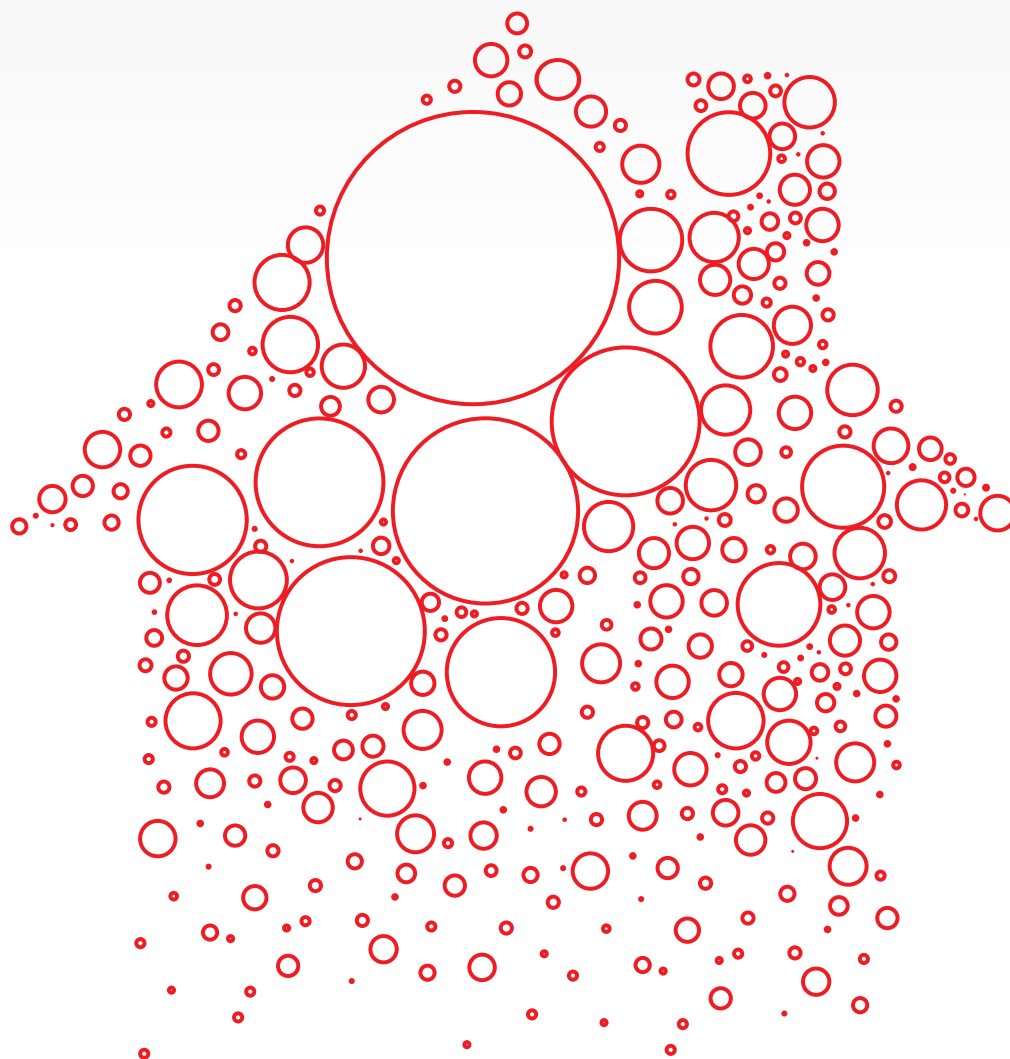
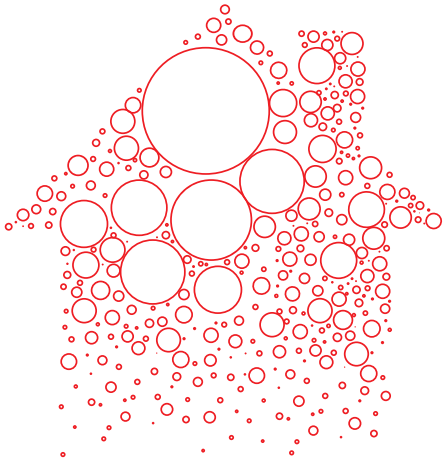


January 11, 2018

Special Report

Is Canada's household leverage too high – or on the low side?





Is Canada's household leverage too high – or on the low side?

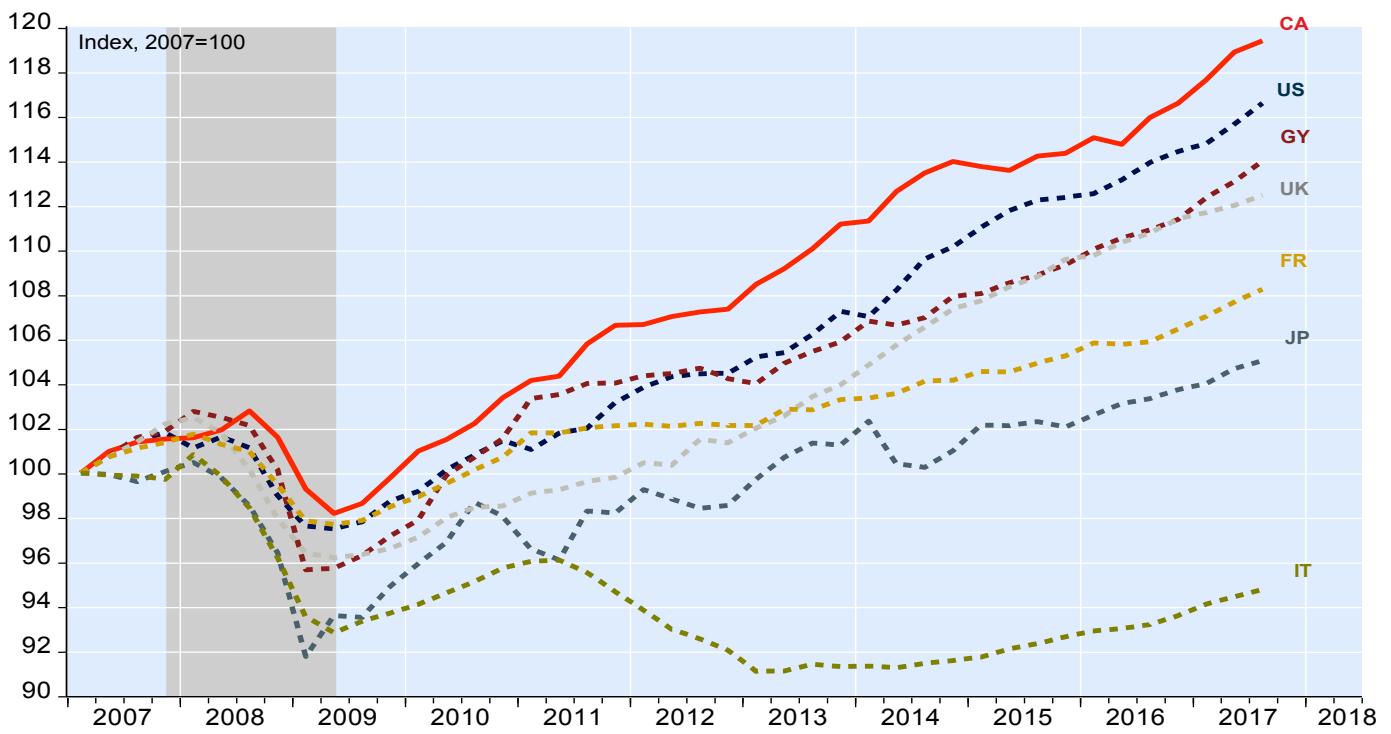
Household debt in Canada is seen by some as unsustainably high and a source of vulnerability for the financial system. But the international evidence suggests that Canadian household leverage and home prices are not abnormal. Drawing on Statistics Canada research to analyse the factors entering into household debt, and on comparisons with other countries, we estimate that given Canada's fundamentals, the ratio of household debt to disposable income is relatively conservative.

