Low Demand for Reverse Mortgages in Canada: Price, Knowledge or Preferences?
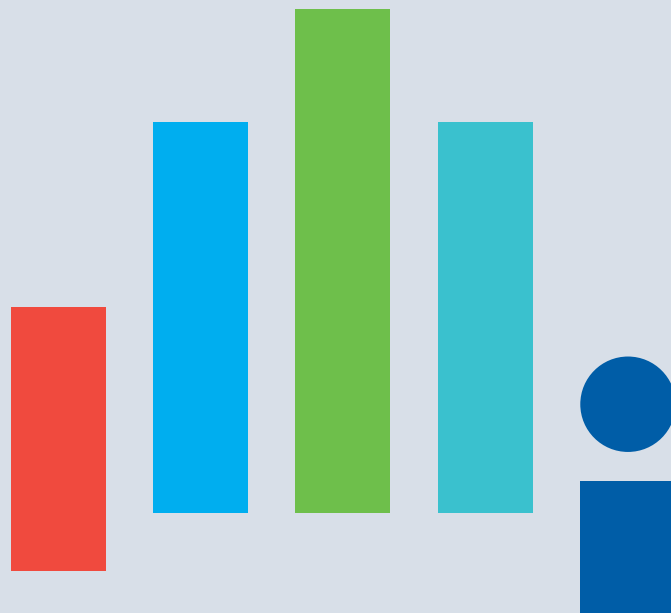
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Low Demand for Reverse Mortgages in Canada: Price, Knowledge or Preferences?*

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Abstract

High borrowing costs, limited knowledge and preferences could explain why few Canadians purchase reverse mortgages, an asset decumulation product that is appealing to those who are house-rich but cash-poor. In this paper, we first use an asset pricing model to calculate the actuarial fair costs of guarantees built into reverse mortgage products in Canada and compare those estimates to prevailing interest rates in the market for these products. We also investigate whether Canadians understand reverse mortgages and whether low demand originates on the preference side by conducting a stated-preference experiment with 3000 Canadians. We manipulate characteristics of reverse mortgages, including the interest rate, to tease out how sensitive Canadians are to these characteristics. Our results suggest that observed interest rates are high relative to actuarilly fair rates and that consumers are somewhat price sensitive in addition to demonstrating little knowledge of these products and low demand overall.

Keywords: reverse mortgages, savings, retirement planning, insurance.
JEL Codes: G21, R21.

1   Introduction

Housing is a major component of household wealth in retirement. The primary residence accounts for approximately 33% of the median wealth accumulated by Canadian households[1]. In retirement, owning a house provides a service flow with a value equal to the price of renting a similar location. In addition, home equity may act as an insurance policy against financial risks due to disability risk, since the house is typically sold when individuals enter a nursing home (Davidoff, 2009, 2010). Given that housing is to some extent illiquid (at least at the intensive margin), many households are *house rich* and *cash poor*, which limits their capacity of extracting home equity to finance consumption in their old age.

Downsizing a house is a direct way of extracting home equity (moving into a smaller house or appartment). Yet, Venti and Wise (2004) show that the elderly are reluctant to move to smaller houses or become renters. Alternatively, they can reduce or skip on maintenance, which implies higher consumption against a lower resale value (Davidoff, 2006). However, Davidoff (2006) shows that this is may be an ineffective way of downsizing, because the amount of extra money that can be spent while letting the house depreciate is lower than the appreciation value that would have been obtained by maintaining it. Borrowing against home equity offers yet another mechanism to extract home equity. For those who qualify, home equity lines of credit allow borrowing against equity, however it exposes owners to the risk that the loan accumulated will end up being greater than the value of the house. Furthermore, qualification for these loans is restricted among the elderly, because of their limited repayment capacity. Reverse mortgages have emerged as a solution to these limitations with lines of credit in recent decades.

A reverse mortgage is a financial product that allows a homeowner to convert a portion of the current net value of their principal residence into cash. Unlike many other mortgage products, the borrower is not obligated to make payments before moving out, selling or dying. In addition, the borrower is insured against the risk that the loan is worth more than the house when it is sold. This is called the no-negative equity guarantee (NNEG) of the reverse mortgage. This feature means that the borrower's longevity risk, as well as the risk of a decline in house prices, is transferred to the lender. Given that the guarantee provides insurance benefits, a reverse mortgage will typically command a higher borrowing rate. That premium will also depend on whether or not lenders are insured against losses. In the United States, the Federal Housing Administration (FHA) provides

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[1]https://www150.statcan.gc.ca/n1/daily-quotidien/171207/dq171207b-eng.htm

that insurance. In Canada, these reverse mortgages are not insured.

In Canada, the market for reverse mortgage purchases is negligible. In 2014, only 2.11% of Canadian households reported planning to obtain a reverse mortgage as a source of income upon retirement (Gouvernement du Canada, 2014). The average borrowing rate for reverse mortgages is roughly two percentage points above the rate charged on home equity lines of credit.

One reason for why the Canadian market is small-scaled is that reverse mortgages may be mispriced. There is an emerging literature on reverse mortgage pricing, yet little is known of potential mispricing in the Canadian context (Wang et al., 2011; Yang, 2011; Huang et al., 2011a; Shao et al., 2015). In 2019, when journalist Rob Carrick of the Globe and Mail asked the CEO of HomeEquity Bank, Steve Ranson, about the steep price of reverse mortgages. He replied: "Take the rate that the bank offers on the guaranteed investment certificates it issues to fund mortgages and add 3.25 percentage points or so. There's no more science to it than that" (Globe and Mail October 25th, 2019). In this paper, we first use a asset pricing model to calculate actuarially fair mortgage insurance premiums charged on reverse mortgages in Canada. We consider survival risk given the borrower's characteristics as well as the risk of downward variation of the Canadian houses market at the Census Metropolitan area level. Given the size of loans granted in the Canadian market, we find that actuarially fair mortgage insurance premiums should be approximately zero. This suggests that the rates currently observed, at 2-3% above home equity loan rates, are not justified by risk premium considerations. These result shows that lenders take on little risk by offering reverse mortgages.

High prices only explain low demand if consumers are price sensitive. Hence, we investigate the demand for reverse mortgages in a second step. On theoretical grounds, reverse mortgages are particularly useful for those who are *house rich* and *cash poor*. Hence, this means that potential market size is potentially limited, even if prices were actuarily fair. Since the supply of reverse mortgages is relatively new in some Canadian provinces, the low demand could also be explained by a lack of knowledge about reverse mortgages. Moreover, households with a large bequest motive could have a lower demand for reverse mortgages, even if house-rich and cash-poor (Nakajuma & Telyukova, 2017). Retirees who expect to receive care from their family, at home, may also have a lower demand, as they face fewer financial risks. Furthermore, government programs that effectively provide insurance against financial risk may dampen demand.

To understand what role these factors play in Canada, we construct a stated-choice experiment in which Canadian respondents were asked to evaluate various reverse mortgage products. These

products take the form of an offer for a loan as a fraction of the equity of the house that can be borrowed and an interest rate. Using exogenous variation in interest rates (price) and in the amount of the loan from the survey design, these stated choices are used to look at factors that explain low demand and estimate the demand elasticity in various segment of the Canadian market.

Our results show that more than half of eligible Canadians (55.48%) lack the basic fundamental knowledge of reverse mortgages. Additionally, neither the expectation that their family would take care of them financially if needed, or would undertake the responsibility of taking care of them if they had important limitations in activities of daily living (ADL), had any significant effect on the stated demand. Those who viewed their home as an asset that must be sold only in the case of financial hardship exhibited significantly higher demand, thus making reverse mortgages an interesting product for those with a high level of attachment to their home. Our estimates suggest that Canadians are somewhat price sensitive with an average elasticity estimate of -0.81. There is considerable variation in this elasticity with estimates ranging from 0.51 to 1.18, for those most knowledgeable about reverse mortgages.

The paper is organized as follows. Section 2 presents an asset pricing framework used to compute actuarially fair mortgage insurance premiums on reverse mortages. Next, in Section 3 we compare actuarialy fair mortgage insurance premium with the actual premiums charged on the market. Section 4 presents the stated-preference experiment on 3,000 Canadians with the objective of measuring awareness and preferences for these products. In Section 5 we present and discuss estimates of demand models from the experiment, while section 6 concludes our analysis.

2   Pricing Reverse Mortgages

Due to the nature of the NNEG, a reverse mortgage is slightly more risky than a regular loan for the bank. Therefore, a mortgage insurance premium must be charged to cover the losses associated to this risk. The value of the NNEG is a function of various risks including longevity risk and house prices. The higher the likelihood that someone lives longer in their house, the higher the likelihood that the value of their loan exceeds the value of their house. Similarly, drops in house prices increase the likelihood that loans exceed the value of houses.

We present a pricing framework to compute fair mortgage insurance premiums to cover losses related to the no-negative equity guarantee in Canada. We build on existing models in the literature for both the modelling of longevity and house price risk (Li et al., 2010; Chen et al., 2010; Cho

et al., 2013; Alai et al., 2014; Shao et al., 2015).

Let γ be the loan-to-value ratio of the equity of the house H_a, borrowed by an individual of age a. The initial value of the loan, L_a, is then given by $L_a = \gamma H_a$. The value of the loan at $a + t$ is given by

$$L_{a+t} = L_a(1 + r_{LC} + \pi)^t, \tag{1}$$

where r_{LC} represents the (fixed) interest rate for a home equity line of credit (HELOC), π represents a mortgage insurance premium to cover losses related to the NNEG, and $r_{RM} = r_{LC} + \pi$ represents the interest rate for the reverse mortgage. Let H_{a+t} be the resale value of the house if the borrower leaves or dies after t years (at age $a + t$). The NNEG ensures that the amount recovered by the lender at the time of the sale of the house is

$$\min\{L_{a+t}, (1 - c)H_{a+t}\}, \tag{2}$$

where c is a transaction cost calibrated at 5% [2] of the selling price. The potential loss by the lender at the time of selling the house is then defined as

$$\max\{L_{a+t} - (1 - c)H_{a+t}, 0\}. \tag{3}$$

The expected present value of future losses related to the NNEG is given by:

$$\text{NNEG}(a, \pi, \gamma) = E_H \left(\sum_{t=1}^{T} q_{a,a+t} \frac{max(L_{a+t} - (1 - c)H_{a+t}, 0)}{(1 + i)^t} \right), \tag{4}$$

where i is a discount rate based on the marginal utility of consumption and calibrated to 3.8%[3] and q_{a+t} is the conditional probability of dying at age $a + t$ for someone of age a at $t = 0$. Finally,

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[2]According to Sun Life Financial, the transaction costs in Canada are around 3% and 7%.

[3]We define the discount rate as $i = \beta \left(\frac{c_{t+1}}{c_t} \right)^{\sigma}$. We calibrate $\frac{c_{t+1}}{c_t}$ at 4%, which represent the FRED average annual nominal consumption growth between 2005 and 2017. β is a discount factor calibrated at 0.96 and σ is a CRRA utility with relative risk aversion set to 2.

E_H is the expectation operator for the distribution of future house prices. From the revenue side for the lender, the expected present value of the accumulated mortgage insurance premiums paid is given by

$$\text{MIP}(a, \pi, \gamma) = \pi(a, \gamma) E_H \left(\sum_{t=1}^{T} s_{a,a+t} \frac{L_{a+t}}{(1+i)^t} \right), \tag{5}$$

where $s_{a,a+t}$ is the conditional probability to survive at age $a + t$ for someone aged a at $t = 0$. Finally, the actuarial fair mortgage insurance premium $\pi^* = \pi(a, \gamma)$ is such as

$$\text{NNEG}(a, \pi^*, \gamma) = \text{MIP}(a, \pi^*, \gamma). \tag{6}$$

2.1 House Price Dynamics

We calibrate house price dynamics using the MLS Home Price Index from the Canadian Real Estate Association (CREA), which provides information on housing prices in the major Census Metropolitan Areas (CMA) in Canada. This data set provides information regarding the average price of all types of dwellings, as well as the average price per type of dwelling, namely single-family dwellings, townhouses and condos. We used monthly data from January 2005 to August 2018 for the cities of Vancouver, Toronto and Montreal. Figure 1 presents the evolution of the composite price index between 2005 and 2018 for all of Canada, as well as for the cities of Vancouver, Toronto and Montreal. We see that Vancouver and Toronto are the cities that have had the most substantial growth, with an average annual growth of 6% and 6.8%, respectively, while the city of Montreal experienced an average annual growth of 3.7%. The cities of Vancouver and Toronto also demonstrate having higher variability in prices when compared to the city of Montreal.

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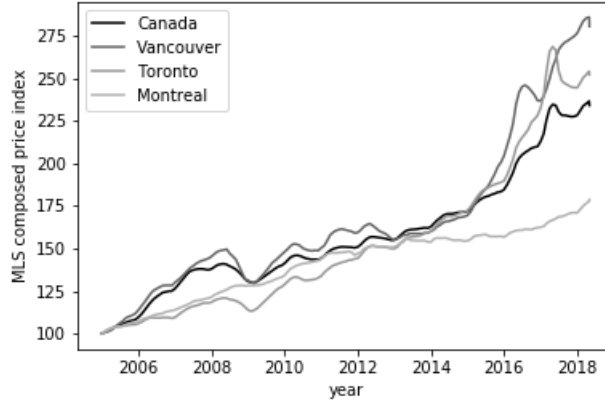
Figure 1: **MLS Home Price Index for the cities of Vancouver, Toronto and Montreal, from 2005 to 2018**

One key modelling choice is the uncertainty in house prices. We estimate parameters of the house price dynamic using an AR(1) with a deterministic trend

$$\log H_{h,p,m} = \delta_{h,p} m + \epsilon_{h,p,m} \tag{7}$$

$$\epsilon_{h,p,m} = \rho_{h,p} \epsilon_{h,p,m-1} + \eta_{h,p,m}, \tag{8}$$

where $H_{h,p,m}$ is the average house price of type h, in the city p in the month m, $\delta_{h,p}$ is the deterministic trend and $\eta_{h,p,m}$ is an idiosyncratic error term which is assumed normally distributed with an average of zero and a variance of $\sigma_{h,p}^2$. Table 1 reports estimates per type of dwelling for the cities of Vancouver, Toronto and Montreal. In each specification, the coefficient of the deterministic trend and the auto-correlation coefficient are significant at a level of 1%. House prices exhibit behaviour similar to a random walk with some degree of mean-reversion. These estimates were used to calibrate the risk of downward variation of house prices in the provinces of Quebec (Montreal), Ontario (Toronto) and British Columbia (Vancouver). While the dynamics in house prices evolve at the monthly level, they are aggregated in simulations at the annual level (when survival and other outcomes are computed).

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		$\delta_{h,p}$	$\rho_{h,p}$	$\sigma^2_{h,p}$
prov	type			
Vancouver	SFD	0.006***	0.964***	0.023
	Townhouse	0.004***	0.988***	0.018
	Condo	0.004***	0.993***	0.018
Toronto	SFD	0.006***	0.949***	0.022
	Townhouse	0.006***	0.956***	0.021
	Condo	0.005***	0.966***	0.020
Montreal	SFD	0.003***	0.965***	0.011
	Townhouse	0.004***	0.912***	0.016
	Condo	0.003***	0.968***	0.011

Table 1: **House Price Dynamic Estimates**: This table reports estimated parameters of the house price dynamics by city and type of dwelling. SFD refers to a single-family dwelling. $\delta_{h,p}$ is the monthly deterministic trend, ρ_{h_p} is the AR(1) coefficient and $\sigma^2_{h,p}$ is the variance for a dwelling of type h and in city p. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

3   Canadian Home Income Plan

Canadians have access to reverse mortgage products through the Canadian Home Income Plan (CHIP) offered by *HomeEquity Bank*. Until recently, one bank offered reverse mortgages in Canada. This program was first offered in the Vancouver area in 1986, and then in Ontario and Alberta starting in 2001. In the following years, the program was gradually offered across the country.

In order to be eligible to the program, the borrower must be a Canadian citizen and at least 55 years old. In addition, he or she must be the owner of their own residence, and it must be their primary residence. The initial loan must be at least $25,000.

The program allows the borrower to remain the owner of the residence, as long as certain conditions are met. These conditions are that the residence must be maintained in good condition, the property taxes must continue to be paid, the property is covered by insurance and there must have a stellar record in terms of mortgage re-payment if any mortgage is still taken on the property.

