

Household Debt and Government Debt in Canada

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Executive Summary

Canadians are regularly inundated with news stories about policy concerns over household debt. These concerns, however, can be seen to be overblown once we properly account for the other side of the balance sheet. Canadian households have taken on more debt over time but they have used this debt to finance assets—real estate, for example—that are appreciating over time, causing their net worth to grow, also to unprecedented levels. The same cannot be said for government debt.

Concerns about household indebtedness focus on measures such as total household debt accumulated or the ratio of household debt to income. Based on these metrics, Canadian household debt levels are indeed near historic highs. By the end of last year, household debt reached over \$2 trillion, up from \$357 billion in 1990. The lion's share of this debt—two thirds in fact—is for mortgages while the remaining third is split between consumer credit (29%) and other loans (5%). Over the same period, the total financial liabilities of the government sector grew from approximately \$700 billion to \$2.5 trillion while its *net* debt grew from over \$400 billion in 1990 to reach nearly \$970 billion in 2016.

The over \$2 trillion in household debt is now approximately 170% of household disposable income, up from just 90% in 1990. Yet, this does not mean that Canadians are being irresponsible with household debt. To start, the above data ignore the fact that household debt growth can be a rational response to falling interest rates. For instance, the Bank of Canada rate fell dramatically from nearly 13% in 1990 to 0.75% at the end of last year. Not surprisingly, as the cost of borrowing has dropped, Canadian households have borrowed more. The drop in interest rates has reduced the burden of servicing debt despite growing household debt: interest payments on household debt now consume 6% of disposable income, compared to almost 11% in 1990.

More fundamentally, the concerns about household debt fail to account for the other side of the balance sheet—household assets, which rise over the family life-cycle. While household debt has grown substantially over the past 26 years, households are borrowing to invest in appreciating assets such as real estate, pensions, financial investments, and businesses. This has meant a substantial rise in Canadian household assets—from \$2.2 trillion in 1990 to \$12.3 trillion in 2016. The significant investment in assets has

meant that household net worth (which is total assets minus liabilities) has surged from \$1.8 trillion to \$10.3 trillion—a record-setting level. As well, when taken in international context, Canada’s household debt relative to income is mid-ranked amongst OECD countries when household debt is taken as a share of household disposable income.

Government officials express concern about household debt even though households have positive net worth that has trended up over time. Yet, government measures of net worth are negative and have not changed substantially. Specifically, the collective net worth of Canadian governments was negative \$129 billion in 1990, compared to negative \$97 billion last year. While governments may acquire some financial assets and there is investment in assets like human capital and physical infrastructure, the bulk of debt acquired through deficit financing often supports spending on the compensation (wages and benefits) of government employees and transfers to individuals.

In the end, debt is a tool and the concern should be not with debt *per se* but debt that is not manageable given the economic circumstances facing households. The greatest risks to the management of household debt are economic shocks that lead to job losses that make debt servicing problematic, or increases in the interest rate that raise debt servicing costs.

To date, although small increases have been forecast, interest rates have remained low and the Canadian economy is performing adequately, with relatively low unemployment rates. Moreover, while interest rates and unemployment are of concern, they should be weighed against the fact that, despite the record high levels of household-sector debt, there are also record high levels of net worth. As for public-sector debt, large deficits and increasing debt particularly at the federal level are expected to continue.

Introduction

High levels of both household debt and government debt are an important public policy issue. Indeed, there are numerous studies and frequent media stories stating that Canadian household debt has reached record levels with inevitable comparisons to the United States on the eve of the 2008/09 global financial and economic crises. For example, Chartered Professional Accountants (CPA) of Canada has tracked the issue of Canadian household debt for many years and has noted a decline in the rate of growth of household debt but maintained that in the face of economic uncertainty the trend might reverse (CPA Canada, 2015). Moreover, there has been a recent spike in reports by international agencies that have linked rising levels of Canadian household debt with financial markets and soaring home prices. [1] Most recently, the Governor of the Bank of Canada has noted that the dual threats of runaway regional housing markets and household debt have grown (Parkinson, 2017).

The release of Statistics Canada's national balance sheets for the fourth quarter of 2016 showed that the ratio of household debt to disposable income grew to 167.3% from 166.8% in the third quarter (Statistics Canada, 2017). Total household credit-market debt by the end of 2016 reached \$2.03-trillion, with \$1.33-trillion in mortgage loans and \$596.5-billion in consumer credit-card debt, car loans, and other personal loans. Put differently, mortgages made up approximately two thirds of household credit-market debt (65.5%) while consumer credit made up less than a third (29.3%). As well, total household credit-market debt increased 1.2% in the fourth quarter of 2016 while disposable income increased 1.1% (Statistics Canada, 2017). Over time, the share of consumer credit has increased slightly, the share of non-mortgage loans has decreased slightly, and the share of mortgage loans remained stable. [2]

The growth of household debt in Canada generates alarm because of the inevitable comparisons to the US experience between 2005 and 2010, which combined high debt

[1] For example, the OECD in March 2017 presented another in a long line of warnings about household debt (Babad, 2017). Also in March, the Bank for International Settlements warned about the increase in the Canadian ratio of credit to GDP (Shecter, 2017). The Bank of Canada has also weighed in on the issue with one of the more recent forays being the December 2016 *Financial System Review* (Bank of Canada, 2016).

[2] Between 1990Q1 and 2016Q4, the consumer credit share of household debt rose from 26.4% to 29.3% while mortgage loans rose from 64.9% to 65.5%.

levels with the collapse of the US housing market. Canadian household debt relative to income has indeed grown to surpass not only the United States but also other G-7 countries (Isfeld, 2016). However, while household debt in Canada has grown in recent years, and generated some alarm in public-policy circles, it is important to look at the issue in an objective fashion that goes beyond simply exhortations of alarm. As one study notes about the frequent alarm raised by household debt: “If the headline that ‘household debt has hit a record level’ seems familiar, it is because it has been true for every year but one over the last half century” (Cross, 2015: 2). Debt has been a long-term feature in human economic history as a tool to facilitate commerce. [3] Ultimately, it is not debt itself that should be of concern but the ability of both households (and government) to manage their debt responsibly.

This paper compares household debt and public debt in Canada and assesses how concerned we should be about the current state of household and public indebtedness. While both household debt and public-sector debt have grown over time, in the case of households, net worth has also grown substantially. There are some risks to the situation, especially about the ability to carry large amounts of debt should the economy experience a downturn as well as the potential for future increases in interest rates. In the case of Canadian public-sector debt, there are renewed concerns, particularly given the federal government’s intention to substantially delay returning to a balanced budget.

[3] Graeber provides a long-term account of debt and credit as tools underpinning trade going back 5,000 years. Indeed credit systems preceded or accompanied the rise of money because actual money—coinage—was often in short supply. Credit or virtual money was actually first (2011: 40).

Background—Understanding the Concern about Debt

In examining financial indicators, MacGee notes that “current debt levels are likely sustainable, but there is some cause for concern that a major economic shock—such as a worsening of the European debt crisis—could trigger a large pullback in borrowing and consumption, resulting in a potentially deep recession” (2012: 3). MacGee (2012: 9) also notes that consumer bankruptcies have grown substantially since the 1970s [4] but that, despite the rise in filings, the key characteristics of a typical bankrupt remain the same—namely, the individuals are 30% to 50% poorer than the average household, in their thirties, and with a high debt-to-income ratio. Moreover, the evidence from past stress tests conducted by the Bank of Canada suggest that Canadian households and the banking system are well positioned to handle adverse economic shocks to their financial positions (Dey, Djoudad and Terajima, 2008; Anand, Bédard-Pagé and Tractlet, 2014; MacDonald and van Oordt, 2017).

At the same time, reassurances from banks and bank economists that all is well need to be taken cautiously given the obvious self-interest of banks when it comes to fostering loan activity. Despite continual warnings from outside international agencies such as the International Monetary Fund or the OECD, it is only recently that Canadian banks have been sounding more of an alarm about housing prices and high levels of mortgage debt (see, e.g., McGugan, 2017). Indeed, high debt levels may leave Canadian families more vulnerable to large economic shocks such as a spike in interest rates or an economic downturn and job loss that make mortgage and credit-card payments difficult. [5]

[4] Consumer bankruptcies per 1,000 adults rose from less than 1 per 1,000 in the early 1970s to approximately 5 per 1,000 by 2010 (MacGee, 2012: 7). It should be noted that there is also a cyclical component to bankruptcies and they tend to rise during periods of recession.

[5] MacGee, 2012: 3. It should also be noted that Canada has regional economies and some regions may be hit more by economic shocks than others. For example, Alberta has been recently hit by the downturn in commodity prices and consumer insolvencies in Alberta were up 34% over the previous year (Office of the Superintendent of Bankruptcy Canada, 2017).

Household debt

The concerns over rising household debt also relate to concerns about the impact of this debt on economic performance. Labelle (2004) notes that much of the increase in household debt can be attributed to the decrease in credit rationing following from the financial deregulation of the early 1980s and the subsequent reduction in both real and nominal interest rates as inflation declined. While household debt itself is not likely to be the source of an economic shock, greater indebtedness has macroeconomic implications given that households have enhanced sensitivity to a rise in unemployment and unexpected changes in interest rates, especially if they tend to hold variable rather than fixed-rate mortgages. As well, even in the absence of a downturn, increased indebtedness means that households are exposed to the prospect of negative equity if housing prices fall (Labelle, 2004: 57).

Another aspect of growing household debt is that it is not equally shared among households. For example, one study notes that households with income under \$50,000 were six times more likely to be financially vulnerable in terms of the debt-service ratio and had a debt-to-income ratio 1.62 times higher than households with income in the \$50,000 to \$79,999 range (CGAA Canada, 2011). Another study found rising debt-to-income ratios among households in the bottom income quintile was one of the more important developments in the early twenty-first century (Meh, Tarajima, Chen, and Carter, 2009).

Debt is often acquired to purchase large expenditures that cannot be completely funded out of current flows of income or revenue. There is a purpose to debt financing when it comes to long-term investments in public and private assets that are vital to either national or household economic interests, and that involve large amounts that cannot realistically be raised in the short term but must be spread out over time. The decisions taken by a household to purchase a home, or by a government to build a national highway system are obvious examples.

