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DEMOGRAPHICS AND IMMIGRATION

Inflated Expectations: More Immigrants Can't Solve Canada's Aging Problem on Their Own

by

William B.P. Robson and Parisa Mahboubi

- Canada's aging population puts pressure on living standards, dampens growth of government revenue, and presents fiscal challenges – notably to public pension and healthcare systems.
- While higher immigration can mitigate the impacts of demographic change on the workforce and Canada's age structure, a closer look at actual and potential numbers reveals the limits of this approach.
- Building from the federal government's recent announcements, and inspired by the Advisory Council on Economic Growth's recommendation for an increase to 450,000 immigrants annually over five years (Advisory Council on Economic Growth 2016), we project growth in the working-age population, old-age dependency, and other key measures over the next 50 years.
- The key message from these simulations is that changes in immigration levels have impacts on the margin only: no increase within the realm of practicality can prevent population aging. Other policies to ease the demographic transition, notably encouraging people to work longer, are at least as powerful – and, further, would complement changes to immigration policy by improving Canada's attractiveness to people willing and able to contribute to the Canadian economy.

Lower fertility and longer lives are raising the average age of the population around the world. Canada is aging relatively quickly. Canada's fertility rate dropped below the replacement rate of 2.1 required for population stability in 1971, and life expectancy at birth has increased by more than nine years since then.¹ The number of people age 65 and over relative to the population of working

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1 For both sexes. Statistics Canada, Canadian Mortality Database, Canadian Vital Statistics-Deaths.

age as traditionally measured (18-64) rose by more than 10 percentage points over the past 40 years, and will rise by more than 10 percentage points again over the next 40. Aging puts pressure on living standards, damps growth of government revenue, and presents fiscal challenges – notably to public pension and healthcare systems.

In looking for ways to mitigate this pressure, people naturally think about immigration. Immigration is a major contributor to population growth in Canada – more important than births since 1999 – and its importance is growing: Statistics Canada’s projections have immigration accounting for more than 80 percent of annual population increases by 2031.² Critically, immigrants are relatively younger than the already-resident population (Figure 1). On its face, then, immigration might appear a fountain of youth – and of growth – for the country.

Many influential voices reinforce this idea. A Conference Board of Canada comment on raising immigration levels said: “In the absence of immigration, economic growth and government revenues would slow, and Canada would struggle to fund vital social programs” – strongly implying that immigration can prevent these problems.³ The links between immigration-driven population growth and economic success are a key theme in Doug Saunders’s recent book *Maximum Canada* (Saunders 2017). The federal government’s announcement of its intention to bring in 310,000 new permanent residents in 2018, 330,000 in 2019 and 340,000 in 2020 explicitly cited slowing labour-force growth and an aging population as motivations for higher immigration.⁴

While higher immigration can mitigate the impacts of demographic change on the workforce and Canada’s age structure, a closer look at actual and potential numbers reveals the limits of this approach. In the pages that follow, we investigate several scenarios for increased immigration. Building from the federal government’s recent announcements, and inspired by the Advisory Council on Economic Growth’s recommendation for an increase to 450,000 immigrants annually over five years (Advisory Council on Economic Growth 2016), we project growth in the working-age population, old-age dependency, and other key measures over the next 50 years.

The key message from these simulations is that changes in immigration levels have impacts on the margin only: no increase within the realm of practicality can prevent population aging. Other policies to ease the demographic transition, notably encouraging people to work longer, are at least as powerful – and, further, would complement changes to immigration policy by improving Canada’s attractiveness to people willing and able to contribute to the Canadian economy.

Canada’s Demographic and Economic Future: Baseline Scenario

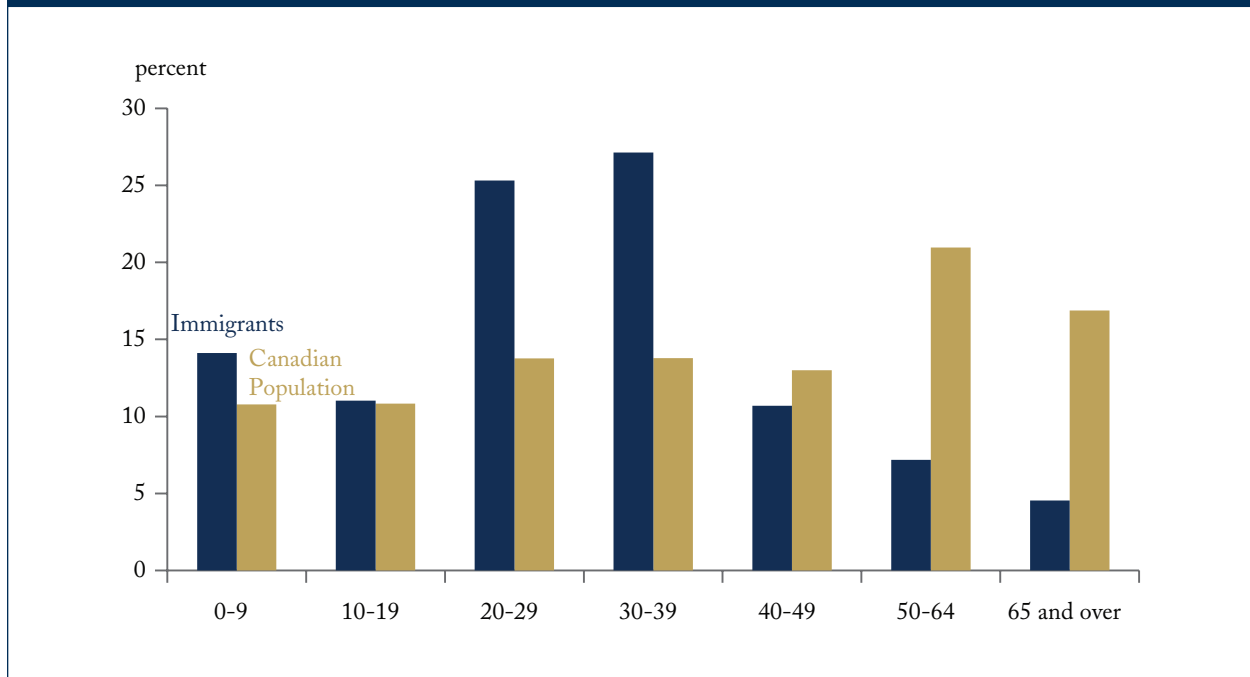
The reasons for concern about Canada’s demographic future emerge from a quick review of recent numbers and trends. In 2017, Canada’s total population stood at 36.7 million. With the population age 65 and up standing at 6.2 million and the population traditionally considered to be of working age – age 18 to age 64 – standing at 23.4 million, the old-age dependency (OAD) ratio – the population age 65 and up relative to the population of