The CHIP program also gives a NNEG, which means that it guarantees that the amount to be repaid will never exceed the fair market value of the property at the time of sale. Once a loan-to-value limit has been granted, the homeowner has several options to choose from in order to receive the funds. They can receive 100% of the funds allowed in one lump sum. They can also initially receive a fraction of the funds granted, in the form of an initial lump sum of $25,000, with

subsequent advances. Here we focus our analysis on the option of receiving 100% of the funds in one lump sum.

There are administrative fees charged to the borrower. First, CHIP charges a closing and administrative fee of $1,495, which includes security lookup, title insurance and mortgage registration. Added to this are fees ranging from $175 to $400 for an assessment of the property. Finally, it charges a fee between $300 and $500 for independent legal advice.

In 2017, the CHIP program allowed people to borrow between 10% and 55% of the estimated equity of the residence. The loan-to-value depends on the borrower's age, sex and marital status. It also depends on the type of residence and its geographical location. Table 2 provides an example of loan-to-value limits for a single-family dwelling by a single woman between 55 and 75 years old, in the cities of Montreal, Toronto and Vancouver, in 2017. All these reverse mortgages are lent at an interest rate of 5.59% (in 2017).

Age	Montreal	Toronto	Vancouver
55	0.260	0.253	0.245
65	0.354	0.364	0.347
75	0.420	0.434	0.413

Table 2: **CHIP Maximum loan-to-value**: This table presents the maximum loan-to-value ratios of the home equity that can be borrowed by a single woman living in a single-family dwelling. These limits are reported by age and city. Source: HomeEquity Bank, 2017.

In order to reduce the losses related to the NNEG, the loan-to-value is lower for younger borrowers. It is also lower for women, since they have a higher life expectancy than men. When compared with single individuals, couples can borrow less since the joint probability of survival is taken into consideration. Finally, according to the type of dwelling and its location, a higher loan is allowed for those for which a higher price growth and a lower volatility are expected.

3.1 Actuarially Fair Mortgage Insurance Premiums in Canada

We use the pricing framework to calculate actuarially fair mortgage insurance premiums based on the loan-to-values offered by the CHIP program. We first calibrated the interest rate of a home equity line of credit r_{LC} at 4%, which is the average rate that was offered on the Canadian market in 2017[4]. Next, we calibrated the conditional probabilities of dying and surviving using the

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[4]https://www.ratehub.ca

prospective life tables produced by Statistics Canada (Bohnert & Statistics Canada, 2015). These life tables are divided by cohort, gender and province. We finally set the maximum loan-to-values offered by CHIP as reported in the Table 2.

As an example, we calculate the actuarially fair mortgage insurance premium for women living in a single-family dwelling, 55, 65, and 75 years old, in the cities of Montreal, Toronto and Vancouver using the pricing model in section 2. In each case, we ran 100 simulations and took the average actuarially fair mortgage insurance premium. Table 3 reports the actuarially fair interest rate, $r_{LC} + \pi^{fair}$, by age and province. These results suggest that actuarially fair premiums are between 0% and 0.03%. These actuarially fair premiums are very low when compared to the 1.59% premium charged by CHIP[5].

Age	Montreal	Toronto	Vancouver
55	0.0401	0.04	0.0401
65	0.0401	0.04	0.0402
75	0.0400	0.04	0.0403

Table 3: **Actuarially fair rates**: These rates correspond to a home equity line of credit rate (r_{LC}) of 4%, plus an actuarially fair premium (π^{fair}), for women owners of a single-family dwelling. These results are divided by age and city.

To analyze which factors could justify a mortgage insurance premium as large as the one charged by CHIP, Figure 2 looks at how sensitive are actuarially fair mortgage insurance premiums and the probability of loss for the bank to different parameters. We show results for the case of a 65-year-old woman, owner of a single-family dwelling in Montreal. The three graphs on the left present the actuarially fair mortgage insurance premium as a function of the house price growth, the relative standard deviation of the house price uncertainty, and the loan-to-value ratio, respectively. The three graphs on the right present the probability of loss, defined as $Pr(\text{NNEG} > 0)$, as a function of the same parameters. In each case, the dotted line represents the premium charged by CHIP (1.59%) and the dashed line represents the actual value of these parameters.

Figure (a) shows how the actuarially fair premium decreases as a function of the house price growth. All other things being equal, the premium charged by CHIP corresponds to a fair premium in an environment of negative house price growth. As shown in Figure (b), CHIP is exposed to

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[5]The interest rate for the CHIP program in 2017 was 5.59%. We then calculated the CHIP premium as the CHIP interest rate minus the average interest for a home equity line of credit of 4%.

the probability of a loss below 5% with the actual house price growth, while a negative house price growth scenario would expose CHIP to the probability of a loss of more than 50% and could justify such a high premium.

Figure (c) shows how the actuarially fair mortgage insurance premium increase as a function of the relative standard deviation of house price uncertainty in Montreal. All other things being equal, the premium charged by CHIP corresponds to the situation where the standard deviation is 8 times higher than the actual one. As shown in Figure (d), CHIP is exposed to the probability of a loss of less than 5%, while an 8 times higher standard deviation corresponds to the probability of a loss of approximately 40%.

Figure (e) shows how the actuarially fair mortgage insurance premium increases as a function of loan-to-value ratio. All other things being equal, the premium charged by CHIP corresponds to a situation where the loan-to-value ratio is 90%, while the effective loan-to-value for a 65-year-old woman in Montreal is 35.4%. As presented by Figure (f), CHIP is exposed to the probability of a loss of less than 5%. On the other hand, the probability of a loss increases to more than 80% with a loan-to-value ratio of 90%[6].

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[6]A probability of loss of 80% may seem high. However, it is important to note that the probability of loss is not necessarily related to the size of the loss

Actuarially fair premium	**Probability of loss**

(a)
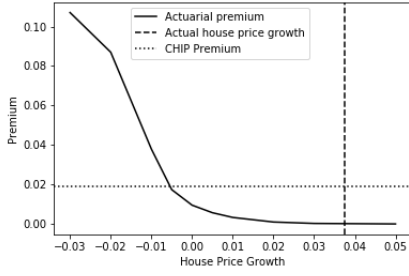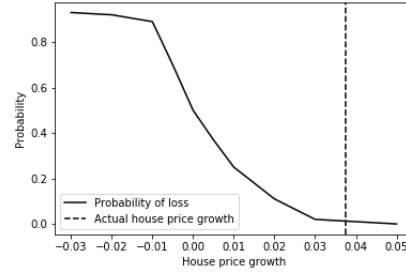
(b)
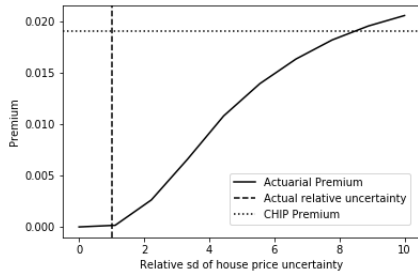
(c)
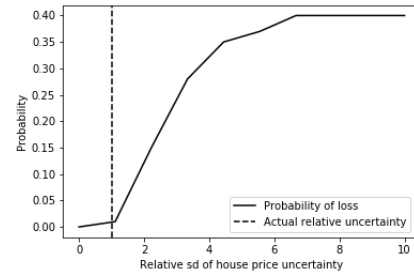
(d)
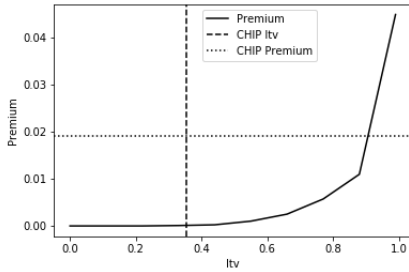
(e)
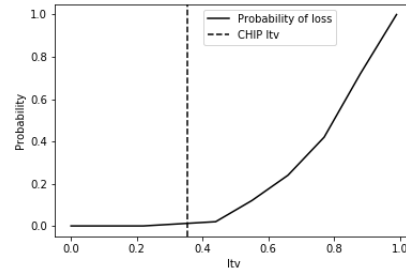
(f)

Figure 2: **Comparative statics**: This figure presents different sensitivity exercises to investigate how actuarially fair premiums and the probability of loss for the lender are affected by different parameters in the case of a female owner of a single-family dwelling, 65 years old and living in Montreal. Figures (a) and (b) present actuarially fair premium and the probability of loss as a function of the house price growth; Figures (c) and (d) present the actuarially fair premium and the probability of loss as a function of the relative standard deviation of house price growth; and Figures (e) and (f) present the actuarially fair premium and the probability of loss as a function the loan-to-value corresponding to the loan.

The actual maximum loan-to-value ratio offered by CHIP ensures that they take little risk related to the no-negative equity guarantee (NNEG), making it a missing feature in the Canadian reverse mortgage market. In this context, it is hard to differentiate a reverse mortgage from a home

equity line of credit. The price difference between these two products may be hard to justify to buyers, which could explain why the market is currently so small. Finally, it is important to note that our pricing framework does not take into account the possibility of terminating the contract before death. However, a pricing framework allowing the termination of the contract before death would have brought a downward pressure on the actuarially fair premium, making the premium charged by CHIP even more difficult to justify. Moreover, our pricing framework does not take into consideration the possibility of moral hazard, where homeowners who contract a reverse mortgage could stop maintaining their residences, with the consequence of decreasing their values. However, one of the conditions attached to reverse mortgage contracts offered by the CHIP program is that the residence must be maintained in good condition. Hence, this condition prevents potential losses related to the moral hazard and justify the fact that moral hazard is not taken into consideration in the pricing framework. Finally, even if it had no effect on house prices, the 2008 crisis may have considerably changed expectations about events that could possibly have a negative impact on house prices, due to the American experience. Household debt relative to household income has increased significantly since 2008 in Canada, much like it had in the United States before the crisis. However, Figure (e) shows that we would need very high uncertainty relative to what we estimated to justify such a high premium.

While the mortgage insurance premiums observed appear large, a necessary condition for those to explain the low demand we observe is that consumers are price sensitive. Our next task is to field an experiment to elicit preferences for reverse mortgages and in particular price sensitivity.

4 Survey and Experiment

Since 2016, the *Retirement and Savings Institute at HEC Montréal* regularly conducts web experiments on different topics related to retirement preparation. These surveys are conducted in partnership with *Asking Canadians*, an online survey company. By responding to surveys, participants accumulate points that can be redeemed for products from companies such as Hudson's Bay, Aeroplan, Petro-Points and Via Preference. We surveyed 3,000 Canadians in the summer of 2017. Respondents were aged 55 to 75 and lived in the provinces of Quebec, Ontario or British Columbia. In each province, 50% of respondents came from the census metropolitan area (CMA), while the rest came from outside the CMA. We focused on those 55 to 75 because this is an age group where reverse mortgages are likely more valuable. The age of 55 allows to qualify for the CHIP program.

Because the value of reverse mortgages is tightly linked to house prices, we focus on provinces in which house price growth has been steady over the last decades. This increases the likelihood that respondents are cash poor but house rich.

The questionnaire was presented in 5 parts relevant to the study of the demand for reverse mortgages. First, we asked general questions in order to have information on the socio-economic, demographic and health characteristics of respondents. There was also a section on preferences, risk perception and expectations for the future. Another section measured respondents' level of financial literacy and knowledge of probabilities. A fourth section focused on respondents' general knowledge about reverse mortgages. Finally, the last section consisted of a stated-choice experiment, where respondents were offered different reverse-mortgage products and had to evaluate them by giving their probability of buying each of these financial products within the next year. A copy of the questionnaire can be found in Appendix B.[7] Because the resulting sample is slightly more educated than the general population, we created a weights based on the Canadian Community Health Survey (CCHS) for the year 2010. The weight cells are divided by age group (5-year), gender, province and education (3 levels).

Of the 3,000 Canadians surveyed, 2,399 reported owning a home. As many of them still held mortgages on their homes, 2,306 of them reported having a home equity of over $25,000. Of these respondents, 2,163 of them were single or had a spouse aged 55 or older, making them eligible for the CHIP program. Finally, 2,140 respondents did not have any missing information. Descriptive statistics on those respondents is reported in Table 4.

Canadians corresponding to our weighted sample are 63 years old on average, and half of them are male. Around 20% of them are from British Columbia, 30% from Quebec and 50% from Ontario. 75.5% of them are married or in a common-law relationship, and 76.5% reported having at least one living child. Close to two thirds (66%) of them consider themselves retired. On average, their annual household income is $89,000 and they have average total savings of $266,000[8]. The average current market value of their home is $570,000 and an average of 11.1% of the current market value is still owed on their mortgages. As a result, the median equity value of their residence is around $520,000. 80.3% of households are *house rich* and *cash poor* in relative term, the equity of their house is worth more than their accumulated non-housing wealth. Finally, 56.1% of them have an

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[7]The survey also included a stated-choice experiment for annuities. This experiment was analyzed in Boyer et al. (2020)

[8]To prevent the effect of outliers, we imposed a maximum annual household income of $500,000 and maximum total savings of $5,000,000

employer pension plan or receive income from one.

Respondents were questioned on their bequest motive, their level of attachment to their house and their expectations about the care and financial support they will receive from their family in the future. They were also asked a sequence of four multiple-choice questions to assess their level of financial literacy. 17.8% of them agreed with the fact that parents should set aside money to leave their children as inheritance, even if it means somewhat sacrificing their own comfort in retirement. On average, they evaluate at 44.7% the probability that their family would take up the responsibility of taking care of them if they had important ADL limitations and at 45.2% the probability that their family would take care of them financially if needed. They also evaluate on average at 43.9% their probability of staying in their current home until death, and 44% agreed with the statement that a house is an asset that should only be sold in case of financial hardship. Finally, 50.1% of respondents answered all four questions evaluating their financial literacy correctly.

	mean	SD	min	max
Age	63.388	5.305	55.000	75.000
Men	0.488	0.500	0.000	1.000
Ontario	0.502	0.500	0.000	1.000
British Columbia	0.193	0.395	0.000	1.000
Quebec	0.305	0.460	0.000	1.000
Married	0.755	0.430	0.000	1.000
Has kids	0.765	0.424	0.000	1.000
Less than high school	0.180	0.384	0.000	1.000
High school	0.384	0.486	0.000	1.000
College	0.436	0.496	0.000	1.000
Retired	0.663	0.473	0.000	1.000
Total income ($1,000)	88.544	66.092	0.001	500.000
Total non-housing saving ($1,000)	265.681	424.297	0.000	5000.000
Home value	570.049	468.803	25.322	3000.000
Mortgage (% of the home value)	0.111	0.190	0.000	0.926
Equity ($1,000)	519.638	456.115	25.322	3000.000
House rich & cash poor	0.803	0.398	0.000	1.000
Employer pension plan	0.561	0.496	0.000	1.000
Bequest motive	0.178	0.383	0.000	1.000
Probability of family support if ADL	0.447	0.342	0.000	1.000
Probability of family support if financial need	0.452	0.368	0.000	1.000
Probability of staying home until death	0.439	0.337	0.000	0.990
House must be sold only if financial hardship	0.580	0.494	0.000	1.000
Financial literacy (4 correct answers)	0.501	0.500	0.000	1.000

Table 4: **Descriptive Statistics**: This table presents descriptive statistics on the respondents from the survey. *House rich and cash poor* refers to a dummy variable equal to one if the equity of the house is superior to the total non-housing savings. Statistics weighted according to 2010 Canadian Community Health Survey (CCHS).

4.1 Survival Rates

One of the potential determinant of demand is remaining life expectancy. We use three sources in order to identify the probability of mortality $q_{a,a+t}$ and survival $s_{a,a+t}$ of respondents:

1. Prospective survival rates from Statistics Canada,

2. Individual-level objective survival rates,

3. Subjective survival rates.

While the first set of estimates only varies by gender and age, the second set varies across a larger set of characteristics (health conditions, education, etc). The last set is ultimately what is likely to guide decisions of respondents, how long they expect to live irrespective of the truth.

4.1.1 Prospective Life Tables

We first use the prospective life tables produced by Statistics Canada (Bohnert & Statistics Canada, 2015). These prospective survival rates are divided by cohort, gender and province. For each respondent, we then attached a specific life table based on their specific characteristics. Let x_i be a vector with the information on the cohort, the gender and the province of individual i. Based on the prospective life tables, we define $q_{a,a+t}^{LT}(x_i)$ and $s_{a,a+t}^{LT}(x_i)$ as individual i's probability of dying or surviving between the ages of a and $a + t$. This is what was used in calculating fair mortgage insurance premiums above.