Much household debt is acquired to finance housing and therefore ultimately results in the acquisition of substantial net worth. During the run up to the US financial sector crisis and Great Recession, the debt and asset positions of Canadian households were relatively well matched and the household sector in Canada was in a better financial position than US households (Faruqui, 2008). On balance, the bulk of household debt is acquired in the short term for the acquisition of both tangible (land) and intangible (financial) assets and occurs over the course of a family and economic life cycle. The life-cycle theory of consumption postulates that individuals will aim to smooth

consumption over their lifetimes but that income earning is uneven resulting in debt early in life. [6] This is followed by asset acquisition through saving as income rises and then consumption from acquired assets and pensions during retirement when one is no longer earning an income from work. [7]

Indeed, young families are more likely to hold debt. One study for Canada notes that in 2009, individuals under age 45 made up 45% of the population but constituted 54% of borrowers while married people with children constituted 30% of the population but 39% of debtors (Chawla and Uppal, 2012: 5). Some debt is also incurred to finance acquisition of human capital (a post-secondary degree, for example) or even starting a business. Households acquire debt while young but generally aim to enter old age with significant assets: homes, pensions, retirement saving. [8] Indeed, recent debt increases have been largest in families at the beginning of their life cycle such as those from 35 to 44 years old and couples with children, though even these families appear to have benefited from large asset increases (Uppal and LaRochelle-Coté, 2015: 9).

Government debt

Public—government—debt has also increased over time. While large accumulations of either public- or private-sector debt can be a cause for concern, it should be noted that there both the nature and the composition of debt acquired by governments differs from that of households. These differences make for some additional considerations when comparing fears about the rise of indebtedness and its impact. [9]

Acquisition of debt by government is partly influenced by economic conditions that affect tax revenues and expenditures resulting in deficits that add to debt. While

[6] Life-cycle effects also mean that wealth distribution and inequality is affected by demographics. See Sarlo, 2017.

[7] For an overview see Modigliani and Brumberg, 1954; Friedman, 1957; and Browning and Crossley, 2001. For the macroeconomic implications of household borrowing, see Labelle, 2004.

[8] Uppal and LaRochelle-Coté (2015: 3) note that over the period from 1999 to 2012, younger families generally had higher levels of debt compared to assets than older families. In 2012, 78.6% of families where the age of the major income earner fell between 15 and 34 years had debt while 42.5% of families where the major income earner was older than 65 had debt.

[9] Comparing households and government is of course also complicated by definitions of what is included and then measured in definitions of public sector, which in turn can differ when international comparisons are made. For example, the Canada Pension Plan (CPP) and the Quebec Pension Plan (QPP) are included in the aggregate public sector in Canada. The OECD's measure of net debt excludes government employee unfunded pension liabilities whereas they have been included in Canada's public accounts shown in Statistic's Canada's Financial Management System since 2000. For a discussion, see Laurin, 2007.

governments do make expenditures for investments in human capital and physical infrastructure, deficits are ultimately the result of spending that cannot be met by incoming revenues during a downturn and should disappear once the economy recovers. Deficits that persist even during economic upturns reflect structural imbalances in revenue and spending and may reflect an inability of governments to curtail their expenditures.

While governments also may acquire some financial assets and there is investment in longer-term assets like physical infrastructure, the bulk of debt acquired is often used to finance short-term spending and consumption. For example, Ontario has seen substantial growth in its provincial debt mainly as a result of exceptional spending rather than any weakness in revenue, and about 66% of the increase in the province's debt since the 2008/09 recession was due to current expenses exceeding revenue rather than investment in infrastructure (Wen, 2015). Indeed, much of what government calls "investment" is really transfer payments, wages and benefits paid to government employees, and consumption that does not always result in the acquisition of substantial capital assets (Robson, 2017). Governments can also acquire long-term debt for capital projects that add to national infrastructure. However, in the end, all the debt acquired by government is heavily affected by political choices and the desire by governments to win elections. [10]

A key difference between the debt of private households and that of the public sector is that the former is also accompanied by the acquisition of assets over the life cycle that generate positive net worth. The data shows that households generally have positive net worth that trends up over time, whereas government measures of net worth are usually low and have not increased substantially over time. While interest rate spikes can have detrimental impacts on both government and household debt, it remains that the latter often has a substantial cushion of assets to draw down upon.

[10] There is a substantial literature on political business cycles and the relationship between economic conditions, elections, and government spending. See Nordhaus, 1975; Drazen, 2001; and, for Canada, a recent contribution by Voia and Ferris (2013).

Overview—Household and Public Debt in Canada, 1990 to 2016

The data for this section was obtained from Statistics Canada, [11] which began collecting data on household debt in 1961. Household debt at the time was relatively small given that acquisition of household debt and use of consumer credit was not as widespread. While paying by installment was a financial innovation of the 1920s, [12] even more widespread use of consumer credit dates from 1950 when the first credit-card transaction occurred in the United States. [13]

Household debt

Figure 1 plots real (\$2010) [14] and nominal quarterly total household credit-market debt—the sum of consumer credit, mortgage, and non-mortgage loans—in Canada. [15] Total nominal household credit market debt rose from \$349 billion in the first quarter of 1990 and reached \$2.03 trillion by the fourth quarter of 2016 for an annualized average quarterly growth rate of 6.8%—a rate of growth greater than the average annual growth rate from 1990 to 2016 of household disposable income (4.2%), GDP (4.3%), or inflation (1.9%). [16]

[11] Source for government and household debt data for this section: Statistics Canada, 2017c, CANSIM table 378-0121, *National Balance Sheet Accounts*. Source for GDP: Statistics Canada, 2017d, CANSIM table 380-0063, *Gross Domestic Product*. Source for household disposable income: Statistics Canada, 2017e, CANSIM table 380-0072, *Current and Capital Accounts - Households*.

[12] The consumer durables boom of the 1920s in the United States was fueled by department stores and automobile companies offering installment plans (New Deal democrat, 2008). Indeed, some have viewed the Great Depression as a credit boom gone wrong (Eichengreen and Mitchener, 2003).

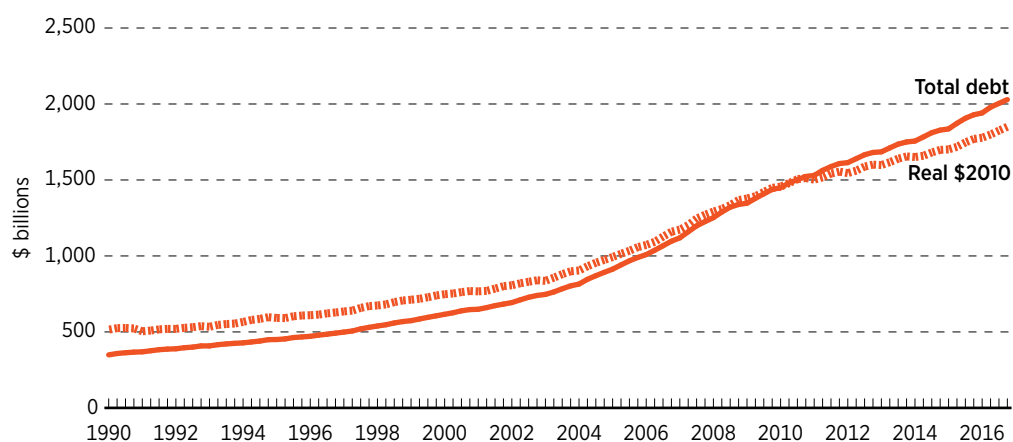
[13] In 1961, total household debt (both consumer credit and mortgage debt) in Canada was \$16 billion (Cross, 2015: 2–3).

[14] CPI used as deflator. CPI Source: FRED, 2017.

[15] Statistics Canada, 2017c, CANSIM table 378-0121, *National Balance Sheet Accounts*: series v62693986, v62693987, and v62693988.

[16] Calculations by author. Data sources: Statistics Canada, 2017e, CANSIM table 380-0072, *Current and Capital Accounts - Households*: series v62305980; Statistics Canada, 2017d, CANSIM table 380-0063, *Gross Domestic Product*: series v62295562; Statistics Canada, 2017b, CANSIM table 326-0020, *Consumer Price Index*: series v41690973.

Figure 1: Total household credit-market debt (\$ billions), 1990–2016



Sources: Statistics Canada, 2017c, CANSIM table 378-0121, *National Balance Sheet Accounts*: series v62693986, v62693987, v62693988. CPI Source: FRED, 2017.

It should be noted that the three main components of household debt are consumer credit, non-mortgage loans, and mortgage loans. Consumer credit currently makes up about 29% of total household debt, non-mortgage loans about 5%, and mortgage loans about 66% (table 1). Over the period from 1991 to 2016, the annualized quarterly nominal growth rate was 7.4% for consumer credit, 4.9% for non-mortgage loans, and 6.8% for mortgage loans.

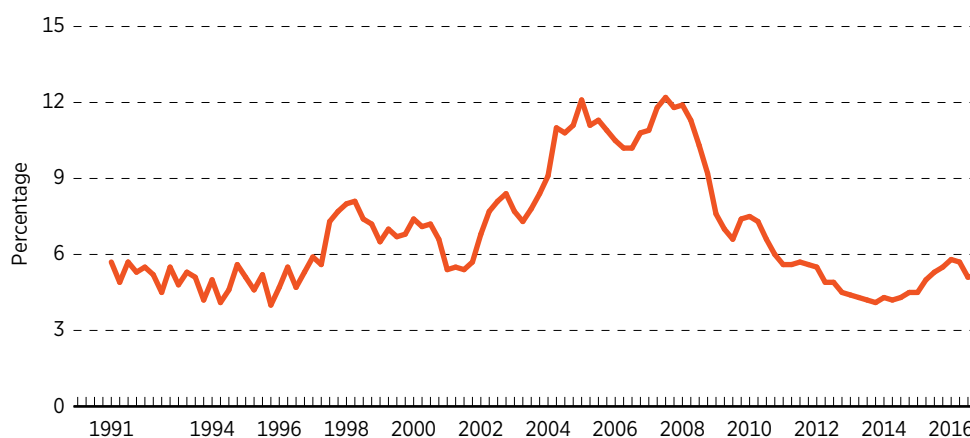
Table 1: Composition of household credit-market debt

	Consumer credit	Non-mortgage loans	Mortgages	Total debt
\$billions				
1990Q4	96.4	30.4	240.5	367.4
2016Q4	596.5	102.6	1,329.6	2,028.7
Percentage distribution				
1990Q4	26.2	8.3	65.5	100.0
2016Q4	29.4	5.1	65.5	100.0

Sources: Statistics Canada, 2017c, CANSIM table 378-0121, *National Balance Sheet Accounts*: series v62693986, v62693987, v62693988.