2 Statistics Canada, Catalogue no. 98-310-X2011003.

3 <http://www.conferenceboard.ca/press/trending-insights/trending-insights/2017/11/01/2018-immigration-plan-higher-levels-and-a-multi-year-plan-will-benefit-canada-s-economy>.

4 Immigration, Refugees and Citizenship Canada, “News Release: Historic multi-year immigration plan sets out highest levels in recent history,” 1 November 2017 <https://www.canada.ca/en/immigration-refugees-citizenship/news/2017/11/news_release_growingcanadaseconomicfuture.html> accessed 21 November 2017.

Figure 1: Age Distribution of Immigrants and Canadian Population in 2017



Source: Statistics Canada, CANSIM, tables 051-0001 and 051-0011.

working age – was 26.4 percent. Canada’s national fertility rate – the average number of children each woman is expected to bear over her lifetime – was estimated at 1.67. And net immigration – gross inflows minus estimated outflows – likely totalled 226,100 or 0.71 percent of the already-resident population (Table 1).

With GDP per working-age person of about \$91,200 annually, national GDP stood at \$2.1 trillion in 2017. Divided over the total population, that amounted to about \$58,300 per Canadian.

Demographic Projections

How might these numbers evolve in the years ahead? A few simple assumptions allow projections for a Baseline population scenario, and a few additional ones permit some speculations about their implications for economic growth.

We begin by using a population projection model maintained at the C.D. Howe Institute, assuming that the fertility rates of women in each province remain at their 2017 levels, and that improvements in life expectancy continue at rates similar to Statistics Canada’s “medium” rate for each sex. The immigration rate rises to 0.9 percent of the already-resident population by 2020, reflecting the government’s recently announced targets, and stays there through 2067. The emigration rate remains at its 2017 level of 0.13 percent of the population. Non-permanent residents are not easy to model: their number has changed significantly from year to year because of frequent policy changes. For simplicity, we assume that the net stock of non-permanent residents remains at the 2017 level of 105,988 through 2067. The demographic panel of Table 1 presents the main demographic assumptions and results for this Baseline scenario.

Table 1: Assumption and Results in Baseline Scenario

	2007	2017	2027	2037	2047	2057	2067
Demographic Panel							
Life Expectancy at Birth (years)							
Male	78.5	81.0	82.9	84.6	86.0	87.2	87.7
Female	83.1	84.7	85.9	86.9	87.9	88.9	89.2
Total Fertility Rate	1.66	1.67	1.67	1.67	1.67	1.67	1.67
Gross Inflows (thousands)	238.1	272.7	373.21	421.4	474.5	530.0	594.9
Gross Outflows (thousands)	40.9	46.6	52.5	59.2	66.5	74.5	83.6
Net Immigration (thousands)	197.3	226.1	320.7	362.2	408.0	455.5	511.4
Net Immigration (as % of resident population)	0.60	0.62	0.77	0.77	0.77	0.77	0.77
Population Age 18-64 (millions)	21.5	23.4	25.1	28.0	31.5	35.2	39.5
Population Age 65 and over (millions)	4.4	6.2	8.4	10.1	11.1	12.6	14.3
Total Population (millions)	32.9	36.7	41.7	47.0	52.8	59.1	66.3
Old-Age Dependency Ratio 65+/18-64 (%)	20.5	26.4	33.5	36.1	35.4	35.7	36.3
Economic Panel							
Annual Growth in GDP per Working-Age Person (decade ending averages, %)	1.9	0.8	1.3	1.3	1.3	1.3	1.3
Annual Growth in GDP per Canadian (decade ending averages, %)	2.2	0.6	0.7	1.2	1.4	1.3	1.3
Note: Values for 2007 are actual, for 2017 are estimates from the latest available data, and for the period after 2017 are projections. GDP is in 2017 dollars. Net international migration includes immigration minus net emigration, excluding net non-permanent residents. Immigration reaches the government's target level of 310,000 in 2018, 330,000 in 2019, and 340,000 in 2020.							
Source: Statistics Canada and authors' calculations.							

Figure 2a displays growth in the working-age population from 1972 to 2017, as well as the Baseline projection for the next 50 years. Growth in the working-age population drops sharply until 2020 as the baby-boomers pass age 64. It picks up again in the 2030s, though not fully recovering to the growth rates of the early 2000s. It subsequently moderates to a pace just above 1 percent annually. By 2067, the working-age population stands at 39.5 million.