1

Canadian GDP growth since early 2007 has surpassed that of all other G7 economies. Yet, some market pundits remain worried about the soundness of our country's financial system.

Canada: The economy continues to do well

Real GDP



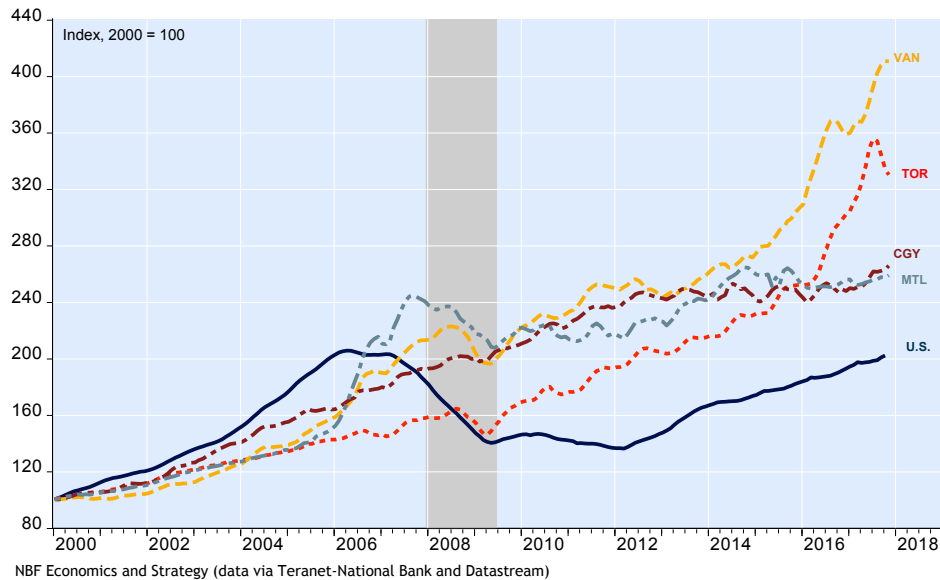
NBF Economics and Strategy (data via Datastream)

2

The negative perception of the Canadian outlook is mostly due to housing. Home prices in Canada's largest cities have increased sharply in recent years.

Home prices: Irrational exuberance in Canada?

Resale price of existing home

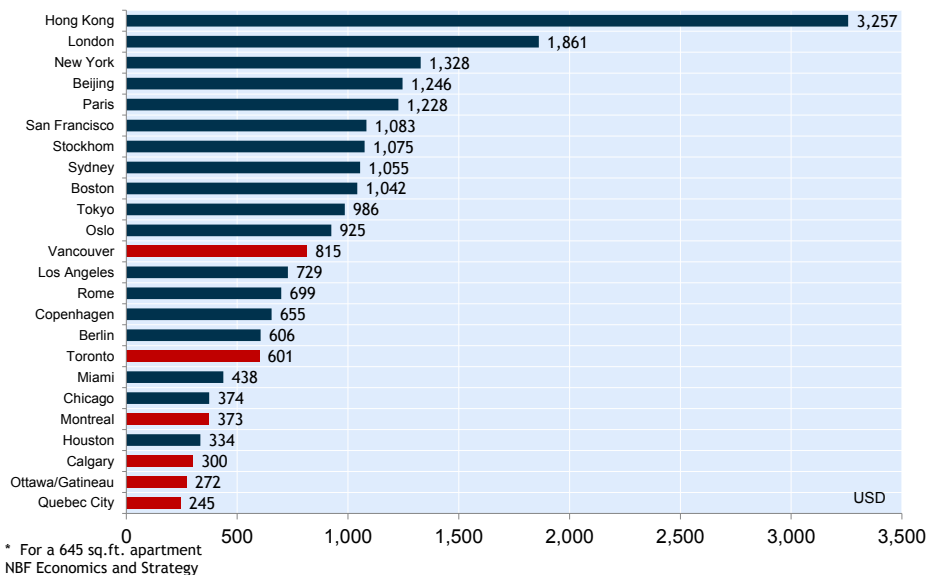


3

Even after this rise, the price of a comparably sized downtown apartment in Vancouver and Toronto does not seem extreme by international standards.

World: Home prices do not seem extreme in Canada

Price per square feet in USD for downtown living* (summer 2017)

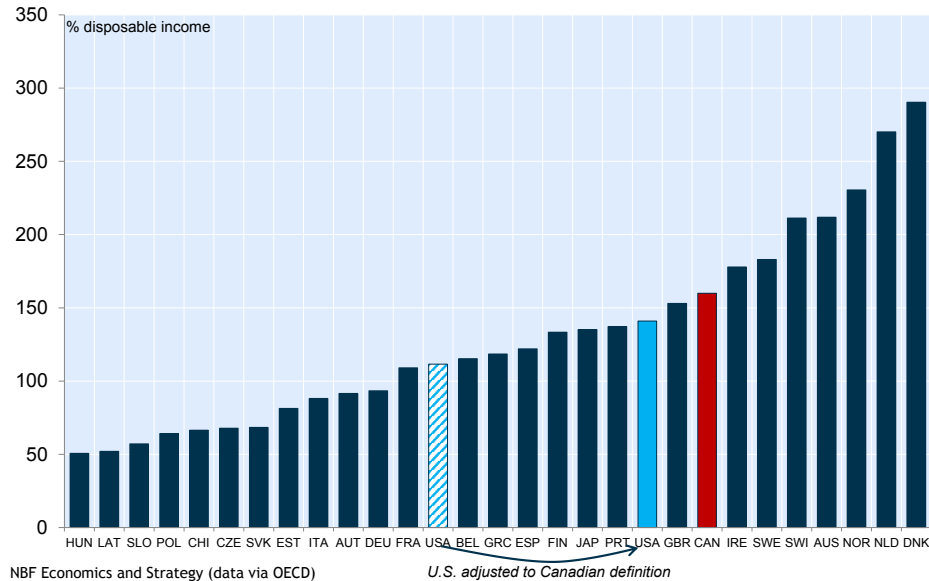


4

True, Canada's debt-to-disposable-income ratio is at a record high. Yet many OECD countries have higher ratios. Is Canada's ratio excessive in relation to its fundamentals?

World: Perspective on household leverage

Household debt as a percentage of net disposable income (major OECD countries)

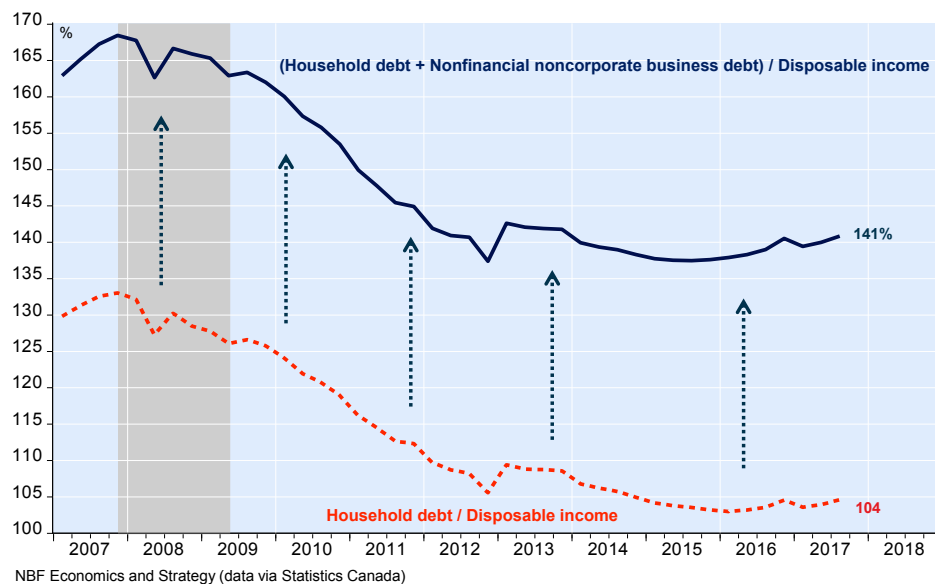


5

International comparisons of household indebtedness can be complex. In Canada, the household sector also includes noncorporate businesses. Adjusting the U.S. data in order to conform to the Canadian definition increases the level of debt-to-disposable-income in that country from 104% to 141%.