While the average annual growth rate of household debt is high, it has varied over time as illustrated in figure 2, which presents the annualized quarterly nominal growth rate from first quarter of 1991 to third quarter of 2016. Growth rates were particularly pronounced between 2003 and 2008 and they have since moderated. From 1991 to 1996, the average growth rate was 5% and it rose to 6.9% over the period from 1997 to 2002. Average annual growth was highest from 2003 to 2008—the period ending with the

Figure 2: Annualized quarterly growth rate (%), total household credit-market debt, 1991–2016



Sources: Statistics Canada, 2017c, CANSIM table 378-0121, *National Balance Sheet Accounts*: series v62693986, v62693987, v62693988; author's calculations.

onset of the global financial crisis—at 10.4%. For the period from 2009 to 2016, the average growth rate of household debt has been only 5.5%, an appropriate response to slower income growth and increased economic uncertainty.

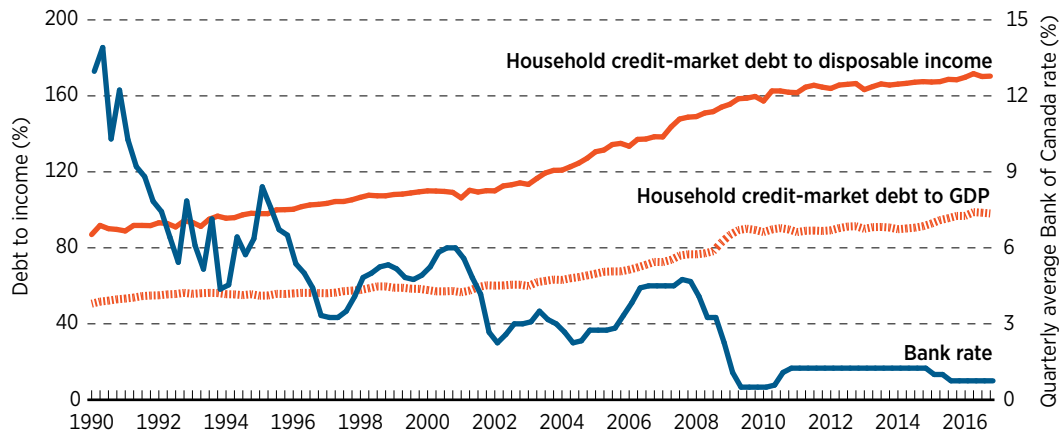
It is not just the absolute size of household debt that is of importance but also the size of debt relative to the economy, which provides a better measure of the burden of debt. Figure 3 displays household debt in relation to gross domestic product (GDP) as well as household disposable income. [17] It also plots the Bank of Canada rate over the same period and graphically illustrates the broad relationship between falling interest rates and the rise of household debt.

The steepness of the upward trend of the ratios of household debt both to GDP and to disposable income has varied, with the most rapid growth again found in the period from about 2000 to onset of the global financial crisis and Great Recession in 2008/09. Growth in household debt relative to measures of income has moderated substantially since 2009.

Between 1990Q1 and 2000Q4, the ratio of household credit-market debt to GDP rose from 50.6% to 57.3% while the ratio of household credit-market debt to disposable income rose from 87% to 109.2%. From 2001Q1 to 2009Q4, the ratio of household

[17] It should be noted that usual comparison for household debt is relative to disposable income since that is the source of repayment. The ratio of household debt to GDP is included to facilitate comparison to government debt.

Figure 3: Household debt-to-income measures and Bank of Canada rate, 1990–2016



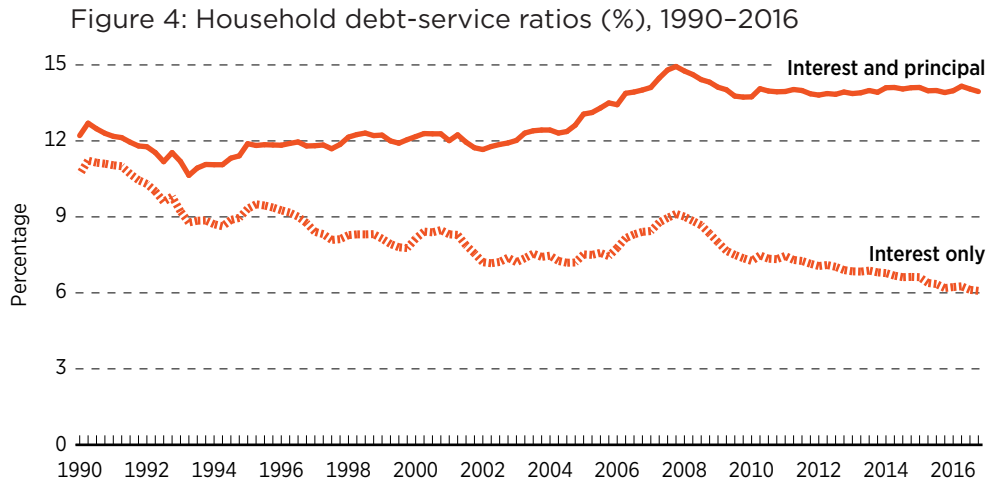
Sources: Household credit market debt: Statistics Canada, 2017c, CANSIM table 378-0121, *National Balance Sheet Accounts*: series v62693986, v62693987, v62693988; GDP: Statistics Canada, 2017d, CANSIM table 380-0063, *Gross Domestic Product*: series v62295562; Bank of Canada rate: Statistics Canada, 2017a, CANSIM table 176-0043, *Financial Market Statistics*, series v122530.

credit-market debt to GDP rose from 56.6% to reach 89.4% and then went on to reach 98.1% by 2016Q4. Over the same time span, the ratio of household credit-market debt to disposable income went from 106.3% to 159.7% and then on to 170.4%.

Between 1990Q1 and 2000Q4, the Bank of Canada rate fell from 12.97% to 6.0% and then fell further to 0.5% by 2009Q4. Interest rates went up thereafter and by 2016Q4 the Bank of Canada rate was sitting at 0.75%. [18] While falling interest rates are certainly a factor in the long-run debt acquisition by households, the persistence of low interest rates since 2009 has sparked only a modest increase in the ratios of household debt to income compared to the decade prior to 2009.

Of course, when examining household debt, the level and relative size of that debt needs to also be considered alongside what the burden of carrying that debt is. While debt has grown, the accompanying drop in interest rates has meant that the interest burden of servicing it has declined as a share of income. Figure 4 examines the burden to households of servicing their debt by plotting the household Debt Service Ratios

[18] Since 1996, the Bank Rate has been set by the Bank at the top of its operating band for the overnight rate. The overnight rate is the interest rate at which major financial institutions borrow and lend one-day (or “overnight”) funds among themselves; the Bank sets a target level for that rate. This target for the overnight rate is often referred to as the Bank’s *policy interest rate*. For additional detail, see Bank of Canada, 2017.



Sources: Statistics Canada, 2017f, CANSIM table 380-0073, *Selected Indicators-Households*: series v99451479, v62306172.

(DSRs) relative to disposable income. The household sector DSRs in figure 4 measure the proportion of household disposable income devoted to making interest and interest-plus-principal payments with respect to the sector’s total liabilities (See Statistics Canada, 2015). It should be noted that when households take on debt, they ultimately must pay back principal plus interest unlike government, which rarely does so. [19]

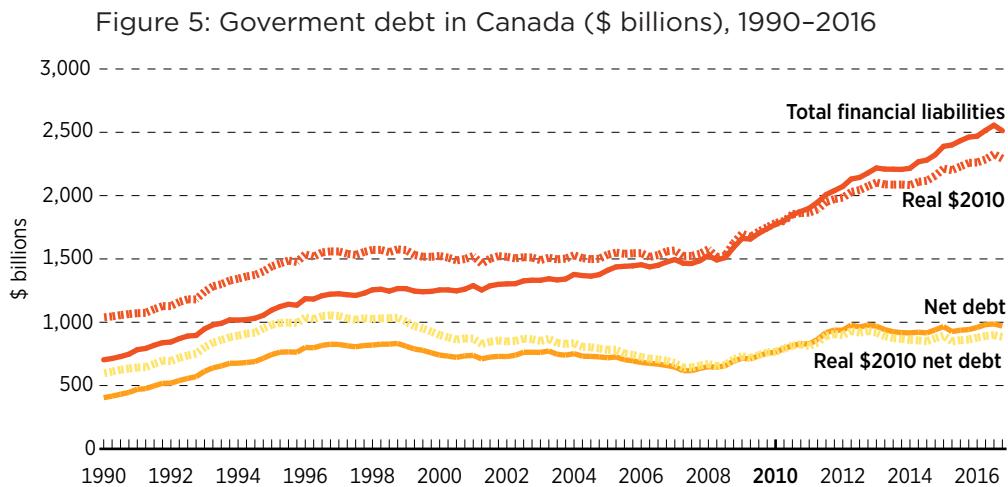
Interest payments as a share of household disposable income had fallen from 10.7% in 1990Q1 to 6.1% by 2016Q4. When the measure is revised to also take into account the repayment of principal, there is an increase in the debt-service burden over time but it has leveled off since the international financial crisis and Great Recession. [20] The ratio of interest-plus-principal repayment to disposable income rose from just over 12% in 1990Q1 to peak at nearly 15% by the end of 2007 before declining to about 14%, where it has remained since. Thus, by both measures, debt-service costs since 2007 have either declined or remained stable.

[19] It has not always been the case that governments do not make a commitment to pay back principal. Until the early twentieth century, when it came to borrowing, governments in Canada and the United States often made use of sinking funds that required them to also pay back principal on their debt. Sinking funds are “devices to ensure creditors that the securities they purchased would be redeemed by contractual commitments, sometimes according to schedules established either at the time the securities were issued or soon thereafter. For most of its history, the US government debt was in fact subject to legislatively established sinking-fund provisions. Although sinking funds remain important in modern corporate finance, starting in the 1930s they slipped into the background and then disappeared from US government debt policies” (Sylla and Wilson, 1999: 2).

[20] The international financial crisis and Great Recession affected Canada comparatively lightly compared to other G-7 countries (Grant, 2010).

Government debt

Figure 5 presents two measures of debt held by the government sector [21] from 1990 to 2016: total financial liabilities of government, which is a measure of total debt; and total financial liabilities minus financial assets, which is a measure of net debt. Both nominal and real (\$2010) [22] values are plotted. Total financial liabilities of government also include the stock of Canadian currency, [23] making net debt a better comparator of the stock of government debt. Meanwhile, figure 6 presents the growth rates of the nominal values of these two series. The periods of most rapid accumulation of government debt have been the first half of the 1990s and the period from 2007 to 2013 spanning the global financial crisis, the Great Recession, and its aftermath.



Sources: Statistics Canada, 2017c, CANSIM table 378-0121, *National Balance Sheet Accounts*: series v62694703 v62694667; CPI for real figures: FRED, 2017; author's calculations.