Meanwhile, the number of people age 65 and up rises rapidly through the 2020s, more slowly in the 2030s and 2040s, and somewhat faster again during the 2050s. By 2067, it stands at 14.3 million. With Canada's total population that year standing at 66.3 million, the OAD ratio would, in this Baseline scenario, rise above 36 percent in the mid-2030s, and after a period closer to 35 percent through the early 2050s, rise again later to stand at 36.3 percent in 2067.

Figure 2a: Actual and Projected Workforce Growth in the Baseline Scenario

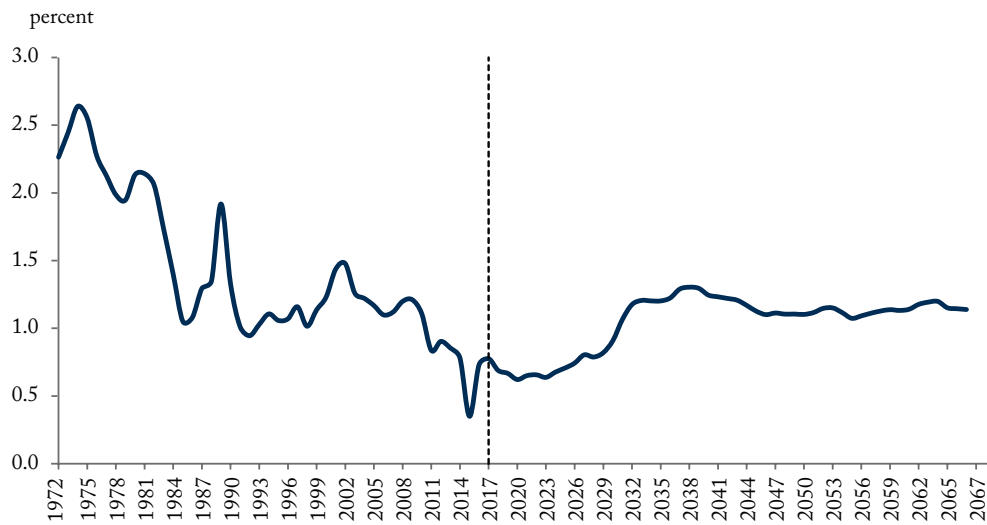
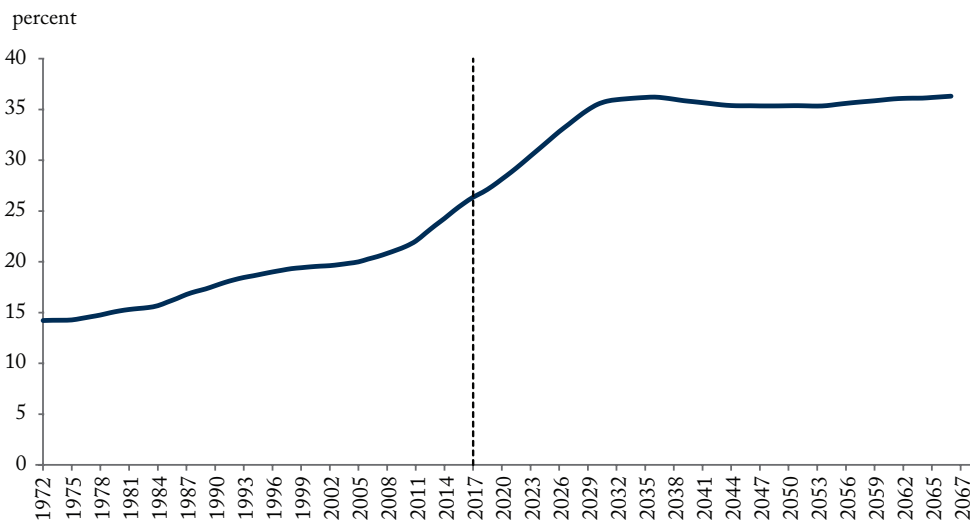
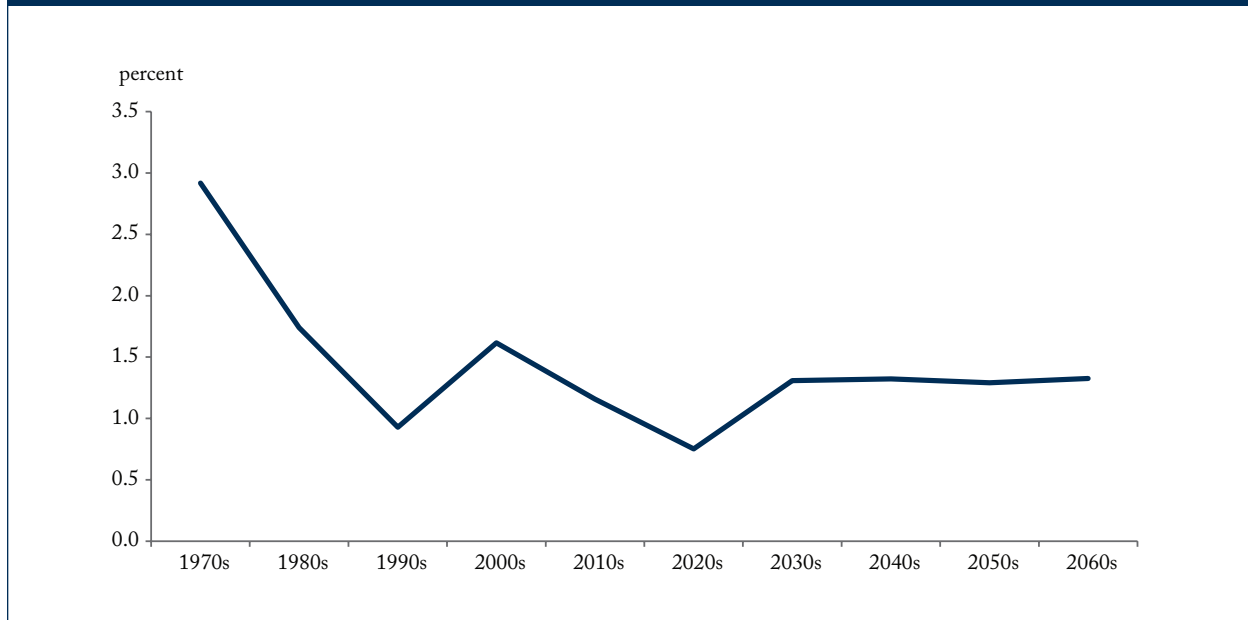


