, even with rising immigrant participation, total employment in this sector still lags behind 2019 levels.

<sup>&</sup>lt;sup>6</sup> The lower bound of the range reflects the assumption of no change in the capital stock in response to additional labour supply, while the upper bound includes this standard assumption.

- The rise in NPR flows may not be helping certain sectors with serious shortages relative to the overall benefits to the labour market. As discussed in the housing subsection below, the immigrant share in the construction sector has risen only a bit over this period.
- Firms in most sectors have reported an increased reliance on newcomers since the reopening of the economy from the COVID-19 pandemic. Firms in accommodation and food services stand out in reporting significant hiring of international students.



# Chart 4: Immigrants comprise a small share of employment in construction

Consultations also suggest that greater alignment between newcomer flows and areas of labour shortages could result in benefits. Participants widely reported the underemployment of immigrants relative to their home-country skills and experiences. This reflects difficulties in getting foreign credentials recognized in Canada as well as challenges in adapting to the Canadian business environment. Survey evidence shows that recent newcomers are more likely than other workers to plan to change jobs for higher wages and better career opportunities, thus increasing overall labour market churn. These responses suggest challenges in matching newcomers with appropriate employment. On a positive note, small firms are increasingly using newcomers as a source of labour compared with their past hiring.

#### Wage pressures

Assessing the wage effects of the recent rise in newcomers is challenging, given the complex ways that immigration can affect salaries. As discussed in section 2, immigration can have both positive and negative effects on overall wages, depending on factors such as productivity spillovers from highly skilled immigrants and the similarities between newcomers and existing workers. Capturing all of these channels is beyond the scope of this note. But, if we look at the actual wages of NPRs in Canada, they tend to be on average lower than those of non-immigrants, and this compositional shift in the labour force may have meant a softening in recent wage growth of around 0.2 to 0.4 percentage points.<sup>7</sup> This estimate on its own, though, is somewhat misleading because it ignores general equilibrium effects. These effects would boost labour demand and wage growth, because of the boost to consumption and housing demand

<sup>&</sup>lt;sup>7</sup> The upper estimate uses NPR numbers in line with quarterly population estimates, which are more timely than data from the LFS.

coming from higher newcomer inflows or because of productivity spillovers. Future study of this broad set of channels is warranted.

### Housing

A rise in immigration to Canada may contribute more to housing imbalances than found in studies of other countries. This is because Canada already has imbalances between its housing supply and demand and because relatively few newcomers join the construction industry.

#### Housing demand

Survey data and consultations show that most immigrants rent a home upon arrival, boosting near-term demand for rental accommodation (**Chart 5**). However, these sources also show that newcomers prioritize home ownership; in fact, they reach similar home-ownership rates to those born in Canada within only a decade (**Chart 6**). Many newcomers also report bringing savings from their home countries to help finance home purchases, although these flows are not captured in official data sources. Among immigration categories, skilled workers with a job before arrival are more likely to purchase a home quickly than those who come to Canada under different programs.



#### Chart 5: Newcomers are more likely than others to rent their home

Note: Results are based on responses to the question, "Do you own or rent your current primary residence?" Newcomers include permanent residents who arrived in the country less than five years ago and non-permanent residents. Long-term immigrants are permanent residents who arrived five years ago or before.

Sources: Bank of Canada and Bank of Canada calculations



Note: Results are based on responses to the question, "Do you own or rent your current primary residence?" Immigrants to Canada include permanent and non-permanent residents.

#### Sources: Bank of Canada and Bank of Canada calculations

#### Housing supply

Newcomers contribute to the housing supply through employment in the construction sector. This is an important addition, given that the sector faces chronic labour shortages that are expected to increase alongside Canada's aging population. However, the construction industry appears to benefit less from high immigration levels than other sectors do. Only around 5% of employed NPRs (or 3% of total NPRs) go into construction as their main job, despite strong demand for workers in this sector.<sup>8</sup> This rate is well below the construction sector's 8% of total employment. Removing skill composition from the comparison, this suggests that a near tripling of current NPR inflows into construction is needed to bring their share of employment up to the same level of the general population's participation in the construction industry.

As a result, the imbalance between housing demand and supply has risen steeply. In the five years preceding the pandemic outbreak, net new household formation, also known as demographic demand, modestly outpaced the construction of new homes (**Chart 7**). However, over the past year, the gap between demand and supply surged. Altogether, Canada would need just over 200,000 additional homes to close the gap between housing demand and the supply that has grown since 2015. This is equivalent to around 10 months of housing starts, compared with 2½ months in 2019.

