Insights on Canadian Society

Homeownership, mortgage debt and types of mortgage among Canadian families

by Sharanjit Uppal

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Overview of the study

A dream of many Canadians is to someday own their own home and most take on debt for that reason. This study uses data from the Survey of Financial Security to examine changes in homeownership rates and factors associated with homeownership, the proportion of families who had paid off the mortgage on their principal residence, and the amount of mortgage debt owed by families who had a mortgage. The study also provides information on the types of mortgage rates on the principal residence (fixed rate, variable rate or a combination of both).

- In 2016, 63% of Canadian families owned their homes, up from 60% in 1999. Almost all of this increase was because of population aging, given that families in older age groups are more likely to own their homes.

- In 2016, 43% of Canadian homeowners had paid off the mortgage on their principal residence, down from 46% in 1999. Without population aging, this proportion would have declined to 36% in 2016.

- From 1999 to 2016, mortgage debt represented two-thirds of the overall increase in debt for Canadian families, while consumer debt made up the remainder. In recent years (2012 to 2016), mortgage debt was responsible for 100% of the increase in total debt.

- From 1999 to 2016, the median amount of mortgage debt among Canadian families with a mortgage almost doubled, from $91,900 to $180,000 in 2016 constant dollars. The amount of mortgage debt increased in nearly all demographic groups and in almost all regions of Canada.

- In 2016, almost three-quarters (74%) of Canadian families with a mortgage had a fixed mortgage rate, 21% had a variable mortgage rate, and 5% had a combination of a fixed and variable mortgage rate.

Introduction

In recent years, a great deal of research has focused on the levels of debt that families carry and the increase in debt.[1] Most of the increase in total debt is from mortgage debt, and the increase in mortgage debt can be attributed to two factors. The first is the rapid increase in housing prices. According to the monthly Home Price Index published by the Canadian Real Estate Association (CREA), housing prices rose by 109% (in nominal terms) from January 2005 to December 2016.[2] In comparison, during the same period, the Consumer Price Index (CPI) showed an overall price increase of 22%.[3] The second factor is mortgage interest rates, which have

been at historically low levels for most of the last decade, making borrowing costs low and acting as an incentive for families to take on new or bigger mortgages.[4]

There is a possibility that these historically low mortgage rates would increase as the Bank of Canada normalizes monetary policy. Because mortgage debt is high, there are concerns that certain households may not be able to withstand interest rate hikes. The short-term effect of an interest rate hike depends, in part, on the type of mortgage rate the debt carries. If the mortgage rate is fixed, then a rate hike will not have any immediate

effect on mortgage payments or on the outstanding amount to be paid until the end of the term. However, if the rate is variable, an increase in the rate will have either of the following consequences, depending on the type of agreement: (1) it will lead to an immediate increase in payment or an increase in payment after the interest rate reaches a certain threshold; or (2) it will not change the payment, but decrease the repayment of principal and increase the accrued interest. Even for families with a fixed mortgage rate, a higher interest rate may have an impact for those who are not prepared for the possibility of facing higher interest rates at the end of their term. In view of the above, a study on homeownership, current outstanding mortgage debt and types of mortgage rates is important.

While examples of Canadian studies focusing on homeownership and mortgage debt can be found in the literature,[5] little is available on the types of mortgage rates across regions or family types. For the first time, the 2016 Survey of Financial Security (SFS) asked about the type of mortgage rate that a family took on their principal residence mortgage debt (see the *Data sources, methods and definitions* section).

The first part of the article will look at homeownership rates across family characteristics. It will then look at the characteristics of families who had paid off their mortgage, and the amount of mortgage outstanding among families who had not paid off their mortgage debt. In the second part, family characteristics associated with various types of mortgage rates will be examined. Where possible, comparisons will be drawn over time.

In 2016, more than 6 in 10 families owned their principal residence

In 2016, 63% of Canadian families owned their principal residence, up slightly from 60% in 1999 (Table 1).[6,7] Almost all of this increase is attributable to a demographic shift—the Canadian population became older, and older age groups are more likely to own their homes.[8]

Recent immigrants (those who immigrated during the five years preceding the survey) had the largest increase in homeownership.[9] The homeownership rate for this group increased from 17% in 1999 to 39% in 2016. Established immigrants (those who immigrated more than five years before the survey) also had a notable increase (6 percentage points).

The homeownership rate for families whose major income earner had a non-university postsecondary certificate increased by 6 percentage points. In contrast, the rate for the lowest educational category (i.e., those who did not complete high school) decreased by 5 percentage points. Families in the top two income quintiles also experienced a significant increase in homeownership (4 percentage points and 7 percentage points, respectively), as well as unattached individuals[10] (6 percentage points) and those who maintained a family budget (4 percentage points). Regionally, there were no statistically significant changes in homeownership.

There is a clear association between homeownership and age, largely because homeownership is a life cycle phenomenon. Younger individuals aged less than 35 are less

likely to own homes, because many are still in school and others have recently graduated and are in the process of saving money for a down payment. The homeownership rate is higher among middle aged individuals (i.e., those aged 45 to 64); in 2016, homeownership was 71% among families whose major income earner was aged 45 to 54 and 78% among those aged 55 to 64.

Homeownership rates were higher among families whose major income earner had a level of education above a high school diploma (largely because higher educated people have higher incomes). Couple families were more likely to own homes, compared with lone parents and unattached individuals. Families whose major income earner was self-employed were more likely to own their homes than families of paid employees and people who were not in the labour force. Despite the large increase in homeownership rates of recent immigrants, they remained less likely to own their homes than established immigrants and Canadian-born individuals. As expected, families in the top income quintile were more likely to own their homes than those in the bottom quintile.

Certain financial behavioural factors can also be associated with homeownership. In the 2016 SFS, questions related to financial behaviour included whether or not the family had a household budget, had borrowed money through payday loans in the past three years, or had anyone in the family who had ever declared bankruptcy or who made a formal proposal or informal financial arrangements to creditors. Information on payments on credit card balances was also