Figure 2b: Actual and Projected Old-Age Dependency Ratio in the Baseline Scenario



Source: Statistics Canada and authors' calculation.

Figure 2c: Actual and Projected Annual Growth Rates in Real GDP per Capita in the Baseline Scenario



Source: Statistics Canada and authors' calculation.

Economic Projections

To explore the potential implications of this demographic change for living standards, we assume that real output per person of working age, a high-level measure of labour productivity, grows in the future at the same average annual rate of 1.3 percent recorded from 1971 to 2017 (similar to the assumption in Banerjee and Robson 2009). The economic panel of Table 1 shows the key assumptions and results for the Baseline scenario, and Figure 2c shows the projected annual growth rates in real output per Canadian.

Our assumption of steady productivity growth means that real GDP per Canadian tracks the working-age population. It decelerates to a trough in the 2020s and picks up again after that. It is subdued by historical standards throughout, averaging 1.2 percent annually from 2018 to 2067.

The difference between the slower growth of the working-age population and the faster growth of the total population means that these increases in output from the hands and minds at work translate into more modest increases in consumption for the mouths to feed and bodies to house. The gap between the two growth rates is especially pronounced in the early 2020s. The rapid growth of the older population relative to the working-age population means that output per Canadian registers an annual increase of only 0.8 percent on average over the coming decade. The decade after that sees a respite: mortality among the babyboomers lowers the growth rate of the seniors' population relative to the working-age population, and on average, real incomes divided over the total population rise in line with real output per worker. After that, the ratio of seniors to people of working age trends upward again, and GDP per Canadian increases somewhat more slowly than output per potential worker.

Increases in average living standards that are consistently close to, and at times even below, 1 percent annually are unprecedented in modern Canadian economic history. Among other problems, the combination of upward pressure from demographically sensitive programs on government spending, and subdued economic growth damping tax revenues, means that governments face implicit unfunded liabilities measurable in trillions of dollars (Busby, Robson and Jacobs 2016). The prospect of especially small annual increases in revenues over the coming decade – a period when the demands of an aging population on healthcare and pensions will be intensifying, and governments will be carrying large amounts of debt – lends urgency to a search for policies that could improve the outlook.

What Difference Can Changes in Immigration Make?

Alternative Scenarios

This Baseline scenario, and its problematic implications for living standards, gives us a standard against which to measure some alternatives. Our main focus is on immigration and variations on policies to increase it. To provide a sense of scale to measure immigration's power to affect the future, we also consider the impact of longer working life – a delay in the age at which we consider people to be past working age. We compare the projected paths for the working-age population, old-age dependency, and output per capita under four alternative scenarios:

1. A “Higher Level” scenario, in which annual gross immigration increases to 450,000 by 2021 as proposed by the government’s Advisory Council on Economic Growth. The Advisory Council’s simulations suggest that they envisioned immigration continuing at 450,000 annually after 2021, so in this scenario, we maintain that number through the end of the projections in 2067.⁵
2. A “Higher Rate” scenario, in which gross immigration increases to 450,000 in 2021, a rate equal to 1.2 percent of the already-resident population, and then rises to maintain that 1.2 percent rate through 2067.
3. A “Later Retirement” scenario, in which immigration resembles the Baseline scenario, but the working-age population grows faster than in the Baseline as a result of delays in the normal retirement age, which rises three months every year from 65 in 2017 to reach 70 in 2037.⁶
4. A “Higher Rate and Later Retirement” scenario, which combines the Higher Rate scenario for immigration with the Later Retirement scenario.

