Department of Finance
Ministère des Finances

Working Paper
Document de travail

Financial Literacy and Retirement Saving

by

Katharine Mullock and Julie Turcotte*
Economic Studies and Policy Analysis Division,
Department of Finance

Working Paper 2012-01

January 2012

* The authors would like to thank, without implication, Claude Lavoie, Benoît Robidoux, and Jim Haley, as well as participants in a workshop at the Department of Finance, for insightful comments and suggestions. Any and all errors are the responsibility of the authors.

Authors' e-mail addresses: Katharine.Mullock@fin.gc.ca; Julie.Turcotte@fin.gc.ca

Abstract

This paper assesses the financial literacy of Canadians and its role in fostering sound retirement saving decisions, drawing on data from the 2009 Canadian Financial Capability Survey (CFCS). It finds that working-age Canadians face some challenges with respect to financial matters, with an average score of 61 per cent on a 14-question quiz testing financial knowledge. While Canadians display a good knowledge of basic financial concepts, they have trouble with more complex financial issues such as evaluating investment and inflation risks. Moreover, some segments of the Canadian population tend to have below-average financial literacy, including Aboriginals, recent immigrants, the unemployed, less-educated individuals and those in low-income households.

The study finds that individuals who score higher on the financial literacy quiz are more likely to save for retirement and to know how much they need to reach their retirement goals. Moreover, the impact of financial literacy on retirement saving behaviour is stronger among lower and middle-income groups. Estimates based on an Instrumental Variables approach also support the view that financial literacy exerts a causal influence on retirement saving behaviour. This implies that promoting financial literacy is effective in increasing the chances that individuals will make sound decisions about retirement saving and planning.

Résumé

Ce document de recherche évalue le niveau de littératie financière des Canadiens et son rôle dans l'adoption de décisions éclairées concernant l'épargne retraite, sur la base des données de l'Enquête Canadienne sur les Capacités Financière (ECCF) de 2009. Il trouve que les Canadiens en âge de travailler font face à certains défis en matière de questions financières, ceux-ci obtenant une note moyenne de 61 pourcent sur un ensemble de 14 questions objectives visant à évaluer les connaissances financières. Bien que les Canadiens montrent une bonne connaissance des concepts financiers de base, ceux-ci ont plus de difficultés à traiter d'enjeux financiers plus sophistiqués tel que les risques d'investissements et d'inflation. Par ailleurs, certains groupes de la population Canadienne sont plus susceptibles de démontrer un niveau de littératie financière inférieur à la moyenne, incluant les Autochtones, les nouveaux immigrants, les individus sans emplois, les individus moins scolarisés, et ceux vivant dans des familles à revenu moins élevés.

Cette étude trouve que les individus qui obtiennent une note élevée au questionnaire sur la littératie financière sont plus susceptibles d'épargner pour la retraite et d'avoir une idée du montant d'argent nécessaire à maintenir leur niveau de vie au moment de cette retraite. De plus, l'impact de la littératie financière sur les comportements en matière de préparation à la retraite est plus marqué pour les groupes d'individus à revenus relativement faibles et moyens. Les estimés basés sur une méthode utilisant des variables instrumentales suggèrent également que la littératie financière exerce une influence causale sur les comportements en matière d'épargne retraite. Ces résultats suggèrent que la promotion d'une meilleure littératie financière est un outil efficace afin d'accroître les chances que les individus adopteront des décisions éclairées en matière de préparation et d'épargne pour la retraite.

1. Introduction and Summary

Research conducted on the issue of retirement income adequacy has raised questions about the level of financial literacy of Canadians. Horner (2009) finds that a significant minority of Canadians fail to save adequately for their retirement, while Jog (2009) and Whitehouse (2010) show that Canadian investors often make poor investment choices with their retirement savings.

Financial literacy empowers individuals to make the best financial decisions in their particular circumstances and is important for ensuring a strong and stable financial system.[1] The Government established a national Task Force on Financial Literacy in Budget 2009. The Task Force submitted its report in February 2011.[2] It made several recommendations, including a proposal for a national strategy to support initiatives aimed at improving the financial literacy of Canadians. Budget 2011 announced that a Financial Literacy Leader would be appointed to promote national efforts and allocated additional funding to advance financial literacy initiatives.

This paper assesses the financial literacy of Canadians and its role in fostering sound retirement saving decisions. We draw on data from the recently released 2009 Canadian Financial Capability Survey (CFCS), which show that working-age Canadians face some challenges with respect to financial matters, with an average score of 61 per cent on a 14-question quiz testing financial skills and knowledge. While Canadians display a good knowledge of basic financial concepts, they have trouble with more sophisticated financial issues such as evaluating investment and inflation risks. Moreover, the overall results mask some important differences across segments of the Canadian population. Some groups are more likely to have below-average financial literacy, including Aboriginals, recent immigrants, the unemployed, less-educated individuals, and individuals from lower-income households.

The survey also shows that about one in five working-age Canadians are not saving for retirement, and that only half of the remaining 80 per cent know how much they need to save to maintain their desired standard of living in retirement.

In this respect, we construct an index of financial literacy which is found to strongly predict individuals' retirement saving behaviour, even after controlling for socio-demographic characteristics. Our multivariate analysis suggests that raising an individual's literacy score to the level of the most literate group (from the level of the least literate group) increases the probability of saving for retirement by 10 per cent. Furthermore, for those who are saving for retirement, the same increase in financial literacy is associated with a 30 per cent increase in the probability of knowing how much saving is needed to attain one's retirement goals.

[1] A stable financial system depends on its users to make informed decisions, particularly when managing the risk associated with using credit. Gerardi, Goette, and Meier (2010) find, for example, that limitations in financial literacy may have played an important role in the subprime mortgage crisis in the United States.
[2] Task Force on Financial Literacy, "Leveraging Excellence: Charting a course of action to strengthen financial literacy in Canada," February 2011.

The impact of higher financial literacy on retirement saving behaviour differs across income groups. Raising literacy has a greater influence on the planning and saving behaviour of individuals in the lower income family groups than on that of individuals in the higher income family groups. We also found that for those saving for retirement, financial literacy has a larger positive impact on the probability of knowing how much to save to maintain one's desired standard of living for middle-income individuals than for individuals of other income groups.

Finally, we found that the positive relationship between financial literacy and retirement saving behaviour holds when we control for potential reverse causality using an Instrumental Variables approach. Indeed, estimates from that approach support the view that financial literacy exerts a causal influence on retirement saving behaviour, with the magnitudes of these estimated causal effects possibly even larger than those obtained from our standard econometric analysis.

The rest of this paper is laid out as follows. In section 2 we describe our data set. Section 3 discusses how we measure financial literacy and provides a snapshot of the financial literacy level of Canadians. We discuss the retirement saving behaviour of Canadians in section 4 and report the results of our empirical work examining the impact of financial literacy on retirement saving. In section 5, we perform several sensitivity checks to ensure that our results are robust to different specifications and samples. We conclude in section 6.

2. An overview of the Canadian Financial Capability Survey

To explore the issue of financial literacy and retirement saving, we use data from the Canadian Financial Capability Survey (CFCS). The CFCS was designed to provide rich and detailed information about Canadians' knowledge, abilities and behaviours concerning financial decision-making. It is a nationally representative survey which collected information from 15,519 individuals aged 18 or older living in private households.[3] The survey was conducted between February and May 2009 and questions refer to the 12 months before the time of collection.