Table 1
Homeownership rates across family characteristics, 1999 and 2016

	1999	2016
	percent	
All	**60.4**	**62.8***
Age of major income earner		
19 to 24	12.5	10.3
25 to 34	43.4	44.4
35 to 44	62.9	64.6
45 to 54	72.7	70.7
55 to 64	74.7	78.3
65 and over	67.9	68.2
Highest level of education of major income earner		
Less than high school	57.1	51.8*
High school diploma	57.1	55.6
Non-university postsecondary certificate or diploma	62.3	68.7*
University degree or certificate	66.3	67.7
Family structure		
Unattached individual	32.5	38.6*
Couple, no children	75.1	78.0
Couple with children	78.2	78.0
Lone-parent family	39.9	44.8
Other family types	77.5	78.2
Immigrant status of major income earner		
Recent immigrant	17.4	38.7*
Established immigrant	64.2	69.7*
Canadian-born individual	60.8	61.9
Labour force status of major income earner		
Paid employee	62.2	64.4
Self-employed	74.5	75.5
Not in labour force	53.3	56.6
Family income quintile		
Bottom quintile	25.5	24.5
Second quintile	53.1	53.0
Third quintile	67.0	69.0
Fourth quintile	75.0	79.4*
Top quintile	81.7	88.2*
Family budget		
Yes	57.5	61.7*
No	62.9	63.8
Amount of credit card balances paid off every month		
Minimum or less than minimum	..	51.2
More than minimum but less than full amount	..	62.6
Full amount	..	73.6
Do not have credit card	..	20.3
Someone in the family borrowed money through a payday loan in the past three years		
Yes	..	27.8
No	..	64.0
Someone in the family ever declared bankruptcy or made a formal proposal or informal financial arrangements to creditors		
Yes	..	44.1
No	..	64.8

collected.[11] Families who paid off their monthly credit card balances in full were more likely to own their homes. However, financial instability (whether measured as having declared bankruptcy or made formal or informal arrangements, or as having borrowed through a payday loan) was negatively associated with homeownership. Declaring bankruptcy or making formal proposals to creditors would make it more difficult to obtain credit from a financial institution, while having borrowed from a payday loan reflects a low level of financial resources and therefore a reduced ability to make a down payment.

There were some regional variations in homeownership. Families in Montréal (51%) were the least likely to be homeowners, whereas families in Newfoundland and Labrador (74%) and areas in Manitoba other than Winnipeg (78%) were the most likely.

Because various personal characteristics are expected to be correlated with each other, a logistic regression was estimated to calculate predicted probabilities of homeownership. Controlling for various characteristics changed some of the conclusions based on descriptive statistics. The predicted probability of owning a home was now higher among those aged 65 and over (0.75), compared with 0.63 for those aged 45 to 54 and 0.46 for those aged 25 to 34 (Table 2). Seniors are more likely to have lower levels of education, be unattached and belong to the lower income quintiles—characteristics that are associated with lower homeownership rates.

Table 1
Homeownership rates across family characteristics, 1999 and 2016

	1999	2016
	percent	
Region		
Newfoundland and Labrador	74.6	74.4
Prince Edward Island	67.9	66.7
Nova Scotia	66.5	63.9
New Brunswick	69.4	70.8
Québec	58.0	57.0
Montréal	44.8	50.5
Quebec excluding the CMAs of Québec and Montréal	66.0	63.9
Ottawa	49.0	61.2
Toronto	54.4	58.7
Ontario excluding the CMAs of Ottawa and Toronto	67.5	70.1
Winnipeg	61.5	63.4
Manitoba excluding the CMA of Winnipeg	70.2	77.8
Regina	68.6	62.9
Saskatoon	59.5	61.4
Saskatchewan excluding the CMAs of Regina and Saskatoon	73.6	74.1
Calgary	64.3	67.5
Edmonton	65.2	60.7
Alberta excluding the CMAs of Calgary and Edmonton	72.2	69.4
Vancouver	52.3	55.8
British Columbia excluding the CMA of Vancouver	62.0	69.1

.. not available for a specific reference period
* 2016 value is significantly different from the 1999 value (p < 0.05)
Source: Statistics Canada, Survey of Financial Security, 1999 and 2016.

Table 2
Predicted probability of owning a home across family characteristics, 2016

	Model 1	Model 2
	predicted probability	
Age of major income earner		
19 to 24	0.34*	0.32*
25 to 34 (ref.)	0.46	0.47
35 to 44	0.55*	0.57*
45 to 54	0.63*	0.65*
55 to 64	0.74*	0.74*
65 and over	0.75*	0.73*
Highest level of education of major income earner		
Less than high school (ref.)	0.59	0.62
High school diploma	0.60	0.61
Non-university postsecondary certificate or diploma	0.66*	0.66*
University degree or certificate	0.64*	0.61
Family structure		
Unattached individual (ref.)	0.47	0.48
Couple, no children	0.67*	0.66*
Couple with children	0.79*	0.77*
Lone-parent family	0.64*	0.66*
Other family types	0.72*	0.72*
Immigrant status of major income earner		
Recent immigrant	0.49*	0.47*
Established immigrant	0.66*	0.65
Canadian-born individual (ref.)	0.62	0.63

When financial behavioural characteristics are included in the model, the result for university education becomes statistically insignificant. This shows that university education has a positive association with homeownership through its effect on financial behaviour. In other words, university education has a positive association with positive or prudent financial behaviours, which in turn have a positive association with homeownership.

The probabilities of owning a home were relatively higher among families living in the Atlantic provinces (from 0.66 to 0.73). Additionally, areas outside large census metropolitan areas (CMAs) in the rest of Canada had higher ownership rates. Areas outside CMAs usually have higher homeownership for two reasons: relatively less expensive house prices and lower availability of rental units. Finally, the probability of owning a home in Montréal (0.54) was the lowest of all regions. The low homeownership in Montréal (and in Quebec in general) can be attributed to the favourable shelter costs of renting compared with owning.[12]

In 2016, more than 4 in 10 families had paid off their mortgage

In 2016, 43% of homeowners did not have any mortgage debt on their principal residence; in other words, they had paid off their house. However, this proportion varied across characteristics, particularly age. This is expected, since mortgage debt typically involves large amounts that are contracted at a relatively young age to pay for a house and then slowly repaid over time.

Table 2
Predicted probability of owning a home across family characteristics, 2016

	Model 1	Model 2
	predicted probability	
Labour force status of major income earner		
Paid employee (ref.)	0.62	0.62
Self-employed	0.70*	0.69*
Not in labour force	0.62	0.62
Family income quintile		
Bottom quintile (ref.)	0.38	0.43
Second quintile	0.52*	0.54*
Third quintile	0.66*	0.65*
Fourth quintile	0.75*	0.73*
Top quintile	0.83*	0.80*
Family budget		
Yes (ref.)	...	0.62
No	...	0.63
Amount of credit card balances paid off every month		
Minimum or less than minimum	...	0.61*
More than minimum but less than full amount	...	0.62*
Full amount (ref.)	...	0.67
Do not have credit card	...	0.45*
Someone in the family borrowed money through a payday loan in the past three years		
Yes (ref.)	...	0.45
No	...	0.63*
Someone in the family ever declared bankruptcy or made a formal proposal or informal financial arrangements to creditors		
Yes (ref.)	...	0.52
No	...	0.64*
Region		
Newfoundland and Labrador	0.73*	0.74*
Prince Edward Island	0.67*	0.69*
Nova Scotia	0.66*	0.68*
New Brunswick	0.73*	0.73*
Québec	0.58	0.55
Montréal	0.54*	0.54*
Quebec excluding the CMAs of Québec and Montréal	0.66*	0.66*
Ottawa	0.56	0.56
Toronto (ref.)	0.60	0.59
Ontario excluding the CMAs of Ottawa and Toronto	0.66*	0.68*
Winnipeg	0.66*	0.66*
Manitoba excluding the CMA of Winnipeg	0.72*	0.71*
Regina	0.62	0.62
Saskatoon	0.65	0.64
Saskatchewan excluding the CMAs of Regina and Saskatoon	0.71*	0.72*
Calgary	0.64	0.63*
Edmonton	0.58	0.60
Alberta excluding the CMAs of Calgary and Edmonton	0.67*	0.68*
Vancouver	0.58	0.57
British Columbia excluding the CMA of Vancouver	0.68*	0.68*

... not applicable
* significantly different from reference category (ref.) (p < 0.05)
Source: Statistics Canada, Survey of Financial Security, 2016.