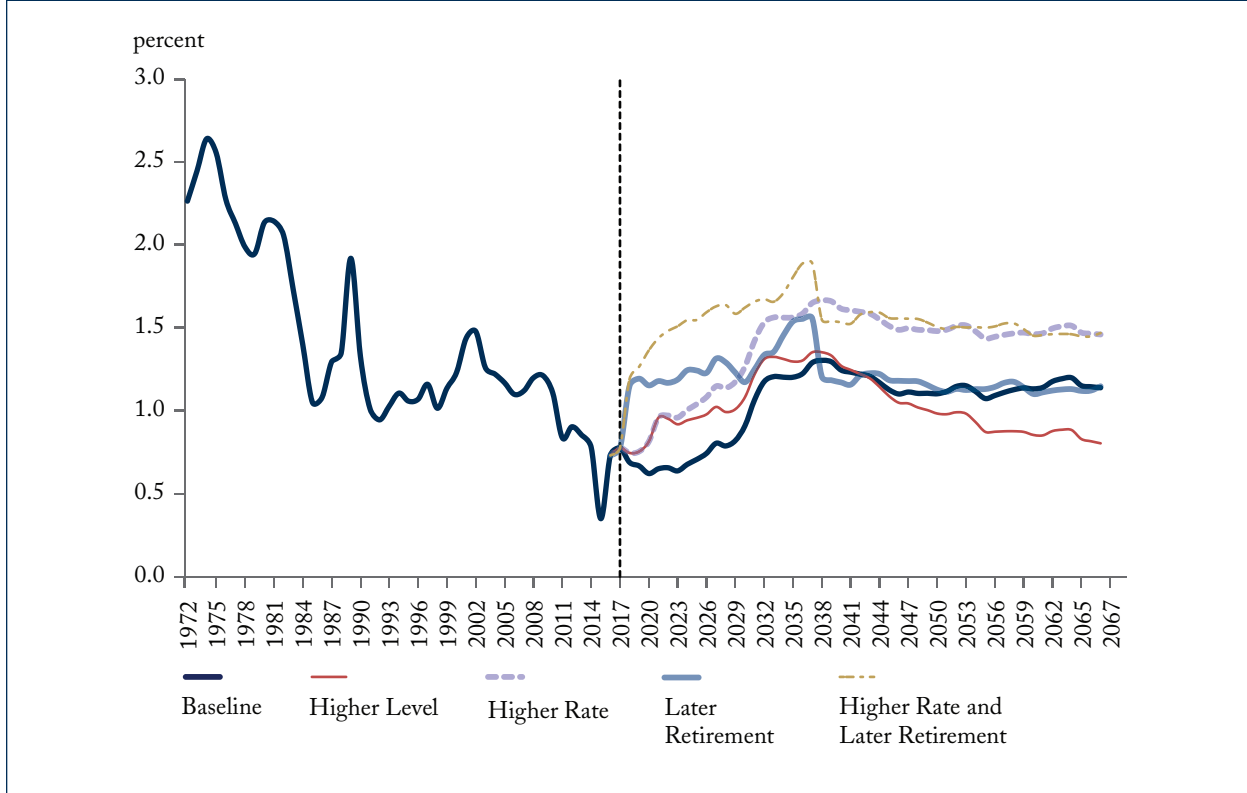
Effects on the Working-Age Population

Looking first at the population of working age, higher immigration does, as one would expect, initially boost growth rates relative to the Baseline scenario (Figure 3). In the Higher Level scenario, constant immigration at the 450,000 level initially boosts the growth rate of the working-age population relative to the Baseline scenario,

5 Gross immigration is 330,000 in 2018, 360,000 in 2019, 405,000 in 2020, and 450,000 in 2021.

6 Robson et al. (2016) take a similar approach to implement longer work life in their study, in which the normal retirement age increases over a two-decade period.

Figure 3: Actual and Projected Workforce Growth:1972-2067



Source: Statistics Canada and authors' calculations.

this effect fades, since an unchanging number of immigrants annually means that the rate of immigration relative to the already-resident population gradually drops to, and then below, the Baseline. In this Higher Level scenario, the working-age population stands at 39.0 million by 2067 – slightly below the Baseline's 39.5 million (Table 2).

By contrast, immigration at a rate of 1.2 percent of the resident population after 2021 steadily widens the gap between a higher-immigration future and the Baseline scenario. In this Higher Rate scenario, growth in the population traditionally considered to be of working age returns to the levels of the 1980s and 1990s. By 2067 the working-age population stands at 46.6 million.

The Later Retirement scenario provides a point of comparison. Suppose governments implemented policies to encourage longer working life that took effect during a period spanning the four years when immigration was rising to the 450,000 level and 16 years after that. Longer working life would change the definition of the working-age population, boosting workforce growth by about the same amounts as the changes in immigration policy. In a scenario that stops the trend toward later retirement in 2037, the effects of this expansion of the workforce on growth rates lose force later in the projection period. But the permanent increase in working lifespan means that the working-age population stands at 42.7 million by 2067 in the Later Retirement scenario.

The Higher Rate and Later Retirement scenario not only combines the effects of the Higher Rate and Later Retirement scenarios, but demonstrates some fortuitous timing. It boosts growth in the working-age population

Table 2: Demographic Outcomes by 2067

Scenarios	Total Population (<i>millions</i>)	Working-Age Population (<i>millions</i>)	Population Past Working Age (<i>millions</i>)
Baseline	66.3	39.5	14.3
Higher Level	66.1	39.0	14.8
Higher Rate	77.4	46.6	15.7
Later Retirement	66.3	42.7	11.1
Higher Rate and Later Retirement	77.4	50.4	12.0

Source: Authors' calculations.

during the early years as people work longer, and the impact of higher immigration kicks in as that effect fades. The working-age population grows consistently faster than in the Baseline through 2067, reaching 50.4 million by 2067.