4.1.2 Objective Individual Life Tables

To compute our objective mortality rates, we used COMPAS, a microsimulation model that projects objective mortality rates specific to each respondent, based on their characteristics (Boisclair et al., 2016). To make these projections, the model takes into account the individual's current age, gender, education level, and their self-reported diagnosis of health conditions (heart disease, diabetes, cancer, lung disease and hypertension). Let x_i be a vector with the information on individual i's current age, gender, education, and the self-reported diagnosis of health conditions. Based on the individual specific objective life table from the microsimulation model, we define $q_{a,a+t}^{O}(x_i)$ and $s_{a,a+t}^{O}(x_i)$ as individual i's objective probability of dying or surviving between the ages of a and $a + t$.

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4.1.3 Subjective Life Tables

To compute subjective life tables, we followed the approach used by Salm (2010). Let the subjective mortality hazard of respondent i at age a be given by:

$$\lambda_a^S(x_i) = \psi_i \lambda_a^O(x_i), \tag{9}$$

where $\lambda_a^O(x_i)$ is the individual's objective mortality hazard based on on the objective individual level approach. In continuous time, let the subjective probability of surviving from age a to age 85 be given by:

$$s_{a,85}^S(x_i) = \exp\left(-\psi_i \int_a^{85} \lambda_s^O(x_i)\right), \tag{10}$$

where ψ_i is an individual level shifter. The objective probability of surviving based on the model for the same ages is:

$$s_{a,85}^O(x_i) = \exp\left(-\int_a^{85} \lambda_s^O(x_i)ds\right). \tag{11}$$

Let $\Lambda_{a,85}^O(x_i) = \int_a^{85} \lambda_s^O(x_i)ds$. Then,

$$\log(s_{a,85}^O(x_i)) = -\Lambda_{a,85}^O(x_i) \tag{12}$$

and

$$\log(s_{a,85}^S(x_i)) = -\psi_i \Lambda_{a,85}^O(x_i) \tag{13}$$

Dividing equation (13) by equation (12), we have:

$$\psi_i = \frac{\log(s_{a,85}^S(x_i))}{\log(s_{a,85}^O(x_i))}. \tag{14}$$

In the survey, each respondent was asked to give his subjective probability of surviving until the age of 85, $s^S_{a,85}(x_i)$. We used this information to identify ψ_i. To avoid indeterminate values, we set $s^S_{a,85}(x_i) = 0.01$ as a minimum and $s^S_{a,85}(x_i) = 0.99$ as a maximum. Based on the objective life table of individual i, it is then possible to use ψ_i and construct their subjective life table. Let x_i be the same vector of information used to compute the objective life table of individual i. We then define $q^S_{a,a+t}(x_i)$ and $s^S_{a,a+t}(x_i)$ as individual i's subjective probability of dying or surviving between the ages of a and $a + t$.

Table 5 presents the average expected remaining years of life using the objective, prospective and subjective life table. On average, the expected number of remaining years of life is 22.4 years using the prospective life tables from Statistics Canada, 20.8 years using the objective life tables from microsimulations and 27 years using the subjective life tables. It means that the respondents of our sample have a lower survival rate than the average population with the same characteristics (cohort, age, gender and province). On the other hand, respondents overestimate their probability of surviving. Finally, the use of subjective life tables instead of the other life tables leads to higher perceived fair mortgage insurance premiums to cover the additional survival risk.

	Objective	Prospective	Subjective
mean	20.82	22.4	27.03
SD	5.57	5.12	10.22

Table 5: **Expected remaining years of life**: This table presents the average expected remaining years of life using the objective, prospective and subjective life tables. Statistics weighted according to the 2010 Canadian Community Health Survey (CCHS).

4.2 Experiment

For each of the respondents in our sample, we present 5 different scenarios. These scenarios allow to vary interest rates offered and loan-to-value that can be borrowed. Here is the introductory text presented to the respondents [9]:

> *We will refer to a reverse mortgage as a financial product that lets you turn part of your current home equity into cash. Unlike many mortgage-based financial products, you're not obligated to make any payments until you move, you sell your home, or you die. Importantly, you have the certainty that once your residence will be sold, the amount required to repay the loan will not exceed the selling price of the residence. When we use the expression "current home equity", we are referring to*

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[9]A French version was presented to the respondents who chose to answer the questionnaire in French.

the current market value of your primary residence after subtracting outstanding mortgage balances. For the rest of this section, try to have your current home equity in mind. We are going to show you some simple reverse mortgage products and ask you to rate them. Each reverse mortgage has three attributes:

1. *The percentage of your current home equity that you can borrow. The amount borrowed must be a minimum of $25,000.*

2. *A fixed annual interest rate on the balance of the loan, generating interests that you do not need to pay before you move, sell or die.*

3. *A fixed fee of $2,245 that you only have to pay once. The money you obtain from the reverse mortgage will be used to pay this fee.*

We then presented the scenarios the following ways:

1. *You can borrow a minimum of $25,000 and up to β% of your current home equity.*

2. *You will be charged a fixed annual interest rate of r% on the balance of the loan for as long as you hold the loan.*
   Reminder: You're not obligated to make any payments until you move, you sell your home, or you die; and you have the certainty that once your residence will be sold, the amount required to repay the loan will not exceed the selling price of the residence.

3. *There is a fixed fee of $2,245 that you only have to pay once. The money you obtain from the reverse mortgage will be used to pay this fee.*

For each individual i and scenario n, we exogenously propose an interest rate, $r_{i,n}^{experiment}$, which can take the values in the range

$$r_{i,n}^{experiment} = [3.8\%,\ 4.1\%,\ 4.4\%,\ 4.7\%,\ 5\%,\ 5.3\%,\ 5.59\%,\ 6\%,\ 6.5\%,\ 7\%],$$

each with probability 1/10. Therefore, we randomized the rates around the interest rate of 5.59% proposed by CHIP for a 5-year term at the moment when the survey was conducted.

For each individual i and scenario n, a loan-to-value is proposed in term of percentages of equity, $\beta_{i,n}$, that can be borrowed. We denote the maximum loan-to-value that can be borrowed by the individual i from CHIP as β_i^{CHIP}. We have information on the CHIP's average maximum loan-to-value, by 5-year age group[10], gender, marital status (single or couple), and residence location

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[10]For couples, we used the average age of the couple, $\frac{age_R + age_S}{2}$, where age_R is the age of the respondent and age_S is the age of the spouse as reported in the survey. We rounded the result to the nearest integer and set the age at 79 when $\frac{age_R + age_S}{2} > 79$.

(inside or outside the metropolitan area)[11]. These values come from the CHIP calculator that can be found on their website[12] and are presented at the end of Appendix B. To randomize the loan-to-value around β_i^{CHIP}, we exogenous created a percentage change in loan-to-value by drawing a value, $\tau_{i,n}$, that can take the values:

$$\tau_{i,n} = [0.5, 0.75, 1, 1.25, 1.5], \text{ each with probability of } 1/5.$$

The loan-to-value proposed in the scenario n of the respondent i will therefore be $\beta_{i,n} = \tau_{i,n}\beta_i^{CHIP}$.

With the objective of measuring the concern that some elements of the contract could not be respected, we randomized the presence of the following sentence with a probability of 0.5:

> *Suppose you have the certainty that you will never be put under pressure to sell your residence and that the contract terms will be respected.*

Finally, after presenting a scenario, we asked the respondent to evaluate the probability, from 0% to 100%, that they would buy this reverse mortgage if a trusted financial institution offered it within the next year.

4.3   Relative Fairness

As we have seen above, it is not possible to compare different reverse mortgage contracts simply by comparing their interest rates. Actually, the actuarially fair mortgage insurance premiums will vary according to several factors, such as the respondent's age, sex, place of residence, type of home and the loan-to-value ratio of the equity of the house that is lent. In order to create a measurement that allows the comparison of the contracts offered with each other, we created an indicator that we called the *relative fairness*. To do so, we first computed the actuarially fair mortgage insurance premiums, $\pi_{i,n}$, for each individual $i \in \{1, ..., N\}$ and scenario $n \in \{1, ..., 5\}$. For each scenario, we ran 100 simulations (to account for housing risk) and calculated the average actuarially fair mortgage insurance premium, $\pi_{i,n}$. Then, we defined the *relative fairness*, $RF_{i,n}$, as a measurement of the actuarially fair interest rate, $r_{LC} + \pi_{i,n}$, relative to the rate proposed to the respondents, $r_{i,n}^{experiment}$ in their respective scenarios:

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[11]To identify the residence location, we asked respondents to give us the first three characters of their postal code. This information allowed us to identify the respondents who were or were not part of the central city of the metropolis of their respective province.

[12]https://www.chipadvisor.ca/calculator/

$$RF_{i,n} = \frac{r_{LC} + \pi_{i,n}}{r_{i,n}^{experiment}}. \tag{15}$$

A higher value of RF signifies a more advantageous reverse mortgage contract for the consumer. Table 6 presents statistics on the *relative fairness* of the rates proposed to the respondents in the experiment using the objective, prospective and subjective life tables. On average, the *relative fairness* of the reverse mortgage contract proposed was close 0.8 suggesting that the interest rates in the scenarios were in general unfair from an actuarial perspective. Also, these statistics differ little across the three sets of life tables.

	Objective	Prospective	Subjective
mean	0.7974	0.7978	0.7984
SD	0.1510	0.1513	0.1516

Table 6: **Relative Fairness**: This table presents the relative fairness of the reverse mortgage contract proposed to the respondents during the experiment. The *relative fairness* is defined as $\frac{r_{LC}+\pi_{i,n}}{r_{i,n}^{experiment}}$ where r_{LC} is the interest rate of a home equity line of credit, $\pi_{i,n}$ is the actuarially fair mortgage insurance premium for the reverse mortgage contract, and $r_{i,n}^{experiment}$ is the interest rate proposed to respondent i and scenario n during the experiment. Statistics weighted according to the 2010 Canadian Community Health Survey (CCHS).

5   Analysis

5.1   Knowledge and Intention of Buying

Respondents were asked a sequence of questions with the objective of measuring their level of knowledge of reverse mortgages. Statistics on the answers are reported in Table 7. Without naming the financial product, we first presented a sentence containing the definition of a reverse mortgage to the respondents[13]. Then, respondents were asked if they had ever heard of this financial product. 77.3% of eligible Canadian homeowners claimed to have heard of that kind financial product. Fewer homeowners from Quebec answered having heard this definition, a difference of nearly 20 percentage points with the two other provinces. Then, we asked those who claimed to have heard of this financial product if they could name it. 59.5% of these homeowners claimed to be able to name

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[13]The definition was presented as follows: "*Imagine a financial product that lets you turn part of your current home equity into cash. You're not obligated to make any payments until you move, you sell your home, or you die. You have the certainty that once your residence is sold, the required amount to repay the loan will not exceed the selling price of the residence.*"

the product in question. Once again, there was a noticeable difference between provinces. Fewer homeowners from Quebec who had heard of this financial product claimed to be able to name it, a difference of 15 percentage points with the two other provinces. Finally, those who claimed to be able to name the product were asked to identify it from a list of financial product names. 96.8% of them answered correctly. Once again, fewer homeowners from Quebec answered this question correctly. Overall, 44.52% of all homeowners had heard of the existence and correctly identified the reverse mortgage as the name of that financial product. Moreover, the level of knowledge was twice as important among homeowners in Ontario and British Columbia than it was in homeowners in Quebec. One plausible explanation for this phenomenon is that the CHIP program has been offered longer in Ontario and British Columbia than in the province of Quebec. Although the level of knowledge is higher in Ontario and British Columbia, the level of awareness of the very existence of this financial product remains very low among eligible respondents. Hence, the simple fact that more than half of Canadians eligible for a reverse mortgage do not have a basic knowledge of the existence of this product could be the major factor that explains why this market is so small in Canada.

	Canada	B.C.	Ont.	Que.
1: Ever heard of the existence of this fin product: based on definition of reverse mortgages (N=2,163)				
No	**22.7%**	15.3%	17.1%	36.5%
Yes	**77.3%**	84.7%	82.9%	63.5%
2: Can you name the financial product: based on definition of reverse mortgages (if heard) (N=1,717)				
No	**40.5%**	35.2%	36.5%	53.3%
Yes	**59.5%**	64.8%	63.5%	46.7%
3: Name that financial product: based on definition of reverse mortgages (if can name) (N=1,067				
Annuity	**0.4%**	0.1%	0.0%	1.7%
Reverse mortgage	**96.8%**	96.6%	98.9%	90.9%
Life insurance	**0.1%**	0.0%	0.0%	0.3%
Line of credit	**1.2%**	2.9%	0.4%	1.7%
None of the above	**1.6%**	0.4%	0.7%	5.4%
Correctly answered all three questions (N=2,163)				
No	**55.48%**	46.94%	47.87%	73.09%
Yes	**44.52%**	53.06%	52.13%	26.91%

Table 7: **Knowledge of reverse mortgages**: Statistics weighted according to the 2010 Canadian Community Health Survey (CCHS)

Another factor that should influence taking a reverse mortgage is the subjective expectation of house price growth. Indeed, a part of the NNEG is an insurance covering the risk of downward variation in house prices. For a given interest rate and loan-to-value, it is therefore more advantageous for someone who anticipates a drop in the price of their house to get a reverse mortgage. Each homeowner in the survey was asked to categorize their expectation of their house's price growth over the next five years among the following answer choices: more than 20%, between 5% and 20%, between -5% and 5%, between -20% and -5% and less than -20%. Table 8 reports the distribution of subjective expectation of house price growth over the next 5 years by province. Homeowners from the province of British Columbia are those who expected a higher growth rate, with almost 80% of them expecting a growth higher than 5%. Homeowners from Ontario and Quebec followed, with 75% and 66% of them expecting a growth higher than 5%, respectively.

	more than 20%	5 to 20%	-5 to 5%	-5 to -20%	less than -20%
British Columbia	0.190	0.603	0.163	0.035	0.009
Ontario	0.165	0.583	0.217	0.020	0.014
Quebec	0.061	0.598	0.322	0.006	0.013

Table 8: **Subjective expectation of house price growth over the next 5 years**: This table presents the distribution of subjective expectation of house price growth over the next 5 years by province. Statistics weighted according to the 2010 Canadian Community Health Survey (CCHS).

Table 9 shows the average stated probability of buying a reverse mortgage reported in the experiment, by province and category of expectation of house price growth. Respondents from British Columbia did not seem to base their probability of buying a reverse mortgage on their expectation of house price growth. On the other hand, the respondents from Quebec and Ontario who expected a higher price growth were also those with a higher stated probability of buying a reverse mortgage. The average stated probability of buying gradually decreased with a lower expectation of house price growth rate. While we should expect that those who expected a lower house price growth should also be the ones most interested in buying reverse mortgages, we observe the opposite. Misunderstanding can make it difficult to differentiate a reverse mortgage from a home equity line of credit, and thus make it hard to justify the payment of a mortgage insurance premium. As a result, this may be a factor explaining the low average probabilities observed across all subgroups.

	more than 20%	5 to 20%	-5 to 5%	-5 to -20%	less than -20%
British Columbia	0.059	0.052	0.050	0.064	0.000
Ontario	0.107	0.067	0.038	0.032	0.000
Quebec	0.188	0.052	0.070	0.031	0.052

Table 9: **Probability of buying a reverse mortgage within the next year**: This table presents the average probability of buying a reverse mortgage within the next year by province and category of subjective expectation on the house price growth over the next 5 years. Statistics weighted according to the 2010 Canadian Community Health Survey (CCHS)

5.2 Empirical Strategy

This section explains the empirical strategy used to estimate the demand elasticity and to identify the factors determining the demand for reverse mortgages in Canada. Since some respondents reported a probability of buying equal to zero, it was not possible to directly compute the reverse mortgage demand elasticity utilizing the log of the probability of buying as a dependent variable. Instead, we estimated the elasticity in two steps. First, we ran OLS regressions[14]:

$$S_{i,n} = \alpha log(RF_{i,n}) + \beta X_i + \nu_{i,n}, \tag{16}$$

where $S_{i,n}$ is the stated probability of buying a reverse mortgage reported by respondent i for scenario n, $log(RF_{i,n})$ is the log of the *relative fairness* of the reverse mortgage offered, X_i is a vector of control variables and μ is an error term assumed to be normally distributed. X_i groups all the variables presented in Table 4. It includes demographic variables: the respondent's age, gender, province, level of education, marital status, if the respondent has children or not and retirement status. It also includes variables on the household's financial situation: the logarithm of the house value, the logarithm of annual income, the logarithm of savings, the logarithm of the mortgage (in terms of percentage of the house value), and a dummy variable indicating if the respondent has an employer pension plan. It also controls for the respondent's financial literacy using a dummy variable equal to one if the respondent answered all the questions assessing the familiarity with financial concepts correctly. Another dummy variable equal to one was added if the respondent answers all the questions on the knowledge of reverse mortgage presented in the table 7 correctly. It includes a dummy variable indicating the presence of the sentence on the certainty that the

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[14]We did the same exercise using tobit estimation, where the lower bound was 0 and the upper bound was 100. The results were very similar to the results from OLS estimations.

respondent will never be put under pressure to sell the residence. To control for the bequest motive, it includes a dummy variable indicating if the respondent agreed with the statement that parents should set aside money for their children's inheritance, even if it means somewhat sacrificing their own comfort in retirement. We controlled for the expected financial and care support from the family using the subjective probability that the family would take care of them financially if needed, and the subjective probability that the family would take up the responsibility of caring for them if they had important ADL limitations. We also control for the level of attachment to the house using the probability of staying in the current home until they die, and use a dummy variable equal to one if they agreed with the statement that a house is an asset that should only be sold in case of financial hardship. Finally, we controll for the subjective expected house price growth using a dummy variable equal to one if the respondent expected a growth of more than 5%.