U.S. data must be adjusted before comparing with Canada

Debt-to-disposable income in the U.S.



6

We then need to account for country-specific fundamentals that underpin leverage. According to Statistics Canada, the main determinants of Canadian household debt, after controlling for income, are type of employment and age of employees, home ownership, immigrant status and education.

Canada: Household debt determinants according to Statistics Canada

Tobit model description from *Household debt in Canada (2012)*

After controlling for income, here are some determinants of household leverage identified by statistics Canada

$$\text{Total household debt} = \beta_1 \text{Income} + \beta_2 \text{Employed} + \beta_3 \text{Tenure} + \beta_4 \text{Immigrant Status} + \beta_5 \text{Education}$$

Key findings:

- Employed:** An employee has \$93K more debt than a retiree and +\$37K more debt than others.
The age profile of employees is also important (+\$52K more debt for younger workers vs. others).
- Home Tenure:** A homeowner has \$100K more debt than a renter
- Immigrants:** Foreign born population has more leverage than natives (+\$34K)
- Education:** Postsecondary education = +\$26K more debt than less educated

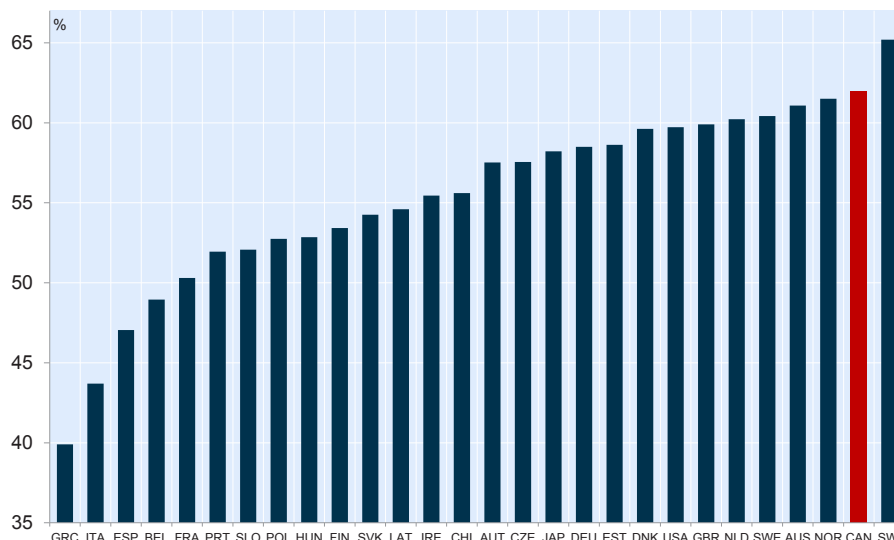
Statistics Canada ("Household Debt in Canada", March 2012)

7

A key driver of labour income and borrowing capacity is labour-force status. The share of the Canadian working-age population with jobs is the second-largest in the OECD.

World: Perspective on employment rate

Workers as a percentage of population 15+



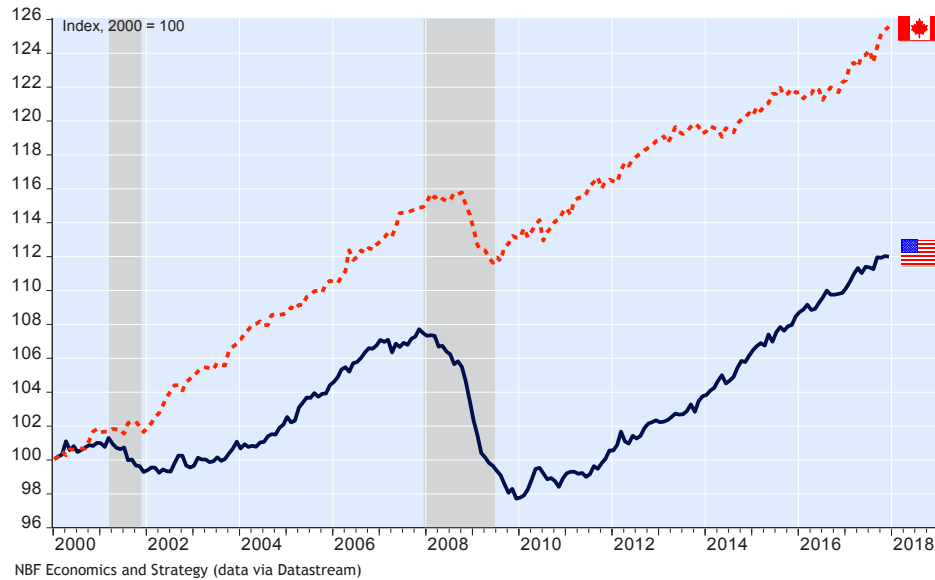
NBF Economics and Strategy (data via OECD, Statistics Canada)

8

Type of job tenure is of course also important for household borrowing capacity. Fortunately, employment growth in Canada is driven mainly by full-time employment.

Perspective on key driver of labour income

Full-time employment: Canada vs. the U.S.

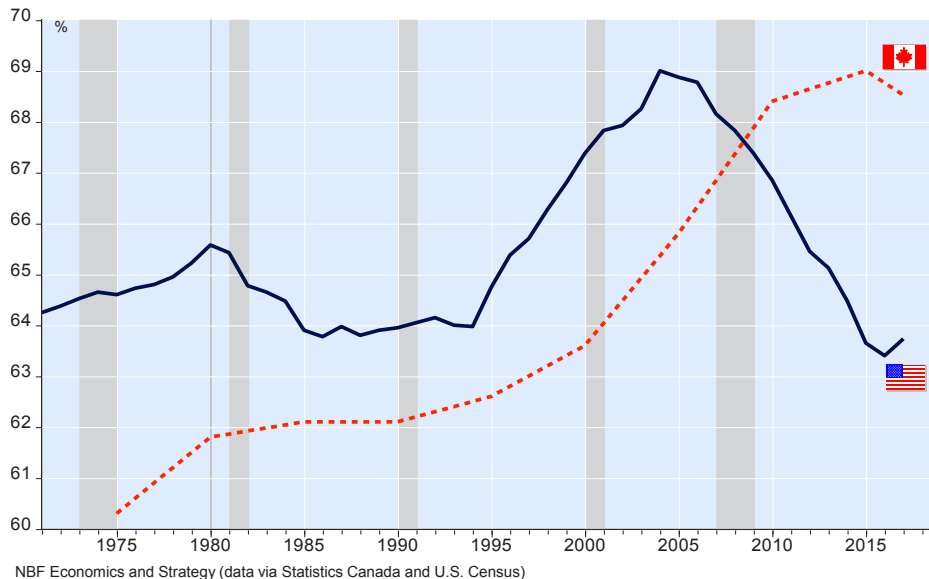


9

The solid performance of the labour market has coincided with a rise in the homeownership rate, which exceeds that of the United States.