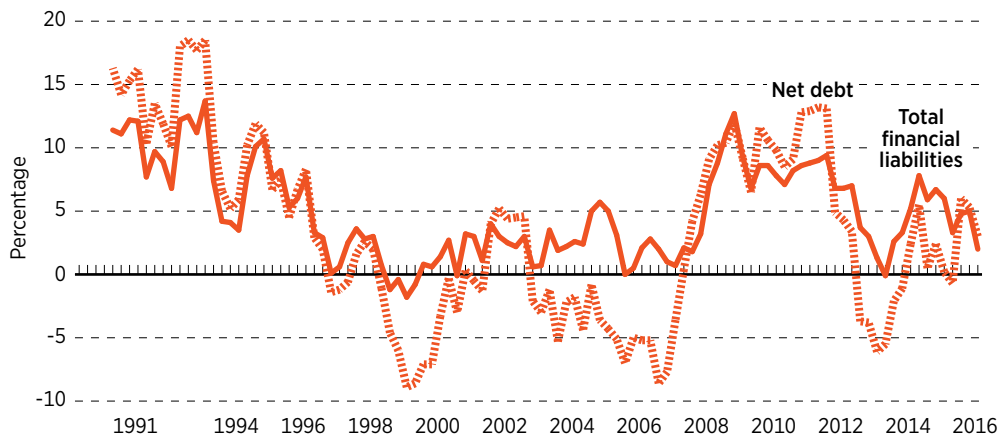
Total financial liabilities of the government sector have grown over time; growth has accelerated since 2009. From \$703.6 billion in 1990Q3, they grew to reach \$1.662 trillion by 2009Q1 and by 2016Q4 reached \$2.512 trillion. Net debt has also grown over time but there was a period of decline in the wake of the fiscal crisis of the mid-1990s. Net debt grew from \$404.4 billion in 1990Q1 to \$832.6 in 1998Q4 and then began a

[21] The government sector includes the federal government, provincial and territorial governments, local governments, aboriginal governments, and social security funds (CPP/QPP). For a broader and more detailed discussion of concepts of government indebtedness that include contractual obligations and contingent liabilities, see Palacios, MacIntyre and Lammam, 2014.

[22] Deflated using CPI. CPI Source: FRED, 2017.

[23] The money supply is not usually included in government liabilities but is included here as it is part of the official measure presented by Statistics Canada. As a result, as net debt adjusts for money supply, it is an even better measure of public-sector liabilities.

Figure 6: Annualized quarterly growth rates (%), nominal government debt, 1991–2016



Sources: Statistics Canada, 2017f, CANSIM table 380-0073, *Selected Indicators-Households*: series v62694703, v62694667.

period of decline as governments balanced their budgets and paid down some of their debt. By 2007Q2, the net public-sector debt had fallen to \$617.6 billion dollars and then began to rise during the period of the global financial crisis and Great Recession and in 2016Q4 stands at \$969.9 billion.

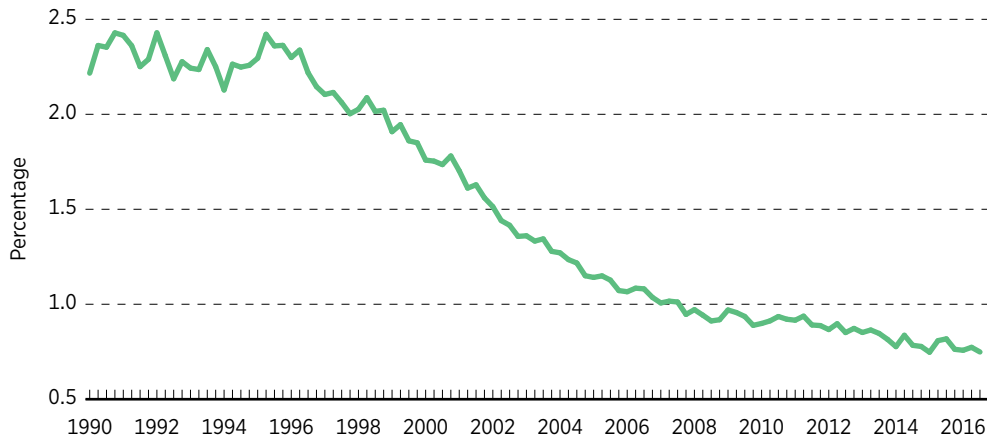
Despite the substantial accumulation of debt, governments have also been able to carry the larger quantities because of lower interest rates. Indeed, as figure 7a illustrates, the ratio of consolidated government interest payments on the debt to GDP has fallen steadily since the mid-1990s. A low debt-service ratio enabled most governments to boost spending on health and education, lower some taxes and, for a period, reduce the net debt. [24]

The ratio of government interest payments on debt to GDP is lower than that of households (figure 7b). By 2016, interest payments on household debt were just under 4% of GDP while those of government were below 1%. Governments in Canada have also not been contractually bound to repay principal on their loan, which has also eased the burden of dealing with their debt, at least in comparison to households. Having government debt dealt with in the contractual framework of a sinking fund [25] would make government debt repayment somewhat more comparable to a household's making payments of interest and principal.

[24] For a discussion of the use of the fiscal surplus that emerged near the end of the 1990s, see Grubel, 1998.

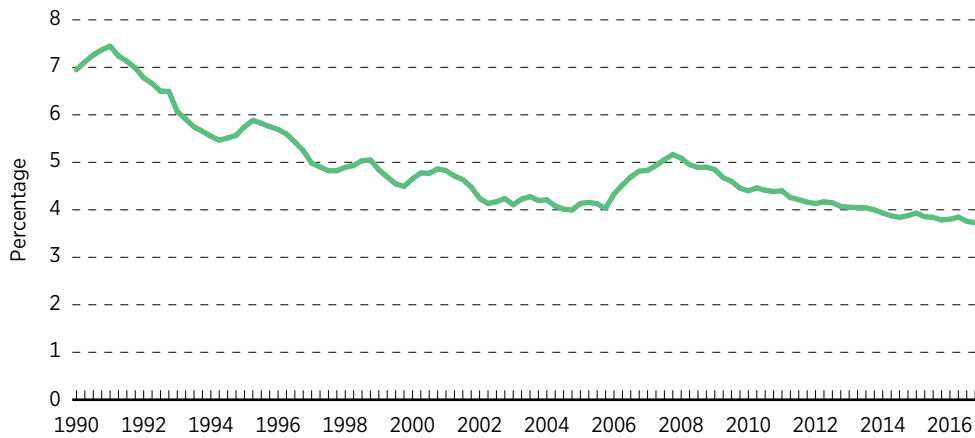
[25] See Sylla and Wilson, 1999 for a historical discussion and footnote 19.

Figure 7a: Ratio (%) of consolidated government interest payments to GDP, 1990–2016



Sources: Statistics Canada, 2017d, CANSIM table 380-0063, *Gross Domestic Product*, series v62295562; Statistics Canada, 2017g, CANSIM table 385-0032, *Government Finance Statistics*, series v52531011.

Figure 7b: Ratio (%) of household interest payments to GDP, 1990–2016

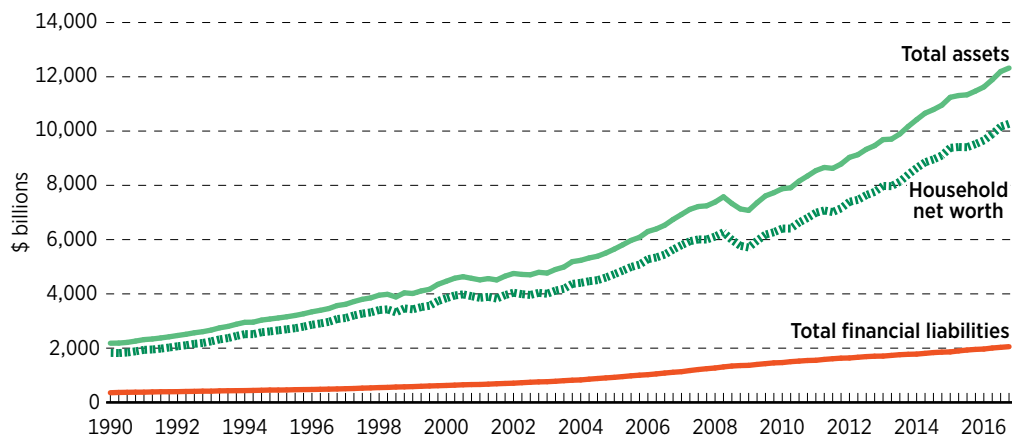


Sources: Statistics Canada, 2017f, CANSIM table 380-0073, *Selected Indicators-Households*: series v62306167; Statistics Canada, 2017d, CANSIM table 380-0063, *Gross Domestic Product*, series v62295562.

Key differences between government and household debt are illustrated in figures 8a, 8b, 8c, and 9, which plot the relationships over time between total assets, total liabilities, and net worth as well as net worth relative to GDP for households and government. Net worth for the household sector is the total value of household-sector assets minus the total value of household sector liabilities. Figure 8a and figure 9 show how household total assets have grown faster than total liabilities making for high and increasing net worth. Total household net worth rose from \$1.8 trillion in 1990Q1 to

\$10.3 trillion in 2016Q4, resulting in the ratio of net worth to GDP over the period rising from 264.7% to 498.1%. On the other hand, the net worth of government calculated as the value of total assets (financial and non-financial) [26] held by government minus its total financial liabilities [27] has not grown much since the 1990s but has usually been negative and even when positive has never exceeded 20% of GDP. Figure 8b and figure 9 illustrate this, while figure 8c compares net worth for both households and government, for a powerfully illustration of how the former has trended up over time while that of government remains flat.

Figure 8a: Household assets, financial liabilities, and net worth in Canada (\$ billions), 1990–2016



Sources: Statistics Canada, 2017c, CANSIM table 378-0121, *National Balance Sheet Accounts*: series v62693919, v62693968, v62694002.

[26] It should be noted that for households, the market value of financial and non-financial assets is used. For government, the financial assets are at market value but non-financial assets are at book value. While government liabilities are generally denoted in market values, government assets are at book value because of the difficulty in obtaining market prices for government physical infrastructure assets. As household assets are at market value, household net worth will be somewhat overstated relative to government net worth. Total financial liabilities also do not include the future unfunded liabilities of government employee pension plans. As well, the governments of Canada and Quebec also hold some CPP/QPP assets as part of their administration of the plan but these holdings represent less than 3% of the CPP's assets with the remainder under the control of the Canada Pension Plan Investment Board (Cross and Emes, 2014).

[27] This differs from net debt, which is total financial liabilities minus total financial assets.