To calculate the elasticity at the mean, we divided $\hat{\alpha}$ by the average stated probability of buying (6,36%). First, we did this sequence of computations using the total sample. We then repeated this exercise using different subsamples. We estimated the elasticity for a sample composed of respondents who have a basic overall knowledge of reverse mortgages and for a sample composed of those who don't. We also computed elasticity by province, gender and ten-year age group. In each case, a specification was made using objective, prospective and subjective life tables.

5.3   Results

Table 10 reports OLS coefficients for the total sample. Table 11 reports demand elasticities for the total sample and other subsamples. The *relative fairness* used in the column (1) was computed using the objective life tables, while the *relative fairness* of the column (2) and (3) were computed using prospective life tables from Statistics-Canada and subjective life tables, respectively.

First of all, there was not much difference between the estimations based on objective, prospective or subjective life tables, meaning that the nature of the life table does not impact the demand elasticities. Therefore, the following discussion will focus on the first column. An increase of one percent of the *relative fairness* significantly increased the probability of contracting a reverse mortgage by 5.21 percentage points. It represents a demand elasticity of 0.819, with a standard deviation of 0.139. As a result, the demand for reverse mortgages in Canada quite price sensitivive, yet inelastic. The stated demand for reverse mortgages was significantly larger for men (2.5 percentage points), and lower for retirees (1.9 percentage points). It was also significantly higher for those who still had a traditional mortgage to pay. An explanation could be that respondents who still

have mortgages feel less intimidated by mortgage contracts. Another possible explanation is that they are the ones who have more financial needs. Those who have more savings were less interested in reverse mortgages. The bequest motive was a significant factor determining the demand for reverse mortgages. The stated demand for reverse mortgages was significantly higher for those who agreed with the statement that parents should set aside money for their children's inheritance (1.7 percentage points). This result goes in the opposite direction to the one estimated by Nakajuma & Telyukova (2017). A scenario that could explain this result could be that respondents plan to leave a bequest coming from their nonhousing wealth. Considering that a house is an asset that should only be sold in case of financial hardship was positively and significantly correlated with the stated demand (1.38 percentage points). This result seems to show that reverse mortgages are a solution to those whose attachment to their home prevents them from touching its equity by selling it. Indeed, one can consider that a person experiencing a strong sense of attachment to their house will sell it only as a last resort. Having the opportunity of consuming some of the equity of your home, while having the guarantee of being able to stay as long as you want, solves this problem. Finally, a higher expectation of house price growth significantly increasing the stated demand (1.36 percentage points). This result support the view that Canadians probably do not fully understand how to take advantage of the NNEG.

	Objective	Prospective	Subjective
log(Relative fairness)	0.0521***	0.0531***	0.0527***
	(0.009)	(0.009)	(0.009)
Age	-0.00124	-0.00124	-0.00124
	(0.001)	(0.001)	(0.001)
Men	0.0252***	0.0252***	0.0252***
	(0.006)	(0.006)	(0.006)
Ontario	0.00238	0.00238	0.00243
	(0.008)	(0.008)	(0.008)
British Columbia	-0.0015	-0.00156	-0.00165
	(0.009)	(0.009)	(0.009)
High school	-0.00983	-0.00979	-0.00985
	(0.025)	(0.025)	(0.025)
University	-0.00947	-0.00939	-0.00948
	(0.025)	(0.025)	(0.025)
Married	-0.01246	-0.01244	-0.01224
	(0.008)	(0.008)	(0.008)
Has kids	-0.00287	-0.00287	-0.00288
	(0.007)	(0.007)	(0.007)
Retired	-0.0185**	-0.0185**	-0.0185**
	(0.008)	(0.008)	(0.008)
log(House value)	-0.00352	-0.00351	-0.00351
	(0.005)	(0.005)	(0.005)
log(Income)	-0.00066	-0.00065	-0.00067
	(0.002)	(0.002)	(0.002)
log(Saving)	-0.00124	-0.00124	-0.00124
	(0.001)	(0.001)	(0.001)
log(Mortgage)	0.1006***	0.1006***	0.1005***
	(0.025)	(0.025)	(0.025)
House Rich & cash poor	0.01175	0.01175	0.01175
	(0.008)	(0.008)	(0.008)
Pension	0.00178	0.00179	0.00179
	(0.006)	(0.006)	(0.006)
Financial literacy	-0.00805	-0.00803	-0.00803
	(0.007)	(0.007)	(0.007)
No pressure	0.00209	0.00207	0.00208
	(0.006)	(0.006)	(0.006)
Bequest motive	0.0172*	0.0172*	0.0173*
	(0.009)	(0.009)	(0.009)
Reverse mortgage knowledge	0.00235	0.00234	0.00234
	(0.006)	(0.006)	(0.006)
Family support if ADL	0.00531	0.00528	0.00529
	(0.011)	(0.011)	(0.011)
Family support if financial need	0.00939	0.00939	0.00941
	(0.011)	(0.011)	(0.011)
Probability of staying home until death	0.00421	0.00419	0.00416
	(0.009)	(0.009)	(0.009)
Sell only if financial hardship	0.0138**	0.0138**	0.0138**
	(0.006)	(0.006)	(0.006)
Expected growth of more than 5%	0.0136**	0.0136**	0.0136**
	(0.006)	(0.006)	(0.006)
Constant	0.1908**	0.1909**	0.1908**
	(0.077)	(0.077)	(0.077)
N	10700	10700	10700
R2	0.0406	0.0408	0.0407

Table 10: **Results**: Column (1) presents OLS coefficients where the relative fairness has been computed using the objective life tables from microsimulations. Column (2) presents OLS coefficients where the *relative fairness* has been computed using the prospective life tables from Statistics Canada. Column (3) presents OLS coefficients where the *relative fairness* has been computed using the subjective life tables. Standard deviations are corrected for clustering at individual level. Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 11 shows the elasticity of the total sample and of all the subsamples. In each case, we test for the null hypothesis that the elasticity is equal to one. The OLS coefficients of each subsample are reported in Tables 12, 13 and 14 in Appendix A. Once again, there was not much difference between elasticity computed using objective, prospective and subjective life tables. We first compared the sample of those who had heard of and could identify the name reverse mortgage among other products with those who couldn't. Those with a better knowledge of reverse mortgages had an elastic demand (1.184), while those with a worse knowledge had a significantly inelastic demand (0.527). Therefore, the level of basic knowledge about reverse mortgages seems to be a key determinant of demand elasticity. We then compared elasticity between provinces. Respondents from British Columbia had an elastic demand (1.333) while those from Ontario had an inelastic demand (0.863). Respondents from Quebec had a significantly inelastic demand (0.35). The more plausible explanation for this result is related to the level of knowledge since respondents from Quebec are also those with the lower knowledge of reverse mortgages. Among the three provinces, the province of Quebec is the one for which the reverse mortgage offer was implemented the latest. It is therefore likely that the use of such services is not part of the culture of that province. When we compare the elasticity between genders, we see that men had an inelastic demand (0.725) while women had a demand elasticity close to the unitary elasticity (1.017). Finally, respondents aged between 55 and 64 had a demand elasticity close to the unitary elasticity (0.987), while those aged between 65 and 75 had an inelastic demand (0.661).

	Objective	Prospective	Subjective
Total sample	0.8193	0.8336	0.8283
	(0.139)	(0.14)	(0.141)
	N=10,700	N=10,700	N=10,700
Know	1.1838	1.2149	1.2222
	(0.216)	(0.218)	(0.221)
	N=5,145	N=5,145	N=5,145
Don't know	0.5265***	0.5261***	0.5069***
	(0.181)	(0.181)	(0.18)
	N=5,555	N=5,555	N=5,555
British Columbia	1.333	1.3765	1.3585
	(0.282)	(0.284)	(0.286)
	N=3,690	N=3,690	N=3,690
Ontario	0.8625	0.8624	0.8643
	(0.224)	(0.224)	(0.224)
	N=3,565	N=3,565	N=3,565
Quebec	0.3496***	0.3504***	0.3473***
	(0.238)	(0.238)	(0.237)
	N=3,445	N=3,445	N=3,445
Men	0.7253	0.7382	0.7433
	(0.178)	(0.177)	(0.178)
	N=5,295	N=5,295	N=5,295
Women	1.0168	1.0307	1
	(0.215)	(0.219)	(0.22)
	N=5,405	N=5,405	N=5,405
Age 55-64	0.9865	1.0009	0.9864
	(0.19)	(0.192)	(0.192)
	N = 5,475	N = 5,475	N = 5,475
Age 65-75	0.6608	0.6725	0.6812
	(0.21)	(0.209)	(0.212)
	N = 5,225	N = 5,225	N = 5,225

Table 11: **Elasticity Estimates**: Column (1) presents OLS coefficients where the relative fairness has been computed using the objective life tables from microsimulations. Column (2) presents OLS coefficients where the *relative fairness* has been computed using the prospective life tables from Statistics Canada. Column (3) presents OLS coefficients where the *relative fairness* has been computed using the subjective life tables. Estimates are corrected for clustering at individual level. Control variables are the same as those reported in Table 10. *Know* refers to a sample grouping respondents who had heard of and could identify the name "reverse mortgage" among other products, while *Don't know* refers to a sample grouping those who couldn't. Standard errors in parentheses. We tested for the null hypothesis that the elasticity is equal to one. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

6 Conclusion

The no-negative equity guarantee (NNEG) is the main feature that differentiates reverse mortgages from a home equity line of credit. By offering a NNEG, the reverse mortgage lender exposes himself to the risk that the amount of debt will exceed the resale value of the home. This risk comes from the longevity risk of the borrower, as well as the risk of downward variation in house prices. For a

given loan-to-value ratio of the house that is lent, the lender charges a mortgage insurance premium to cover the losses related to the NNEG. In this paper, we investigate whether the lack of demand for these products originate from high cost (and price sensitivity) or other preference or knowledge variables.

We use a pricing model to calculate actuarially fair mortgage insurance premiums that should be charged to cover the losses related to the NNEG in Canada. Given the size of the loans that are granted in the Canadian market, we found that actuarially fair premiums are approximately zero. This result implies that the lenders do not take any risks by offering a NNEG, making it a missing feature in the Canadian market. It could explain the low demand for reverse mortgages in Canada, since it is difficult for a buyer to differentiate a reverse mortgage from a home equity line of credit and to justify a higher interest rate.

We then assessed the level of knowledge Canadians have about reverse mortgages and conducted a stated-choice experiment where respondents were asked to rate various reverse mortgage products. We find that respondents are price-sensitive and therefore high cost of these products, combined with price sensitivity explains some portion of the observed low demand. Our analysis also shows that a majority of Canadians do not even have basic knowledge about this financial product. We found that reverse mortgages could be a solution for those whose attachment to their home prevents them from accessing its equity by selling it. However, Canadians do not seem to be able to distinguish in which situations it is advantageous to obtain a reverse mortgage. Indeed, the stated demand was positively correlated with the subjective expectation of house price growth. Overall, we could not find, based on observables alone (characteristics), subgroups of the population where demand for reverse mortgages is large (say above 25%). While lower cost would increase demand, it is unlikely that demand for such products would become widespread in the current conditions.

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A Regression Tables

	Know	Don't know	B.C.	Ont.	Que.	Men	Women	Age 55-64	Age 65-75
log(Relative fairness)	0.0724***	0.0345***	0.0697***	0.0566***	0.02338	0.0577***	0.0493***	0.0652***	0.0396***
	(0.013)	(0.012)	(0.015)	(0.015)	(0.016)	(0.014)	(0.01)	(0.013)	(0.013)
Age	-0.00076	-0.0017*	-0.00104	-0.0029***	-0.00033	-0.0018*	-0.00088		
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)		
Men	0.0294***	0.0245***	0.01578	0.0307***	0.0328***			0.0261***	0.027***
	(0.009)	(0.009)	(0.01)	(0.011)	(0.011)			(0.009)	(0.008)
Ontario	0.01343	-0.00456				-0.00235	0.00809	0.00907	-0.00415
	(0.013)	(0.01)				(0.012)	(0.01)	(0.011)	(0.012)
British Columbia	0.00731	-0.00662				-0.0118	0.00916	-0.00129	-0.00346
	(0.013)	(0.012)				(0.013)	(0.01)	(0.013)	(0.012)
High school	-0.00955	-0.00967	0.00214	0.02825	-0.06423	-0.02817	0.00247	0.0434**	-0.04529
	(0.042)	(0.029)	(0.027)	(0.025)	(0.058)	(0.04)	(0.019)	(0.02)	(0.036)
University	-0.00632	-0.0107	0.01167	0.01391	-0.06267	-0.02822	0.00347	0.036*	-0.03809
	(0.043)	(0.029)	(0.027)	(0.024)	(0.058)	(0.04)	(0.018)	(0.019)	(0.036)
Married	-0.01728	-0.00829	-0.00983	-0.02066	-0.00477	-0.02035	-0.00866	-0.00226	-0.0237**
	(0.012)	(0.01)	(0.013)	(0.013)	(0.014)	(0.013)	(0.009)	(0.011)	(0.01)
Has kids	-0.00337	-0.00448	0.00406	-0.01402	-0.00171	0.00942	-0.00939	-0.0092	0.00026
	(0.01)	(0.01)	(0.012)	(0.014)	(0.012)	(0.011)	(0.01)	(0.01)	(0.01)
Retired	-0.028**	-0.01124	-0.01857	-0.01289	-0.0255*	-0.00773	-0.0241**	-0.0183**	-0.02055
	(0.012)	(0.011)	(0.015)	(0.013)	(0.015)	(0.013)	(0.01)	(0.009)	(0.014)
log(House value)	-0.00067	-0.0033	-0.00578	0.01213	-0.0191**	0.00075	-0.00429	-0.00227	-0.00388
	(0.008)	(0.006)	(0.008)	(0.01)	(0.009)	(0.008)	(0.007)	(0.007)	(0.007)
log(Income)	-0.00741	0.00275	-0.00402	-0.0033	0.007	-0.00449	0.00246	-0.00122	0.00056
	(0.005)	(0.003)	(0.004)	(0.004)	(0.005)	(0.004)	(0.003)	(0.005)	(0.003)
log(Saving)	-0.00188	-0.00053	-0.004**	-0.00068	0.00154	-0.00301	0.00037	-0.00071	-0.00226
	(0.002)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.002)
log(Mortgage)	0.0886***	0.1169***	0.0934**	0.132***	0.1049**	0.04476	0.1565***	0.1469***	0.0227
	(0.034)	(0.036)	(0.044)	(0.046)	(0.041)	(0.031)	(0.037)	(0.034)	(0.034)
House rich & cash poor	0.00822	0.01554	-0.00287	0.01303	0.02336	0.00853	0.01083	0.01426	0.0101
	(0.011)	(0.011)	(0.014)	(0.014)	(0.015)	(0.011)	(0.011)	(0.012)	(0.01)
Pension	0.0019	0.00273	0.00596	0.00873	-0.00996	0.00065	0.00309	0.00257	7e-05
	(0.009)	(0.009)	(0.011)	(0.011)	(0.013)	(0.01)	(0.008)	(0.01)	(0.008)
Financial literacy	-0.01108	-0.0063	0.00192	-0.00523	-0.0217**	-0.00803	-0.00735	-0.00643	-0.00963
	(0.01)	(0.009)	(0.011)	(0.012)	(0.011)	(0.011)	(0.009)	(0.009)	(0.009)
No pressure	-0.00454	0.00614	0.00702	-0.00788	0.00979	-0.00845	0.01119	-0.00546	0.01051
	(0.008)	(0.008)	(0.01)	(0.01)	(0.011)	(0.009)	(0.007)	(0.009)	(0.008)
Bequest motive	0.02227	0.0137	0.0332**	0.01559	0.00377	0.028**	0.00195	0.0293**	0.00811
	(0.014)	(0.012)	(0.016)	(0.013)	(0.017)	(0.013)	(0.011)	(0.013)	(0.012)
Knowledge			0.005	0.01302	-0.01118	0.00688	-0.00059	-0.00034	0.00506
			(0.01)	(0.011)	(0.012)	(0.009)	(0.009)	(0.009)	(0.009)
Family support if ADL	0.02173	-0.01128	0.0172	0.0341*	-0.0284	0.01302	0.00273	0.0318**	-0.01486
	(0.014)	(0.018)	(0.016)	(0.018)	(0.023)	(0.015)	(0.017)	(0.015)	(0.016)
Family support if financial need	0.00014	0.0196	-0.01329	-0.01207	0.0538**	0.01872	-0.00243	-0.01127	0.02296
	(0.012)	(0.019)	(0.015)	(0.016)	(0.023)	(0.015)	(0.016)	(0.014)	(0.015)
Probability of staying home until death	-0.00494	0.01119	0.00498	-0.00447	0.0084	0.00162	0.006	-0.00545	0.01402
	(0.015)	(0.012)	(0.014)	(0.018)	(0.016)	(0.014)	(0.013)	(0.013)	(0.013)
Sell only if financial hardship	0.0031	0.0239***	0.00608	0.0174*	0.0187*	0.018**	0.01308	0.01338	0.0133*
	(0.008)	(0.009)	(0.009)	(0.01)	(0.01)	(0.009)	(0.008)	(0.009)	(0.008)
Expected growth of more than 5%	0.0286***	0.00103	0.0204**	0.0259**	-0.00523	0.0346***	-0.00233	0.01157	0.0175**
	(0.009)	(0.009)	(0.009)	(0.011)	(0.012)	(0.01)	(0.008)	(0.01)	(0.008)
Constant	0.2141*	0.15846	0.2599**	0.07727	0.266*	0.2586**	0.12466	0.04913	0.14354
	(0.122)	(0.1)	(0.117)	(0.152)	(0.139)	(0.124)	(0.091)	(0.098)	(0.092)
N	5145	5555	3690	3565	3445	5295	5405	5475	5225
R2	0.0544	0.0411	0.0587	0.0633	0.0536	0.0426	0.0541	0.0543	0.037