Canada: Perspective on homeownership rate

Homeownership rate in Canada and United States

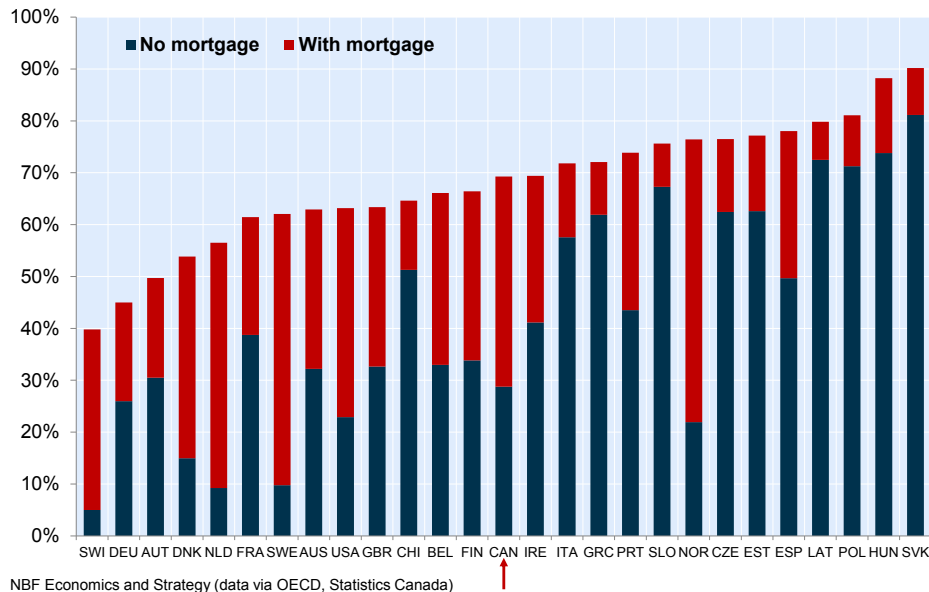


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Yet Canada's homeownership rate is not that high by international standards.

World: Perspective on homeownership rate

Homeownership rate

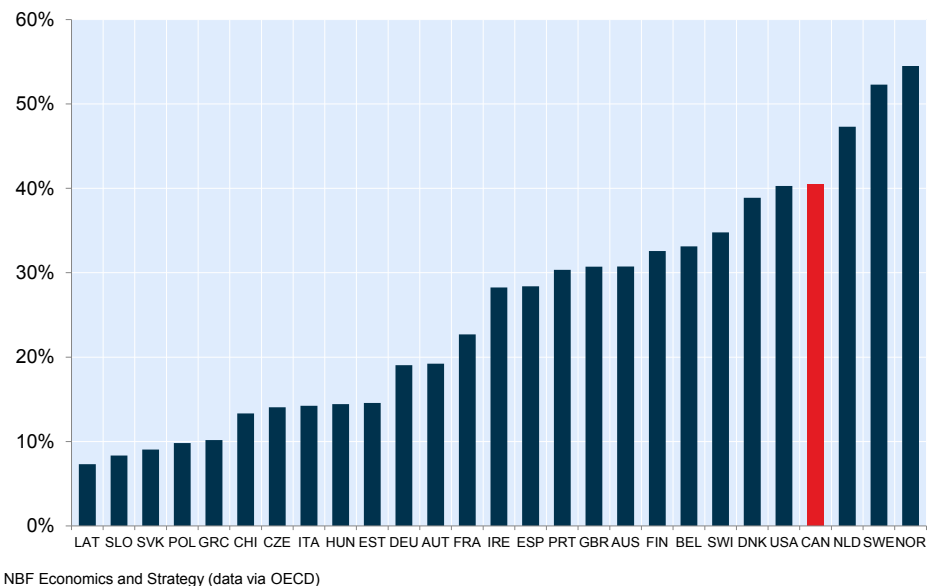


11

So why is our debt-to-disposable-income ratio somewhat higher than would be suggested by home tenure? Here it is not enough to look at the overall homeownership rate. We need to look at the percentage of households carrying a mortgage. For Canada it is 40%, fourth highest in the OECD and similar to the U.S. percentage.

World: Perspective on mortgage holders

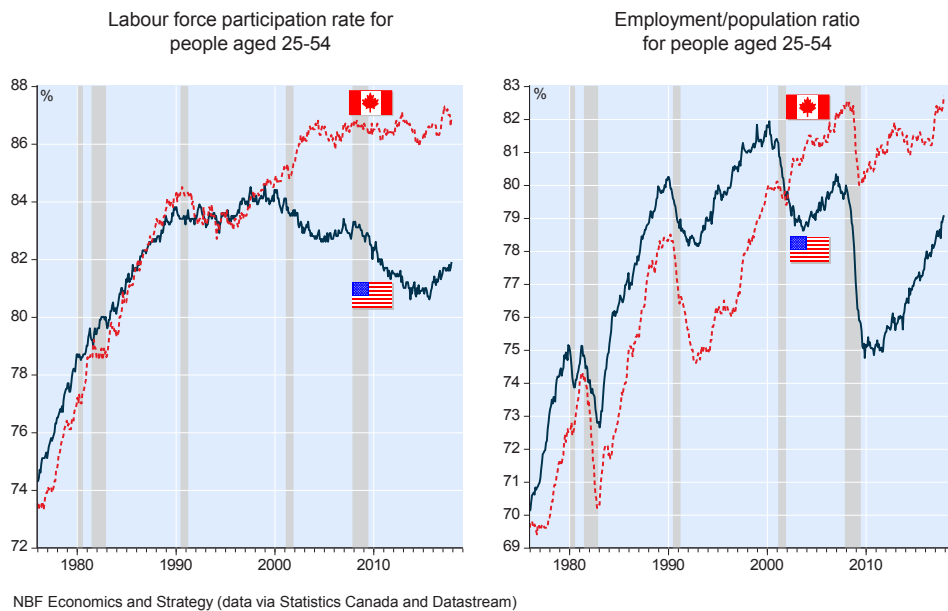
Homeowners having a mortgage as a percentage of total households (2014 or latest)



12

The relatively high proportion of Canadian households with mortgages is explained by demographics. The prime-age workforce (25- to 54-year-olds – the people most likely to buy homes and use leverage) is enjoying full employment.

Canada: The prime-age workforce at full employment

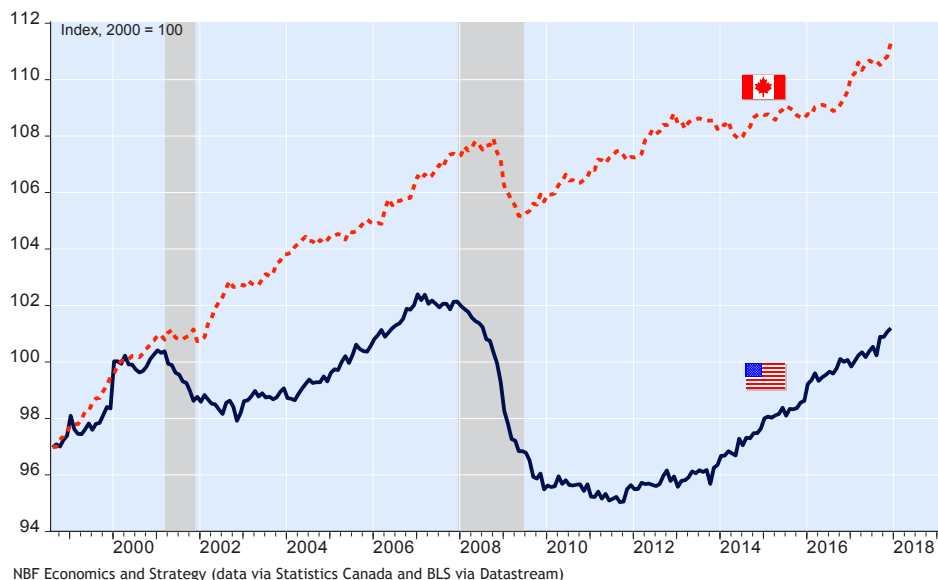


13

In Canada the number of employed people aged 25-54 hit a new record last month. In the U.S. the number of employed people in that all-important age cohort is barely higher than it was in the early 2000s. The divergence is partly explained by the much higher labour-force participation rate of prime-age women in Canada.

Perspective on the prime-aged workforce

Employment for people aged 25-54: Canada vs. the U.S.