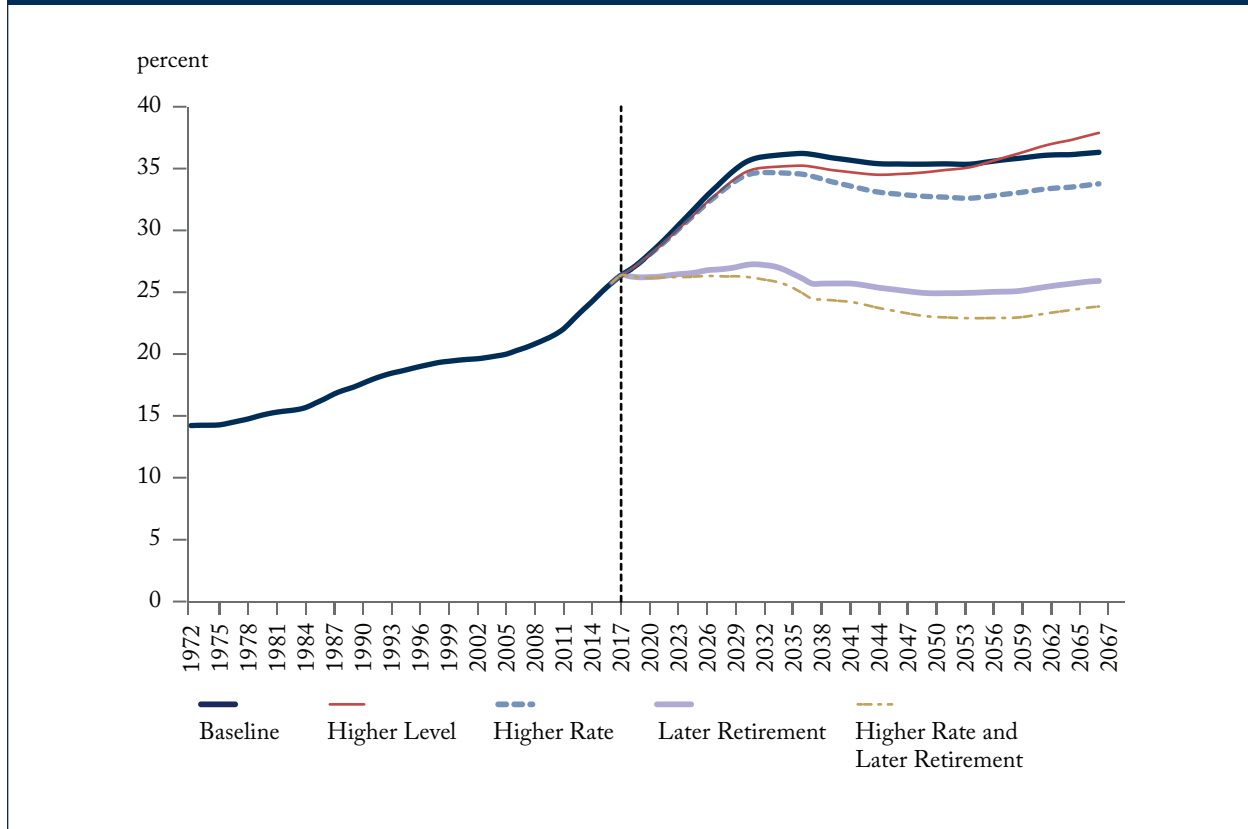
Effects on Old-Age Dependency

Growth in the working-age population matters, but it is only part of the story of changes in demographic structure. These four scenarios also differ in their implications for the number of potential retirees to potential workers.

The two immigration scenarios we consider do not reduce the imminent increase in the old-age dependency ratio much in the early years (Figure 4). While immigrants are, on average, younger than the already-resident population, the influence of that gap is small compared to the momentum of aging in the already-resident population – including, naturally, the aging of each successive year's cohort of immigrants. Because the net immigration rate in the Higher Level scenario falls over time, the early mitigation of the rise in the OAD ratio under the Higher Level scenario reverses during the 2050s and 2060s, leaving the country in a worse situation than in the baseline. The Higher Rate scenario has a mitigating impact throughout, but a modest one. By 2067, the OAD ratio stands at 37.9 – about two percentage points above the Baseline – in the Higher Level scenario and at 33.8 – less than three percentage points below the Baseline – in the Higher Rate scenario (Table 3). Neither kicks in quickly enough to alleviate the crunch looming in the next decade.

The limited effects of immigration on demographic structure are different from what many people imagine, so it is worth emphasizing that the momentum of aging in the already-resident population – and in each cohort of immigrants as they too age – is very hard for immigration to counteract. To illustrate this point, imagine a further scenario in which policymakers set annual immigration levels to achieve a stable OAD ratio. A simulation that focuses only on the inflows needed – disregarding the administrative, political and economic complications that make such an effort utterly unrealistic – produces some startling numbers (Figure 5). Immigration would need to soar to 1.4 million – 3.5 percent of the already-resident population – by 2020. Although the required inflow would drop below the Baseline in 2038, it would rocket upward again in the second half of the projection period, and produce a total population of 156.2 million by 2067 – more than twice the 2067 population in