Table 12: **Results using objective life tables**: Control variables are the same as those reported in Table 10. *Know* refers to a sample grouping respondents who had heard of and could identify the name "reverse mortgage" among other products, while *Don't know* refers to a sample grouping those who couldn't. Estimates were corrected for clustering at individual level. Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

	Know	Don't know	B.C.	Ont.	Que.	Men	Women	Age 55-64	Age 65-75
log(Relative fairness)	0.0743***	0.0345***	0.072***	0.0566***	0.02345	0.0587***	0.05***	0.0662***	0.0403***
	(0.013)	(0.012)	(0.015)	(0.015)	(0.016)	(0.014)	(0.011)	(0.013)	(0.013)
Age	-0.00077	-0.0017*	-0.00105	-0.0029***	-0.00033	-0.0018*	-0.00088		
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)		
Men	0.0294***	0.0245***	0.01571	0.0307***	0.0328***			0.0261***	0.027***
	(0.009)	(0.009)	(0.01)	(0.011)	(0.011)			(0.009)	(0.008)
Ontario	0.01344	-0.00456				-0.00235	0.0081	0.00906	-0.00416
	(0.013)	(0.01)				(0.012)	(0.01)	(0.011)	(0.012)
British Columbia	0.0072	-0.00664				-0.01189	0.00913	-0.00132	-0.00354
	(0.013)	(0.012)				(0.013)	(0.01)	(0.013)	(0.012)
High school	-0.00945	-0.00965	0.00239	0.02824	-0.06422	-0.02816	0.00259	0.0433**	-0.04521
	(0.042)	(0.029)	(0.027)	(0.025)	(0.058)	(0.04)	(0.019)	(0.02)	(0.036)
University	-0.00615	-0.01065	0.01206	0.0139	-0.06265	-0.02818	0.00365	0.036*	-0.03797
	(0.043)	(0.029)	(0.027)	(0.024)	(0.058)	(0.04)	(0.018)	(0.019)	(0.036)
Married	-0.01722	-0.00829	-0.00969	-0.02066	-0.00478	-0.02026	-0.00868	-0.00231	-0.0237**
	(0.012)	(0.01)	(0.013)	(0.013)	(0.014)	(0.013)	(0.009)	(0.011)	(0.01)
Has kids	-0.00334	-0.00449	0.00408	-0.01402	-0.00171	0.00944	-0.00941	-0.0092	0.00028
	(0.01)	(0.01)	(0.012)	(0.014)	(0.012)	(0.011)	(0.01)	(0.01)	(0.01)
Retired	-0.0279**	-0.01123	-0.01853	-0.01289	-0.0255*	-0.00773	-0.0241**	-0.0182**	-0.02052
	(0.012)	(0.011)	(0.015)	(0.013)	(0.015)	(0.013)	(0.01)	(0.009)	(0.014)
log(House value)	-0.00064	-0.00329	-0.00573	0.01212	-0.0191**	0.00078	-0.0043	-0.00224	-0.00388
	(0.008)	(0.006)	(0.008)	(0.01)	(0.009)	(0.008)	(0.007)	(0.007)	(0.007)
log(Income)	-0.00739	0.00276	-0.00398	-0.00329	0.007	-0.00449	0.00248	-0.00121	0.00057
	(0.005)	(0.003)	(0.004)	(0.004)	(0.005)	(0.004)	(0.003)	(0.005)	(0.003)
log(Saving)	-0.00188	-0.00053	-0.004**	-0.00068	0.00154	-0.00301	0.00037	-0.00071	-0.00225
	(0.002)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.002)
log(Mortgage)	0.0884***	0.117***	0.0933**	0.132***	0.1049**	0.04474	0.1565***	0.1469***	0.02272
	(0.034)	(0.036)	(0.044)	(0.046)	(0.041)	(0.031)	(0.037)	(0.034)	(0.034)
House rich & cash poor	0.00821	0.01554	-0.00287	0.01303	0.02336	0.00853	0.01083	0.01424	0.01011
	(0.011)	(0.011)	(0.014)	(0.014)	(0.015)	(0.011)	(0.011)	(0.012)	(0.011)
Pension	0.0019	0.00274	0.00602	0.00873	-0.00996	0.00065	0.0031	0.00259	7e-05
	(0.009)	(0.009)	(0.011)	(0.011)	(0.013)	(0.01)	(0.008)	(0.01)	(0.008)
Financial literacy	-0.01108	-0.00627	0.00199	-0.00523	-0.0217**	-0.00804	-0.00731	-0.00639	-0.00962
	(0.01)	(0.009)	(0.011)	(0.012)	(0.011)	(0.011)	(0.009)	(0.009)	(0.009)
No pressure	-0.0046	0.00614	0.00692	-0.00789	0.00979	-0.00848	0.01117	-0.00548	0.01048
	(0.008)	(0.008)	(0.01)	(0.01)	(0.011)	(0.009)	(0.007)	(0.009)	(0.008)
Bequest motive	0.02224	0.0137	0.0332**	0.01558	0.00376	0.028**	0.00195	0.0293**	0.00811
	(0.014)	(0.012)	(0.016)	(0.013)	(0.017)	(0.013)	(0.011)	(0.013)	(0.012)
Knowledge			0.00497	0.01302	-0.01118	0.00686	-0.0006	-0.00038	0.00508
			(0.01)	(0.011)	(0.012)	(0.009)	(0.009)	(0.009)	(0.009)
Family support if ADL	0.02167	-0.01128	0.01711	0.0341*	-0.02839	0.01299	0.0027	0.0318**	-0.01489
	(0.014)	(0.018)	(0.016)	(0.018)	(0.023)	(0.015)	(0.017)	(0.015)	(0.016)
Family support if financial need	0.00015	0.0196	-0.01329	-0.01208	0.0538**	0.0187	-0.00241	-0.01125	0.02296
	(0.012)	(0.019)	(0.015)	(0.016)	(0.023)	(0.015)	(0.016)	(0.014)	(0.015)
Probability of staying home until death	-0.00499	0.01119	0.0049	-0.00447	0.0084	0.00161	0.00599	-0.00546	0.01401
	(0.015)	(0.012)	(0.014)	(0.014)	(0.016)	(0.014)	(0.013)	(0.013)	(0.013)
Sell only if financial hardship	0.00313	0.0239***	0.00618	0.0174*	0.0187*	0.018**	0.01313	0.01342	0.0133*
	(0.008)	(0.008)	(0.009)	(0.01)	(0.01)	(0.009)	(0.008)	(0.009)	(0.008)
Expected growth of more than 5%	0.0285***	0.00102	0.0203**	0.0259**	-0.00523	0.0346***	-0.00233	0.01156	0.0175**
	(0.009)	(0.009)	(0.009)	(0.011)	(0.012)	(0.01)	(0.008)	(0.01)	(0.008)
Constant	0.2141*	0.15836	0.2592**	0.0773	0.266*	0.2586**	0.12481	0.04898	0.14344
	(0.122)	(0.1)	(0.117)	(0.152)	(0.139)	(0.124)	(0.091)	(0.098)	(0.092)
N	5145	5555	3690	3565	3445	5295	5405	5475	5225
R2	0.0548	0.0411	0.0593	0.0633	0.0536	0.0428	0.0542	0.0545	0.0371

Table 13: **Results using prospective life tables**: Control variables are the same as those reported in Table 10. *Know* refers to a sample grouping respondents who had heard of and could identify the name "reverse mortgage" among other products, while *Don't know* refers to a sample grouping those who couldn't. Estimates were corrected for clustering at individual level. Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

	Know	Don't know	B.C.	Ont.	Que.	Men	Women	Age 55-64	Age 65-75
log(Relative fairness)	0.0748***	0.0332***	0.0711***	0.0567***	0.02323	0.0591***	0.0485***	0.0652***	0.0408***
	(0.014)	(0.012)	(0.015)	(0.015)	(0.016)	(0.014)	(0.011)	(0.013)	(0.013)
Age	-0.00077	-0.0017*	-0.00104	-0.0029***	-0.00033	-0.0018*	-0.00088		
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)		
Men	0.0293***	0.0245***	0.01563	0.0307***	0.0328***			0.026***	0.027***
	(0.009)	(0.009)	(0.01)	(0.011)	(0.011)			(0.009)	(0.008)
Ontario	0.01347	-0.00451				-0.0023	0.00814	0.00916	-0.00414
	(0.013)	(0.01)				(0.012)	(0.01)	(0.011)	(0.012)
British Columbia	0.00698	-0.00663				-0.012	0.00907	-0.00132	-0.00368
	(0.013)	(0.012)				(0.013)	(0.01)	(0.013)	(0.012)
High school	-0.00962	-0.00962	0.00201	0.02824	-0.06422	-0.02812	0.00244	0.0434**	-0.04534
	(0.042)	(0.029)	(0.027)	(0.025)	(0.058)	(0.04)	(0.019)	(0.02)	(0.036)
University	-0.00645	-0.01063	0.01156	0.0139	-0.06264	-0.02821	0.0035	0.036*	-0.03811
	(0.043)	(0.029)	(0.027)	(0.024)	(0.058)	(0.04)	(0.018)	(0.019)	(0.036)
Married	-0.01685	-0.0082	-0.00892	-0.02063	-0.00477	-0.01999	-0.00852	-0.00211	-0.0235**
	(0.012)	(0.01)	(0.013)	(0.013)	(0.014)	(0.013)	(0.009)	(0.011)	(0.01)
Has kids	-0.0034	-0.00448	0.00394	-0.014	-0.0017	0.00942	-0.00942	-0.00912	0.00021
	(0.01)	(0.01)	(0.012)	(0.014)	(0.012)	(0.011)	(0.01)	(0.01)	(0.01)
Retired	-0.0279**	-0.01125	-0.01858	-0.01289	-0.0255*	-0.00769	-0.0241**	-0.0182**	-0.02052
	(0.012)	(0.011)	(0.015)	(0.013)	(0.015)	(0.013)	(0.01)	(0.009)	(0.014)
log(House value)	-0.0006	-0.00331	-0.00571	0.01212	-0.0191**	0.00076	-0.00427	-0.00232	-0.00383
	(0.008)	(0.006)	(0.008)	(0.01)	(0.009)	(0.008)	(0.007)	(0.007)	(0.007)
log(Income)	-0.00739	0.00274	-0.00403	-0.0033	0.007	-0.00449	0.00244	-0.00123	0.00056
	(0.005)	(0.003)	(0.004)	(0.004)	(0.005)	(0.004)	(0.003)	(0.005)	(0.003)
log(Saving)	-0.00188	-0.00053	-0.004**	-0.00068	0.00154	-0.003	0.00037	-0.00071	-0.00225
	(0.002)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.002)
log(Mortgage)	0.0883***	0.117***	0.093**	0.1321***	0.1049**	0.04475	0.1563***	0.1467***	0.02266
	(0.034)	(0.036)	(0.044)	(0.046)	(0.041)	(0.031)	(0.037)	(0.034)	(0.034)
House rich & cash poor	0.0082	0.01555	-0.00291	0.01304	0.02337	0.00855	0.01083	0.01421	0.01013
	(0.011)	(0.011)	(0.014)	(0.014)	(0.015)	(0.011)	(0.011)	(0.012)	(0.01)
Pension	0.00196	0.00274	0.00605	0.00874	-0.00996	0.00066	0.0031	0.00263	5e-05
	(0.009)	(0.009)	(0.011)	(0.011)	(0.013)	(0.01)	(0.008)	(0.01)	(0.008)
Financial literacy	-0.01102	-0.00628	0.00204	-0.00523	-0.0217**	-0.00799	-0.00732	-0.00637	-0.00963
	(0.01)	(0.009)	(0.011)	(0.012)	(0.011)	(0.011)	(0.009)	(0.009)	(0.009)
No pressure	-0.00455	0.00614	0.00693	-0.00788	0.00979	-0.00844	0.01116	-0.00548	0.01049
	(0.008)	(0.008)	(0.01)	(0.01)	(0.011)	(0.009)	(0.007)	(0.009)	(0.008)
Bequest motive	0.0222	0.01377	0.0333**	0.01558	0.00376	0.028**	0.00207	0.0294**	0.00813
	(0.014)	(0.012)	(0.016)	(0.013)	(0.017)	(0.013)	(0.011)	(0.013)	(0.012)
Knowledge			0.00496	0.01301	-0.01118	0.00687	-0.00062	-0.00036	0.00507
			(0.01)	(0.011)	(0.012)	(0.009)	(0.009)	(0.009)	(0.009)
Family support if ADL	0.02174	-0.01128	0.01713	0.0341*	-0.02838	0.01304	0.00269	0.0319**	-0.01496
	(0.014)	(0.018)	(0.016)	(0.018)	(0.023)	(0.015)	(0.017)	(0.015)	(0.016)
Family support if financial need	0.00026	0.01958	-0.01326	-0.01206	0.0538**	0.01872	-0.00241	-0.01133	0.02304
	(0.012)	(0.019)	(0.015)	(0.016)	(0.023)	(0.015)	(0.016)	(0.014)	(0.015)
Probability of staying home until death	-0.00484	0.01111	0.00484	-0.00449	0.0084	0.00162	0.00592	-0.00546	0.01395
	(0.015)	(0.012)	(0.014)	(0.018)	(0.016)	(0.014)	(0.013)	(0.013)	(0.013)
Sell only if financial hardship	0.00304	0.0239***	0.00612	0.0174*	0.0187*	0.018**	0.01313	0.01337	0.0133*
	(0.008)	(0.008)	(0.009)	(0.01)	(0.01)	(0.009)	(0.008)	(0.009)	(0.008)
Expected growth of more than 5%	0.0285***	0.00098	0.0202**	0.0259**	-0.00524	0.0346***	-0.00238	0.01151	0.0174**
	(0.009)	(0.009)	(0.009)	(0.011)	(0.012)	(0.01)	(0.008)	(0.01)	(0.008)
Constant	0.2136*	0.1583	0.2593**	0.07735	0.2662*	0.2588**	0.12454	0.04974	0.14291
	(0.122)	(0.1)	(0.116)	(0.152)	(0.139)	(0.124)	(0.091)	(0.098)	(0.092)
N	5145	5555	3690	3565	3445	5295	5405	5475	5225
R2	0.0549	0.0409	0.0591	0.0633	0.0536	0.0429	0.054	0.0543	0.0372

Table 14: **Results using subjective life tables**: Control variables are the same as those reported in Table 10. *Know* refers to a sample grouping respondents who had heard of and could identify the name "reverse mortgage" among other products, while *Don't know* refers to a sample grouping those who couldn't. Estimates were corrected for clustering at individual level. Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

B   Survey

INSTRUCTIONS INCLUDED WITH THIS ANONYMOUS QUESTIONNAIRE

FINANCIAL PRODUCTS FOR RETIREMENT

The following pages contain an anonymous questionnaire, which we invite you to complete. This questionnaire was developed as part of a research project at HEC Montréal.