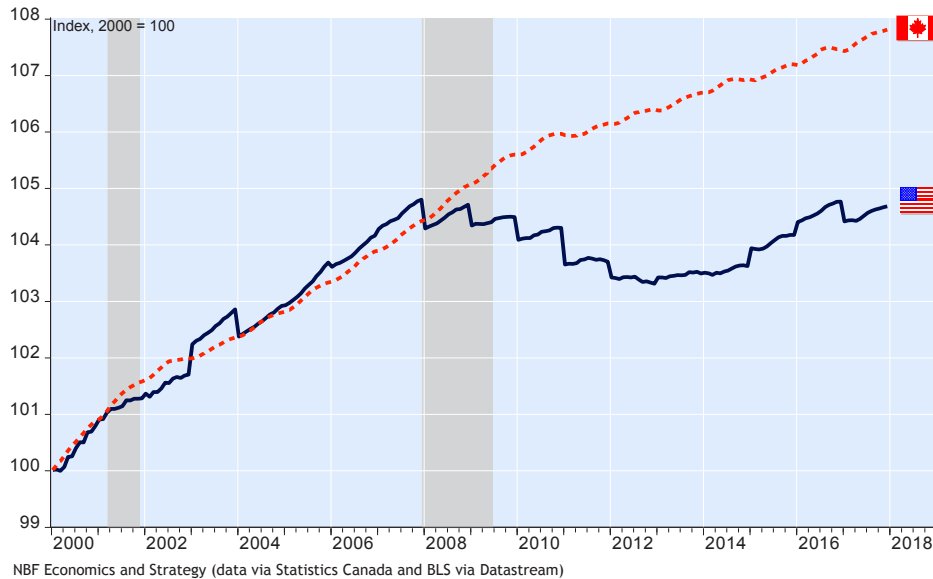


14

But also by the growth of the prime-age population, which remains impressive. In the U.S., prime-age population has been flat over the past decade.

Prime-age population growing in Canada, stalling in the U.S.

Population aged 25-54: Canada vs. the U.S.

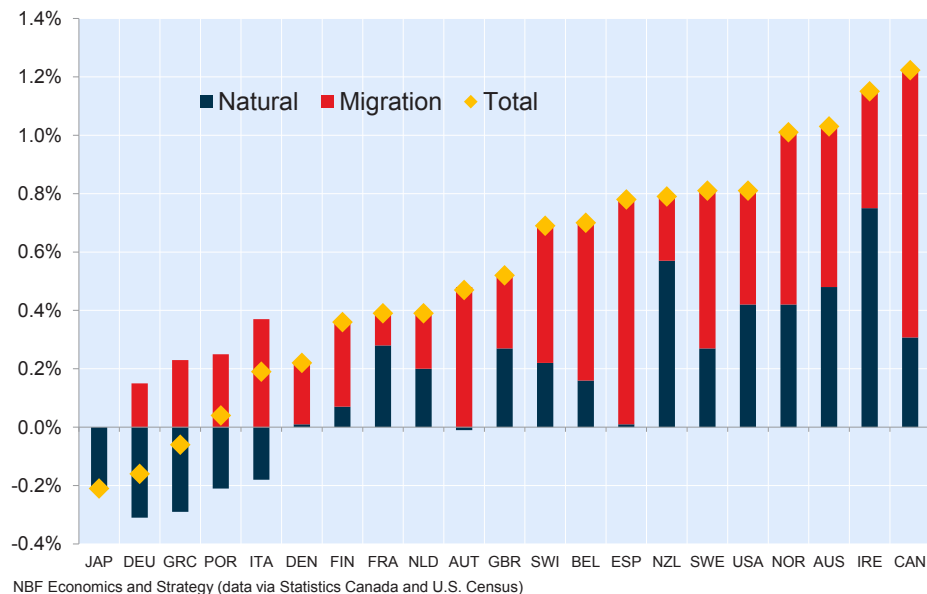


15

Population growth is of course a key factor in household formation, leverage and home prices. Canada's population growth is the fastest in the OECD (matured economies). About 70% of this growth is from immigration.

Canada: Leading OECD countries in terms of population growth

2017 population growth, natural vs. caused by migration

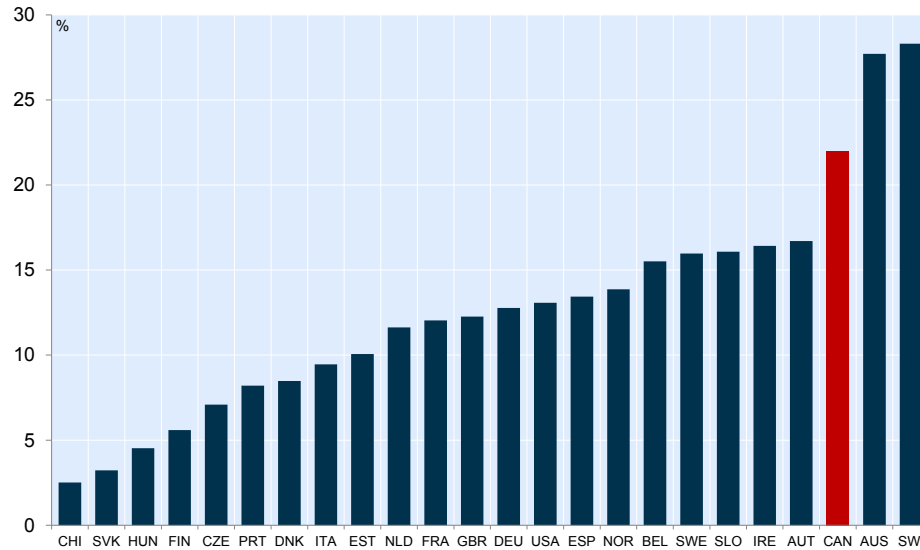


16

More than 20% of Canada's population is foreign-born, one of the highest proportions in the OECD.

World: Perspective on foreign-born population

Share of population born abroad



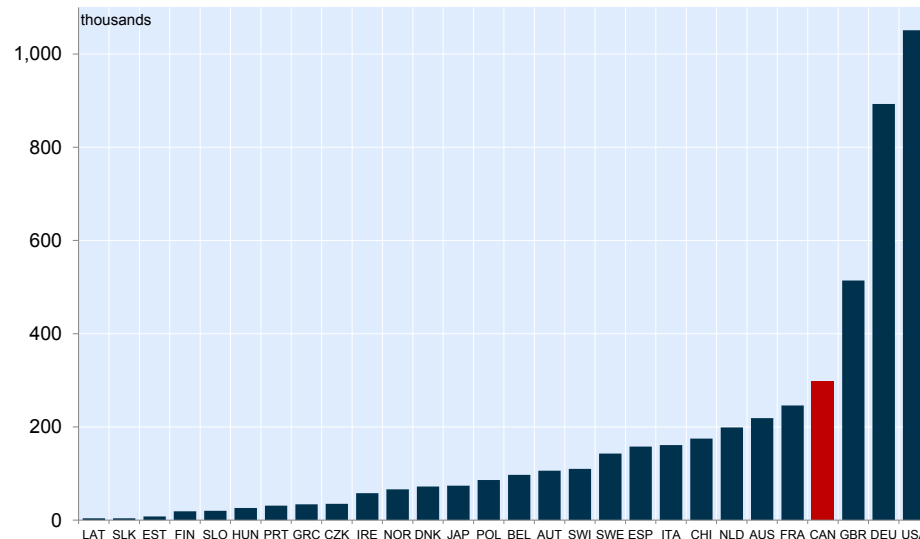
NBF Economics and Strategy (data via OECD)

17

This proportion is set to increase. Canada receives about 300,000 new permanent immigrants annually, the fourth largest inflow in the OECD in absolute terms – an immense pool of new talent. The Canadian government announced last November that it will raise the annual immigration intake by 13% by 2020.