Therefore, it is not surprising that older people are more likely to have paid off their mortgage. In 2016, over 8 in 10 families whose major income earner was aged 65 or over had paid off their mortgage, compared with less than 1 in 10 of those whose major income earner was aged 25 to 34. Other characteristics, however, are also associated with having no mortgage debt. These characteristics can be examined in a regression model controlling for age, with results expressed in predicted probabilities (Table 3).

Couples with children were less likely to have paid off their mortgage (0.35), compared with unattached individuals (0.44).[13] This is likely because they have more financial responsibilities given the presence of children. Couples with children also tend to have larger houses, which are more costly. Conversely, individuals who were not in the labour force (0.54) were more likely to have paid off their mortgage than those who were in the labour force. This result is not necessarily a surprise, since the group of people outside the labour force includes retirees, and people often continue to work until their debts are paid in full.[14]

Recent and established immigrants had a lower probability of having paid off their mortgage (0.34 and 0.39, respectively) than Canadian-born individuals (0.44). The results associated with financial behaviour variables show that the probability of having paid off the mortgage was higher among those who paid off credit card balances in full and those who had never declared bankruptcy.

Table 3
Predicted probability of having paid off the mortgage of the principal residence, 2016

	Model 1	Model 2
	predicted probability	
Age of major income earner		
19 to 24	F	F
25 to 34 (ref.)	0.13	0.14
35 to 44	0.18*	0.19*
45 to 54	0.37*	0.38*
55 to 64	0.51*	0.51*
65 and over	0.71*	0.67*
Highest level of education of major income earner		
Less than high school (ref.)	0.44	0.45
High school diploma	0.42	0.43
Non-university postsecondary certificate or diploma	0.41	0.42
University degree or certificate	0.44	0.43
Family structure		
Unattached individual (ref.)	0.44	0.43
Couple, no children	0.46	0.45
Couple with children	0.35*	0.36*
Lone-parent family	0.44	0.44
Other family types	0.43	0.45
Immigrant status of major income earner		
Recent immigrant	0.33*	0.34*
Established immigrant	0.39*	0.39*
Canadian-born individual (ref.)	0.44	0.44
Labour force status of major income earner		
Paid employee (ref.)	0.37	0.39
Self-employed	0.40	0.40
Not in labour force	0.54*	0.52*
Family income quintile		
Bottom quintile (ref.)	0.43	0.44
Second quintile	0.41	0.42
Third quintile	0.40	0.41
Fourth quintile	0.43	0.43
Top quintile	0.46	0.44
Family budget		
Yes (ref.)	...	0.40
No	...	0.44*
Amount of credit card balances paid off every month		
Minimum or less than minimum	...	0.30*
More than minimum but less than full amount	...	0.28*
Full amount (ref.)	...	0.49
Do not have credit card	...	0.45
Someone in the family borrowed money through a payday loan in the past three years		
Yes (ref.)	...	0.37
No	...	0.43
Someone in the family ever declared bankruptcy or made a formal proposal or informal financial arrangements to creditors		
Yes (ref.)	...	0.34
No	...	0.43*

The results did not show much variation across regions, since most probabilities were not statistically different from the reference region (Toronto). However, homeowners in Newfoundland and Labrador and in Saskatchewan excluding Regina and Saskatoon were more likely to have paid off their mortgage, compared with homeowners in Toronto. In contrast, homeowners in Montréal and British Columbia excluding Vancouver were less likely to have paid off their mortgage.

It is also important to examine changes over time. From 1999 to 2016, the proportion of families who had paid off their mortgage decreased from 46% to 43%. This decline occurred against a backdrop of population aging, which would be associated with a higher rate because older people are more likely to have paid off their mortgage. Population aging slowed down the decline in the proportion of homeowners who had paid off their mortgage. If the age structure had remained the same as in 1999, the decline in the proportion of families who had paid off their mortgage debt would have been significantly larger—falling from 46% in 1999 to 36% in 2016.

From 1999 to 2016, almost all groups experienced a decline in the proportion of homeowners who had paid off their mortgage. The magnitude, however, varied across family characteristics. The decline was relatively large for families whose major income earner was aged 35 to 64—an 11 to 12 percentage point decrease. The younger age group, those aged 25 to 34, saw a 4 percentage point decrease (Table 4).

Table 3
Predicted probability of having paid off the mortgage of the principal residence, 2016

	Model 1	Model 2
	predicted probability	
Region		
Newfoundland and Labrador	0.48	0.51*
Prince Edward Island	0.41	0.41
Nova Scotia	0.44	0.47
New Brunswick	0.43	0.45
Québec	0.39	0.37
Montréal	0.39	0.38*
Quebec excluding the CMAs of Québec and Montréal	0.42	0.43
Ottawa	0.38	0.38
Toronto (ref.)	0.43	0.42
Ontario excluding the CMAs of Ottawa and Toronto	0.45	0.45
Winnipeg	0.43	0.42
Manitoba excluding the CMA of Winnipeg	0.45	0.46
Regina	0.43	0.44
Saskatoon	0.45	0.43
Saskatchewan excluding the CMAs of Regina and Saskatoon	0.51*	0.51*
Calgary	0.43	0.43
Edmonton	0.40	0.41
Alberta excluding the CMAs of Calgary and Edmonton	0.46	0.47*
Vancouver	0.43	0.41
British Columbia excluding the CMA of Vancouver	0.38*	0.38*

... not applicable
F too unreliable to be published
* significantly different from reference category (ref.) (p < 0.05)
Source: Statistics Canada, Survey of Financial Security, 2016.