Questions in the survey can be categorized into four major domains of financial capability[4]:

- *Managing Money* measures the ability of Canadians to keep up with bills and payments and the degree to which they keep track of their finances (including day-to-day or recurring expenses, and short-term financial activities).
- *Saving Ahead* measures the extent of saving for major expenses, post-secondary education, and retirement.

[3] One person per household was sampled using Random Digit Dialing (RDD). Due to the nature of the RDD approach, several groups were excluded from the survey: those without home land-line telephones, including those without homes or those who only had access to a cell phone. Residents of institutions (e.g. prisons, hospitals, group homes, retirement homes) and residents of the Yukon, the North West Territories and Nunavut were also excluded.

[4] These four domains were identified by exploratory research in the U.K. (Kempson et al., 2005). The design of the Canadian survey has largely adopted this framework.

- *Choosing Products* asks questions concerning financial choices and approaches taken toward the purchase of financial products.
- *Staying Informed* covers questions measuring the extent to which Canadians are monitoring their current economic environment.

The questionnaire also asks respondents to subjectively assess their comfort level with financial decisions/information and to respond to a 14-question multiple choice quiz testing their skills and knowledge in regards to financial matters. And, of particular importance for our purposes, the survey collected selected information about respondents' personal characteristics and socio-economic circumstances, including their labour force status, income, and household assets and debts.

In this paper, we focus on a specific sub-sample of the population: labour force participants between the ages of 25 and 64. This sub-group was chosen because they are of working-age and are likely to make financial preparations for retirement. Our sample comprises 58 per cent of the full sample.[5]

3. Measuring financial literacy

The Task Force on Financial Literacy defines *financial literacy* as "having the knowledge, skills and confidence to make responsible financial decisions."[6] In the context of our analysis, we adopt this definition, but focus more narrowly on the knowledge of financial concepts. In this section we describe how we construct an indicator of financial literacy based on the CFCS.

There are two main approaches to measuring financial literacy. The first is to ask respondents for a self-assessment of their financial understanding and knowledge. The second is to conduct a quiz in which respondents are tested on their knowledge and understanding of financial terms. Given the obvious potential biases associated with self-assessment, the latter approach is a more effective way to measure financial literacy and is the approach that we use.

In this respect, the CFCS is the first nationally-representative survey to include questions to measure and evaluate the financial literacy of Canadians. The 14-question multiple choice quiz was designed based on a variety of similar international surveys on financial literacy, including British and Dutch surveys[7], as well as American sources such as the JumpStart Program and elements in the Health and Retirement Study. However, most questions are unique to the CFCS, making cross-country comparisons difficult. Annex 5 lists the exact wording of each question, along with the scoring rubric used to grade respondents.

[5] Of the 42% of the full sample which is excluded from our analysis, 32% are not in the labour force but between the ages of 25-64, 20% are outside the ages of 25-64 but in the labour force, and 48% are both out of the labour force and outside the ages of 25-64.

[6] www.financialliteracyincanada.com

[7] The U.K. Baseline Survey of Financial Capability (2007) and the De Nederlandsche Bank survey conducted for the NBER (2007).

Table 1: Responses to the Financial Literacy Quiz, CFCS

Question/Description	Correct (%)	Incorrect (%)	Do not know or not stated (%)
Effects of Inflation			
Impact of inflation on savings (Q1)	61	12	27
Household groups most vulnerable to inflation (Q7)	50	36	14
Functioning of Credit and Debt			
Knowledge of what a credit report is (Q2)	40	40	20
Costs/benefits of borrowing (Q10)	24	47	30
Factors that affect credit rating (Q12)	83	6	11
Factors that affect amount of interest on a loan (Q13)	65	22	12
Factors that affect the cost of housing (Q14)	81	6	13
Investment Risk and Return			
Understand that no one insures the stock market (Q3)	32	36	31
Types of taxation on savings account interest (Q6)	56	21	23
Risks associated with different savings options (Q8)	60	23	17
How to protect savings from the impact of inflation (Q9)	35	33	32
Other			
Understand how unit pricing works (Q4)	68	18	14
Factors affecting cost of life insurance (Q5)	73	14	13
Understand that ATM cards have a fee (Q11)	67	18	15

The Canadian quiz covers broad financial topics ranging from the effects of inflation (questions 1 and 7), the functioning of credit and debt (questions 2, 10, 12, 13, and 14), the role of the stock market and investment risk and return (questions 3, 6, 8 and 9), insurance needs (questions 5), as well as the functioning of unit pricing[8] (question 4) and ATM cards (question 11). Concepts covered by these questions lie at the basis of financial transactions and financial decision-making. Responses to these questions are reported in Table 1.

On the one hand, results suggest that Canadians display good knowledge of a few specific financial concepts such as unit pricing, the fees associated with the use of ATMs, and basic factors affecting the cost of life insurance. Slightly more than two-thirds of respondents answer each of these individual questions correctly. Canadians also seem to have a good understanding about how credit works. For instance, 81 per cent understood that paying a higher down payment will lower the cost of financing a house purchase and

[8] Unit pricing is a valuation method that provides the cost of a product per unit of weight or volume. This allows for easy comparison between products that may be sold in multi-unit packages. The price per unit is usually posted on the shelf below the food item, along with total price (item price).

83 per cent could identify the relationship between payment performance and credit ratings.

On the other hand, few respondents were able to identify what a credit report is (60 per cent answered incorrectly) and under which circumstances borrowing could be financially beneficial (76 per cent answered incorrectly). Canadians also have trouble in correctly answering more sophisticated questions about investment risks/returns and inflation: 48 per cent were unaware that the stock market is not insured; 65 per cent did not understood how to best protect investments against the impact of inflation; 50 per cent were unable to identify financial conditions that make households more sensitive to inflation; and 40 per cent provided an incorrect answer to questions related to the riskiness of different assets and on the impact of inflation on savings.

Overall, these results suggest that, while many respondents have a basic knowledge of a few simple financial concepts, most Canadians do not have a good understanding of more complex financial concepts, particularly those related to investment and inflation risks. These findings echo the general results found in the U.K. and U.S. surveys.

We compute a financial literacy index to classify respondents according to their level of understanding about financial concepts. This is done by assigning one point for correct answers and zero points for wrong answers or when the respondent indicated that they did not know the answer.[9] The distribution of the scores is presented in Chart 1. Results suggest that while many respondents answer specific questions correctly, few of them answered most questions correctly. For instance, about a quarter of respondents (22 per cent) answered less than half of the questions correctly and only 29 per cent answered more than 10 questions correctly out of the 14. These points were summed across the 14 questions and rescaled into a percentage score. Each question is given an equal weight in the score. The average score on the objective quiz is 61 per cent for our sample.[10]
Using our index of financial literacy we compared individuals' scores against socio-demographic variables such as education, age, and gender (Table 2). The level of financial knowledge follows expected patterns across economic and socio-demographic characteristics. Financial literacy scores were found to rise with education. For instance, as showed in the final column of Table 2, the mean score of individuals without a high school degree is 49 per cent compared with a mean score of 64 per cent among individuals with a post-secondary degree or diploma. Nevertheless, about a quarter of

[9] We also tested a measure that distinguished wrong answers (subtracting a point) from "do not know" responses (assigning zero points). We found that this alternative measure yielded very similar results to the measure we employ.