World: Inflows of permanent immigrants

Permanent immigration in OECD countries in 2016 (2015 if not yet available)



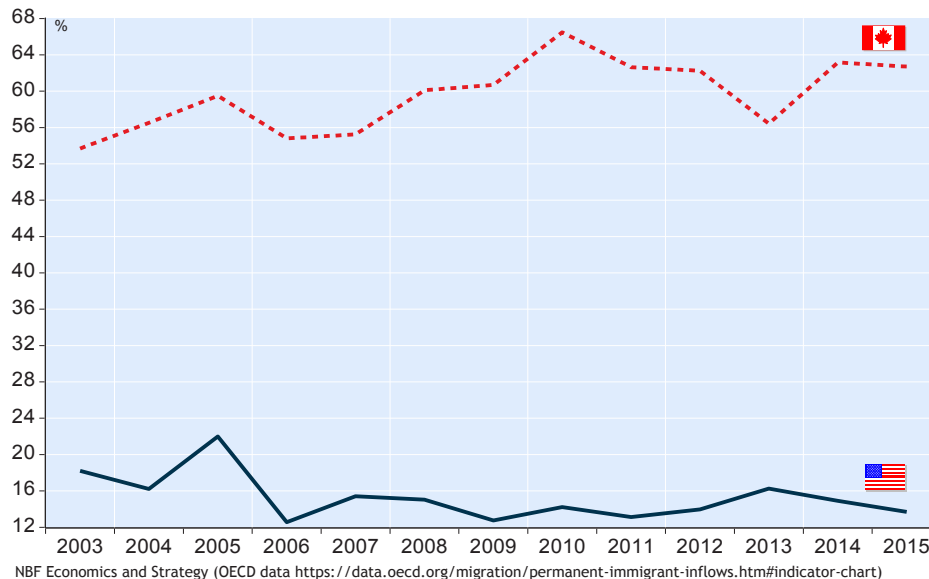
NBF Economics and Strategy (OECD data <https://data.oecd.org/migration/permanent-immigrant-inflows.htm#indicator-chart>)

18

According to the OECD, more than 60% of this annual inflow of permanent residents are “economic category” admissions – people selected for “their ability to become economically established.” For the U.S. this proportion is 13%, for Germany a minuscule 4%.

Canada: Immigration policy is key for labour markets

“Economic category” admissions to permanent residence as a share of total immigration

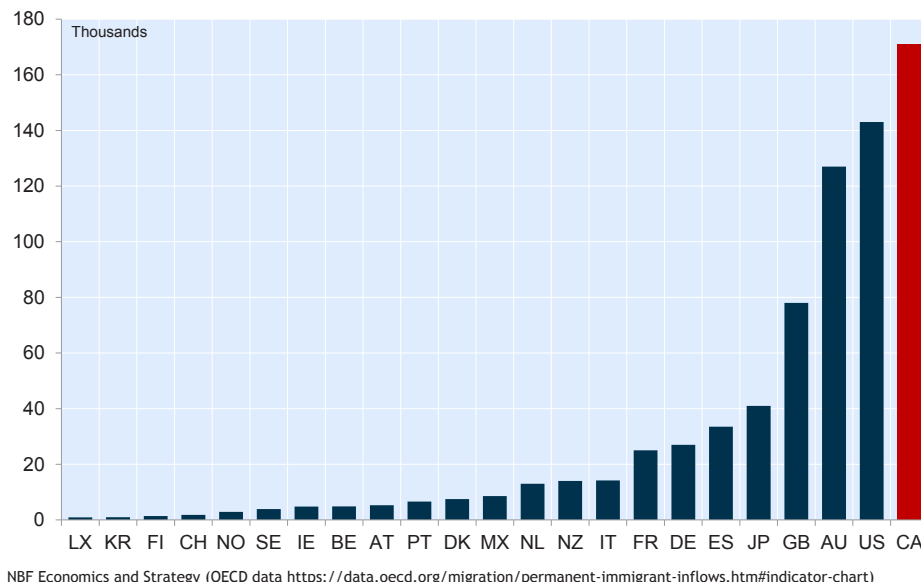


19

So in absolute terms, more than 170,000 people who became permanent residents of Canada in 2015 were “economic category” admissions – well above the absolute number of economic-category admissions to the U.S., a country 10 times our size, and about equal to the combined intake of the rest of the G7 (Germany, France, Italy, Japan and the U.K.)!

Canada: Highest inflow of workforce-ready immigrants in the OECD

Annual “economic category” admissions to permanent residence (2015)

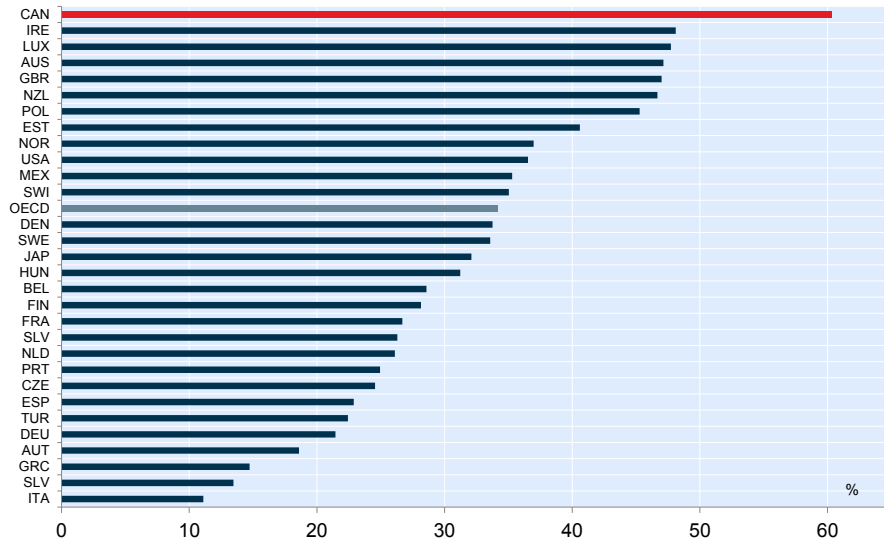


20

These are the immigrants most likely to find jobs, form households and, ultimately, buy homes. And more than 60% of Canada's foreign-born population has post-secondary education, the largest proportion in the OECD.

Canada: foreign-born population is highly educated

Percentage of foreign-born 15-64 with post-secondary education



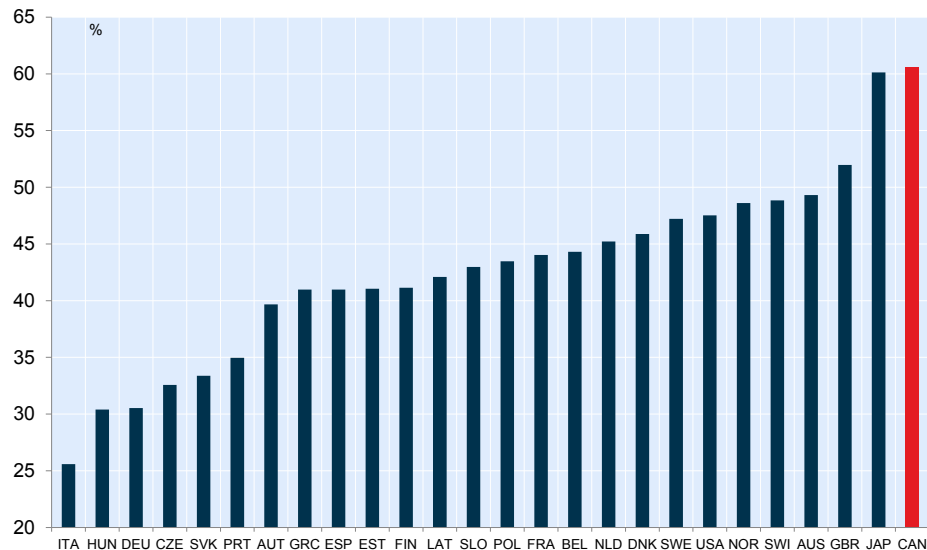
NBF Economics and Strategy (data via OECD)

21

There is an association between household debt and education (higher and less uncertain income stream over life cycle). More than 60% of Canadians aged 25-34 have post-secondary education, the highest proportion in the OECD and almost 15 percentage points above that of the U.S.