Table 4
Proportion of homeowners who have paid off their mortgage debt across family characteristics, 1999 and 2016

	1999	2016
	percent	
All	**46.3**	**42.7***
Age of major income earner		
19 to 24	F	F
25 to 34	13.4	9.4*
35 to 44	23.2	11.6*
45 to 54	41.3	30.4*
55 to 64	66.1	54.2*
65 and over	90.1	82.1*
Highest level of education of major income earner		
Less than high school	65.3	66.7
High school diploma	41.0	44.7
Non-university postsecondary certificate or diploma	38.7	37.8
University degree or certificate	39.5	38.1
Family structure		
Unattached individual	59.8	54.6
Couple, no children	62.9	58.3*
Couple with children	25.8	14.2*
Lone-parent family	28.3	22.6
Other family types	57.0	42.1*
Immigrant status of major income earner		
Recent immigrant	23.1	19.3
Established immigrant	47.9	39.5*
Canadian-born individual	46.1	44.4

The decline in the proportion of homeowners who had paid off the mortgage on their principal residence was around 5 to 6 percentage points for the bottom three income quintiles. This proportion did not change for the upper two income quintiles. Other groups that saw a significant decrease in this proportion included couples with children (12 percentage points) and without children (5 percentage points), other family types (15 percentage points), established immigrants (8 percentage points), homeowners not in the labour force (6 percentage points), and homeowners who did not maintain a family budget (7 percentage points). Regionally, significant declines were seen in Newfoundland and Labrador (14 percentage points), Winnipeg (11 percentage points), Edmonton (10 percentage points) and areas of Saskatchewan other than Regina and Saskatoon (13 percentage points).

From 2012 to 2016, the increase in total debt was entirely due to mortgage debt

Mortgage debt constitutes the majority of a family's total debt. In 2016, it accounted for 81% of the total debt of Canadian families, up from 77% in 1999.[15] From 1999 to 2016, the average total family debt more than doubled, from $75,300 to $162,400 in 2016 dollars.[16] During the same period, average mortgage debt increased from $58,200 to $131,100, an increase of 125%. Consumer debt also rose, but at a slower pace (from $17,000 to $31,300).[17] Therefore, most of the increase in total debt resulted from the rise in mortgage debt.

In fact, mortgage debt contributed to 84% of the increase in total debt from 1999 to 2016. Interestingly, the contribution of mortgage debt to the

Table 4
Proportion of homeowners who have paid off their mortgage debt across family characteristics, 1999 and 2016

	1999	2016
	percent	
Labour force status of major income earner		
Paid employee	28.9	26.4*
Self-employed	41.6	39.1
Not in labour force	82.6	76.2*
Family income quintile		
Bottom quintile	59.6	54.4*
Second quintile	49.2	43.5*
Third quintile	42.6	36.3*
Fourth quintile	37.7	37.5
Top quintile	42.4	41.8
Family budget		
Yes	36.9	38.1
No	53.4	46.5*
Amount of credit card balances paid off every month		
Minimum or less than minimum	..	18.3
More than minimum but less than full amount	..	20.1
Full amount	..	52.2
Do not have credit card	..	60.2
Someone in the family borrowed money through a payday loan in the past three years		
Yes	..	23.0
No	..	43.0
Someone in the family ever declared bankruptcy or made a formal proposal or informal financial arrangements to creditors		
Yes	..	25.0
No	..	44.0
Region		
Newfoundland and Labrador	66.8	52.8*
Prince Edward Island	52.6	41.7
Nova Scotia	52.5	51.1
New Brunswick	54.9	46.6
Québec	39.7	36.8
Montréal	43.2	36.5
Quebec excluding the CMAs of Québec and Montréal	50.5	48.6
Ottawa	37.3	36.9
Toronto	43.9	36.7
Ontario excluding the CMAs of Ottawa and Toronto	44.9	47.7
Winnipeg	48.1	37.4*
Manitoba excluding the CMA of Winnipeg	58.3	45.5
Regina	47.1	43.4
Saskatoon	46.4	47.2
Saskatchewan excluding the CMAs of Regina and Saskatoon	66.5	53.5*
Calgary	35.6	36.1
Edmonton	44.5	34.5*
Alberta excluding the CMAs of Calgary and Edmonton	46.8	45.9
Vancouver	40.5	40.0
British Columbia excluding the CMA of Vancouver	45.0	45.8

.. not available for a specific reference period
F too unreliable to be published
* 2016 value is significantly different from the 1999 value (p < 0.05)
Source: Statistics Canada, Survey of Financial Security, 1999 and 2016.

increase in total debt has been more significant in recent years. From 1999 to 2005, 68% of the increase in total debt resulted from the increase in mortgage debt (Chart 1), rising to 82% from 2005 to 2012, then to 100% from 2012 to 2016. The average consumer debt remained unchanged between 2012 and 2016 (at $31,300).

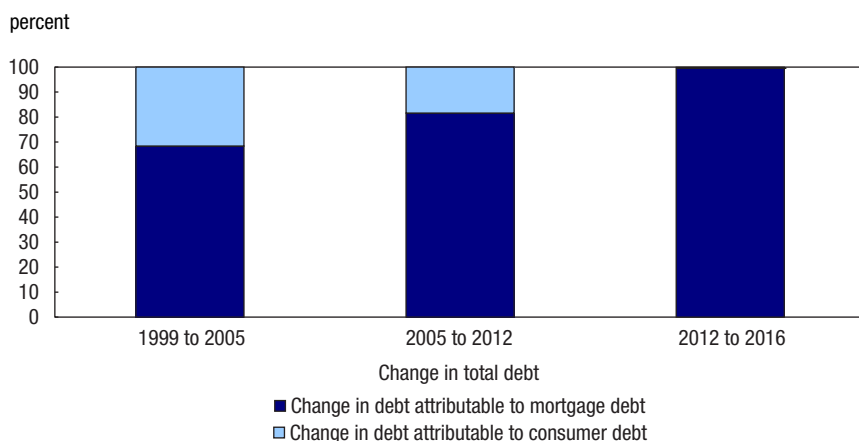## Mortgage debt on the principal residence doubled from 1999 to 2016

Among homeowners who had a mortgage, the median mortgage debt was $180,000 in 2016 (Table 5).[18] As expected, the level of mortgage debt decreases with age. The median mortgage debt of families whose major income earner was aged 25 to 44 was twice as much as those whose major income earner was aged 65 and over. Higher mortgage debt in the middle age group is consistent with the life-cycle theory of asset accumulation.

Families whose major income earner held a university degree had more than twice as much mortgage debt than those whose major income earner did not complete high school. University-educated individuals typically have higher incomes, which allows for better access to credit.

Mortgage debt also varied across the income distribution. The median level of mortgage debt among families in the top income quintile was $228,000, compared with $145,000 among families in the bottom quintile. Mortgage debt was higher for recent and established immigrants ($293,000 and $230,000, respectively) than for Canadian-born individuals ($158,600). Among family types, couples with children

Chart 1
Decomposition of increase in total debt, 1999 to 2016

percent

Change in total debt

■ Change in debt attributable to mortgage debt
□ Change in debt attributable to consumer debt

Source: Statistics Canada, Survey of Financial Security, 1999, 2005, 2012 and 2016.

($205,000) had the most mortgage debt, and unattached individuals ($135,000) had the least.