[10] In the U.S., the average score on a financial literacy test included as part of the Survey of Consumers was 67%; in the U.K. Baseline survey, the average score was 76%. It is important to note, however, that quiz questions vary substantially across surveys. For example, the U.K. Baseline survey included only five questions, none of which related to inflation, credit, or risk. Instead, they focused narrowly on whether respondents could accurately read a bank statement or identify the best performing investment fund from a simple graph. While the U.S. Survey of Consumers covered more sophisticated financial concepts, its True/False format may be easier to respond to than the multiple choice format employed by the CSFC. Finally, some questions in the CFSC are focused on specific concepts such as an understanding of unit pricing and fees associated with ATM cards rather than broad financial knowledge.

individuals with a post-secondary education are in the lowest category of financial literacy, suggesting that while strongly correlated, education is only an imperfect proxy for financial literacy. Higher financial literacy is also positively associated with income. Mean financial literacy scores are fairly similar across age and gender groups, although men and older individuals are slightly more concentrated in the highest financial literacy group. Interestingly, the self-employed scored higher than paid employees, possibly indicating that the self-employed develop financial literacy skills on-the-job by bearing more direct responsibility for financial decision-making. Financial literacy is lower among Aboriginals and recent immigrants. This suggests that individuals may learn as they integrate into the Canadian economy and the labour market. Financial literacy is also lower among respondents with a first language other than English or French, which may reflect a language barrier as the test was only available in English or French. As one would expect, being the person most knowledgeable about financial matters in the household is also associated with higher financial literacy scores. Most of these correlations were found to hold when using an OLS multivariate regression analysis (Table A.1.1, Model 1, Annex 1).

Chart 1: Sample Distribution of Scores on the Financial Literacy Quiz

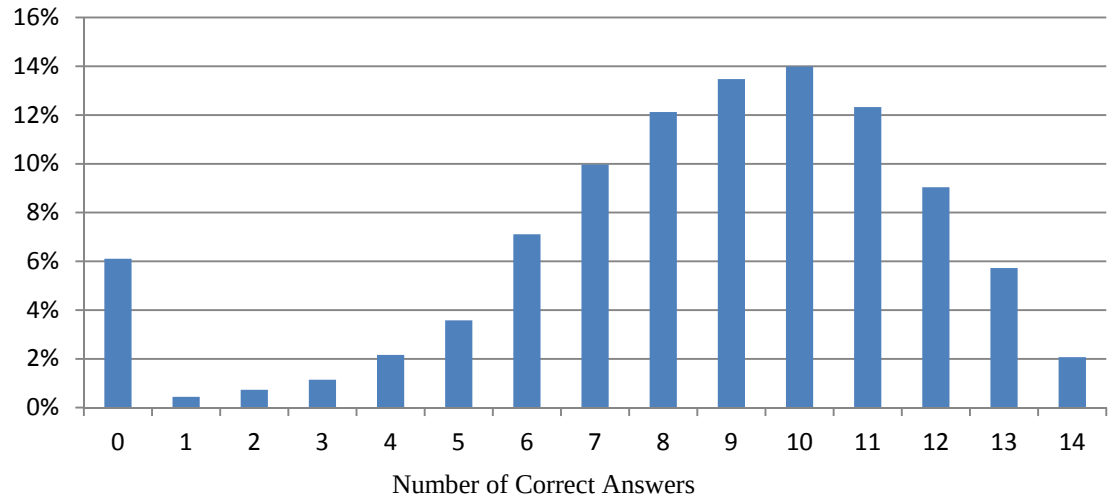

Table 2: Average financial literacy score and distribution across financial literacy score groups, by selected characteristics

	All individuals		Distribution by Financial Literacy Score Groups			
	Share among all individuals (%)	Average Financial Literacy Score (%)	Top Group (85-100%) (%)	Third Group (71-79%) (%)	Second Group (57-64%) (%)	Bottom Group (0-50%) (%)
Total	**100**	**61**	**17**	**26**	**26**	**31**
Gender	**100**					
Male	53	62	20	27	24	29
Female	47	59	13	25	28	34
Age group	**100**					
25 to 34	26	59	13	27	27	34
35 to 44	28	60	17	24	28	31
45 to 54	31	62	19	27	24	30
55 to 64	15	62	20	27	22	30
First Language	**100**					
English or French	81	63	19	29	26	27
Other	19	51	9	17	24	50
Labour Force	**100**					
Paid Employee	78	61	17	27	26	31
Self-Employed	14	64	22	29	23	26
Unemployed	8	54	9	19	28	44
Educational Attainment	**100**					
Less than high school	9	49	3	14	28	55
High school	20	55	8	22	30	40
Some post-secondary	10	62	16	30	27	27
Post-sec cert. or diploma	62	64	22	29	24	26
Housing	**100**					
Renters	23	57	10	24	29	37
Homeowner with mortgage	54	63	19	27	26	28
Homeowner w/out mortgage	22	63	20	28	23	28
Family Type						
Couple with children	47	61	18	26	25	31
Couple without children	27	62	19	27	25	30
Lone parent	6	58	13	25	28	35
Unattached individual	19	60	13	27	27	33
Immigration Status	**100**					
Born in Canada, not Aboriginal	74	64	19	29	26	26
Born in Canada, Aboriginal	3	53	9	20	28	44
Immigrated before 1980	6	62	19	29	22	30
Immigrated b/w 1980-1999	10	52	11	17	23	49
Immigrated since 1999	7	47	7	14	24	54
Pension Status	**100**					
Neither RRSP or RPP	20	54	7	20	28	46
RRSP only	57	65	19	30	26	25
RPP only	2	63	18	24	33	26
Both RRSP and RPP	15	68	26	30	25	20
Person Most Knowledgeable?	**100**					
Yes	74	62	18	28	25	29
No	26	57	14	23	27	37
Household Income Group	**100**					
Bottom group ($0-50,000)	27	54	10	20	27	43
Second group ($50-80,000)	24	59	13	27	27	34
Third group ($81-120,000)	25	63	19	29	25	27
Top group ($121,000+)	24	67	27	30	23	20
Mean net worth	$480,700	-	$714,200	$515,200	$354,800	$354,000
N (weighted)	15,148,400	-				

Sample: Labour force participants age 25-64.

The CFCS survey also asks respondents to identify the importance of different sources of financial investment information (Table 3). Financial advisors and knowledgeable friends were the top two sources most commonly listed as influential to investment decisions. Respondents with high financial literacy scores were more likely to identify formal sources of information such as financial advisors, print media, and internet as important. Those in the lowest financial literacy score group were more than twice as likely as those in the top two groups to say that they did not identify any source of information as influential to their investment decisions. This is consistent with results found in the Netherlands and the U.S.[11] Differences in the sources of information consulted could be one channel through which financial literacy affects financial decision-making, including retirement saving.

Previous studies, including Kotlikoff and Bernheim (2001) and Lusardi and Tufano (2009), have shown that individuals often exaggerate their level of financial literacy. This is an important issue in the context of retirement saving, as overconfidence about financial sophistication could be associated with excessive risk-taking or poor decision-making in general. These individuals may also be less inclined to seek out financial advice, believing themselves to be well-informed.

In this regard, a comparison of respondents' self-assessments about financial literacy with their responses to the objective financial quiz reveals that some subgroups of the Canadian population are more likely to have mistaken beliefs. Under the assumption that the score accurately measures financial literacy, results suggest that Aboriginals, immigrants, less-educated individuals, and younger respondents are more at risk of being overconfident. Detailed results can be found in Annex 2.