Figure 8b: Government total assets, financial liabilities, and net worth in Canada (\$ billions), 1990–2016

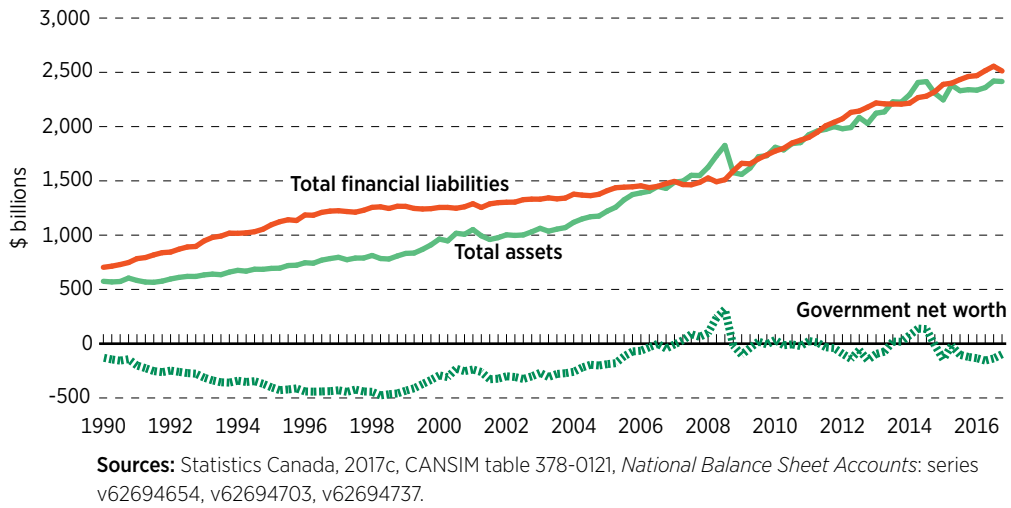


Figure 8c: Government and household net worth in Canada (\$ billions), 1990–2016

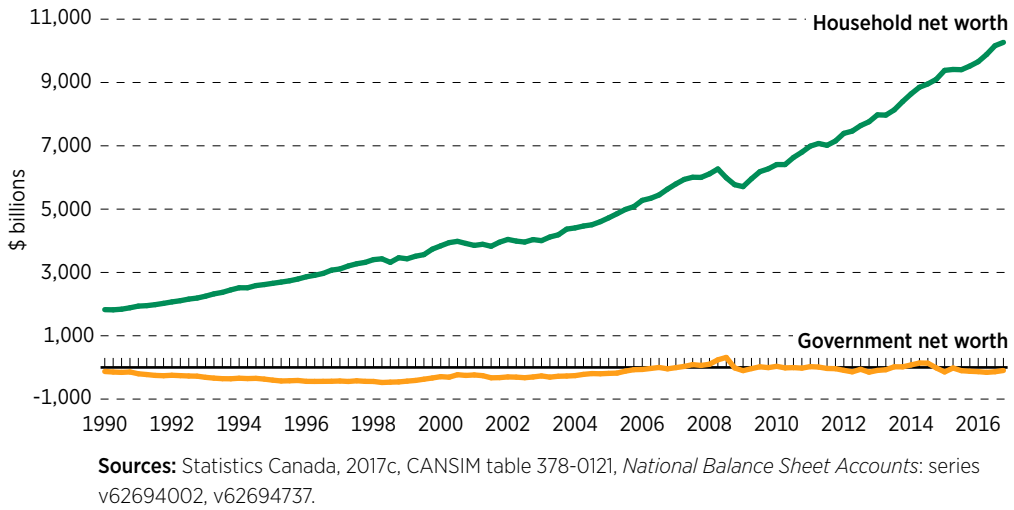
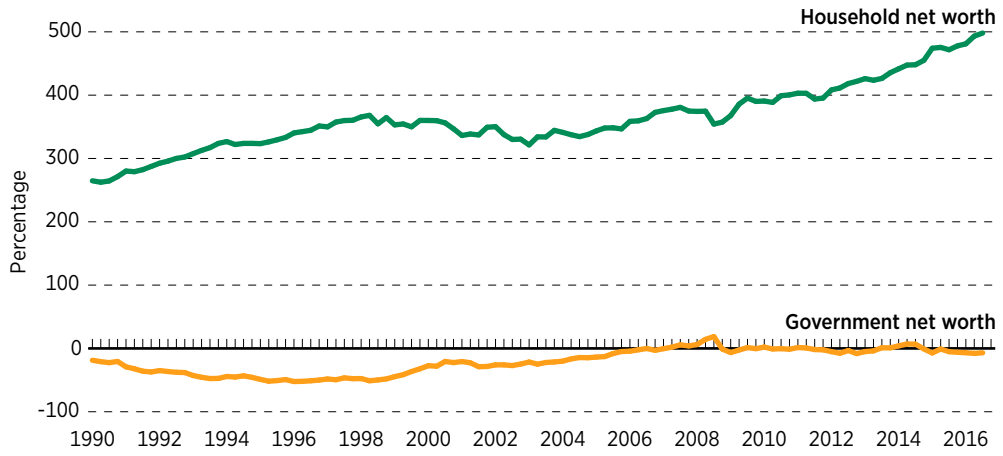


Figure 9: Government and household net worth in Canada as share (%) of GDP, 1990–2016



Sources: Statistics Canada, 2017c, CANSIM table 378-0121, *National Balance Sheet Accounts*; series v62694737; Statistics Canada, 2017d, CANSIM table 380-0063, *Gross Domestic Product*, series v62295562; calculations by author.

International Comparisons

Rising household debt is also an international phenomenon. It has risen substantially in many countries since the 1990s and reached historically high levels in most OECD countries. André (2015) notes that there was substantial deleveraging in some countries from the 2008/09 global financial crisis and recession but since then household debt has either stabilized or continued to rise and varies widely across the OECD countries. André (2015: 4) notes that the level of gross household debt as a share of net disposable income ranges from highs of 290% in the Netherlands and 320% in Denmark to lows of less than 60% in Hungary. Of the 27 OECD countries compared by André, Canada ranks eighth highest. At the same time, he also notes (2015: 8) that at the aggregate level household debt is dwarfed by household assets

Household debt

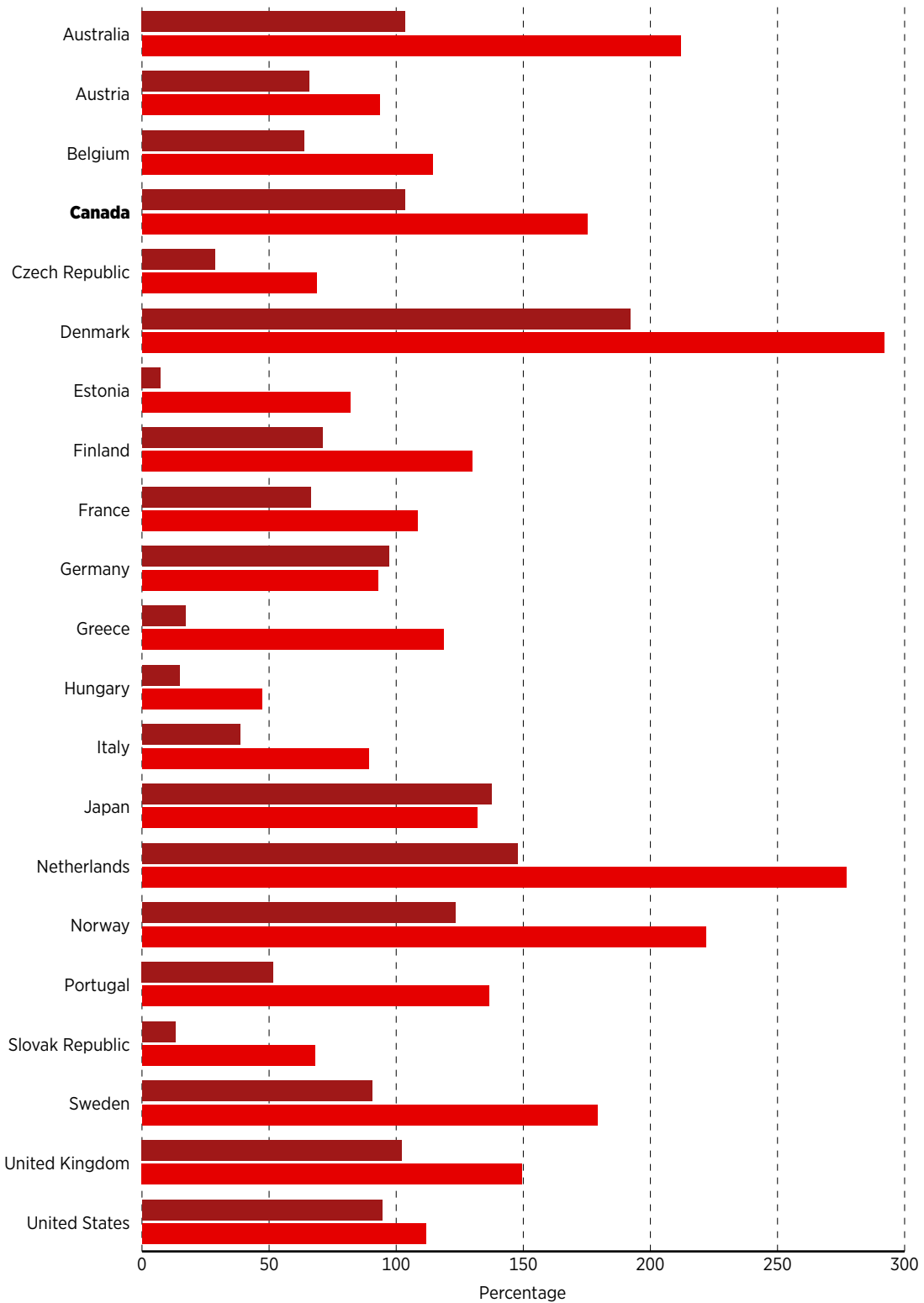
Figures 10 to 14 present data on household and government debt for a subset of OECD countries. [28] Figure 10 presents household debt as a percentage of net disposable income for the years 1995 and 2015. In 1995, household debt for these 21 countries ranged from a low of 7.3% of net disposable income for Estonia to a high of 192% for Denmark; Canada ranked seventh highest at 103%. By 2015, household debt as a percentage of net disposable income ranged from a high of 292% for Denmark to a low of 47% for Hungary, with Canada sixth highest at 175%.

Between 1995 and 2015, change in this ratio of household debt to net disposable income ranged from a high of over 1,000% for Estonia [29] to slight declines for both Germany (4.4%) and Japan (4.0%) (figure 11). Canada had the fourteenth highest growth rate over this period. Its household debt ratio grew faster than France, Denmark, and the United Kingdom but not as quickly as Belgium, Norway, or Finland.