Homeowners who had not borrowed through a payday loan in the past three years and those who had never declared bankruptcy or made a formal proposal or informal financial arrangements to creditors had higher levels of mortgage debt, reflecting a better ability to obtain credit.

Regionally, families in Toronto ($280,000), Vancouver ($266,000), Calgary ($260,000) and Edmonton ($250,000) had the highest median levels of mortgage debt.

Table 5
Median mortgage debt among homeowners with mortgage debt, 1999 and 2016

	1999	2016	Change, 1999 to 2016	
	2016 constant dollars		2016 constant dollars	percent
All	91,900	180,000	88,100	96*
Age of major income earner				
19 to 24	87,100	160,000	72,900	84
25 to 34	116,100	213,000	96,900	83*
35 to 44	96,800	200,000	103,200	107*
45 to 54	78,800	174,000	95,200	121*
55 to 64	67,400	130,000	62,600	93*
65 and over	55,300	100,000	44,700	81*
Highest level of education of major income earner				
Less than high school	67,700	100,000	32,300	48*
High school diploma	89,800	153,600	63,800	71*
Non-university postsecondary certificate or diploma	92,600	174,000	81,400	88*
University degree or certificate	110,600	210,000	99,400	90*
Family structure				
Unattached individual	80,200	135,000	54,800	68*
Couple, no children	89,800	165,000	75,200	84*
Couple with children	96,800	205,000	108,200	112*
Lone-parent family	78,800	165,000	86,200	109*
Other family types	92,600	170,000	77,400	84*
Immigrant status of major income earner				
Recent immigrant	172,800	293,000	120,200	70*
Established immigrant	117,500	230,000	112,500	96*
Canadian-born individual	87,000	158,600	71,600	82*
Labour force status of major income earner				
Paid employee	94,900	182,000	87,100	92*
Self-employed	103,700	200,000	96,300	93*
Not in labour force	58,100	110,000	51,900	89*
Family income quintile				
Bottom quintile	69,100	145,000	75,900	110*
Second quintile	79,100	160,000	80,900	102*
Third quintile	96,800	180,000	83,200	86*
Fourth quintile	103,700	175,000	71,300	69*
Top quintile	110,800	228,000	117,200	106*

Table 5
Median mortgage debt among homeowners with mortgage debt, 1999 and 2016

	1999	2016	Change, 1999 to 2016	
	2016 constant dollars		2016 constant dollars	percent
Family budget				
Yes	92,600	180,000	87,400	94*
No	91,200	174,000	82,800	91*
Amount of credit card balances paid off every month				
Minimum or less than minimum	..	195,000	...	...
More than minimum but less than full amount	..	180,000	...	...
Full amount	..	180,000	...	...
Do not have credit card	..	112,000	...	...
Someone in the family borrowed money through a payday loan in the past three years				
Yes	..	135,000	...	...
No	..	180,000	...	...
Someone in the family ever declared bankruptcy or made a formal proposal or informal financial arrangements to creditors				
Yes	..	157,500	...	...
No	..	180,000	...	...
Region				
Newfoundland and Labrador	55,300	121,000	65,700	119*
Prince Edward Island	56,700	80,700	24,000	42
Nova Scotia	59,400	101,500	42,100	71*
New Brunswick	48,400	89,000	40,600	84*
Québec	71,900	150,000	78,100	109*
Montréal	89,800	160,000	70,200	78*
Quebec excluding the CMAs of Québec and Montréal	55,300	103,000	47,700	86*
Ottawa	126,800	206,000	79,200	62*
Toronto	143,700	280,000	136,300	95*
Ontario excluding the CMAs of Ottawa and Toronto	96,800	145,000	48,200	50*
Winnipeg	69,100	170,000	100,900	146*
Manitoba excluding the CMA of Winnipeg	55,300	130,000	74,700	135*
Regina	76,000	220,000	144,000	189*
Saskatoon	66,300	190,000	123,700	187*
Saskatchewan excluding the CMAs of Regina and Saskatoon	49,800	110,000	60,200	121*
Calgary	118,900	260,000	141,100	119*
Edmonton	89,800	250,000	160,200	178*
Alberta excluding the CMAs of Calgary and Edmonton	78,800	200,000	121,200	154*
Vancouver	165,900	266,000	100,100	60*
British Columbia excluding the CMA of Vancouver	110,600	178,000	67,400	61*

.. not available for a specific reference period
... not applicable
* 2016 value is significantly different from the 1999 value (p < 0.05)
Source: Statistics Canada, Survey of Financial Security, 1999 and 2016.

These markets are among the most expensive in the country. Homeowners residing in New Brunswick ($89,000) and Prince Edward Island ($80,700), where housing prices are lower, had the lowest median mortgage debt.

From 1999 to 2016, mortgage debt doubled from $91,900 to $180,000 in 2016 dollars. This is not a surprise, given that housing prices almost doubled in Canada from 2005 to 2016. Mortgage debt increased significantly among all groups, but there were differences across groups. In percentage terms, among all age groups, families whose major income earner was aged 45 to 54 experienced the largest increase in mortgage debt (121%, or $95,200), followed by those whose major income earner was aged 35 to 44 (107%, or $103,200).

The median mortgage debt more than doubled among families in the bottom two income quintiles and among families in the top quintile. Relatively large increases in mortgage debt were also seen among couples with children (112%, or $108,200) and lone-parent families (109%, or $86,200). In percentage terms, homeowners living in the Prairies experienced the largest increases, and homeowners living in Prince

Edward Island were the only ones not to record a significant increase in median mortgage debt over the period.

Almost three-quarters of families had a fixed-rate mortgage in 2016

Given the increase in the relative importance of mortgage debt among Canadian families, it is also important to examine how Canadians finance this debt. For the first time, the 2016 SFS collected information on the type of mortgage rate selected by Canadians on their principal residence: a fixed mortgage rate, a variable mortgage rate or some combination of both.

Homeowners can be motivated to choose a variable rate over a fixed rate in order to benefit from a lower interest rate (and hence lower mortgage payments), even if this means being exposed to a higher risk of rate increase in the near future. Conversely, homeowners who are more risk averse may prefer a fixed rate. These choices depend on the spread between the fixed and variable rate, and the type of mortgage products offered by the financial institutions for different amortization periods. The SFS did not ask respondents as to why they chose a variable rate, fixed rate, or combination of both. As a result, the section below is limited to a discussion of mortgage rate types across family characteristics.