World: Perspective on education

Share of population aged 25-34 with tertiary education (2016)



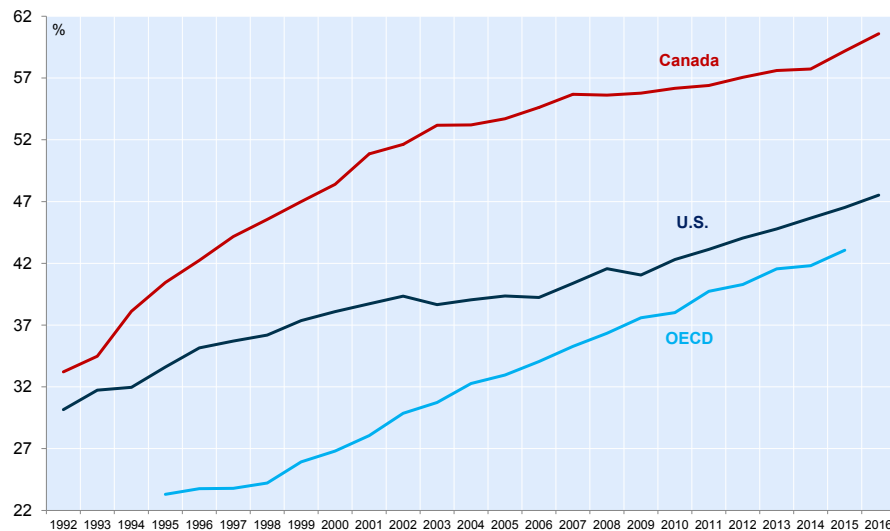
NBF Economics and Strategy (data via OECD)

22

And the more educated a population, the more likely its workers are to remain productively employed as they move through their prime years in the labour force, from 25 to 54 years old.

Canada: An educated workforce can support higher debt

Share of population aged 25-34 with tertiary education



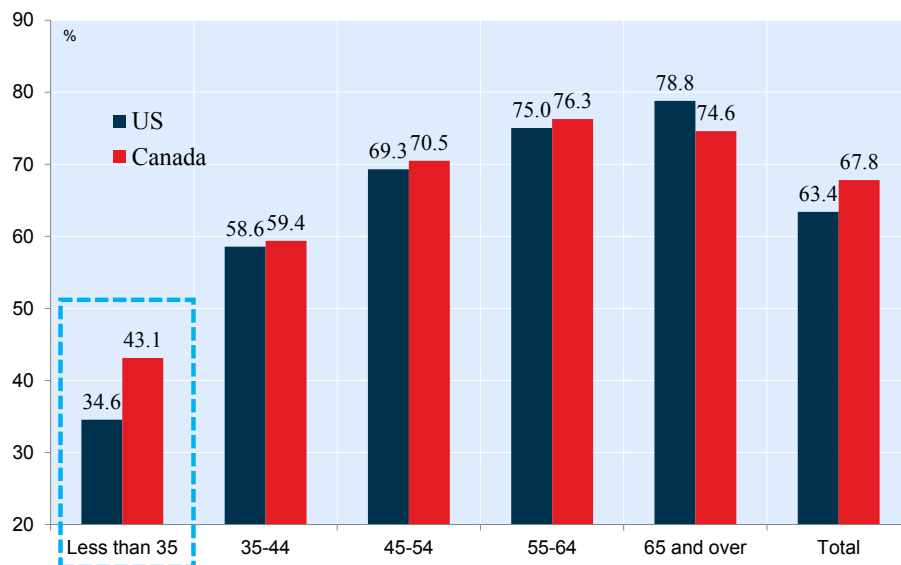
NBF Economics and Strategy (OECD data via <https://data.oecd.org/eduatt/population-with-tertiary-education.htm>)

23

This education gap helps explain why the homeownership rate in Canada for people younger than 35 is almost 10 percentage points higher than in the U.S.

Canada: Perspective on homeownership rate

Homeownership rate in Canada and United States (2016)



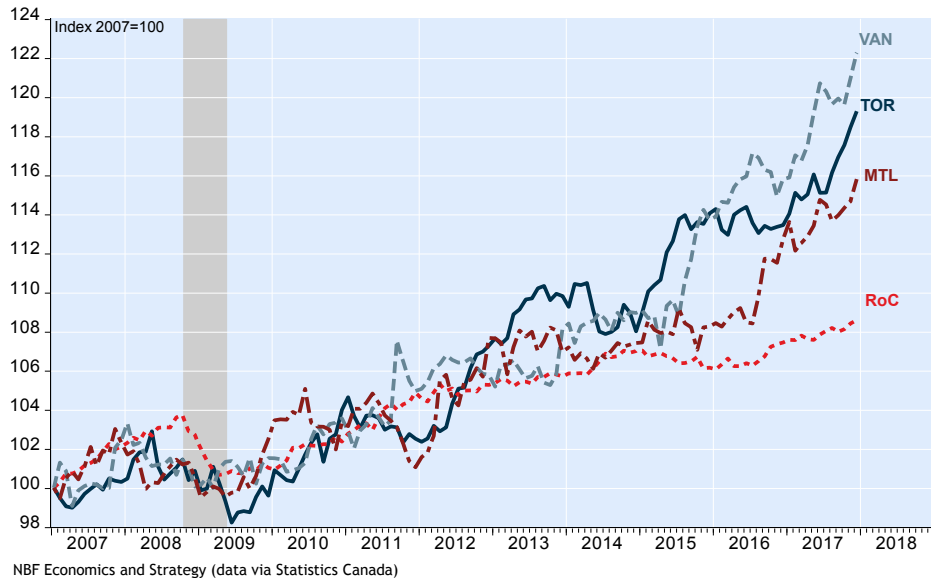
NBF Economics and Strategy (data via Statistics Canada and U.S. Census)

24

Canada's immigration policy increases demand for housing in the large urban areas. The metropolitan areas of Toronto, Vancouver and Montreal, home to 37% of Canada's population, now account for 79% of its employment growth.

Canada: Job creation in the main cities

Job creation in greater Vancouver, greater Toronto, greater Montreal and rest of Canada (RoC)

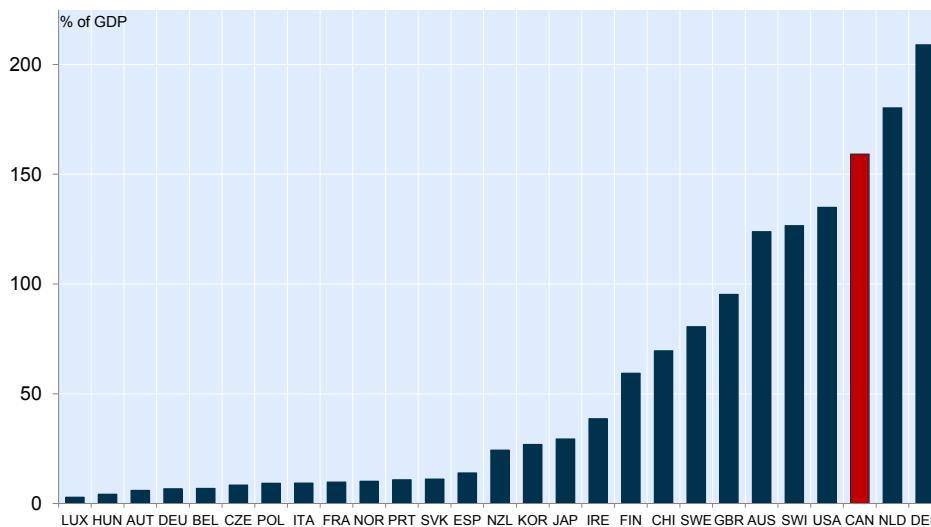


25

In a 2013 study of household debt-to-income ratios, the central bank of Norway drew attention to the influence of country-to-country variations in pension and welfare systems. **Transfers and welfare and pension benefits are part of a household's expected lifetime resources even if they do not show in household accounts.** These factors can make a big difference in international comparisons.¹

World: Pension funds assets

Total assets in funded and private pension arrangements as a % of GDP (2016)