Since your first impressions best reflect your true opinions, we would ask that you please answer the questions included in this questionnaire without any hesitation. We ask, however, that you take the time needed to consider certain questions on knowledge, which might involve concepts with which you are less familiar. There is no time limit for completing the questionnaire, although we have estimated that it should take approximately 15 minutes.

The information collected will be anonymous and will remain strictly confidential. It will be used solely for the advancement of knowledge and the dissemination of the overall results in academic or professional forums.

The online data collection provider agrees to refrain from disclosing any personal information (or any other information concerning participants in this study) to any other users or to any third party, unless the respondent expressly agrees to such disclosure or unless such disclosure is required by law.

You are free to refuse to participate in this project and you may decide to stop answering the questions at any time. By completing this questionnaire, you will be considered as having given your consent to participate in our research project and to the potential use of data collected from this questionnaire in future research. Since the questionnaire is anonymous, you will no longer be able to withdraw from the research project once you have completed the questionnaire because it will be impossible to determine which of the answers are yours.

If you have any questions about this research, please contact the principal investigator, Pierre-Carl Michaud, at the telephone number or email address indicated below.

HEC Montréal's Research Ethics Board has determined that the data collection related to this study meets the ethics standards for research involving humans. If you have any questions related to ethics, please contact the REB secretariat at (514) 340-6051 or by email at cer@hec.ca.

Thank you for your valuable cooperation!

Pierre-Carl Michaud
Professor
Department of Applied Economics
HEC Montréal
514-340-6466
pierre-carl.michaud@hec.ca

Section 1: Background
A   Are you…?
        1.1.   Male
        1.2.   Female

B   How old are you?
        2.1.   *Please Enter (terminate if not* 55-75 INCLUSIVELY)

        [PN: MUST ENTER THE 2 CHARACTERS]

QC. Which province or territory do you live in?

    1.1. British Columbia
    1.2. Alberta [Screen Out]
    1.3. Saskatchewan [Screen Out]
    1.4. Manitoba [Screen Out]
    1.5. Ontario
    1.6. Quebec
    1.7. New Brunswick [Screen Out]
    1.8. Nova Scotia [Screen Out]
    1.9. Prince Edward Island [Screen Out]
    1.10.   Newfoundland [Screen Out]
    1.11.   Northwest Territories [Screen Out]
    1.12.   Nunavut [Screen Out]
    1.13.   Yukon [Screen Out]
    1.14.   None of the above [Screen Out]

Q0 Can you please enter the first 3 characters of your postal code? Please type in below [PN: MUST ENTER FIRST 3 CHARACTERS] *FSAs validated with FSA file

Q1 What is the highest degree, certificate or diploma you have obtained?
1 Less than high school diploma or its equivalent
2 High school diploma or a high school equivalency certificate
3 Trade certificate or diploma
4 College, CEGEP or other non-university certificate or diploma (other than trades certificates or diplomas)
5 University certificate or diploma below the bachelor's level
6 Bachelor's degree (e.g. B.A., B.Sc., LL.B.)
7 University degree above the bachelor's level

Q2 What is your marital status?
1 married
2 living common-law
3 widowed
4 separated

5 divorced
6 single, never married
IF Q2 ==1,2
        Q2a How old is your partner (spouse)?
        Numeric (>0)
END IF

Q3 Do you have children?
1 Yes
2 No
IF Q3==1 ask Q3b
IF Q3 = 2 skip to Q4

Q3b Have you experienced a loss of a child?
1 Yes
2 No

IF Q3b = 1 ask Q3a
IF Q3b = 2 ask Q3c

        Q3a How many of your children are alive today?
        Numeric (>=0)

Q3c How many children do you have?
Numeric (>=0)

END IF

Q4 For 2016, what is your best estimate of the total income received by all members of your household, from all sources, before taxes and deductions?
Numeric (>0)
9999999 Don't know or prefer not to say
IF Q4==9999999
        Q4a Is it more than $60,000? 1 Yes 2 No 8888888 Refuse to answer 7777777 Don't know
        IF Q4a==1
                Q4b Is it less than $120,000? 1 Yes 2 No 8888888 Refuse to answer 7777777 Don't know
                IF Q4b == 1
                        Q4c Is it more than $90,000? 1 Yes 2 No 8888888 Refuse to answer 7777777 Don't know
                END IF
        ELSE IF Q4a==2
                Q4d Is it more than $30,000? 1 Yes 2 No 8888888 Refuse to answer 7777777 Don't know
        END IF
END IF

Q5 Do you consider yourself retired?

1 Yes
2 No
IF Q5==2

    Q5a What is your best estimate of what total income received by all members of your household will be once you are fully retired, as a fraction of your current income?
    Numeric (0%-200%)
    9999999 Don't know
    IF Q5a==9999999

        Q5b Is it more than 50%? 1 Yes 2 No 8888888 Refuse to answer 7777777 Don't know
        IF Q5b==1

            Q5c Is it less than 75%? 1 Yes 2 No 8888888 Refuse to answer 7777777 Don't know
            IF Q5c == 1

                Q5d Is it more than 62.5%? 1 Yes 2 No 8888888 Refuse to answer 7777777 Don't know
            ELSE IF Q5c == 2

                Q5e Is it less than 87.5%? 1 Yes 2 No 8888888 Refuse to answer 7777777 Don't know
            END IF
        ELSE IF Q5b==2

            Q5f Is it more than 25%? 1 Yes 2 No 8888888 Refuse to answer 7777777 Don't know
            IF Q5f == 1

                Q5d Is it more than 37.5%? 1 Yes 2 No 8888888 Refuse to answer 7777777 Don't know
            ELSE IF Q5f == 2

                Q5e Is it less than 12.5%? 1 Yes 2 No 8888888 Refuse to answer 7777777 Don't know
            END IF
        END IF
    END IF
END IF

Q6 Do you own your primary residence?
1 Yes
2 No
IF Q6==1

    Q6a Which set of property type best fits your primary residence?
    1 Single Family Dwelling / Detached Duplex, Triplex or Quadruplex / Link home / Semi-Detached.
    2 Townhouse, Rowhouse / Fiveplex and Sixplex / Attached Duplex, Triplex or Quadruplex / Stratified SFD, Bare Land Strata / Semi-Detached Strata Condo / Modular Home
    3 Condo-Townhouse / Mobile Home / Condo – Apartment Style
    7777777 Don't know

    Q7 What is the current market value of your residence?
    Numeric (>0)
    9999999 Don't know or prefer not to say
    IF Q7==9999999

Q7a Is it more than $300,000? 1 Yes 2 No 8888888 Refuse to answer 7777777 Don't know

IF Q7a==1

    Q7b Is it less than $600,000? 1 Yes 2 No 8888888 Refuse to answer 7777777 Don't know

    IF Q7b == 1

        Q7c Is it more than $450,000? 1 Yes 2 No 8888888 Refuse to answer 7777777 Don't know

    ELSE IF Q7b ==2

        Q7d Is it less than $750,000? 1 Yes 2 No 8888888 Refuse to answer 7777777 Don't know

        IF Q7d == 2

            Q7e Is it more than $900,000? 1 Yes 2 No 8888888 Refuse to answer 7777777 Don't know

        END IF

    END IF

ELSE IF Q7a==2

    Q7f Is it more than $150,000? 1 Yes 2 No 8888888 Refuse to answer 7777777 Don't know

END IF

END IF

Q8 What proportion of the current market value of your residence do you still owe on your mortgage?

Numeric (0%-200%)

9999999 Don't know or prefer not to say

IF Q8 == 9999999

    Q8a Is it more than 50%? 1 Yes 2 No 8888888 Refuse to answer 7777777 Don't know

    IF Q8a == 1

        Q8b Is it less than 75 %? 1 Yes 2 No 8888888 Refuse to answer 7777777 Don't know

        IF Q8b == 1

            Q8c Is it more than 62.5%? 1 Yes 2 No 8888888 Refuse to answer 7777777 Don't know

        ELSE IF Q8b == 2

            Q8d Is it more than 87.5%? 1 Yes 2 No 8888888 Refuse to answer 7777777 Don't know

        END IF

    END IF

    ELSE IF Q8a == 2

        Q8e Is it less than 25 % 1 Yes 2 No 8888888 Refuse to answer 7777777 Don't know

        IF Q8e == 1

        Q8f Is it more than 12.5%? 1 Yes 2 No 8888888 Refuse to answer 7777777 Don't know

            IF Q8f == 2

Q8g Is it less than 5%? 1 Yes 2 No 8888888 Refuse to answer 7777777 Don't know
END IF
ELSE IF Q8e == 2
Q8h Is it more than 37.5%? 1 Yes 2 No 8888888 Refuse to answer 7777777 Don't know

END IF
END IF
END IF
END IF

Q9 We are interested in your pension plan and its nature, if you have one. Do you currently contribute to, or receive benefits from (in the form of regular payments), an employer-provided pension plan?
1 Yes
2 No
3 Don't Know
IF Q9==1
Q9a Do you agree with the following statement: "I have/expect to have sufficient pension income"?
1 Completely disagree
2 Disagree
3 Somewhat disagree
4 Neither agree nor disagree
5 Somewhat agree
6 Agree
7 Completely agree
END IF

Q10 What is your best estimate of how much you have accumulated in Registered Retirement Savings Plans (RRSPs), Tax-Free Savings Accounts (TFSAs) and other non-employer provided savings accounts?
Numeric
9999999 Don't know or prefer not to say
IF Q10==9999999
Q10a Is it more than $50,000? 1 Yes 2 No 8888888 Refuse to answer 7777777 Don't know
IF Q10a==1
Q10b Is it less than $200,000? 1 Yes 2 No 8888888 Refuse to answer 7777777 Don't know
ELSE IF Q10a==2
Q10c Is it more than $10,000? 1 Yes 2 No 8888888 Refuse to answer 7777777 Don't know
END IF
END IF

Q11 Looking at the following list of health conditions, has a doctor ever said you suffered from:
[Check any of:]
1 Heart disease
2 Stroke

3 Lung disease
4 Diabetes
5 Hypertension
6 Depression or other mental health problems
7 Cancer
8 None of the above

Q12 At the present time, do you smoke cigarettes daily, occasionally or not at all?
1 Daily
2 Occasionally
3 Not at all
IF Q12==1 GOTO Q13
ELSE IF Q12==2,3
      Q12a Have you ever smoked cigarettes daily?
      1 Yes
      2 No
      IF Q12a==1 GOTO Q13
      ELSE IF Q12a==2
            Q12b Have you smoked 100 cigarettes or more in your life?
            1 Yes
            2 No
            IF Q12b==1 GOTO Q13
            ELSE IF Q12b==2
                  Q12c Have you ever smoked a whole cigarette?
                  1 Yes
                  2 No
            END IF
      END IF
END IF

Section 2: Risk Perception

Q13 On a scale of 0 to 100, where 0 is absolutely no chance and 100 is absolutely certain, what do you believe is the percent chance you will live to age 85 or more?
Numeric (0-100)
9999999 Don't know

      IF Q2==1,2 & Q2a < 85
            Q13a On a scale of 0 to 100, where 0 is absolutely no chance and 100 is absolutely certain, what do you believe is the percent chance your partner (spouse) will live to age 85 or more?
            Numeric (0-100)
            9999999 Don't know
      END IF

Q14 On a scale of 0 to 100, where 0 is absolutely no chance and 100 is absolutely certain, what do you believe is the percent chance you will leave a bequest of more than $10,000?
Numeric (0-100)

9999999 Don't know
IF Q14 >0 & Q6 ==1
> Q14a How likely is it that your primary residence will play a role in the bequest you plan to leave?
> 1 Not likely at all
> 2 Not very likely
> 3 Somewhat likely
> 4 Very likely
> 5 Extremely likely

END IF

Q15 On a scale of 0 to 100, where 0 is absolutely no chance and 100 is absolutely certain, what do you believe is the percent chance that your family would take up the responsibility of taking care of you if you had important limitations in activities of daily living such as bathing, eating, cleaning?

Numeric (0-100)
9999999 Don't know

Q16 On a scale of 0 to 100, where 0 is absolutely no chance and 100 is absolutely certain, what do you believe is the percent chance that your family would take care of you financially if you needed financial support?

Numeric (0-100)
9999999 Don't know

IF Q6==1
> Q17 Here are three possibilities concerning your future expected residence. On a scale of 0 to 100, where 0 is absolutely no chance and 100 is absolutely certain, what is the percent chance that each of these possibilities comes true. Given that only one of these possibilities can occur, the sum of the three probabilities must equal 100.
> > Q17a I'm going to stay in my current home until I die.
> > Numeric (0-100)
> > Q17b I will eventually move from my current home to live in another house or apartment.
> > Numeric (0 to (100 – Answer Q17a))
> > Q17c I will eventually move from my current home to live in a long-term care home.
> > Numeric (0 to (100 – Answer Q17a – Answer Q17b))

[NOTE: SUM OF ANSWERS TO Q17a, Q17b AND Q17c MUST EQUAL 100.]
[NOTE: MAKE SURE THE QUESTION IS PROPERLY NUMBERED ON THE SCREEN.]
[NOTE: WOULD IT BE POSSIBLE TO INCLUDE A COUNTER TO LET THE RESPONDENT KNOW HOW MANY % LEFT TO FILL IN?]

> Q18 Over the **next** five years, do you think the value of your home will:
> 1 Increase a lot (greater than 20 %)
> 2 Increase moderately (between 5% and 20%)
> 3 remain rather stable (between +5% and -5%)
> 4 decrease moderately (between -5% and -20%)

5 decrease a lot (less than -20%)

Q19 Do you agree with the following statement: "House prices can fluctuate a lot"?
1 Completely disagree
2 Disagree
3 Somewhat disagree
4 Neither agree nor disagree
5 Somewhat agree
6 Agree
7 Completely agree
END IF

Q20 Do you agree with the following statements? (Answers: 5 Strongly Agree; 4 Agree; 3 Disagree; 2 Strongly Disagree; 1 Don't know)
Q20a It is the responsibility of the family, when feasible, to take care of elderly parents
Q20b Parents should set aside money to leave to their children or heirs once they die, even when it means somewhat sacrificing their own comfort in retirement
Q20c Children should inherit their parents' family home
Q20d A house is an asset that should only be sold in case of financial hardship
Q20e Being in debt is never a good thing
[NOTE: Make sure the question is properly numbered on the screen.]
[NOTE: Might the scale for each statement be inverted (i.e. "increasing" from left to right)? We leave this with your expertise.]