Table 3: Sources of information identified as important to making financial decisions, by financial literacy score group

	Source of Information identified as important (%)					
	Financial Advisor	Friend	Print	Internet	Radio or Television	None
Financial Literacy Score:						
Top Group (85-100%)	65	47	36	38	20	5
Third Group (71-79%)	64	50	30	29	22	7
Second Group (57-64%)	58	50	26	24	21	9
Bottom Group (0-50%)	41	37	20	17	20	17
Total	**56**	**45**	**27**	**25**	**21**	**10**

Sample: Labour force participants age 25-64.

[11] For instance, see Van Rooj et al (2007) and Lusardi and Mitchell (2005).

4. Financial literacy and its relationship with retirement saving behaviour

Recent work of Horner (2009) and LaRochelle-Côté et al (2008a, 2010) suggest that some Canadians are failing to save adequately for retirement. One explanation for this phenomenon is the complexity of formulating a retirement saving plan, which requires competencies in financial numeracy, knowledge of fundamental economic and financial concepts, an understanding of Canada's retirement income system, as well as adequate information about financial vehicles available to them (including their employer pension plan).[12]

To assess this issue, we use the CFSC to examine the link between financial literacy and retirement saving. We pose the question: are individuals with stronger financial literacy also more likely to display healthier retirement saving behaviour?

Measurement of retirement saving

The CFCS asked non-retired respondents the following two questions about their retirement saving behaviour:

1) *Are you financially preparing for your retirement either on your own or through an employer pension plan?*
2) *Do you have a good idea of how much money you will need to save to maintain your desired standard of living when you retire?*

Survey responses indicate that about 80 per cent of respondents answered that they are financially preparing or "saving" for their retirement. However, only about 40 per cent of respondents, or only half of these 80 per cent of respondents who are saving, said that they knew how much they would need to save to maintain their desired living standards in retirement.

Developing a well-articulated financial plan is likely to improve saving behaviour and to reduce uncertainties about one's ability to generate adequate income at retirement. For example, in formulating a plan, individuals may discover that it is impossible to achieve their current goal of retiring at a specific age with a certain level of income under their existing saving strategy. Indeed, following a retirement savings plan has been shown to be an important indicator of future retirement wealth.[13] Lusardi and Mitchell (2007)

[12] A number of studies (Gustman and Steinmeier, 1999, 2004, Mitchell, 1988, Schellenberg and Ostrovsky, 2008, Morissette and Zhang, 2004) suggest that workers display limited knowledge of public pension rules and of their pension benefits. The CFCS suggests that about 20% of respondents covered by a RPP did not know how many workplace pensions they were entitled to or whether their workplace pension was a defined-benefit or a defined-contribution plan.

[13] Studies from the U.S. (Lusardi, 1999 and 2003, Ameriks et al, 2003, Lusardi and Mitchell, 2007) show that households who give some thought to retirement and/or who spend time developing financial plans and monitoring spending tend to arrive at retirement with much higher wealth levels. One way in which better planning may affect wealth is by increasing the rate of return on assets. For instance, those who are more likely to plan may also be more likely to invest in high-return or tax-favoured assets (Lusardi, 2003). Another way in which planning may increase wealth is by acting as an instrument of self-control. This is

show that, after accounting for socio-demographic factors, planning for retirement is associated with accumulating 13 per cent more in wealth relative to those who do not plan. Survey results from the CFSC also suggest that there is a strong positive correlation between undertaking financial retirement planning and being confident in one's ability to maintain living standards at retirement (detailed results are presented in Annex 3). Attitudes towards savings and expectations of financial requirements are therefore important in determining retirement saving behaviours. To distinguish the different attitudes toward retirement saving, we divide respondents into three subgroups based on their responses to the previously-mentioned retirement saving behaviour questions:

- *Proactive Savers* (those who report to be financially preparing for retirement and to have a good idea about how much savings they need to maintain their desired standard of living in retirement);
- *Naïve Savers* (those who claim to be financially preparing for retirement but do not have a good idea about how much savings they need to maintain their desired standard of living in retirement), and;
- *Non-Savers* (those who are not financially preparing for retirement and are not aware of how much they would need to save to maintain their desired standard of living in retirement).

Among our sample, 39 per cent of respondents are *Proactive Savers,* 38 per cent are *Naïve Savers*, and 18 per cent are *Non-Savers*.[14] These subgroups, while ad hoc, nonetheless seem to be a sensible categorization of the patterns of retirement saving behaviour we observe in the underlying data. This broad measure of "retirement saving behaviour" should not only capture the act of regularly setting aside money through pension vehicles, but also more general activities such as developing a financial plan or paying down debts.

We report descriptive statistics for our three retirement saving behaviours in Table 4. Looking at the pattern of responses across socio-demographic characteristics, the results show that a lack of retirement saving is evident across most socio-economic groups. These results reinforce other Canadian and U.S. studies, including Ostrovsky and Schellenberg (2008) and Lusardi (2005), which found that many individuals have given little thought to retirement even among high-income, highly-educated, or older age groups. As might be expected, scores on the financial literacy quiz appear to be correlated with retirement saving behaviour. On average, *Proactive Savers* scored 67 per cent on the quiz while *Naïve Savers* scored 61 per cent and *Non-Savers* scored only 55 per cent (second row, Table 4).

---

supported by the findings of Ameriks, Caplin, and Leahy (2003) that those who plan are better able to control consumption because they can better monitor their expenses and correct themselves when they have gone above budget. Also, planners may be more likely to pay down their mortgage debts quickly in order to build equity and free up money for retirement. In support of this possibility, data from the CFCS suggest that there is a positive correlation between housing equity and retirement planning behaviour.

[14] The remaining 5% were either aware of how much they need to save but were not saving, or did not state their saving status. These individuals are excluded from the following subgroup analysis.

Model of retirement saving behaviour

In order to identify the impact of underlying characteristics on retirement saving behaviour, we estimate an ordered logit model of subgroup membership. An ordered logit model is employed because our dependent variable has three response categories, each representing a successive improvement in saving behaviour. Specifically,

$$Prob(Y_i=0) = \Phi(-\beta_j \chi_i),$$
$$Prob(Y_i=1) = \Phi(\kappa_1 - \beta_j \chi_i) - \Phi(-\beta_j \chi_i),$$
$$Prob(Y_i=2) = \Phi(\kappa_2 - \beta_j \chi_i) - \Phi(\kappa_1 - \beta_j \chi_i).$$

Where $P(Y_i=j)$ is the probability that individual i belongs to subgroup j $(j=0,1,2)$ corresponding to the respective subgroups *Non-Savers*, *Naïve Savers*, and *Proactive Savers*. The κ's are unknown threshold parameters that determine to which subgroups an individual belongs. They are estimated along with the vector of parameters, β_j. Moreover, χ_i is a vector of factors assumed to be related to an individual's retirement saving behaviour, including financial literacy score, socio-demographic characteristics (age, gender, foreign-born status), educational attainment, family type, labour force status, household income, homeownership status, and whether the respondent is the person most knowledgeable about household finances. We also include a series of indicator variables to control for the province of residence, but do not report the coefficients for these variables.

We are particularly interested in whether the positive relationship between retirement saving behaviour and the level of financial literacy is statistically significant and economically meaningful when other potential determinants are considered.