<sup>&</sup>lt;sup>8</sup> In the literature, studies outside of Canada find that immigration may not lead to a rise in house prices over the medium to long term. But unlike the current experience in Canada, in those studies, immigrant groups were not participating much in the housing market but were making significant contributions to the host country's housing supply.



## Chart 7: Demographic demand has far outpaced housing construction in recent quarters

Some of these pressures are evident in the inflation data. The decline in house prices in the current monetary policy tightening cycle has been less than would have been expected based on previous episodes, and shelter inflation is expected to contribute meaningfully to inflation over 2024 and 2025.<sup>9</sup>

### Consumption

Macroeconomic models tend not to distinguish between immigrant and non-immigrant consumption patterns. However, consultations and survey evidence suggest there can be substantial differences: some newcomers have higher initial levels of consumption on arrival but then settle into ongoing lower levels of consumption due to remittance payments and savings for house purchases. Overall, model simulations suggest that an initial, additional boost to consumption from the recent rise in immigration to Canada is unlikely to have significant macroeconomic effects beyond what is already captured in standard economic models.

#### On initial entry to Canada

Consultations suggest many immigrants bring considerable savings to Canada to set up households, prepare for work and purchase homes. This may have led to an initial boost to consumption from the recent surge in immigration, above and beyond the contribution of immigrants to the labour supply.

To explore whether this could be driving overall consumption or inflation patterns in Canada, we use LENS to simulate what is likely an upper-end estimate of a possible boost to consumption. To help calibrate what the consumption boost could be, we draw on the 2023 minimum required funds (\$13,757) for an individual skilled worker's entry into Canada.<sup>10</sup> We double this amount to get a sense of what could be

<sup>&</sup>lt;sup>9</sup> Bank of Canada (2023).

<sup>&</sup>lt;sup>10</sup> Non-skilled workers may spend even less, given their lower wages and less likelihood of settling permanently in Canada.

the upper-bound effects. We then apply this additional consumption to 500,000 people—in line with the additional pickup in recent newcomer flows.<sup>11</sup>

Overall, even under strong assumptions about the amount spent by newcomers on arrival to Canada, the effects on consumption are somewhat modest, and the implications for inflation are even lower. Under the scenario where each individual spends double the minimum required amount of funds, consumption at its peak is 0.8% higher and inflation is less than 0.1 percentage point higher on a year-over-year basis.<sup>12</sup>

#### After initial set-up

Survey evidence suggests that after immigrants' initial necessary spending on items for starting a new life in Canada, they then consume less than non-immigrants (**Chart 8**). While some of this reduced consumption may be the result of sending remittances home, as has been well-documented in other countries, survey results show that in Canada the primary use for these savings appears to be to support house purchases (**Chart 9**). This difference persists for about 10 years, coinciding with the period after which immigrant home ownership rates converge with those of non-immigrants.



Note: Marginal propensity to consume for each group is calculated as the interpolated median of expected spending growth less expected income growth. Newcomers include permanent residents who arrived in the country less than five years ago and non-permanent residents. Long-term immigrants are permanent residents who arrived five years ago or before.

Sources: Bank of Canada and Bank of Canada calculations

<sup>&</sup>lt;sup>11</sup> In reality, some NPRs enter Canada as part of a family unit, which has fewer per capita requirements than individuals.

<sup>&</sup>lt;sup>12</sup> This response is estimated without a reaction by monetary policy.



Note: Results are based on responses to the question, "What is the main reason you expect to save more?" Newcomers include permanent residents who arrived in the country less than five years ago and non-permanent residents. Long-term immigrants are permanent residents who arrived five years ago or before. Sources: Bank of Canada and Bank of Canada calculations

# 5. Implications for inflation

It is not possible to quantify all of the different ways that the recent rise in newcomers affects inflation. However, the overall impacts appear muted—but this holds only outside of housing.

- Factors adding to inflationary pressure include:
  - o a boost to initial consumption from home-country savings
  - o increased demand for housing (relative to increased supply)
- Factors reducing inflationary pressure include:
  - o an increase in the labour supply
  - o productivity gains from high-skilled workers
  - o a lower likelihood to consume once newcomers are established

Overall, the initial rise in immigration that Canada has experienced is more likely inflationary in the near term, but the boost to inflation from consumption is modest. In LENS, the upper bound of the decrease in wage pressures does not offset the modest inflationary boost coming from consumption. These effects though are not overly substantial in the current inflationary context.

A more significant inflationary risk appears when it comes to housing, given chronic labour shortages in the construction sector, low levels of employment by newcomers in construction and increased housing demand by newcomers relative to supply. If this imbalance continues to add to the existing structural challenges facing housing construction in Canada, then housing-related components of the consumer price index could see additional upside pressure. This pressure could offset some of the significant long-term benefits that immigration brings from boosting labour supply.

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