Figure 4: Actual and Projected Old-age Dependency Ratio: 1972-2067



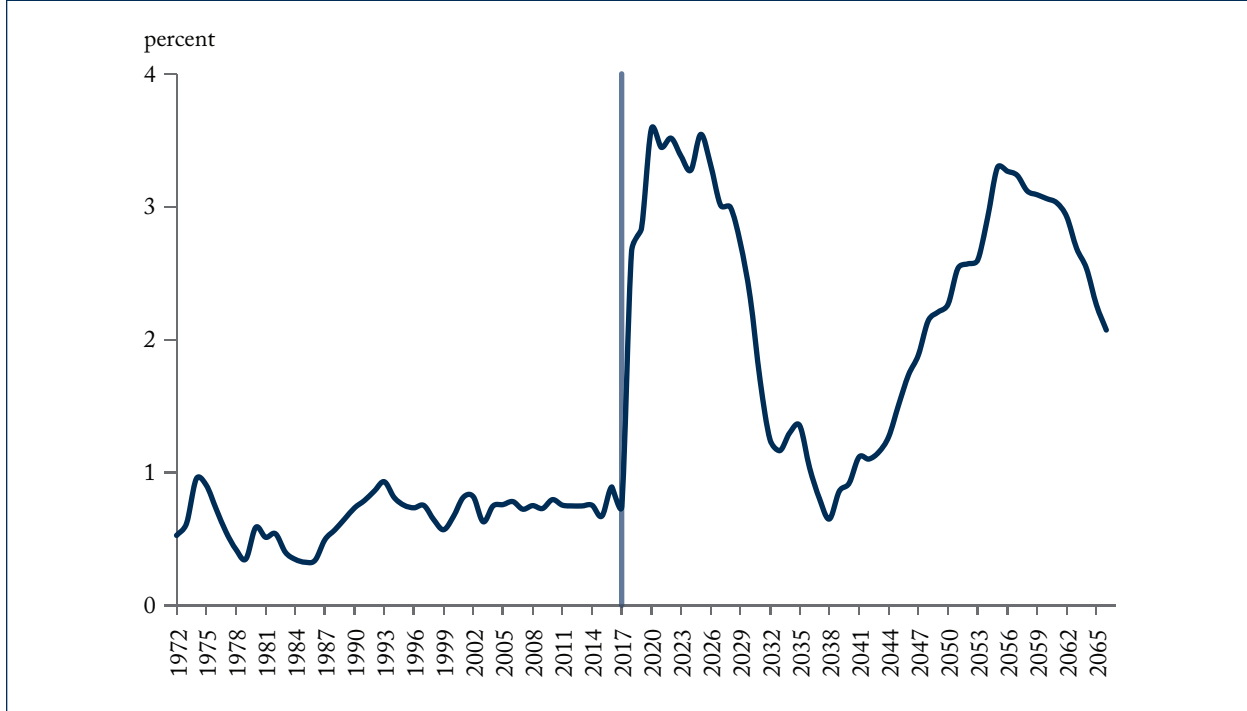
Source: Statistics Canada and authors' calculations.

Table 3: Economic Outcomes by 2067

Scenarios	Old-Age Dependency Ratio (percent)	GDP per Canadian (2017\$)
Baseline	36.3	104,600
Higher Level	37.9	103,800
Higher Rate	33.8	105,900
Later Retirement	25.9	113,200
Higher Rate and Later Retirement	23.8	114,400

Source: Authors' calculations.

Figure 5: Immigration Rate Required to Stabilize OAD Ratio



Source: Statistics Canada and authors' calculations.

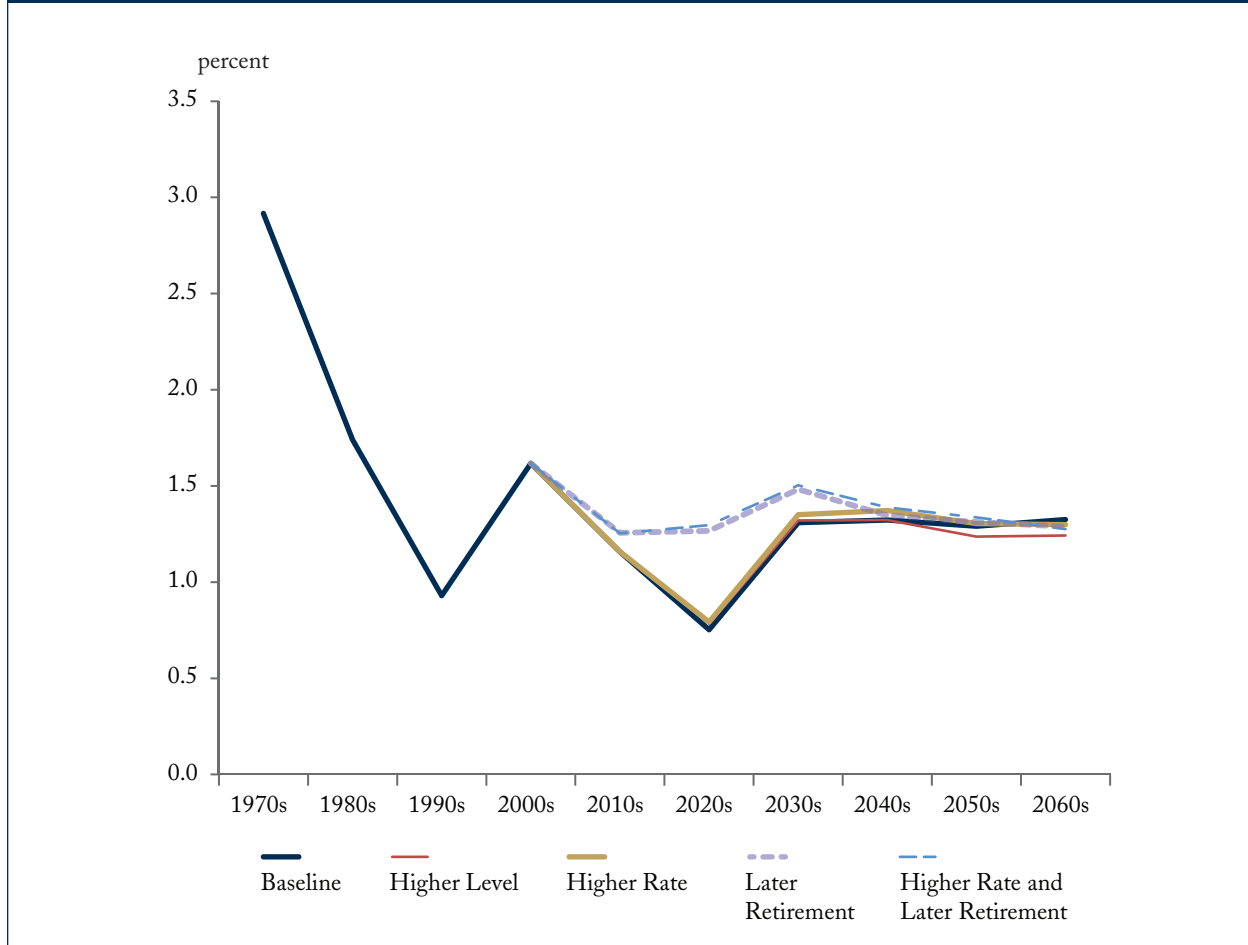
the Baseline, and more than four times Canada's current population. That preposterous scenario illustrates a sensible point: hopes that immigration can offset demographic aging in Canada do not survive an encounter with the numbers.