In Canada, the majority of homeowners with a mortgage have a fixed mortgage rate.[19] About 74% had a fixed mortgage rate, while 21% had a variable rate and 5% had a combination of both (Table 6).[20] Families in the youngest age group, aged 19 to 24, were the least likely to have a fixed mortgage rate (63%).[21]

Table 6
Type of mortgage rate on mortgage debt on the principal residence, 2016

	Fixed	Variable	Combination
		percent	
All	**74.2**	**20.9**	**4.9**
Age of major income earner			
19 to 24	62.5	32.8[E]	F
25 to 34	80.2	17.2	2.6[E]
35 to 44	72.4	22.0	5.6
45 to 54	72.2	22.3	5.5
55 to 64	73.0	21.6	5.4
65 and over	78.5	17.3	4.2[E]
Highest level of education of major income earner			
Less than high school	73.9	20.6	5.6[E]
High school diploma	76.8	18.6	4.6[E]
Non-university postsecondary certificate or diploma	75.2	19.7	5.2
University degree or certificate	71.8	23.7	4.5
Family structure			
Unattached individual	81.0	15.0	4.0[E]
Couple, no children	76.2	19.2	4.6
Couple with children	72.0	22.8	5.1
Lone-parent family	75.8	19.9	F
Other family types	69.6	24.9	5.5
Immigrant status of major income earner			
Recent immigrant	84.3	12.2[E]	F
Established immigrant	69.3	27.5	3.1[E]
Canadian-born individual	75.5	19.0	5.5
Labour force status			
Paid employee	74.7	20.5	4.8
Self-employed	65.3	28.3	6.4[E]
Not in labour force	79.5	17.1	3.3[E]
Family income quintile			
Bottom quintile	75.2	20.5	4.3[E]
Second quintile	77.7	18.1	4.2[E]
Third quintile	77.5	17.5	5.1[E]
Fourth quintile	70.3	24.7	5.0
Top quintile	70.6	23.7	5.7
Outstanding mortgage debt			
$100,000 and under	74.4	20.0	5.6
$100,001 to $200,000	75.1	20.1	4.9
$200,001 to $300,000	74.6	20.5	4.9[E]
$300,001 to $400,000	74.0	23.1	2.9[E]
Over $400,000	70.2	25.1	4.7[E]
Number of years to pay full balance of mortgage			
0 to 5	73.7	20.9	5.4[E]
6 to 10	68.2	26.0	5.8
11 to 15	74.1	21.1	4.7[E]
16 to 20	73.5	21.7	4.8
21 to 25	78.9	17.3	3.8[E]
Over 25	82.6	13.2[E]	F
Family budget			
Yes	75.8	19.7	4.5
No	72.7	22.1	5.2
Amount of credit card balances paid off every month			
Minimum or less than minimum	78.7	15.3[E]	F
More than minimum but less than full amount	76.3	19.5	4.2
Full amount	71.7	23.2	5.1
Do not have credit card	86.8	F	F

Table 6
Type of mortgage rate on mortgage debt on the principal residence, 2016

	Fixed	Variable	Combination
		percent	
Someone in the family borrowed money through a payday loan in the past three years			
Yes	80.4	F	F
No	74.1	21.1	4.7
Someone in the family ever declared bankruptcy or made a formal proposal or informal financial arrangements to creditors			
Yes	79.4	16.7	F
No	73.7	21.3	5.0
Region			
Newfoundland and Labrador	85.0	12.7[E]	F
Prince Edward Island	87.2	12.2[E]	F
Nova Scotia	76.1	20.3[E]	F
New Brunswick	79.6	16.3[E]	F
Québec	69.0	20.5[E]	F
Montréal	73.5	22.0	4.5[E]
Quebec excluding the CMAs of Québec and Montréal	63.0	25.3	11.7[E]
Ottawa	62.5	26.9[E]	F
Toronto	67.7	29.7	2.7[E]
Ontario excluding the CMAs of Ottawa and Toronto	81.1	14.9	4.0[E]
Winnipeg	77.7	21.1[E]	F
Manitoba excluding the CMA of Winnipeg	73.0	18.0[E]	F
Regina	87.0	F	F
Saskatoon	83.7	F	F
Saskatchewan excluding the CMAs of Regina and Saskatoon	80.2	12.7[E]	F
Calgary	79.4	16.3[E]	F
Edmonton	81.8	17.2[E]	F
Alberta excluding the CMAs of Calgary and Edmonton	88.3	9.0[E]	F
Vancouver	64.8	29.6	5.6[E]
British Columbia excluding the CMA of Vancouver	79.2	17.7	F

[E] use with caution
F too unreliable to be published
Source: Statistics Canada, Survey of Financial Security, 2016.

Those aged 25 to 34 (80%) and 65 and over (79%) were the most likely to have a fixed mortgage rate. Among the remaining age groups, about 72% had a fixed mortgage rate.

Homeowners who had a relatively small number of years remaining to pay off their mortgage were less likely to have a fixed rate, compared with those whose remaining amortization period was longer. Among those who reported that they would take at least 25 years to pay the full balance of their mortgage, 83% had a fixed rate, compared with 68% among those who had 6 to 10 years left to pay and 74% among those who had 0 to 5 years left.

A model was estimated to study the characteristics of families who were more (or less) likely to choose a fixed mortgage rate over a variable mortgage rate.[22] This analysis is not meant to estimate a model of mortgage choice, but to see which types of families are likely to have a particular type of mortgage rate.

The results by age indicate that the youngest families (aged 19 to 24) were less likely than families with a major income earner aged 25 to 34 to have a fixed mortgage rate, but other age differences were statistically insignificant (Table 7). Couples with children (with a predicted probability of 0.72) and

other family types (0.71) were less likely to have a fixed rate than unattached individuals (0.80).

Families in the fourth and fifth income quintiles were less likely to have a fixed-rate mortgage, compared with those in the bottom quintile. In addition, families whose major income earner was self-employed were less likely to have a fixed rate than families whose major income earner was a paid employee.

While the amount of outstanding mortgage debt did not have any association with the type of mortgage rate, the amortization period did.[23] Compared with those who had 6 to 10 years left (0.69) to pay the full balance of their mortgage, homeowners who had 0 to 5 years (0.75), 21 to 25 years (0.78) and more than 25 years (0.83) left were more likely to have a fixed-rate mortgage.[24] The results for homeowners who had 11 to 20 years left to pay their mortgage were statistically insignificant. As more of the mortgage payment goes to principal, families with just a few years remaining on their mortgage may be tempted to secure their payments over last few years of their amortization period; they may also benefit from advantageous fixed rates offered by lenders. At the other end of the spectrum, people with long amortization periods may want to opt for more stability, given the long time left before their mortgage is paid off.

Finally, when financial behaviour variables are added in the model, the results showed that families who maintained a household budget were more likely to pick a fixed rate, perhaps reflecting the fact that those who budget prefer the certainty of fixed payments over time.