Q21 Which of the following statements comes closest to describing the amount of financial risk that you are willing to take when you save or make investments?
1 I am willing to take substantial financial risks expecting to earn substantial returns
2 I am willing to take above average financial risks expecting to earn above-average returns
3 I am willing to take average financial risks expecting to earn average returns
4 I am willing to take below average financial risks expecting to earn below-average returns
5 I am not willing to take any risk, knowing I will earn a small but certain return

Section 3: Literacy and Knowledge

Now we would like to ask some questions about your familiarity and comfort with financial concepts. Please answer these questions the best you can.

Q22 Suppose you have $100 in a savings account, the interest rate is 2% per year and you never withdraw money. After 5 years, how much will you have in this account in total?
1 More than $110
2 Exactly $110
3 Less than $110
4 Don't know

Q23 True or false? You should invest most of your money in a single stock that you select rather than in lots of stocks or in mutual funds.
1 True
2 False

3 Don't know

Q24 Imagine leaving $1,000 in a savings account that pays 1% interest and has no charges. Imagine that inflation is running at 2%. Do you think that if you withdraw the money in a year's time you will be able to buy more than, exactly the same as, or less than today with the money in this account?
1 More than today
2 Exactly the same as today
3 Less than today
4 Don't know

Q25 Suppose the chances of someone aged 50 living to age 85 are 60%. What do you think the chances are that this same person will live to age 60?
1 Less than 60%
2 Greater than 60%
3 Don't know

Section 4: Annuities

For the purposes of this section, when we use the term '**annuity'**, we are referring to a financial product that guarantees you a regular payment every month or year until death (the "benefit"), in exchange for an initial one-time payment (the "premium").

Q26 This section is going to ask you questions about annuities. Which of the following best describes your current knowledge about this type of product?
1 A lot
2 A little
3 None at all

Q27 Have you purchased an annuity in the private market, for which you are currently receiving or will eventually receive benefits (please exclude all government provided annuities such as your provincial pension plan, the Canada Pension Plan and Old Age Security)?
1 Yes, I have purchased an annuity
2 Yes, I have purchased more than one annuity
3 No
4 Don't know
IF Q27==4(Don't know) GOTO Q28
ELSE IF Q27==3 (No)
      Q27a Why haven't you bought an annuity? Choose the main reason.
      1 I never thought about buying one, and I have never been offered one (for instance by a financial advisor).
      2 I thought about buying one, but I have not (yet) made a decision.
      3 I do not have sufficient savings to purchase one.
      4 Such products do not offer good value for money.
      5 Such products do not cover my needs.
      6 I do not think I will need such a product.
      7 I don't know what an annuity is.
      8 Other, open...
      GOTO Q28
ELSE IF Q27==1,2 (Yes)

Q27b How did you come to purchase the annuity? If you have purchased more than one annuity, please think about the one you purchased most recently.
1 I was offered an annuity (by my financial advisor, pension plan representative, insurance company, etc.)
2 I searched myself for an annuity
3 Other, open …

Q27c What was the premium of the annuity (what did you pay)? If you have purchased more than one annuity, please indicate what you paid for the one you purchased most recently.
Numeric (>$0)
7777777 Don't know
IF Q27c==7777777
 Q27d Was it more than $250,000? 1 Yes 2 No 8888888 Refuse to answer 7777777 Don't know
 IF Q27d==1
  Q27e Was it less than $1,000,000? 1 Yes 2 No 8888888 Refuse to answer 7777777 Don't know
  IF Q27e == 1
   Q28f Was it more than $500,000? 1 Yes 2 No 8888888 Refuse to answer 7777777 Don't know
  END IF
 ELSE IF Q27d ==2
  Q27g Was it more than $150,000? 1 Yes 2 No 8888888 Refuse to answer 7777777 Don't know
  IF Q27g == 2
   Q27h Was it less than $100,000? 1 Yes 2 No 8888888 Refuse to answer 7777777 Don't know
   IF Q27h==1
    Q27i Was it more than $50,000? 1 Yes 2 No 8888888 Refuse to answer 7777777 Don't know
   END IF
  END IF
 END IF
END IF

Q27j What is the benefit amount the annuity pays out (monthly)? If you have purchased more than one annuity, please indicate the benefit paid by the one you purchased most recently.
Numeric (>$0)
7777777 Don't know
IF Q27j==7777777
 Q27k Is it more than $1,000? 1 Yes 2 No 8888888 Refuse to answer 7777777 Don't know
 IF Q27k==1
  Q27l Is it less than $4,000? 1 Yes 2 No 8888888 Refuse to answer 7777777 Don't know
  IF Q27l == 1
   Q27m Is it more than $2,000? 1 Yes 2 No 8888888 Refuse to answer 7777777 Don't know
  END IF

ELSE IF Q27k ==2

    Q27n Is it more than $600? 1 Yes 2 No 8888888 Refuse to answer 7777777 Don't know

    IF Q27n == 2

        Q27o Is it less than $400? 1 Yes 2 No 8888888 Refuse to answer 7777777 Don't know

        IF Q27o==1

            Q27p Is it more than $200? 1 Yes 2 No 8888888 Refuse to answer 7777777 Don't know

        END IF

    END IF

    END IF

END IF

END IF

Q28 Do you have life insurance for which you currently pay a premium or that is fully paid and still in force?
1 Yes
2 No
3 Don't Know
IF Q28==1 (Yes)

    Q28a What type of life insurance policy do you have?
    1 Term life insurance
    2 Whole life insurance or Universal life insurance
    3 Don't know
    4 Other, open…
END IF

Section 6: Preferences for Annuities [SCENARIOS]

We are going to show you some simple annuities and ask you to rate them. You can assume that the institution offering the annuity will pay the monthly benefit no matter the circumstances. Once you pay the premium, you receive monthly benefits and have nothing else to pay.

Each product has two attributes:
a) a premium you have to pay;
b) a monthly benefit starting at a given age and lasting until death.

The benefit is adjusted for inflation (indexed).

Q30-34
[SCENARIOS]

What are the chances, 0% meaning no chance and 100% meaning for sure, that you would purchase this product if it were offered to you by [a trusted / an] insurance company within the next year?
Numeric (0-100)
*****
Randomize [a trusted / an] across individuals with probability 0.5, and keep constant for each respondent for questions 30-34 (i.e., present all of Q30-34 either with [a trusted] or with [an] for a given individual).
*****

Scenarios randomization scheme

Parameters:

Age_benefit = [(age+1), 75,85] with probability [2/5, 2/5, 1/5]
where (age+1)=the age of the respondent+1

Benefit = [200,600,1000] each with probability 1/3

Load = [0.5, 0.6, 0.7, 0.8, 0.9, 1.0, 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 2.0]
each with probability 1/16

For each combination of Age_benefit and Benefit we provide EPremium, which is the fair premium by age and sex (3 x 3 = 9 data points; see table attached).

The premium for the contract is given by (please round to nearest $500):

$$prem = EPremium \times Load$$

Randomize Age_benefit, Benefit and Load independently (3 x 3 x 16 possibilities) for 5 draws (i.e., each respondent is presented with 5 combinations of Age_benefit, Benefit, and "prem" according to the above probabilities).

Present each draw following this example:

When you buy the annuity	*Starting at age [Age_benefit]*

You pay $[prem]	You receive $[Benefit] per month until death, indexed annually for inflation

*****

FAIR PREMIUMS (VALUES FOR "EPremium")

For Age_benefit=age+1

Benefit = 200				Benefit = 600				Benefit = 1000		
Age	Male	Female		Age	Male	Female		Age	Male	Female
55-59	45,111.40	49,890.91		55-59	135,334.20	149,672.72		55-59	225,557.00	249,454.53
60-64	38,942.44	43,719.50		60-64	116,827.32	131,158.51		60-64	194,712.20	218,597.52
65-69	32,755.36	37,352.10		65-69	98,266.07	112,056.30		65-69	163,776.79	186,760.50
70-75	26,135.90	30,292.54		70-75	78,407.71	90,877.61		70-75	130,679.51	151,462.69

For Age_benefit=75

Benefit = 200				Benefit = 600				Benefit = 1000		
Age	Male	Female		Age	Male	Female		Age	Male	Female
55-59	13,691.16	17,442.92		55-59	41,073.47	52,328.77		55-59	68,455.79	87,214.61
60-64	15,677.30	19,700.10		60-64	47,031.89	59,100.30		60-64	78,386.48	98,500.51
65-69	18,361.54	22,559.95		65-69	55,084.62	67,679.85		65-69	91,807.70	112,799.74
70-75	22,467.80	26,560.34		70-75	67,403.40	79,681.01		70-75	112,339.00	132,801.69

For Age_benefit=85

Benefit = 200				Benefit = 600				Benefit = 1000		
Age	Male	Female		Age	Male	Female		Age	Male	Female
55-59	3,912.57	5,959.01		55-59	11,737.70	17,877.03		55-59	19,562.83	29,795.06
60-64	4,480.15	6,730.13		60-64	13,440.45	20,190.39		60-64	22,400.75	33,650.65
65-69	5,247.24	7,707.14		65-69	15,741.71	23,121.41		65-69	26,236.18	38,535.69
70-75	6,535.00	9,210.44		70-75	19,605.01	27,631.32		70-75	32,675.02	46,052.19

IF Q6 == 1

Section 5: Financial product to extract the equity value of a primary residence

For the purposes of this section, when we use the expression "**current home equity**", we are referring to the current market value of your primary residence after subtracting outstanding mortgage balances. This section is going to ask you questions about financial products on the basis of your current home equity.

Imagine a financial product that lets you turn part of your current home equity into cash. You're not obligated to make any payments until you move, you sell your home, or you die. You have the certainty that once your residence will be sold, the required amount to repay the loan will not exceed the selling price of the residence.

Q29 Have you ever heard of the existence of this type of financial product in Canada?
1 Yes
2 No

IF Q29 == 1
      Q29a Can you name that product?
      1 Yes
      2 No
      IF Q29a==1
            [DROP-DOWN]
            Q29b What is it called?
            1 Annuity
            2 Reverse mortgage
            3 Life insurance
            4 Line of credit
            5 None of the above
      END IF
END IF

Section 7: Preferences for Reverse Mortgages [SCENARIOS]

We will refer to a **reverse mortgage** as a financial product that lets you turn part of your current home equity into cash. Unlike many mortgage-based financial products, you're not obligated to make any payments until you move, you sell your home, or you die. Importantly, you have the certainty that once your residence will be sold, the amount required to repay the loan will not exceed the selling price of the residence.

When we use the expression "**current home equity**", we are referring to the current market value of your primary residence after subtracting outstanding mortgage balances. For the rest of this section, try to have your current home equity in mind.

We are going to show you some simple reverse mortgage products and ask you to rate them.

Each reverse mortgage has three attributes:
  a) The percentage of your current home equity that you can borrow. The amount borrowed must be a minimum of $25,000.
  b) A fixed annual interest rate on the balance of the loan, generating interests that you do not need to pay before you move, sell or die.
  c) A fixed fee of $2,245 that you only have to pay once. The money you obtain from the reverse mortgage will be used to pay this fee.

[Suppose you have the certainty that you will never be put under pressure to sell your residence and that the contract terms will be respected.]

*****
Randomize the presence of the sentence above for each respondent with probability 0.5 and keep constant for questions 35-39.
*****

Q35-Q39
[SCENARIOS]

What are the chances, 0% meaning no chance and 100% for sure, that you would buy this reverse mortgage if a trusted financial institution offered it to you within the next year?
Numeric (0-100)
IF Q35>0
        Q35a In the event you purchased this reverse mortgage, considering you must borrow a minimum of $25,000 and taking into account the maximum amount that can be borrowed (« Reverse Mortgage » of your current home equity), what amount of money do you think you would borrow?
        Numeric (>=$25,000)
END IF
[NOTE: REPEAT THE ABOVE SUB-QUESTION AFTER EACH OF Q35 TO Q39, USING THE EXACT SAME LOOP, WORDING AND CRITERIA]
END IF

Scenarios randomization scheme

Parameters:

Interest_rates = [3.8%, 4.1%, 4.4%, 4.7%, 5%, 5.3%, 5.59%, 6%, 6.5%, 7%] each with probability 1/10

Load = [0.5, 0.75, 1, 1.25, 1.5] each with probability 1/5

With these products we provide Borrow (see tables attached), which is the proportion that can be borrowed by city, marital status, age and sex.

The contract of the reverse mortgage is given by (please round to nearest percentage point):

$$\text{Reverse Mortgage} = \text{Borrow x Load}$$

Randomize both Interest_rates and Load independently (10 x 5 possibilities) for 5 draws (i.e., each respondent is presented with 5 combinations of Interest_rates and "Reverse Mortgage" according to the above probabilities).

Present each draw following this example:

You can borrow a minimum of $25,000 and up to [Reverse Mortgage] of your current home equity.
You will be charged a fixed annual interest rate of [Interest_rates] on the balance of the loan for as long as you hold the loan.   *Reminder: You're not obligated to make any payments until you move, you sell your home, or you die; and you have the certainty that once your residence will be sold, the amount required to repay the loan will not exceed the selling price of the residence.*
There is a fixed fee of $2,245 that you only have to pay once. The money you obtain from the reverse mortgage will be used to pay this fee.

*****

VALUES FOR "Borrow"

[FOR COUPLES, PLEASE USE THE AVERAGE AGE OF THE COUPLE : $\frac{age+Q2a}{2}$, WHERE *age* IS THE RESPONDENT'S AGE GATHERED FROM THE SAMPLING/TARGETING. PLEASE ROUND THE RESULT TO THE NEAREST INTEGER AND SET THE AGE OF THE COUPLE AS 55 IF $\frac{age+Q2a}{2} < 55$ AND AS 79 IF $\frac{age+Q2a}{2} > 79$.]

If Q0 begins with H1, H2, H3, H4, H5, H8, H9 & Q2==1,2
(Island of Montreal, Couple)

Age	55-59	60-64	65-69	70-74	75-79
IF Q6a == 1, 7777777 (Single Family Dwelling / Detached Duplex, Triplex or Quadruplex / Link Home / Semi-Detached)	16.10%	23.10%	31.90%	39.10%	46.70%
IF Q6a == 2 (ownhouse, Rowhouse / Fiveplex and Sixplex / Attached Duplex. Triplex, or Quadruplex / Stratified SFD, Bare Land Strata / Semi-Detached Strata Condo / Modular Home)	15.30%	21.90%	30.30%	37.10%	44.50%
IF Q6a == 3 (Condo - Townhouse / Mobile Home / Condo – Townhouse)	12.90%	18.50%	25.50%	31.30%	37.50%

If Q0 begins with H1, H2, H3, H4, H5, H8, H9 & Q2==3,4,5,6 and sex is Male
(Island of Montreal, Single Male)

Age	55-59	60-64	65-69	70-74	75-79
IF Q6a == 1, 7777777 (Single Family Dwelling / Detached Duplex, Triplex or Quadruplex / Link Home / Semi-Detached)	25.10%	33.10%	39.10%	43.30%	49.90%
IF Q6a == 2 (Townhouse, Rowhouse / Fiveplex and Sixplex / Attached Duplex. Triplex, or Quadruplex / Stratified SFD, Bare Land Strata / Semi-Detached Strata Condo / Modular Home)	23.90%	31.50%	37.30%	41.10%	47.30%
IF Q6a == 3 (Condo - Townhouse / Mobile Home / Condo – Townhouse)	20.10%	26.50%	31.30%	34.70%	39.90%

If Q0 begins with H1, H2, H3, H4, H5, H8, H9 & Q2==3,4,5,6 & sex is Female
(Island of Montreal, Single Female)

Age	55-59	60-64	65-69	70-74	75-79
IF Q6a == 1, 7777777 (Single Family Dwelling / Detached Duplex, Triplex or Quadruplex / Link Home / Semi-Detached)	26.70%	33.10%	37.90%	39.90%	44.90%
IF Q6a == 2(Townhouse, Rowhouse / Fiveplex and Sixplex / Attached Duplex. Triplex, or Quadruplex / Stratified SFD, Bare Land Strata / Semi-Detached Strata Condo / Modular Home)	25.50%	31.50%	36.10%	37.90%	42.70%
IF Q6a == 3 (Condo - Townhouse / Mobile Home / Condo – Townhouse)	21.50%	26.50%	30.30%	31.90%	36.10%

If Q0 is from Quebec and DOES NOT begin with H1, H2, H3, H4, H5, H8, H9 & Q2==1,2
(Rest of Quebec, Couple)