[28] The countries include only those that had complete household and government debt series for the period from 1995 to 2015. The omitted countries include Chile, Iceland, Ireland, Israel, Korea, Latvia, Luxembourg, Mexico, New Zealand, Slovenia, Spain, Switzerland and Turkey. Finland is included for household debt but then excluded in the remaining comparisons.

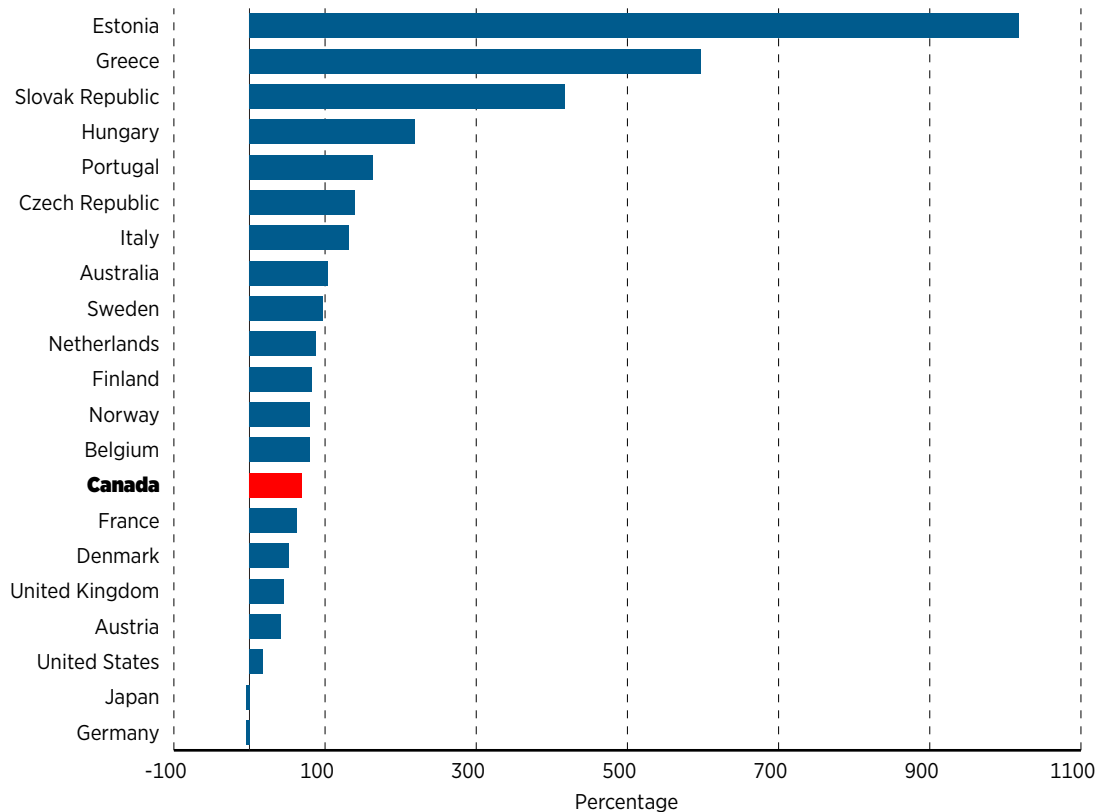
[29] This somewhat exaggerates its growth relative to that shown using percentage points, which grew 74.5 points, from 7.3% to 81.8%.

Figure 10: Household debt as a percentage of net disposable income, OECD countries, 1995 and 2015



Source: OECD, various dates. *OECD.Stat*.

Figure 11: Change in household debt as a percentage of net disposable income, 1995–2015



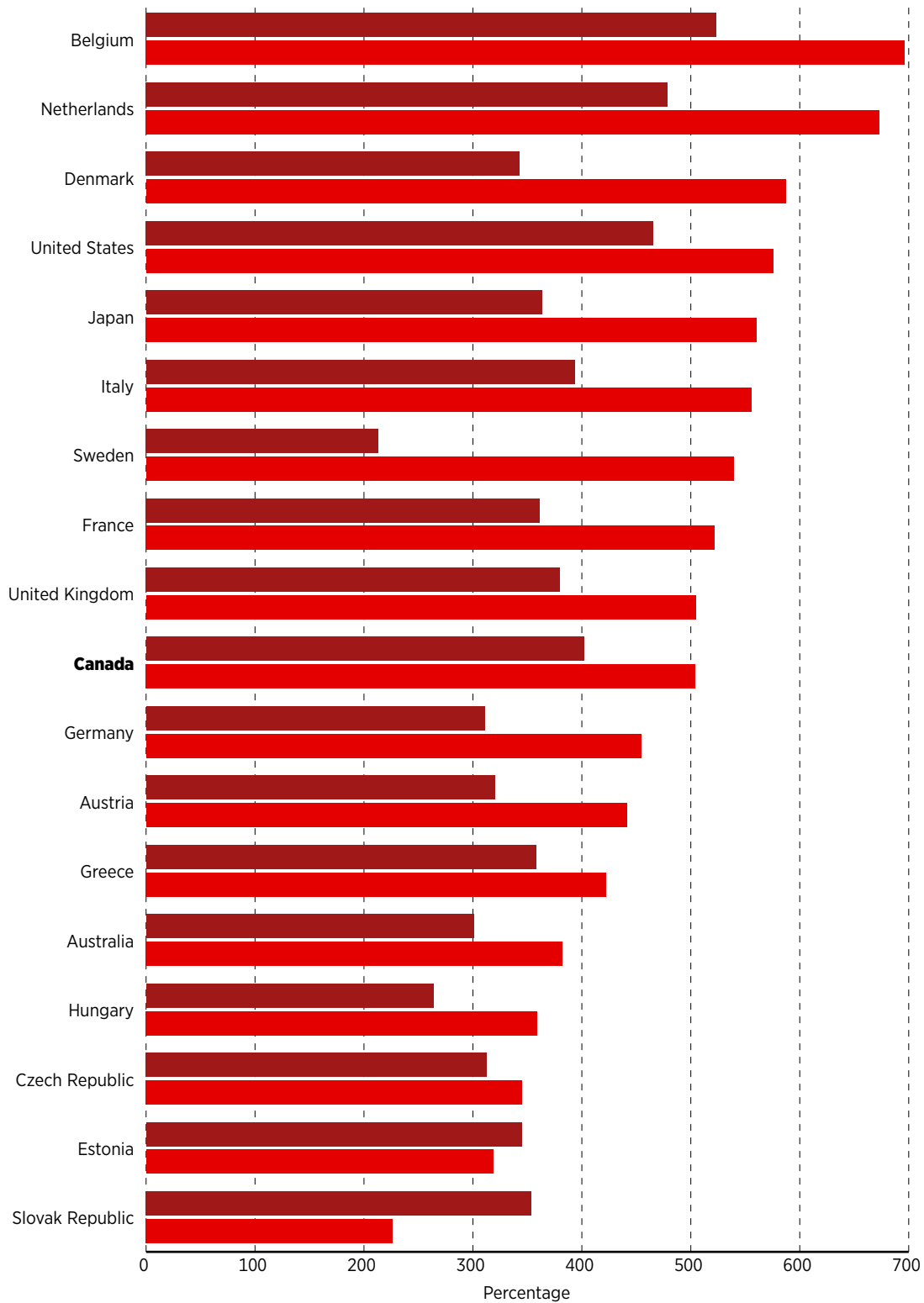
Sources: OECD, various dates. *OECD.Stat*; author's calculations.

Of course, the full impact of household debt must be considered alongside net worth and, in this respect, all of these countries show positive net worth measured as total net worth of households (figure 12). Moreover, excepting Estonia and the Slovak Republic, net worth as a share of GDP grew between 1995 and 2015. [30] In 1995, the highest ratio of net worth to GDP was Belgium's at 524%, followed by the Netherlands at 479%, the United States at 465%, and then Canada at 402% and Italy at 393%. By 2015, Belgium (696%) and the Netherlands (673%) were still first and second. Denmark was third at 587%, followed by the United States (576%), Japan (561%) and Italy (556%). [31] Compared to other countries, Canada's household debt is not exceptionally high when net worth is considered.

[30] For some of these countries in this OECD data, net worth to GDP was only available until 2014 and in the case of Canada, 2013 (OECD, various dates. *OECD.Stat.*)

[31] Canada was in tenth place but its ranking is actually based on a 2013 value in this OECD table. It should be noted that using the data from Statistics Canada's CANSIM tables 378-0121 and 380-0072 (Statistics Canada, 2017c, e), household net worth in Canada has grown faster than household disposable income between 2013 and 2016. Between 2013Q4 and 2016Q4, household net worth in Canada grew 22% while disposable income grew 12%. This suggests that Canada has continued to improve in these rankings.

Figure 12: Total net worth of households as a percentage of net disposable income, OECD countries, 1995 and 2015



Source: OECD, various dates. *OECD.Stat*.