Table 7
Predicted probabilities of having a fixed mortgage rate versus a variable rate,[1] 2016

	Model 1	Model 2
	predicted probability	
Age of major income earner		
19 to 24	0.58*	0.58*
25 to 34 (ref.)	0.78	0.78
35 to 44	0.73	0.73*
45 to 54	0.75	0.74
55 to 64	0.73	0.73
65 and over	0.74	0.74
Highest level of education of major income earner		
Less than high school (ref.)	0.72	0.72
High school diploma	0.75	0.75
Non-university postsecondary certificate or diploma	0.75	0.74
University degree or certificate	0.74	0.74
Family structure		
Unattached individual (ref.)	0.80	0.80
Couple, no children	0.76	0.76
Couple with children	0.72*	0.72*
Lone-parent family	0.75	0.75
Other family types	0.71*	0.71*
Immigrant status of major income earner		
Recent immigrant	0.83	0.83
Established immigrant	0.71	0.72
Canadian-born individual (ref.)	0.75	0.75
Labour force status of major income earner		
Paid employee (ref.)	0.75	0.75
Self-employed	0.67*	0.67*
Not in labour force	0.78	0.78
Family income quintile		
Bottom quintile (ref.)	0.76	0.75
Second quintile	0.78	0.78
Third quintile	0.77	0.77
Fourth quintile	0.70*	0.70*
Top quintile	0.70*	0.71
Outstanding mortgage debt		
$100,000 and under (ref.)	0.74	0.75
$100,001 to $200,000	0.75	0.75
$200,001 to $300,000	0.74	0.74
$300,001 to $400,000	0.74	0.73
Over $400,000	0.73	0.73
Number of years remaining to pay full balance of mortgage		
0 to 5	0.75*	0.76*
6 to 10 (ref.)	0.69	0.69
11 to 15	0.74	0.74
16 to 20	0.73	0.73
21 to 25	0.78*	0.78*
Over 25	0.83*	0.83*
Family budget		
Yes (ref.)	...	0.76
No	...	0.73*
Amount of credit card balances paid off every month		
Minimum or less than minimum	...	0.78
More than minimum but less than full amount	...	0.76
Full amount (ref.)	...	0.73
Do not have credit card	...	0.82

Conclusion

Although homeownership rates have remained relatively constant in Canada, debt has been increasing in recent years. From 2012 to 2016, mortgage debt accounted for the entire increase in debt among Canadian families with debt. In 2016, mortgage debt accounted for 81% of total debt among Canadian families. The increase in mortgage debt has several implications for the housing market in Canada.

First, the increase in mortgage debt implies that Canadians could take longer to pay off their houses. From 1999 to 2016, the proportion of Canadians who had paid their houses in full declined from 46% to 43%. If not for the aging of the population, the decline would have been even more pronounced. This is because older individuals are typically more likely to have paid off their house in full than younger people.

Second, the results suggest that even though mortgage debt increased in almost every demographic group, the magnitude of the increase was not the same for every group. Specifically, mortgage debt was higher among couples with children, homeowners aged 25 to 44, homeowners with higher education and higher-income families. These groups also recorded the largest increase in mortgage debt from 1999 and 2016. However, debt also increased notably among some vulnerable groups, including lone parents and recent immigrants.

Third, the increase in mortgage debt also suggests that the financial choices of Canadians regarding the type of mortgage rate are important. In 2016, three-quarters of Canadians financed their mortgages via fixed-rate loans, with some types of families being particularly more likely to

Table 7
Predicted probabilities of having a fixed mortgage rate versus a variable rate,[1] 2016

	Model 1	Model 2
	predicted probability	
Someone in the family borrowed money through a payday loan in the past three years		
Yes (ref.)	...	0.74
No	...	0.74
Someone in the family ever declared bankruptcy or made a formal proposal or informal financial arrangements to creditors		
Yes (ref.)	...	0.76
No	...	0.74
Region		
Newfoundland and Labrador	0.85	0.84
Prince Edward Island	0.87*	0.86*
Nova Scotia	0.75	0.75
New Brunswick	0.79	0.78
Québec	0.69	0.69
Montréal	0.72	0.72
Quebec excluding the CMAs of Québec and Montréal	0.61*	0.60*
Ottawa	0.64	0.64
Toronto (ref.)	0.70	0.71
Ontario excluding the CMAs of Ottawa and Toronto	0.81*	0.80*
Winnipeg	0.77	0.77
Manitoba excluding the CMA of Winnipeg	0.72	0.72
Regina	0.87*	0.87*
Saskatoon	0.83	0.83
Saskatchewan excluding the CMAs of Regina and Saskatoon	0.80	0.80
Calgary	0.81*	0.81*
Edmonton	0.82*	0.82*
Alberta excluding the CMAs of Calgary and Edmonton	0.88*	0.88*
Vancouver	0.65	0.66
British Columbia excluding the CMA of Vancouver	0.79*	0.79*

... not applicable
* significantly different from reference category (ref.) (p < 0.05)
1. Excludes families with a combination of fixed and variable mortgage rate.
Source: Statistics Canada, Survey of Financial Security, 2016.

choose a fixed rate, including older Canadians, homeowners in low income quintiles, and homeowners with a longer amortization period.

Finally, the results suggest that there are some important regional variations in homeownership, mortgage debt and the type of mortgage rate. These differences may be related to variations in prices, regional economic conditions, differences in housing conditions, and differences in local preferences and choices. More research will be needed to better understand regional differences in mortgage debt, homeownership and type of mortgage rate.

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Data sources, methods and definitions

Data sources

Data from the 1999, 2005, 2012 and 2016 Survey of Financial Security (SFS) were used in this study. The SFS is a voluntary survey that collects information from a sample of Canadian families on their assets, debts, employment, income and education. Information is 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.

The SFS covers the population living in the 10 provinces. Excluded from the survey coverage are people living on reserves and in 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; and people living full time in institutions, such as inmates of penal institutions and chronic care patients living in hospitals and nursing homes.

In this study, individual characteristics such as age and education reflect those of the major income earner of the family.

Definitions

Family refers to the economic family, defined as two or more people living in the same dwelling who are related by blood, marriage or adoption, or who are living common law, as well as single people who are living either alone or with others to whom they are unrelated.

Total debt pertains to total family debt and includes mortgage debt on the principal residence and all other real estate (Canadian and foreign), as well as consumer debt.

Mortgage debt refers to debt owed by families on their principal residence and all other real estate (Canadian and foreign).

Consumer debt includes outstanding debt on credit cards, personal and home equity lines of credit, and secured and unsecured loans from banks and other institutions (including vehicle loans), as well as other unpaid bills.

Income quintiles are based on the total before-tax economic family income adjusted for family size (i.e., divided by the square root of the family size).


Other mortgage debt

In 2016, about 7% of all Canadian families carried mortgage debt on properties other than their principal residence (Chart 2).[25] Among those who had such debt, the median debt was $183,000. Some types of families were more likely to fall into this category. About 17% of the self-employed and 14% of families in the upper income quintile carried other mortgage debt. Other groups that were more likely to have such debt included families whose major income earner was aged 45 to 64 (10%), had a university degree (9%), was an established immigrant (9%), belonged to other family types (11%) or was a resident of Alberta (10%).