Estimated coefficients from the ordered logit regression are reported in Table 5. A positive coefficient implies an increase in the likelihood of being in a higher sub-group. Consistent with the bivariate relationships we noted, the likelihood of saving for retirement is higher for individuals with a higher financial literacy score. However, the size of the coefficient on financial literacy is reduced by half when other control variables are included (Table 5, Models 1 and 2), indicating that characteristics that are associated with higher financial literacy are also associated with saving for retirement. For ease of interpretation, Table 6 displays results from the multivariate model in terms of the predicted probability of a specific saving type (e.g. being a *Proactive Saver, Naïve Saver*, or *Non-Saver*) across the categories of an independent variable (holding all other control variables constant). By definition, these three predicted probabilities sum to one. For example, an average individual who falls in the second lowest group of financial literacy has a 37 per cent likelihood of being a *Proactive Saver*, a 47 per cent likelihood of being a *Naïve Saver*, and a 16 per cent likelihood of being a *Non-Saver*. This means that an average individual in the second lowest group of financial literacy has an 84 per cent likelihood of saving for retirement (sum of likelihood of being a *Proactive Saver* or a *Naïve Saver*). Furthermore, for those who are saving for retirement, being in the second lowest financial literacy group is associated with a 44 per cent likelihood of knowing how much saving is needed to attain one's retirement goals (Column 4 shows the conditional

probability of being a *Proactive Saver* that is derived by dividing the probability of being a *Proactive Saver*, 37 per cent, by the probability of saving for retirement, 84 per cent). Results that are significant at the 5%-level or lower are discussed below.

Financial literacy is an economically meaningful determinant of retirement saving behaviour in our model, even when controlling for other covariates.[15] Evaluated at the means of all the other socio-demographic variables, a rise from the lowest group (0 to 50 per cent) to the top group (85 per cent to 100 per cent) in financial literacy scores is associated with a 10 per cent increase in the probability of saving for retirement (from 81 to 89 per cent). Among those who are saving for retirement, moving from the least literate to the most literate group is also associated with a 30 per cent increase in the likelihood of knowing how much saving is needed to attain one's retirement goals (from 40 to 52 per cent). These results suggest that financial literacy promotes retirement preparation and reduces some of the complexity involved in formulating a retirement savings plan. Despite some small methodological differences, our results are qualitatively consistent with those of Yoong (2010), a study which also uses the CFCS and finds that financial literacy significantly and positively predicts whether an individual is financially preparing for retirement.[16] Unlike Yoong's study, we not only assess whether financial literacy facilitates retirement saving, but also whether financial literacy impacts the quality of retirement saving behaviour by taking into account whether an individual knows how much they need to save to reach their retirement goals.

Results also reveal that the impact of higher financial literacy on retirement saving behaviour differs across income groups (Table 7). We find that financial literacy has a greater impact on individual retirement planning and saving at lower income ranges. Moving from the least literate to the most literate group is associated with a 23 per cent increase in the probability of saving for retirement (from 60 to 74 per cent) for the lowest income group. This compares with a rise of 8 per cent for the second lowest income group (from 83 to 90 per cent), and practically no impact for the highest income group (from 95 to 96 per cent). We also found that, among those who are saving for retirement, higher financial literacy scores improve the probability of knowing how much one needs to save to reach one's retirement goals, especially for the low to middle-income groups. For instance, moving from the least literate to the most literate group is associated with about a one third increase in the probability of knowing how much one needs to save to reach one's retirement goals for the lowest three income groups compared with an 11 per cent increase for the top income group.

[15] We also test the model using a quadratic term in financial literacy instead of grouped categories. We find that the results remain generally the same and that the coefficients on the other variables are negligibly affected by this alternative financial literacy measure.

[16] Yoong performs a logistic regression, with a dichotomous dependent variable for whether individuals financially plan or not for retirement. Since our dependent variable has three response options rather than two, we use an ordered logit regression instead. We also restrict our sample to labour force participants between the ages of 25 and 64, whereas Yoong uses the entire sample. The set of control variables used in either study is similar, but we exclude private pension membership and include homeownership status and whether the respondent is the person most knowledgeable about household finances.

Several other variables are also important determinants of sound retirement saving behaviour. As one would expect, age and employment status are positively correlated with the likelihood of saving for retirement, and even more strongly with the probability of knowing how much one needs to save to reach one's retirement goals, conditional on saving. There is also a strong positive relationship between household income and retirement saving behaviour. In particular, moving from the lowest to the highest group in household income is associated with a 23 per cent increase in the likelihood of saving for retirement (from 75 to 92 per cent). Individuals in the top household income group are also almost twice as likely to be aware of how much they need to save to meet their retirement needs as those in the bottom income group (60 vs. 33 per cent). This is consistent with the fact that the replacement rate from public pension benefits declines with pre-retirement income, requiring higher-income individuals to save more on their own for retirement (including through RPPs).

Having less than a high-school diploma reduces the probability that an individual saves for retirement by 18 per cent relative to those who have a post-secondary degree or diploma (74 vs. 87 per cent). This result suggests that either highly educated individuals are better financial planners or education may be a proxy for personal attributes such as patience, diligence, or other factors associated with having a low discount rate. For those saving for retirement, having less than a high-school diploma is also associated with a 50 per cent lower likelihood of being a *Proactive Saver* rather than a *Naïve Saver* (32 vs. 48 per cent), suggesting that higher education is also correlated with being better informed about future retirement needs.

The relationship between homeownership – specifically, mortgage-free homeownership – and retirement preparedness is noteworthy, even when household income and age are taken into account. Homeowners without a mortgage have a 4 per cent higher likelihood of saving for retirement than homeowners with a mortgage (88 vs. 85 per cent). Conditional on saving for retirement, homeowners with a mortgage are also 18 per cent less likely to be informed about how much savings they need to attain their retirement goals (52 vs. 44 per cent). Homeowners without a mortgage have a higher probability of saving for retirement (9 per cent) and of being aware of how much one needs to save to reach one's retirement goals (30 per cent) relative to renters. It should be noted that the impact of homeownership might reflect unobservable characteristics, such as a greater propensity to save.[17]

An immigrant's arrival date in Canada is associated with the probability of saving for retirement. Native-born Canadians are 11 per cent more likely to save for retirement than are immigrants who entered since 2000 (85 vs. 76 per cent).[18] However, this difference

[17] To test whether homeownership is highly correlated with other independent variables, we tried excluding it from the regression. The coefficients on the other independent variables are not much affected, suggesting that multicollinearity is not significant. We leave it to future work to determine how to better model the unobservable propensity to save.

[18] For the purpose of our analysis, we chose 2000 as the year threshold to distinguish recent immigrants from earlier immigrants. This is consistent with Picot, Garnett and Hou (2003) and Picot and Sweetman (2005) who show that immigrants in Canada for longer than ten years were typically found to have low-income rates that more closely resemble the Canadian-born population.

drops to only 2 per cent when compared with immigrants who arrived before 2000 (85 vs. 83 per cent). This lower likelihood of retirement saving among recent immigrants is consistent with other Canadian studies which find that the labour market outcomes of recent immigrant have deteriorated relative to the Canadian-born or earlier immigrant cohorts (e.g. Frenette and Morissette (2003), Picot and Sweetman (2005)). Low past and expected earnings may make it difficult to save for retirement. Interestingly, when controlling for factors like income and employment, Aboriginal and non-Aboriginal native-born Canadians have the same likelihood of saving for retirement.

5. Sensitivity Analysis and Robustness Checks

In this section, we pursue some robustness checks to support the finding that financial literacy is an important determinant of retirement saving. First, we test whether these results are robust to a variety of alternative samples and specifications of the model. For instance, to verify that the results hold for individuals who are expected to rely heavily on their own savings at retirement, we limit the sample to respondents earning more than $30,000 in annual income. This is approximately the threshold at which replacement rates from public pension benefits start to decline.[19] We also limit the sample to respondents who do not have an RPP. Since having an RPP grants automatic membership into *Proactive Saver* or *Naïve Saver* groups, we want to confirm that the relationship between financial literacy and retirement saving holds even for individuals who are responsible for making their own preparations for retirement. The results are not affected by either of these sample modifications (see Table A.4.1, Models 1 and 2, Annex 4).