Age	55-59	60-64	65-69	70-74	75-79
IF Q6a == 1, 7777777 (Single Family Dwelling / Detached Duplex, Triplex or Quadruplex / Link Home / Semi-Detached)	15.03%	21.57%	29.77%	36.50%	43.63%
IF Q6a == 2 (Townhouse, Rowhouse / Fiveplex and Sixplex / Attached Duplex. Triplex, or Quadruplex / Stratified SFD, Bare Land Strata / Semi-Detached Strata Condo / Modular Home)	14.30%	20.50%	28.30%	34.70%	41.50%
IF Q6a == 3 (Condo - Townhouse / Mobile Home / Condo – Townhouse)	12.03%	17.30%	23.83%	29.23%	34.97%

If Q0 is from Quebec and DOES NOT begin with H1, H2, H3, H4, H5, H8, H9 & Q2==3,4,5,6 & sex is Male
(Rest of Quebec, Single Male)

Age	55-59	60-64	65-69	70-74	75-79
IF Q6a == 1, 7777777 (Single Family Dwelling / Detached Duplex, Triplex or Quadruplex / Link Home / Semi-Detached)	23.43%	30.90%	36.57%	40.43%	46.50%
IF Q6a == 2 (Townhouse, Rowhouse / Fiveplex and Sixplex / Attached Duplex. Triplex, or Quadruplex / Stratified SFD, Bare Land Strata / Semi-Detached Strata Condo / Modular Home)	22.30%	29.37%	34.77%	38.43%	44.17%
IF Q6a == 3 (Condo - Townhouse / Mobile Home / Condo – Townhouse)	18.77%	24.70%	29.30%	32.37%	37.23%

If Q0 is from Quebec and DOES NOT begin with H1, H2, H3, H4, H5, H8, H9 & Q2==3,4,5,6 & sex is Female
(Rest of Quebec, Single Female)

Age	55-59	60-64	65-69	70-74	75-79
IF Q6a == 1, 7777777 (Single Family Dwelling / Detached Duplex, Triplex or Quadruplex / Link Home / Semi-Detached)	24.97%	30.90%	35.43%	37.23%	41.97%
IF Q6a == 2 (Townhouse, Rowhouse / Fiveplex and Sixplex / Attached Duplex. Triplex, or Quadruplex / Stratified SFD, Bare Land Strata / Semi-Detached Strata Condo / Modular Home)	23.77%	29.37%	33.70%	35.43%	39.90%
IF Q6a == 3 (Condo - Townhouse / Mobile Home / Condo – Townhouse)	20.03%	24.70%	28.37%	29.83%	33.70%

If Q0 begins with M2, M3, M4G, M4H, M4J, M4K, M4M, M4L, M4M, M4N, M4P, M4R, M4S, M4T, M4V, M4W, M4X, M4Y, M5, M6, M7A, M9L, M9M, M9N & Q2==1,2
(City of Toronto, Couple)

Age	55-59	60-64	65-69	70-74	75-79
IF Q6a == 1, 7777777 (Single Family Dwelling / Detached Duplex, Triplex or Quadruplex / Link Home / Semi-Detached)	14.50%	21.10%	29.70%	36.90%	44.50%
IF Q6a == 2 (Townhouse, Rowhouse / Fiveplex and Sixplex / Attached Duplex. Triplex, or Quadruplex / Stratified SFD, Bare Land Strata / Semi-Detached Strata Condo / Modular Home)	13.70%	20.10%	28.30%	35.10%	42.30%
IF Q6a == 3 (Condo - Townhouse / Mobile Home / Condo – Townhouse)	11.50%	16.90%	23.70%	29.50%	35.70%

If Q0 begins with M2, M3, M4G, M4H, M4J, M4K, M4M, M4L, M4M, M4N, M4P, M4R, M4S, M4T, M4V, M4W, M4X, M4Y, M5, M6, M7A, M9L, M9M, M9N & Q2==3,4,5,6 & sex is Male
(City of Toronto, Single Male)

Age	55-59	60-64	65-69	70-74	75-79
IF Q6a == 1, 7777777 (Single Family Dwelling / Detached Duplex, Triplex or Quadruplex / Link Home / Semi-Detached)	23.10%	30.90%	36.90%	41.10%	47.70%
IF Q6a == 2 (Townhouse, Rowhouse / Fiveplex and Sixplex / Attached Duplex. Triplex, or Quadruplex / Stratified SFD, Bare Land Strata / Semi-Detached Strata Condo / Modular Home)	21.90%	29.30%	35.10%	39.10%	45.30%
IF Q6a == 3 (Condo - Townhouse / Mobile Home / Condo – Townhouse)	18.50%	24.70%	29.50%	32.90%	38.10%

If Q0 begins with M2, M3, M4G, M4H, M4J, M4K, M4M, M4L, M4M, M4N, M4P, M4R, M4S, M4T, M4V, M4W, M4X, M4Y, M5, M6, M7A, M9L, M9M, M9N & Q2==3,4,5,6 & sex is Female
(City of Toronto, Single Female)

Age	55-59	60-64	65-69	70-74	75-79
IF Q6a == 1, 7777777 (Single Family Dwelling / Detached Duplex, Triplex or Quadruplex / Link Home / Semi-Detached)	24.70%	30.90%	35.70%	37.70%	42.70%
IF Q6a == 2 (Townhouse, Rowhouse / Fiveplex and Sixplex / Attached Duplex. Triplex, or Quadruplex / Stratified SFD, Bare Land Strata / Semi-Detached Strata Condo / Modular)	23.50%	29.30%	33.90%	35.90%	40.70%
IF Q6a == 3 (Condo - Townhouse / Mobile Home / Condo – Townhouse)	19.70%	24.70%	28.50%	30.10%	34.30%

If Q0 is from Ontario and DOES NOT begin with M2, M3, M4G, M4H, M4J, M4K, M4M, M4L, M4M, M4N, M4P, M4R, M4S, M4T, M4V, M4W, M4X, M4Y, M5, M6, M7A, M9L, M9M, M9N & Q2==1,2
(Rest of Ontario, Couple)

Age	55-59	60-64	65-69	70-74	75-79
IF Q6a == 1, 7777777 (Single Family Dwelling / Detached Duplex, Triplex or Quadruplex / Link Home / Semi-Detached)	15.03%	21.77%	30.43%	37.63%	45.23%
IF Q6a == 2 (Townhouse, Rowhouse / Fiveplex and Sixplex / Attached Duplex. Triplex, or Quadruplex / Stratified SFD, Bare Land Strata / Semi-Detached Strata Condo / Modular Home)	14.23%	20.70%	28.97%	35.77%	43.03%
IF Q6a == 3 (Condo - Townhouse / Mobile Home / Condo – Townhouse)	11.97%	17.43%	24.30%	30.10%	36.30%

If Q0 is from Ontario and DOES NOT begin with M2, M3, M4G, M4H, M4J, M4K, M4M, M4L, M4M, M4N, M4P, M4R, M4S, M4T, M4V, M4W, M4X, M4Y, M5, M6, M7A, M9L, M9M, M9N & Q2==3,4,5,6 & sex is Male
(Rest of Ontario, Single Male)

Age	55-59	60-64	65-69	70-74	75-79
IF Q6a == 1, 7777777 (Single Family Dwelling / Detached Duplex, Triplex or Quadruplex / Link Home / Semi-Detached)	23.77%	31.63%	37.63%	41.83%	48.43%
IF Q6a == 2 (Townhouse, Rowhouse / Fiveplex and Sixplex / Attached Duplex. Triplex, or Quadruplex / Stratified SFD, Bare Land Strata / Semi-Detached Strata Condo / Modular Home)	22.57%	30.03%	35.83%	39.77%	45.97%
IF Q6a == 3 (Condo - Townhouse / Mobile Home / Condo – Townhouse)	19.03%	25.30%	30.10%	33.50%	38.70%

If Q0 is from Ontario and DOES NOT begin with M2, M3, M4G, M4H, M4J, M4K, M4M, M4L, M4M, M4N, M4P, M4R, M4S, M4T, M4V, M4W, M4X, M4Y, M5, M6, M7A, M9L, M9M, M9N & Q2==3,4,5,6 & sex is Female
(Rest of Ontario, Single Female)

Age	55-59	60-64	65-69	70-74	75-79
IF Q6a == 1, 7777777 (Single Family Dwelling / Detached Duplex, Triplex or Quadruplex / Link Home / Semi-Detached)	25.37%	31.63%	36.43%	38.43%	43.43%
IF Q6a == 2 (Townhouse, Rowhouse / Fiveplex and Sixplex / Attached Duplex. Triplex, or Quadruplex / Stratified SFD, Bare Land Strata / Semi-Detached Strata Condo / Modular Home)	24.17%	30.03%	34.63%	36.57%	41.37%
IF Q6a == 3 (Condo - Townhouse / Mobile Home / Condo – Townhouse)	20.30%	25.30%	29.10%	30.70%	34.90%

If Q0 begins with V5K, V5L, V5M, V5N, V5P, V5R, V5S, V5T, V5V, V5W, V5Y, V6A, V6B, V6C, V6E, V6G, V6H, V6J, V6K, V6L, V6M, V6N, V6P, V6R, V6S, V6T, V6Z, V7G, V7H, V7J, V7K, V7L, V7M, V7N, V7P, V7R, V7S, V7T, V7V, V7W, V7X, V7T & Q2==1,2
(City of Vancouver, Couple)

Age	55-59	60-64	65-69	70-74	75-79
IF Q6a == 1, 7777777 (Single Family Dwelling / Detached Duplex, Triplex or Quadruplex / Link Home / Semi-Detached)	15.30%	22.10%	30.70%	37.90%	45.70%
IF Q6a == 2 (Townhouse, Rowhouse / Fiveplex and Sixplex / Attached Duplex. Triplex, or Quadruplex / Stratified SFD, Bare Land Strata / Semi-Detached Strata Condo / Modular Home)	14.50%	21.10%	29.30%	36.10%	43.30%
IF Q6a == 3 (Condo - Townhouse / Mobile Home / Condo – Townhouse)	12.30%	17.70%	24.70%	30.50%	36.50%

If Q0 begins with V5K, V5L, V5M, V5N, V5P, V5R, V5S, V5T, V5V, V5W, V5Y, V6A, V6B, V6C, V6E, V6G, V6H, V6J, V6K, V6L, V6M, V6N, V6P, V6R, V6S, V6T, V6Z, V7G, V7H, V7J, V7K, V7L, V7M, V7N, V7P, V7R, V7S, V7T, V7V, V7W, V7X, V7T & Q2==3,4,5,6 & sex is Male
(City of Vancouver, Single Male)

Age	55-59	60-64	65-69	70-74	75-79
IF Q6a == 1, 7777777 (Single Family Dwelling / Detached Duplex, Triplex or Quadruplex / Link Home / Semi-Detached)	24.10%	31.90%	38.10%	42.30%	48.70%
IF Q6a == 2 (Townhouse, Rowhouse / Fiveplex and Sixplex / Attached Duplex. Triplex, or Quadruplex / Stratified SFD, Bare Land Strata / Semi-Detached Strata Condo / Modular Home)	22.90%	30.30%	36.10%	40.10%	46.30%
IF Q6a == 3 (Condo - Townhouse / Mobile Home / Condo – Townhouse)	19.30%	25.70%	30.50%	33.70%	38.90%

If Q0 begins with V5K, V5L, V5M, V5N, V5P, V5R, V5S, V5T, V5V, V5W, V5Y, V6A, V6B, V6C, V6E, V6G, V6H, V6J, V6K, V6L, V6M, V6N, V6P, V6R, V6S, V6T, V6Z, V7G, V7H, V7J, V7K, V7L, V7M, V7N, V7P, V7R, V7S, V7T, V7V, V7W, V7X, V7T & Q2==3,4,5,6 & sex is Female
(City of Vancouver, Single Female)

Age	55-59	60-64	65-69	70-74	75-79
IF Q6a == 1, 7777777 (Single Family Dwelling / Detached Duplex, Triplex or Quadruplex / Link Home / Semi-Detached)	25.70%	31.90%	36.70%	38.90%	43.90%
IF Q6a == 2 (Townhouse, Rowhouse / Fiveplex and Sixplex / Attached Duplex. Triplex, or Quadruplex / Stratified SFD, Bare Land Strata / Semi-Detached Strata Condo / Modular Home)	24.50%	30.30%	34.90%	36.90%	41.70%
IF Q6a == 3 (Condo - Townhouse / Mobile Home / Condo – Townhouse)	20.50%	25.50%	29.50%	31.10%	35.10%

If Q0 is from British Columbia and DOES NOT begin with V5K, V5L, V5M, V5N, V5P, V5R, V5S, V5T, V5V, V5W, V5Y, V6A, V6B, V6C, V6E, V6G, V6H, V6J, V6K, V6L, V6M, V6N, V6P, V6R, V6S, V6T, V6Z, V7G, V7H, V7J, V7K, V7L, V7M, V7N, V7P, V7R, V7S, V7T, V7V, V7W, V7X, V7T & Q2==1,2
(Rest of British Columbia, Couple)

Age	55-59	60-64	65-69	70-74	75-79
IF Q6a == 1, 7777777 (Single Family Dwelling / Detached Duplex, Triplex or Quadruplex / Link Home / Semi-Detached)	14.50%	20.97%	29.03%	35.77%	42.97%
IF Q6a == 2 (Townhouse, Rowhouse / Fiveplex and Sixplex / Attached Duplex. Triplex, or Quadruplex / Stratified SFD, Bare Land Strata / Semi-Detached Strata Condo / Modular Home)	13.77%	19.97%	27.70%	34.03%	40.83%
IF Q6a == 3 (Condo - Townhouse / Mobile Home / Condo – Townhouse)	11.70%	16.83%	23.30%	28.70%	34.37%

If Q0 is from British Columbia and DOES NOT begin with V5K, V5L, V5M, V5N, V5P, V5R, V5S, V5T, V5V, V5W, V5Y, V6A, V6B, V6C, V6E, V6G, V6H, V6J, V6K, V6L, V6M, V6N, V6P, V6R, V6S, V6T, V6Z, V7G, V7H, V7J, V7K, V7L, V7M, V7N, V7P, V7R, V7S, V7T, V7V, V7W, V7X, V7T & Q2==3,4,5,6 & sex is Male
(Rest of British Columbia, Single Male)

Age	55-59	60-64	65-69	70-74	75-79
IF Q6a == 1, 7777777 (Single Family Dwelling / Detached Duplex, Triplex or Quadruplex / Link Home / Semi-Detached)	22.83%	30.17%	35.90%	39.77%	45.83%
IF Q6a == 2 (Townhouse, Rowhouse / Fiveplex and Sixplex / Attached Duplex. Triplex, or Quadruplex / Stratified SFD, Bare Land Strata / Semi-Detached Strata Condo / Modular Home)	21.70%	28.70%	34.03%	37.77%	43.50%
IF Q6a == 3 (Condo - Townhouse / Mobile Home / Condo – Townhouse)	18.23%	24.17%	28.77%	31.77%	36.63%

If Q0 is from British Columbia and DOES NOT begin with V5K, V5L, V5M, V5N, V5P, V5R, V5S, V5T, V5V, V5W, V5Y, V6A, V6B, V6C, V6E, V6G, V6H, V6J, V6K, V6L, V6M, V6N, V6P, V6R, V6S, V6T, V6Z, V7G, V7H, V7J, V7K, V7L, V7M, V7N, V7P, V7R, V7S, V7T, V7V, V7W, V7X, V7T & Q2==3,4,5,6 & sex is Female
(Rest of British Columbia Single Female)

Age	55-59	60-64	65-69	70-74	75-79
IF Q6a == 1, 7777777 (Single Family Dwelling / Detached Duplex, Triplex or Quadruplex / Link Home / Semi-Detached)	24.37%	30.17%	34.70%	36.63%	41.30%
IF Q6a == 2 (Townhouse, Rowhouse / Fiveplex and Sixplex / Attached Duplex. Triplex, or Quadruplex / Stratified SFD, Bare Land Strata / Semi-Detached Strata Condo / Modular Home)	23.10%	28.70%	32.97%	34.77%	39.30%
IF Q6a == 3 (Condo - Townhouse / Mobile Home / Condo – Townhouse)	19.43%	24.10%	27.83%	29.30%	33.10%