Government debt

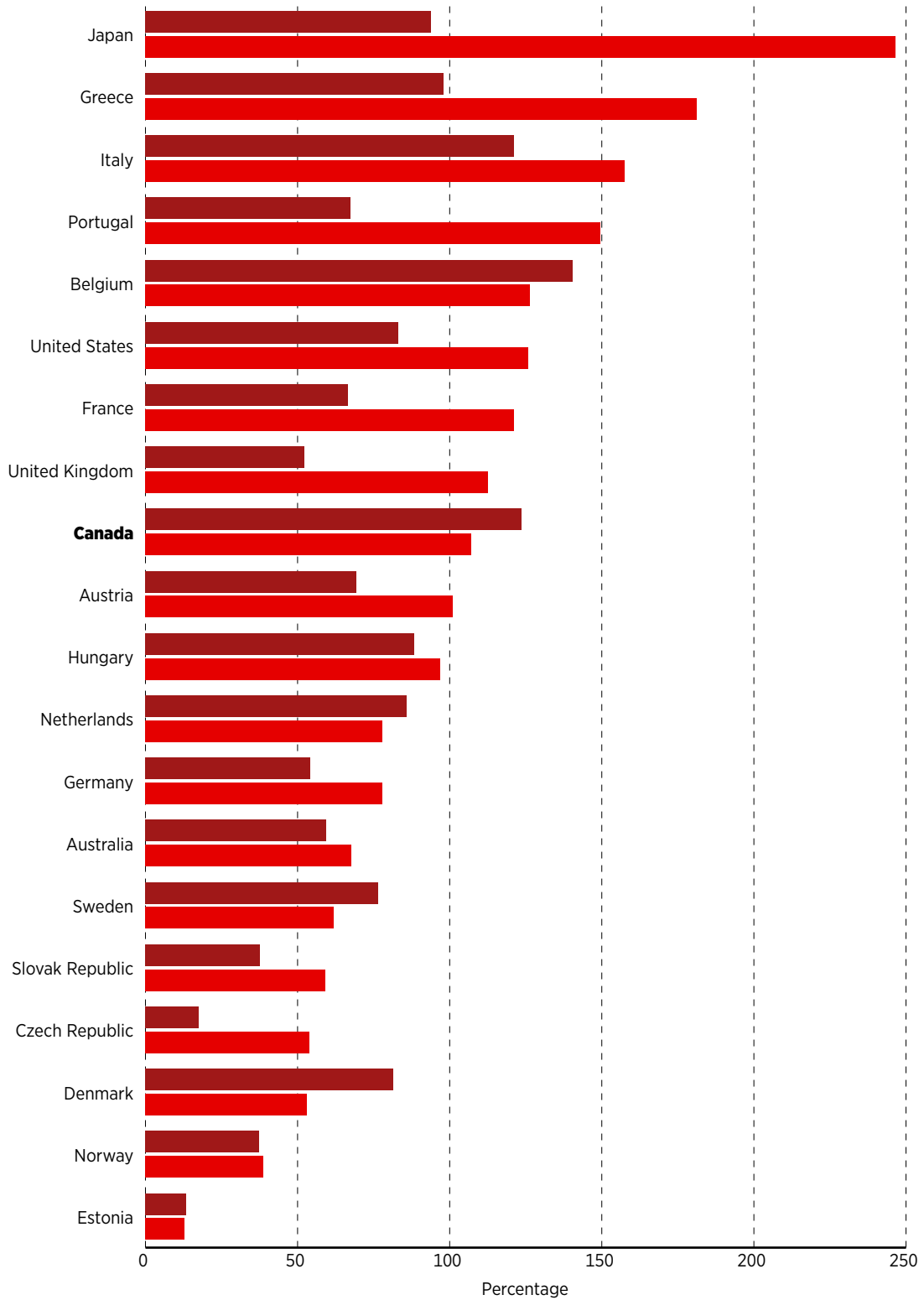
Figure 13a and figure 13b provide a comparison of government debt for these OECD countries. In 1995, gross government debt as a percentage share of GDP ranged from a low 13.3% for Estonia to a high of 140.4% for Belgium with Canada in second place at 123.7%. By 2015, the impact of the global financial and fiscal crisis in 2008/09 was readily evident. Japan was first at 246.6% followed by Greece at 181.2% and then Italy at 157.6% but Canada improved, holding ninth place at 107.2%—still only a mid-ranked performance. The lowest gross government debt-to-GDP ratio was again that of Estonia at 12.9%. The growth in the gross government debt-to-GDP ratio from 1995 to 2015 was greatest in the Czech Republic, Japan, and Portugal and was negative in Estonia, Netherlands, Belgium, Canada, Sweden, and Denmark.

Finally, figure 14 gives government debt in conjunction with the value of financial assets to present a measure of net worth. In 1995, of these 20 OECD countries, only four had positive general government net financial worth: the Czech Republic, Norway, Estonia, and the Slovak Republic. For these four countries, the ratio of financial net worth to GDP ranged from a high of 59.6% for the Czech Republic to a low of 30.1% for the Slovak Republic. In all other countries, the ratio of general government financial net worth to GDP was negative, ranging from -16.3% for Australia to -117% for Belgium. In 1995, Canada's ratio of general government financial net worth to GDP was -92.1%, eighteenth among the 20 countries.

By 2015, only three countries had a positive ratio of general government financial net worth to GDP: Norway (284.7%), Estonia (42.1%), and Sweden (18.9%). [32] All remaining countries were negative ranging from -4.4% for Denmark to -147.7 for Greece. The net worth of Canada's government sector was negative as a share of GDP but improved from 1995 to 2015 going from -92.1% to -47.4%; by 2015 Canada was ranked tenth among these 20 OECD countries. Despite relatively robust growth compared to other G-7 countries since 2009, Canada has nevertheless been in the middle of the pack compared to other OECD countries with respect to government debt and net worth.

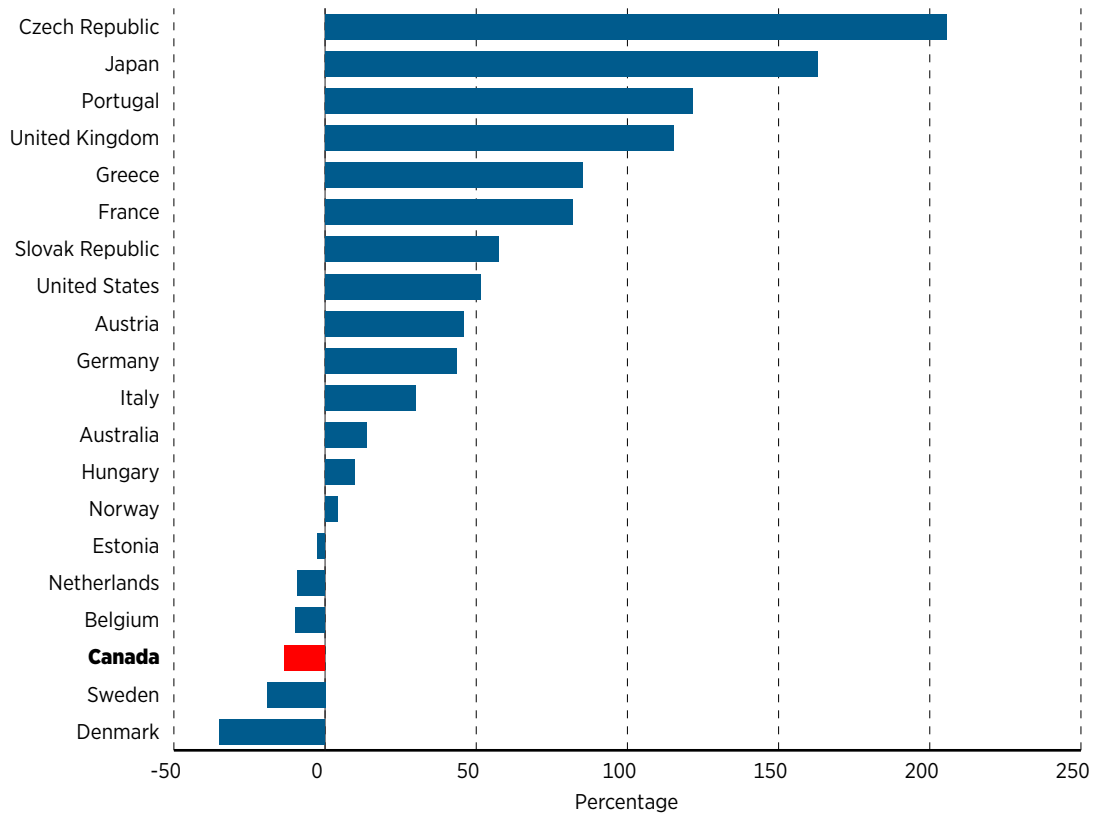
[32] The Norwegian case is definitely unique and is a result of the Sovereign wealth fund in which North Sea oil revenues have been invested. In 2016, the fund was worth approximately US\$882 billion—about double the country's GDP (*The Economist*, 2016).

Figure 13a: Gross government debt as a share (%) of GDP, OECD countries, 1995 and 2015*



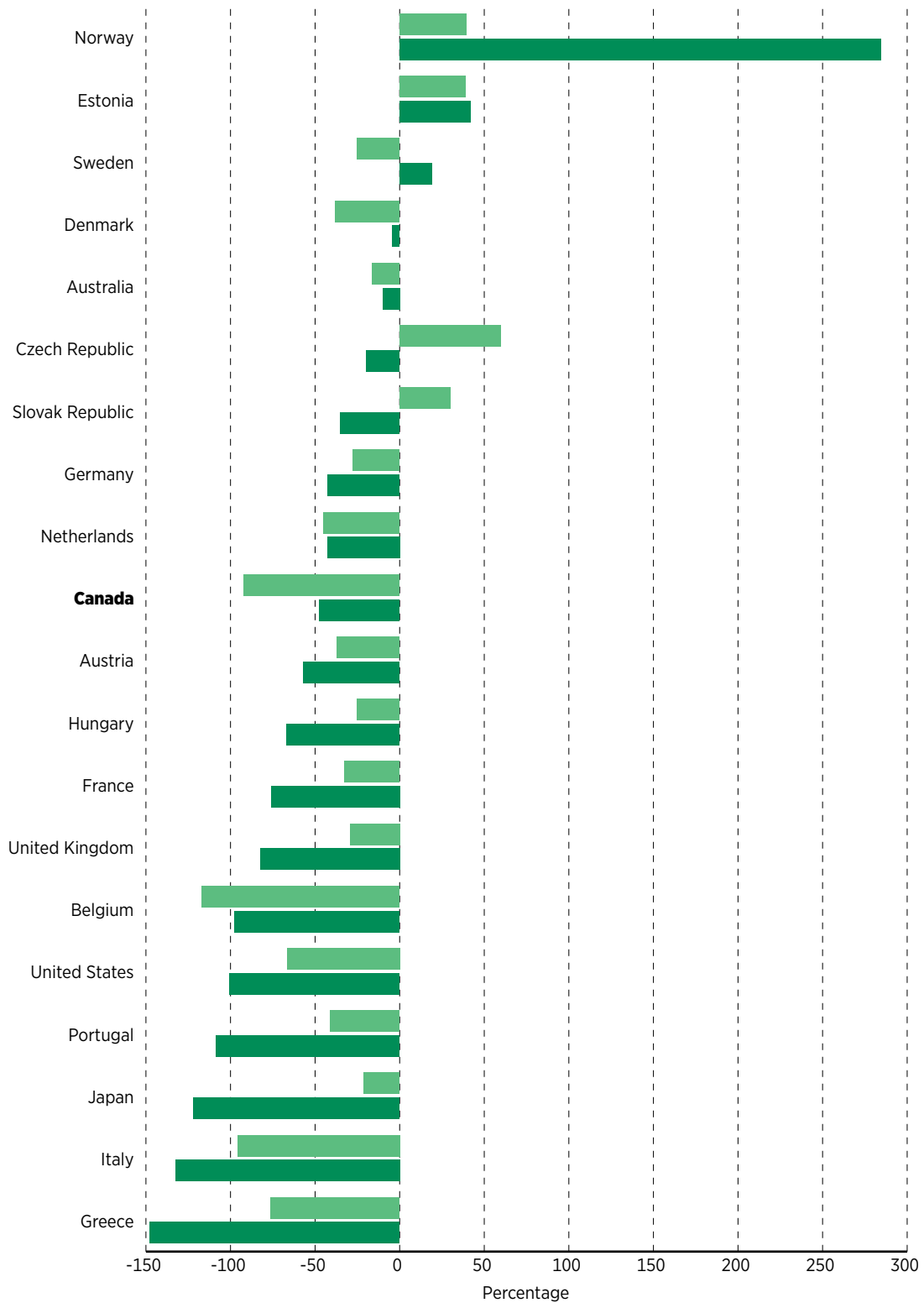
Note *: or the most recent available year.
 Source: OECD, various dates. *OECD.Stat*.