By contrast, measures that prolong working life could appreciably improve the old-age dependency ratio. In the Later Retirement scenario, the ratio stabilizes over the next decade and a half, and then begins to fall (Figure 4). Although the gap between the ratio in the Later Retirement and in the Baseline scenarios varies less after 2037, the five-year average delay in retirement relative to the Baseline from then on means that aging affects the ratio more slowly. By 2067, it stands at 25.9 percent – more than 10 percentage points below the Baseline scenario, and below its level in 2017. A simultaneous increase in the immigration rate in the Higher Rate and Later Retirement scenario reduces the ratio by another two percentage points in 2067. That is a powerful result: in this scenario, the combined effects of later retirement and a higher rate of immigration push the OAD ratio down and hold it well below its current peak throughout the projection period.

Effects on Living Standards

The contrast between the muted impact of higher immigration on the one hand and the noticeable impact of later retirement on the other when it comes to the OAD ratio has a parallel in their respective effects on projections for increases in GDP per Canadian.

Figure 6: Actual and Projected Annual Growth Rates in Real GDP per Capita: 1970s-2060s



Source: Statistics Canada and authors' calculations.

The scenarios with increased immigration alone have negligible impact on future average growth of output per person (Figure 6). With an immigration rate of 1.2 percent through 2067 in the Higher Rate scenario, growth in output per Canadian is almost identical to growth in the Baseline scenario. By 2067, GDP per person would be some \$105,925 in 2017 dollars – a level only 1.3 percent above the Baseline (Table 3), and translating into a negligible increase in annual growth rates. With immigration of 450,000 through 2067 in the Higher Level scenario, average output per Canadian grows more slowly than in the Baseline, finishing at a level 0.8 percent below it.

While we make no projections for other countries in the world, slower growth in Canadian living standards would make Canada less attractive to potential immigrants than faster growth in living standards. If output per person is growing relatively quickly in countries that are potential sources of immigrants, and in countries that compete with Canada as destinations for immigrants, Canada will have a tougher time attracting the quantity and quality of people envisioned by advocates for higher immigration – a vicious circle.

Later retirement, by contrast, has a much more noticeable impact during the 20 years when the Later Retirement scenario presumes that workforce participation by the 65-70 age group is increasing. Output per capita grows markedly faster than in the Baseline during the coming decade. Combining this scenario with a higher rate of immigration produces, as the Higher Rate simulation anticipates, a modest further improvement in GDP per Canadian – 9 percent above the baseline by the end of the projection period (Table 3). This relatively richer Canada would presumably have an easier time attracting quality immigrants in larger numbers – a virtuous circle.

Conclusion: Higher Immigration Needs Complementary Policies

These simple scenarios leave much out that may matter. New immigrants may complement, or substitute for, already-resident Canadians, depending on where they settle and what skills they bring to the labour market. Higher immigration may create more than proportionate increases in demands for various services and income transfers, especially for provincial and local governments – and much more for some than for others. Our model deals only with the economy's productive capacity, not with the level of activity relative to productive capacity, and immigrants fare better – and the already-resident population welcomes them more readily – when the economy is booming than when it is in a slump. Much higher immigration rates on a sustained basis raise inevitable questions about integration.

As for increases in the working-age population, the scenarios presented here presume linear increases in workforce participation in the cohort age 65 to 70, which sacrifices realism for simplicity. More subtly, these scenarios presume that seniors who stay in the workforce when they otherwise would have left it have the same productivity on the job as the rest of the working-age population. Both assumptions likely exaggerate the immediate positive impact of measures to delay retirement on the living standards of the average Canadian.

These caveats reinforce the cautionary tone of this analysis. Like other studies, such as Denton and Byron (1978), Loh and George (2007), Guillemette and Robson (2006) and Banerjee and Robson (2009), these simulations show that higher immigration has a muted impact on age structure. Robust immigration is likely to be positive for other reasons: we do not quarrel with the government's higher targets or the Advisory Council on Economic Growth's recommendations. But Canada's success in managing the stresses created by low fertility and longer lifespans will depend on much more than immigrants. Canadians generally, and policymakers in particular, should not think of immigration as an antidote to demographic and fiscal pressures, and should not encourage others to think of it that way. Other measures, such as encouraging people to work longer, have at least as much potential to ease the crunch of the 2020s and improve the outlook beyond that.

Moreover, initiatives on other fronts offer a virtuous circle. The lament of *Maximum Canada* (Saunders 2017) is not simply that too little immigration has made Canada's population too small; it is that bad policies encouraged too few immigrants to come to Canada and encouraged too many emigrants to leave. The more we do to mitigate the impacts of inevitable aging on the economy and government finances, the more attractive Canada will be to everyone, current residents and potential immigrants alike. And the more attractive Canada is to everyone, the better the chances that immigrants with high potential will come, and do their part to brighten Canada's demographic and economic future.

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William B.P. Robson is President and CEO at the C.D. Howe Institute.

Parisa Mahboubi is Senior Policy Analyst at the C.D. Howe Institute.

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