We also use an alternative measure of retirement preparedness to test the sensitivity of our results to the definition of the dependent variable. We create a private pension variable that distinguishes between respondents who state that they have both an RPP and an RRSP, those who have only an RPP, those who have only an RRSP and those who have neither. The key result that retirement saving behaviour is influenced by financial literacy is not affected by this alternative measure (see Table A.4.1, Model 3, Annex 4).

Multicollinearity can sometimes result from strong correlation between two exogenous (right-hand side) variables, e.g. between financial literacy and some control variables such as education or income groups. A high degree of multicollinearity inflates standard errors and would make our estimate of the impact of financial literacy on retirement saving behaviour volatile. One approach to detect if multicollinearity is present in the model is to assess whether there are large changes in the estimated regression coefficients when a predictor variable is added or deleted. In the presence of strong multicollinearity, the coefficient estimates would tend to change erratically in response to small changes in the model or sample. In Table 5 (Models 2 and 3), we test whether multicollinearity may be present by excluding financial literacy and detecting whether the coefficient estimates on any of the other socio-demographic variables change markedly. The fact that

[19] See for instance, Figure 3 on estimated income replacement by each pillar of retirement income system, Summary Report on Retirement Income Adequacy Research by Jack M. Mintz, 2009.

coefficient estimates remain more or less the same supports the conclusion that there is not strong multicollinearity with our financial literacy variable in the model.

Finally, we relax one of the assumptions inherent in the ordered logit model. In our ordered logit model with three choice categories, there are two embedded equations: 1) the probability of being a *Proactive Saver* versus a *Naïve Saver or a Non-Saver* and 2) the probability of being a *Proactive Saver* versus a *Naïve Saver.* The ordered logit model assumes that the likelihood of being in a particular sub-group relative to the lower sub-groups remain constant across equations. This is known as the "proportional odds assumption." A generalized ordered logit model relaxes this assumption, and allows the odds to vary across equations. Results are reported in Table A.4.3 (Annex 4). The key results are consistent with the ordered logit model, suggesting that the proportional odds assumption is not violated for most variables.

Does financial literacy lead to retirement saving or does saving for retirement improve financial literacy?

Our estimates suggest that more financially literate individuals are more likely to make sound retirement saving decisions. But this positive relationship could be affected by reverse causality. For instance, those saving for retirement could gain financial knowledge in the process or have more incentives to invest in financial education which in turns boosts their financial literacy.[20] Alternatively, the positive correlation between financial literacy and retirement saving behaviour may partly reflect unobserved factors that influence both.

To investigate the causal linkages among financial literacy and retirement saving, we re-estimate the impact of financial literacy on retirement saving behaviour using an Instrumental Variables (IV) approach. Because IV estimates can take account of the joint determination of financial literacy and retirement saving, they allow identification of causal effects.

To that end, we need instrumental variables that are correlated with financial literacy but uncorrelated with the error term in the retirement saving equation (in other words, these variables do not directly influence retirement saving). In our view, there are two variables in the survey which could serve as good instrumental variables: 1) "Whether the respondents' first language is one of the languages in which the survey was conducted (English or French)" and 2) "Whether the respondent is the person who is mainly responsible for financial management in the household." Both of these variables are good instruments, as they are correlated with the endogenous variable – financial literacy – but are clearly not part of the retirement saving equation. Familiarity with the language in which the quiz is conducted should positively impact quiz scores, but theoretically should not have an impact on the household's retirement saving behaviour (controlling for immigration and Aboriginal status). Similarly, being the person responsible for

[20] Indeed, our OLS multivariate results suggest that saving for retirement does have a positive effect on financial literacy scores (Table A.1.1., Model 2, Annex 1).

household financial matters should positively impact quiz scores, but should not impact a household's retirement saving behaviour.

Accordingly we first estimate a first-stage regression of financial literacy on whether the respondents' first language is either English or French and whether the respondent is the person who is mainly responsible for financial management in the household, to account for exogenous variation in financial literacy. We then re-estimate the retirement saving behaviour model given the instrumented financial literacy variable. Estimated coefficients from the Instrumental Variable approach are reported in Table A.4.4, Annex 4. The dependent variable used is the probability of being a *Proactive Saver*. Table A4.4 (column 2) also shows the first stage estimates, which indicate that the two instrumental variables are statistically significant and have a positive sign.

The exogeneity test in the IV regression indicates that retirement saving behaviour does have a causal impact on financial literacy. However, results from the IV regression indicate that the impact of financial literacy on retirement saving behaviour is positive and statistically significant, once endogeneity is controlled for. Moreover, the estimated financial literacy coefficient is larger than the OLS estimate.[21] These results suggest that financial literacy exerts a causal effect on retirement saving behaviour: greater financial literacy does increase one's chances of planning and saving adequately for retirement.

[21] Education and immigration lose their significance when endogeneity is controlled for, while the other variables remain significant. This could suggest that the influence of education and immigration status on retirement saving may arise principally because of the impact of education and immigration on financial literacy. In a similar instrumental variables regression for the United States, Lusardi and Mitchell (2011) also find that education loses its significance. The higher IV coefficient estimate relative to the OLS estimate is also consistent with other studies (see Lusardi and Mitchell, 2011; van Rooj, Lusardi, and Alessie, 2008).

Table 4: Distribution of retirement saving behaviour, by selected characteristics

		Distribution by Type of Retirement Saving Behaviour			
	Total	Proactive Saver	Naïve Saver	Non-Saver	Not stated
	(%)	(%)	(%)	(%)	(%)
Total	**100**	**39**	**38**	**18**	**5**
Mean Financial Literacy Quiz Score	61	67	61	55	32
Financial Literacy Quiz Score	**100**				
Top group (85 to 100%)	17	57	32	10	2
Third group (71 to 79%)	26	45	40	14	2
Second group (57 to 64%)	26	37	41	19	3
Bottom group (0 to 50%)	31	26	39	24	11
Gender	**100**				
Male	53	43	35	17	5
Female	47	34	43	18	5
Age group	**100**				
25 to 34	26	29	42	23	6
35 to 44	28	38	40	17	5
45 to 54	31	43	37	16	5
55 to 64	15	49	32	14	5
First Language	**100**				
English or French	81	41	39	16	4
Other	19	32	35	23	10
Labour Force	**100**				
Paid Employee	78	40	41	14	5
Self-Employed	14	44	29	23	5
Unemployed	8	20	26	45	9
Educational Attainment	**100**				
Less than high school	9	21	37	36	7
High school	20	33	41	20	6
Some post-secondary	10	35	41	17	8
Post-sec cert. or diploma	62	44	37	14	4
Housing	**100**				
Renters	23	26	38	31	6
Homeowner with mortgage	54	40	42	14	4
Homeowner w/out mortgage	22	52	31	14	3
Family Type	**100**				
Couple with children	47	41	39	15	5
Couple without children	27	43	37	15	5
Lone parent	6	24	42	26	7
Unattached individual	19	31	X	X	X
Immigration Status	**100**				
Born in Canada, not Aboriginal	74	41	39	16	4
Born in Canada, Aboriginal	3	28	46	19	7
Immigrated before 1980	6	44	34	15	7
Immigrated between 1980-1999	10	33	36	22	9
Immigrated after 1999	7	22	35	31	12
Pension Status	**100**				
Neither RRSP or RPP	20	15	33	48	5
RRSP only	57	46	42	10	2
RPP only	2	37	46	13	4
Both RRSP and RPP	15	54	39	5	3
Person Most Knowledgeable?	**100**				
Yes	74	42	38	16	5
No	26	32	39	23	6
Household Income	**100**				
Bottom group ($0-50,000)	27	22	35	36	6
Second group ($50-80,000)	24	33	45	17	6
Third group ($81-120,000)	25	45	41	10	5
Top group ($121,000+)	24	57	33	6	4
Sought out financial advice?	**100**				
Yes	24	51	37	9	
Mean net worth (N=7,798,000)	$480,700	$722,900	$367,900	$133,100	$256,500
N (weighted)	15,148,400				

Sample: Labour force participants age 25-64. X –sample size too small to provide reliable estimate.