Chart 2
Proportion of families with mortgage debt on property other than the principal residence, 2016
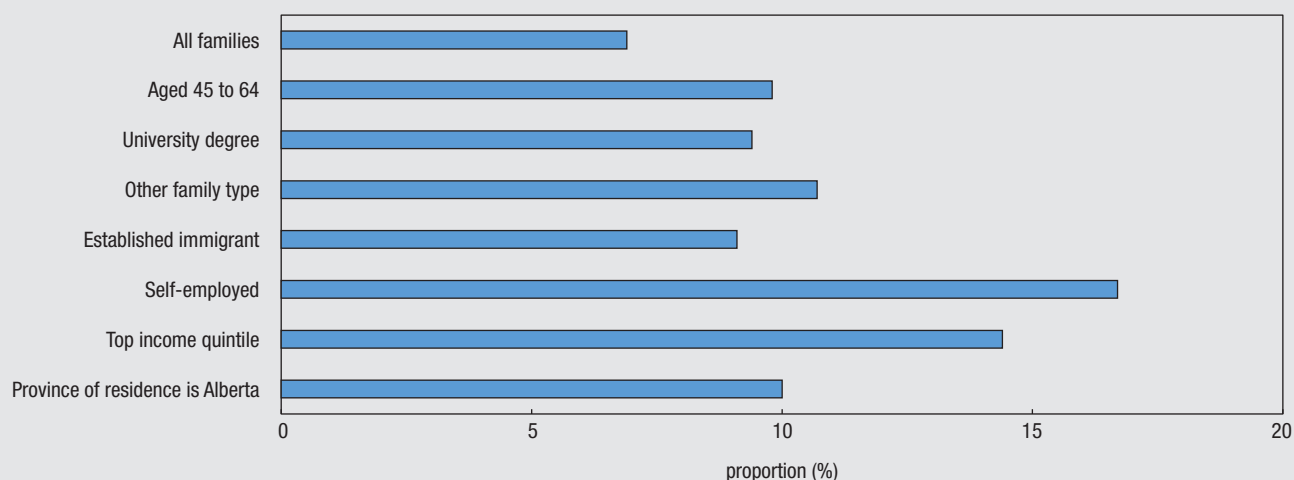
Source: Statistics Canada, Survey of Financial Security, 2016.

Notes

1. See Uppal and LaRochelle-Côté (2015).

2. The data are available on the CREA website: www.crea.ca.

3. These results are based on Statistics Canada data table no. 18-0005-01.

4. On January 1st, 2018, new mortgage lending rules came into effect, requiring anyone applying for a mortgage to pass a "stress test" whereby applicants must qualify for the highest of the following rates: the Bank of Canada's 5-year conventional mortgage rate, or their contractual rate plus 2%.

5. Brown and Lafrance (2013), Hou (2010), Rea et al. (2008), Statistics Canada (2013), and Thomas (2005) look at homeownership in Canada, and Chawla (2011) looks at mortgage debt among Canadian homeowners. Dhillon et al. (1987) focus on mortgage rates in the United States.

6. According to the 2016 Census, the homeownership rate was 68%. However, the number of homeowners was similar in both census and SFS data, at around 9.5 million. The difference in the homeownership rate is mostly due to a difference in the unit of analysis. The census uses "household," whereas the SFS uses "economic family." There are more economic families than households. Another reason for the difference is that the SFS is a sample survey, and the estimate is therefore subject to variability and is not as precise a measure as a census.

7. Only families who owned or rented their principal residence were included in the analysis. Those who occupied the residence rent free (1.5%) were excluded.

8. To be exact, 60.4% of families were homeowners in 1999, compared with 62.8% in 2016. If the age structure in 2016 had remained the same as in 1999, the proportion for 2016 would have been 61.1%.

9. For a detailed discussion on the evolution of wealth among immigrant families in Canada, see Morissette (2019).

10. The increase among unattached individuals might have been encouraged by the increase in affordable types of housing, such as condos. According to the Census, the proportion of households living in a condominium was 13.3% in 2016, up 1.2 percentage points from 2011.

11. The proportions for various categories of families were as follows: families who had a household budget, 46%; families who had borrowed money through a payday loan, 3%; families where someone in the family had ever declared bankruptcy or made a formal proposal or informal financial arrangements to creditors, 10%;

families who usually paid less than the minimum amount toward monthly credit card balances, 1%; families who usually paid the minimum amount toward credit card balances, 5%; families who usually paid more than the minimum but less than the full amount toward credit card balances, 25%; families who usually paid the full amount toward credit card balances, 56%; and families who did not have a credit card, 13%.

12. For example, in 2011, the ratio between the average monthly shelter costs for a household that owned its dwelling and a household that rented its dwelling was around 137 in Quebec and 133 in the rest of Canada (QFREB, 2013). According to the Quebec Federation of Real Estate Boards, this "high ratio in Quebec, despite lower property prices that directly influence homeowners' shelter costs, is mainly due to the fact that changes in rent are controlled by the Régie du logement, which limits rent increases."

13. Readers should note that in addition to demographic characteristcs, other characteristics may also be related to a lower probability of having paid off the house, such as divorce, a major health event, or job loss. The possible role played by such events cannot be examined closely with current SFS data.

14. See LaRochelle-Côté, Picot and Myles (2010).

15. In this section, mortgage debt includes debt on the principal residence as well as debt on other real estate owned by a household, such as vacation homes or rental properties.

16. All numbers on debt in this article are expressed in 2016 dollars using the Consumer Price Index (All Items, Statistics Canada data table no. 18-10-0005-01) as a deflator.

17. Consumer debt is debt other than mortgage debt, such as outstanding balances on credit cards, lines of credit, loans from banks, vehicle loans and unpaid bills.

18. This section focuses on mortgage debt related to the principal residence (for mortgage debt not on the principal residence, see the section entitled *Other mortgage debt*).

19. Families who did not answer the question on type of mortgage rate were excluded from the analysis. These families represented 2% of homeowners with mortgage debt.

20. These rates are comparable to recent data published by Mortgage Professionals Canada (Dunning, 2017).

21. Recall that homeownership rates are relatively low in this age group (10% in 2016).

22. The combination mortgage rate was excluded from the model since the sample size was not sufficient to produce robust estimates.

23. Rather than categories, as reported in the table, mortgage debt was included as quintiles in an alternative model. The conclusion was unchanged. Additionally, models were estimated including debt-to-income and debt-to-asset ratios. Neither of these ratios were associated with the type of mortgage rate.

24. The proportion of families with various amortization periods were as follows: 0 to 5 years, 15%; 6 to 10 years, 18%; 11 to 15 years, 17%; 16 to 20 years, 24%; 21 to 25 years, 19%; and over 25 years, 6%.

25. This does not imply that 7% of families own real estate other than their principal residence. That proportion is higher since some families would have paid off that property.

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