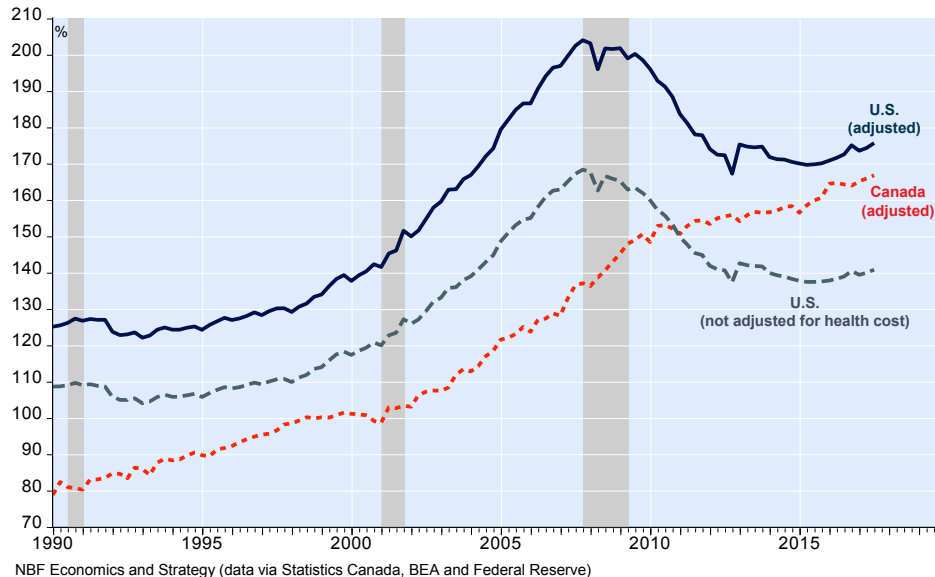
¹Comparison of household debt relative to income across four Nordic countries," Norges Bank (2013).

26

Americans pay less tax than Canadians but today must devote about 20% of disposable income to health spending, a non-discretionary expense. In Canada, the share of income going to health care not covered by public insurance is about 4%. When we correct disposable income for this factor, household leverage in the U.S. turns out to be higher than in Canada, not lower.

Debt to household disposable income (net of health cost)

Households & non-profit organizations

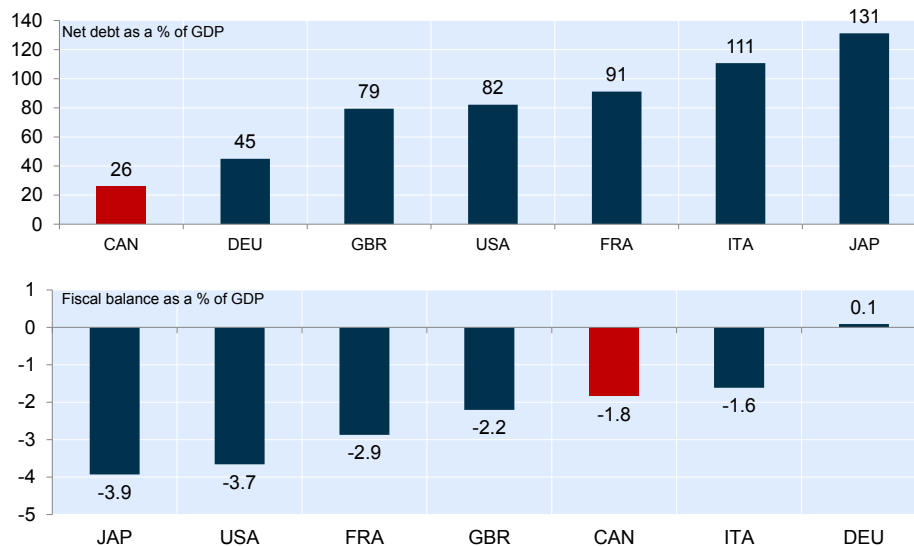


27

Of course, the stronger a country's public finances, the more credible its welfare systems. Sound fiscal management is a criterion for household confidence.

Canada: Sound fiscal situation

General government net debt and fiscal balance in 2017



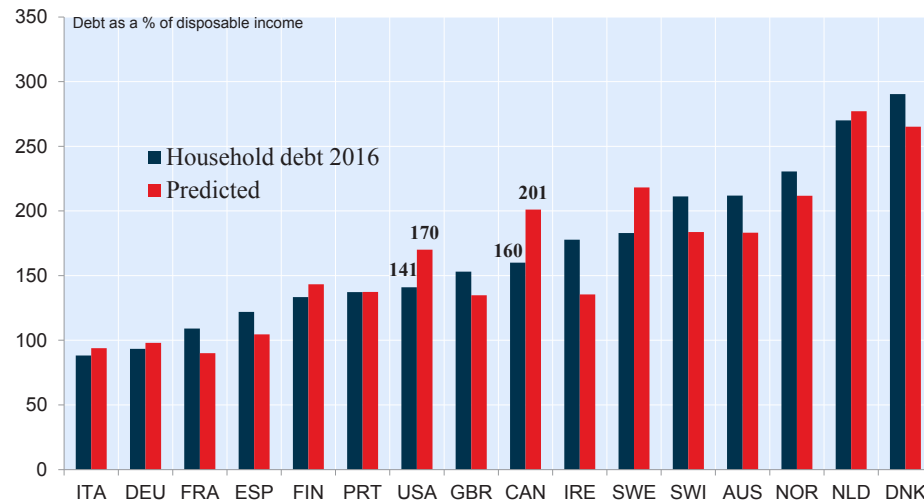
NBF Economics and Strategy (data via IMF)

28

The chart below shows how predictions from our cross-sectional regression compare with actual ratios of debt to disposable income in OECD countries. The model suggests that Canadian household leverage relative to fundamentals is relatively conservative (160% vs. 201% suggested by the regression).

World: Perspective on household debt

Model* prediction of household debt in 24 OECD countries in 2016 (R²=86%)



$$\text{*Household debt as a \% of disposable income} = C1 + \beta1 \text{ Mortgage holder rate} + \beta2 \text{ Pension assets} + \beta3 \text{ Public pension generosity} + \beta4 \text{ Budget balance}$$

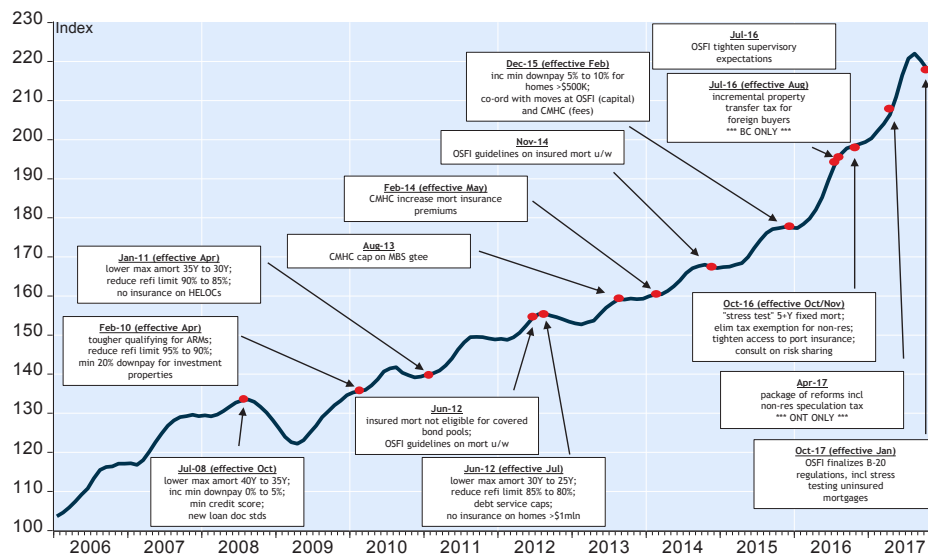
NBF Economics and Strategy (data via OECD)

29

The lower-than-predicted ratio for Canada is probably due to the many macroprudential measures implemented over the last decade.

Canada: Perspective on macroprudential measures implemented

Teranet/National Bank home price index and timing of measures implemented



NBF Economics and Strategy (data via Teranet/National Bank)

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Conclusion

After controlling for fundamentals such as employment, population growth, housing tenure, immigration, education and the solidity of the welfare system, our analysis suggests that the ratio of household debt to disposable income in Canada is relatively conservative. This probably reflects the cumulative effect of all actions taken to date to mitigate the vulnerability of the financial system to household indebtedness.

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