Table 5: Regression results, coefficient estimates associated with individual characteristics (ordered logit regression)

	Model 1	Model 2	Model 3
Financial Literacy Score			
Bottom group (0 to 50%)	Reference	Reference	
Second group (57% to 64%)	0.38***	0.19**	
Third group (71% to 79%)	0.74***	0.32***	
Top group (85% to 100%)	1.22***	0.57***	
Gender			
Male		0.31***	0.35***
Female		Reference	Reference
Age		0.03***	0.03***
Labour Force			
Paid Employee		Reference	Reference
Self-employed		-0.30***	-0.28**
Unemployed		-0.95***	-0.95***
Educational Attainment			
Less than high school		Reference	Reference
High school		0.54***	0.59***
Some post-secondary		0.55***	0.66***
Post-sec cert. or diploma		0.81***	0.94***
Housing Tenure			
Renters		Reference	Reference
Homeowners with mortgage		0.23**	0.24***
Homeowners w/out mortgage		0.57***	0.58***
Family Type			
Couple with children		Reference	Reference
Couple without children		0.08	0.08
Lone parent		-0.17	-0.16
Unattached individual		-0.04	-0.03
Immigration Status			
Born in Canada, not Aboriginal		Reference	Reference
Born in Canada, Aboriginal		-0.01	-0.06
Immigrated before 2000		-0.14	-0.21*
Immigrated since 2000		-0.59***	-0.70***
Household Income			
Bottom group ($0-50,000)		Reference	Reference
Second group ($50-80,000)		0.55***	0.56***
Third group ($81-120,000)		0.92***	0.96***
Top group ($121,000+)		1.30***	1.36***
Person Most Knowledgeable			
Yes		0.45***	0.47***
No		Reference	Reference
Pseudo R-squared	0.02	0.11	0.10

Three asterisks (***) indicate that the coefficient is significantly different from zero at the 1% confidence level; two asterisks (**) indicate significance at the 5% level and one asterisk (*) indicates significance at the 10% level. Other variables included in the regression but not shown: province. Note: The dependent variable takes a value of two if the individual is characterized as a Proactive Saver, one if the individual is characterized as a Naïve Saver, and zero if the individual is characterized as a Non-Saver. Missing values are excluded. The province variable was excluded since most were not significant. Sample: Labour force participants age 25-64.

Table 6: Regression results, predicted probabilities of being a Proactive Saver, a Naïve Saver and a Non-Saver (ordered logit regression)

	Proactive Saver	Naïve Saver	Non-Saver	"Knowing how much saving is needed" – Conditional on saving for retirement
Financial Literacy Score				
Bottom group (0 to 50%)	0.32	0.49	0.19	0.40
Second group (57% to 64%)	0.37	0.47	0.16	0.44
Third group (71% to 79%)	0.40	0.46	0.14	0.47
Top group (85% to 100%)	0.46	0.43	0.11	0.52
Gender				
Male	0.42	0.45	0.13	0.48
Female	0.34	0.48	0.17	0.41
Age				
20 years old	0.25	0.50	0.25	0.33
30 years old	0.30	0.50	0.20	0.38
40 years old	0.36	0.48	0.17	0.43
50 years old	0.42	0.45	0.13	0.48
60 years old	0.48	0.41	0.11	0.54
Educational Attainment				
Less than high school	0.24	0.50	0.26	0.32
High school	0.35	0.48	0.17	0.42
Some post-secondary	0.35	0.48	0.17	0.42
Post-sec cert. or diploma	0.42	0.45	0.13	0.48
Labour Force				
Paid Employee	0.41	0.46	0.14	0.47
Self-employed	0.34	0.49	0.18	0.41
Unemployed	0.21	0.50	0.29	0.30
Housing Tenure				
Renters	0.32	0.49	0.19	0.40
Homeowner with mortgage	0.37	0.47	0.15	0.44
Homeowner w/out mortgage	0.46	0.43	0.12	0.52
Immigration Status				
Born in Canada, not Aboriginal	0.39	0.46	0.15	0.46
Born in Canada, Aboriginal	0.39	0.46	0.15	0.46
Immigrated before 2000	0.36	0.48	0.17	0.43
Immigrated since 2000	0.26	0.50	0.24	0.34
Household Income				
Bottom group ($0-50,000)	0.25	0.50	0.25	0.33
Second group ($50-80,000)	0.36	0.48	0.16	0.43
Third group ($81-120,000)	0.45	0.43	0.12	0.51
Top group ($121,000+)	0.55	0.37	0.08	0.60
Person Most Knowledgeable				
Yes	0.40	0.46	0.14	0.47
No	0.30	0.50	0.20	0.38

Note: For each variable, all other variables are held constant at their mean. Listed variables are significant at the 5% level or less (other control variables: provinces, family type). Sample: Labour force participants age 25-64.

Table 7: Regression results, predicted probabilities of different retirement saving behaviour, by financial literacy group and household income group

Income Group	Financial Literacy Group	Predicted probabilities by Retirement Saving Behaviour			
		Proactive Saver	Naïve -Saver	Non-Saver	"Knowing how much saving is needed" – Conditional on saving for retirement
Lowest	Bottom group (0-50%)	0.19	0.41	0.40	0.32
	Second group (57-64%)	0.22	0.42	0.36	0.34
	Third group (71-79%)	0.27	0.43	0.30	0.39
	Top group (85-100%)	0.31	0.43	0.26	0.42
Second Lowest	Bottom group (0-50%)	0.33	0.50	0.17	0.40
	Second group (57-64%)	0.35	0.50	0.15	0.41
	Third group (71-79%)	0.36	0.49	0.15	0.42
	Top group (85-100%)	0.48	0.42	0.10	0.53
Second Highest	Bottom group (0-50%)	0.38	0.50	0.12	0.43
	Second group (57-64%)	0.45	0.46	0.09	0.49
	Third group (71-79%)	0.51	0.42	0.07	0.55
	Top group (85-100%)	0.54	0.39	0.06	0.58
Top	Bottom group (0-50%)	0.58	0.37	0.05	0.61
	Second group (57-64%)	0.64	0.32	0.04	0.67
	Third group (71-79%)	0.61	0.34	0.05	0.64
	Top group (85-100%)	0.65	0.31	0.04	0.68

Sample: Labour force participants age 25-64. Note: The independent/control variables are the same as those used in the full-sample ordered logit regression

6. Concluding remarks

A growing number of studies suggest that some individuals may lack the necessary knowledge, skills and confidence to plan and adequately save for their retirement. Given the complexity of the retirement savings decision, individuals without sufficient financial literacy may make sub-optimal choices such as saving too little or too late, or making poor investment choices. This paper provides new insight into whether Canadians possess financial literacy and also whether financial literacy influences financial decision-making, in particular retirement saving behaviour.