Figure 13b: Change in gross government debt as a percentage of GDP, 1995–2015



Sources: OECD, various dates. *OECD.Stat*; author's calculations.

Figure 14: Financial net worth of governments as a share (%) of GDP, OECD countries, 1995 and 2015*



Note *: or the most recent available year.

Source: OECD, various dates. *OECD.Stat*.

Micro Analysis—Household Debt and Net Worth

As discussed earlier, an important feature of household debt and asset acquisition is that they are functions of the economic life cycle. In this section, micro-data from Statistics Canada’s Survey of Financial Security, 2012 [33] is used to examine household debt and net worth. The Survey of Financial Security collected cross-sectional information from a sample of Canadian families on their assets, debts, employment, income, and education, providing a comprehensive picture of the net worth of Canadians. The data set is for 12,003 Canadian households. [34] Information was collected on the value of all major financial and non-financial assets and on the money owing on mortgages, vehicles, credit cards, student loans, and other debts. It provides a snapshot at a point in time of the financial situation of Canadian families.

In 2012, the average value of total assets for these 12,003 households was \$848,493, while the average value of total debt was \$94,144 and average net worth (including pensions valued on a termination basis) was \$754,350. The average after-tax income of these households was \$72,748, making for a debt-to-income ratio of 129% and an asset-to-income ratio of 1,037%. While these averages show that the average amount of debt is dwarfed by asset values, they do not take into account the effect of the life cycle. That is, there is an ebb and flow of debt and assets over time.

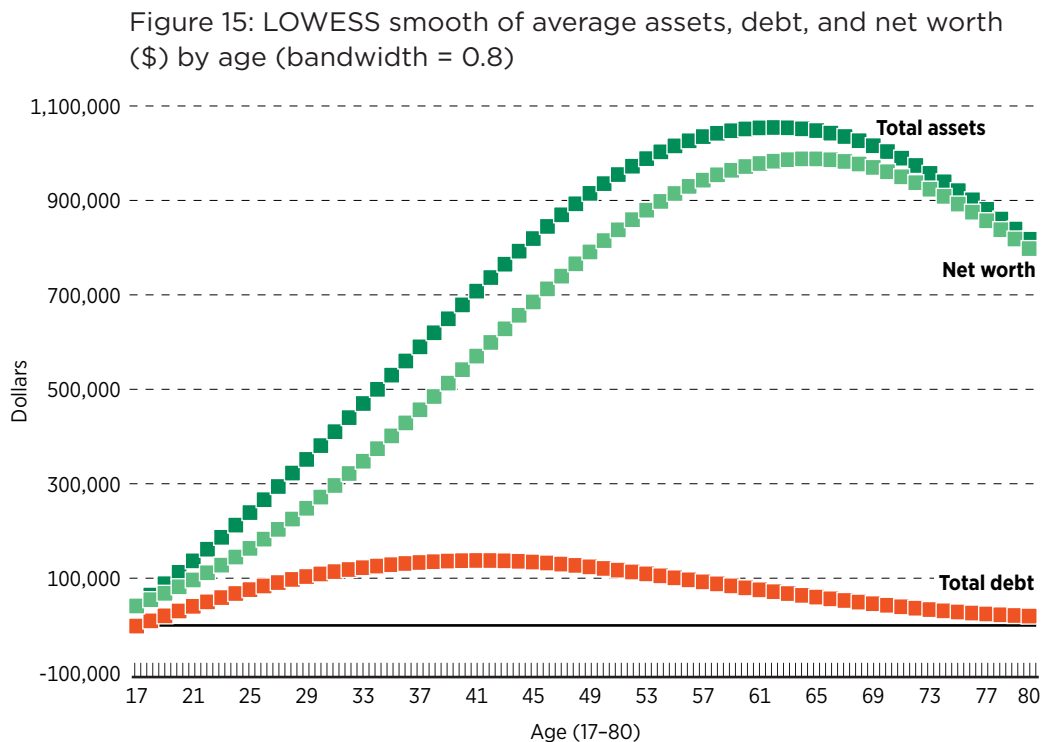
Figure 15 provides LOWESS-smoothed age profiles for these households for the average value by age of household head for total debt, total assets, and net worth. Again, it should be noted that this profile is based on cross-sectional rather than longitudinal

[33] The Survey of Financial Security covers the population living in the ten provinces. Excluded from the survey’s coverage are: persons living on reserves and other Aboriginal settlements in the provinces, official representatives of foreign countries living in Canada and their families, members of religious and other communal colonies, members of the Canadian Forces living on military bases or in military camps, persons living full-time in institutions (for example, inmates of penal institutions and chronic care patients living in hospitals and nursing homes). Altogether these exclusions represent approximately 2% of the population (Statistics Canada, Income Statistics Division, 2012).

[34] It should be noted that this is a sample intended to be a reasonable representation of Canada in general. As is noted: “The SFS provides a comprehensive picture of the net worth [or financial health] of Canadians” (Statistics Canada, Income Statistics Division, 2012).

data and therefore is a snapshot at a point in time of the age-net worth relationship. For Canadian households in 2012, the relationship between total assets, total debt, and net worth and age is approximately hump-shaped. [35] The value of assets, debt, and net worth rises with age, reaches a peak and then declines reflecting the needs and requirements of households over the life cycle. Household income and savings rise over time, increasing net worth as debt incurred early on in the life cycle to finance education or home purchases is paid down.

The value of total assets peaks at age 62 at a value of \$1.054 million before beginning to decline as assets are drawn down in retirement, though the rate of decline is modest as by age 80 assets are still \$817,746. Debt also exhibits a hump shape with respect to age but it peaks much earlier in the life cycle at age 41 at a value of \$137,534. It then declines and by age 80, average total debt is \$19,736. Meanwhile, net worth rises steadily throughout the life cycle, peaking at \$987,983 at age 64 and then declines.



Sources: Statistics Canada, Income Statistics Division, 2012, *Survey of Financial Security*; author's calculations.

[35] The age of head of households ranges from a low of 17 to a high of 80.

Assessment—Should Canadians Be Worried?

Should Canadians be worried about their levels of public- and household-sector indebtedness? As is often the case in economics, it depends on what your evaluation criteria is, the context for interpreting the issue, as well as the time frame involved. Both household debt and government debt in Canada have definitely increased over time. Total household credit-market debt grew from \$349 billion at the start of 1990 and reached \$2.029 trillion by the end of 2016. Total government-sector debt/financial liabilities grew from \$703.6 billion at the start of 1990 and reached \$2.512 trillion by the end of 2016. While the total debt of both sectors has grown over time, the growth of household debt has been faster, at an average annual rate of 6.8% as opposed to 5.0% for government debt.

Household debt

As a share of GDP, total household credit-market debt grew from 50.6% at the start of 1990 and reached 98.1% by the end of 2016. Over the same period, the total financial liabilities of government as a share of GDP rose from 102% to 122%. If one's simple concern is that debt-to-GDP ratios have been growing, then yes, Canadians should be concerned.

However, in the end, debt is a tool and the concern should be not with debt itself but debt that is not manageable in the economic circumstances facing households and government. The greatest risks to the management of household credit-market debt are economic shocks that lead to job losses that make debt servicing difficult or increases in the interest rate that raise debt-servicing costs. To date, interest rates have remained low and the Canadian economy has performed adequately, with relatively low unemployment rates.

Moreover, while these macroeconomic factors are of concern, they also need to be weighed against the fact that, despite the record high levels of household debt, there are also record high levels of net worth. Households have acquired substantial assets. Moreover, household debt and asset acquisition is part of an economic life cycle with

debts peaking early in the life cycle while net worth peaks later on. As well, much of the debt acquired early on in the life cycle is to invest in human capital as well as purchase real estate, which then translates into equity as mortgages are paid.

One concern is that much of the net worth of Canadians is currently based on the value of real estate and this, in turn, is fueled by rising housing prices in larger urban centers—especially Toronto and Vancouver. Indeed, the Bank of Canada’s (2016) *Financial System Review* of late last year noted sharp increases in households with a debt-to-income ratio greater than 450% in Toronto and Vancouver. [36] A housing correction in these two markets could therefore bring a significant decrease in net worth and, given the spillovers into the broader economy and financial sector, complicate the manageability of private debt.

Finally, when taken in an international context, Canada’s household debt relative to income is one of the higher amongst the OECD countries. While this might be a cause for concern, growth of Canada’s household debt has moderated and, indeed, over the last decade has not been as fast as that of most other OECD countries. Moreover, household net worth in Canada has also grown and compares favourably with that of other OECD countries: Canada ranks in the middle for household debt as a share of household disposable income.

Government debt

The manageability of debt in the public sector is again linked to debt service costs and interest rates, and to date governments have been able to acquire large amounts of debt because of low interest rates. However, unlike households, governments do not hold a large stock of assets to counterbalance the acquisition of government debt and government net worth is often negative. Moreover, servicing government debt comes from tax revenues and increases in debt service costs not only reduce government spending on goods and services of benefit to the economy but they may result in tax increases, which will, in turn, affect the economy’s performance.

Judging by government net worth, Canada’s handling of its public-sector debt puts it in the middle of OECD countries studied. However, the last few years have seen increases

[36] The proportion of borrowers with high mortgage debt—that is, loan-to-income ratios above 450%—by 2016Q3 was 49% in Toronto, 39% in Vancouver, and 32% in Calgary, compared to 18% across Canada (Bank of Canada, 2016).

in deficits and debt—particularly at the federal level—that are expected to continue unabated for the foreseeable future as the population ages. With respect to public-sector debt, it is not only the cost of carrying the debt but the prospect of future tax increases should the debt situation become unmanageable, which can affect business expectations about the economy’s performance.

Canadian household debt is less of a concern than government debt given that the growth of household debt has moderated while government debt growth appears to be accelerating. Given current levels of net debt and net worth, historically low interest rates, and recent improvements in economic growth, household debt should remain manageable provided there are no major economic shocks.

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