Overall, we find that Canadians face some challenges with respect to financial matters. While they display a good knowledge of basic financial concepts, they have trouble with more complex financial issues such as evaluating investment and inflation risks. These overall results mask some important differences among certain segments of the Canadian population. Some groups are more likely to have below-average financial literacy, including Aboriginals, recent immigrants, the unemployed, less-educated individuals, and individuals from lower-income households. Most of these sub-groups were also found to overestimate their financial literacy. Mistaken beliefs about financial literacy could negatively influence their retirement savings. Moreover, about one in five Canadians are not saving for retirement, while only half of the remaining 80 per cent know how much they need to save to maintain their desired standard of living in retirement.

Financial literacy is found to exert a causal effect on individuals' retirement saving behaviour, in particular for individuals from lower-income households. Financial literacy is also a strong determinant of whether an individual is informed about the savings needed to maintain his or her desired standard of living in retirement, and even more so for individuals from the bottom and middle-income households. This suggests that being well-informed about financial matters reduces some of the complexity involved in formulating a retirement saving plan. Interestingly, those who report better retirement saving behaviour are much more confident in their ability to maintain their living standards at retirement age.

Understanding why some individuals fail to save and prepare adequately for retirement has become a topic of policy interest. Financial literacy has been one factor put forward to facilitate and improve retirement saving behaviour. Overall, our research findings imply that promoting financial literacy would increase the chances that individuals will make sound decisions about retirement saving. Possible channels through which financial literacy may facilitate retirement savings are by stimulating thinking and awareness of the need to plan for retirement, lowering associated planning costs, increasing risk-adjusted returns on investment through better investment choices, or enabling Canadians to take better advantage of the investment vehicles available to them.

References

Ameriks, J., A. Caplin and J. Leahy. 2003. "Wealth Accumulation and the Propensity to Plan." *Quarterly Journal of Economics* 68: 1007-1047.

Atkinson, McKay, Kempson and Collard. 2006. "Levels of Financial Capability in the U.K.: Results of a baseline survey." *Financial Services Authority.*

Bayer, P., D. Bernheim and J.K. Scholz. 2009. "The Effects of Financial Education in the Workplace: Evidence from a Survey of Employers." *Economic Inquiry* Vol. 47, No. 4, 605–624.

De Meza, D., B. Irlenbusch, D. Reyniers. 2008. "Financial Capability: A Behavioural Economics Perspective." Prepared for the *Financial Services Authority* No. 69.

Kotlikoff, L. and D. Bernheim. 2001. "Household Financial Saving and Financial Literacy: The Need for New Tools." in *Essays on Saving, Bequests, Altruism, and Life-cycle Saving.* (Cambridge, Mass.: MIT Press)

Frenette, M. and R. Morissette. 2003. "Will they ever converge? Earnings of immigrant and Canadian-born workers over the last two decades." *Analytical Studies Research Paper Series.* (Statistics Canada, Catalogue no. 11F0019MIE2003215).

Gerardi, K., L. Goette, and S. Meier. 2010. "Financial literacy and subprime mortgage delinquency: evidence from a survey matched to administrative data." *Federal Reserve Bank of Atlanta, Working Paper: 2010-10.*

Gustman, A. and T. Steinmeier. 1999. "Effects of Pensions on Savings: Analysis with Data from the Health and Retirement Study." *Carnegie-Rochester Conference Series on Public Policy* 50: 271-324.

Gustman, A. and T. Steinmeier. 2004. "What people don't know about their pensions and Social Security." *W. Gale, J. Shoven and M. Warshawsky, eds., Private pensions and public policies (Brookings Institution, Washington, DC) 57-125.*

Horner, K. 2009. "Retirement Savings by Canadian Households." Commissioned by the Mintz Review of Retirement Income Adequacy.

Jog, V. 2009. "Investment Performance and Costs of Pension and other Retirement Savings Funds in Canada: Implications on Wealth Accumulation and Retirement." Commissioned by the Mintz Review of Retirement Income Adequacy.

LaRochelle-Côté, S., J. Myles, and G. Picot. 2008a. "Income Security and Stability During Retirement in Canada." *Analytical Studies Research Paper Series. No. 306.* (Statistics Canada, Catalogue no. 11F0019M).

LaRochelle-Côté, S., J. Myles, and G. Picot. 2010. "Replacing family income during the retirement years: how are Canadians doing?" *Analytical Studies Research Paper Series No. 328.* (Statistics Canada, Catalogue no. 11F0019M).

Lusardi, A. 1999. "Information, Expectations, and Savings for Retirement." In: Henry Aaron (ed.), *Behavioral Dimensions of Retirement Economics*, Washington, D.C.: Brookings Institution and Russell Sage Foundation, 81-115.

Lusardi, A. 2003. "Saving and saving for retirement." Dartmouth College, Working Paper. http://www.dartmouth.edu/~alusardi/Papers/Lusardi_pdf.pdf.

Lusardi, A. and O.Mitchell. 2005. "Financial Literacy and Saving: Implications for Retirement Wellbeing." De Nederlandesche Bank, Working Paper No.78.

Lusardi, A. and O.Mitchell. 2007. "Baby Boomer retirement security: The roles of saving, financial literacy, and housing wealth." *Journal of Monetary Economics 54, 205-224.*

Lusardi, A. and O. Mitchell. 2011. "Financial Literacy and Retirement Planning in the United States." *NBER Working Paper Series No. 17108.*

Lusardi, A. and P. Tufano. 2009. "Debt Literacy, Financial Experiences, and Overindebtedness." *NBER Working Paper Series No. 14808.*

Mintz, J. 2009. "Summary Report on Retirement Income Adequacy Research". Finance Canada.

Mitchell, O. 1988. "Worker knowledge of pensions provisions." *Journal of Labor Economics 6, 28-29.*

Morissette, R. and X. Zhang. 2004. "Retirement plan awareness." *Perspectives on Labour and Income.* (Statistics Canada, Catalogue no. 75-001-XIE) 5, no. 1 (Winter): 11-18.

Picot, Garnett and Feng Hou. 2003. "The rise in low-income rates among immigrants in Canada." *Analytical Studies Research Paper Series.* (Statistics Canada, Catalogue no. 11F0019MIE2003198 No. 11).

Picot, G. and A. Sweetman. 2005. "The deteriorating economic welfare of immigrants and possible causes: Update 2005." *Analytical Studies Research Paper Series.* (Statistics Canada, Catalogue no. 11F0019MIE No. 262).

Ostrovsky, Y. and G, Schellenberg. 2008. "The retirement puzzle: Sorting the pieces." *Canadian Social Trends.* (Statistics Canada, Catalogue no. 11-008-X) 5, no. 86 (Winter).

Task Force on Financial Literacy. 2011. "Leveraging Excellence: Charting a course of action to strengthen financial literacy in Canada".

Van Rooj, Lusardi, and Alessie. 2007. "Financial Literacy and Stock Market Participation." *NBER Working Paper Series No. 13565.*

Van Rooj, Lusardi, and Alessie. 2008. "Financial Literacy, Retirement Planning and Household Wealth." *De Nederlandsche Bank.*

Whitehouse, E. 2010. "Canada's Retirement Income Provision: An International Perspective." *OECD Social Policy Division.* Prepared as an input to the Research Working Group on Retirement Income Adequacy.

Yakoboski, P. and J. Dickemper. 1997. "Increased Saving but Little Saving: Results of the 1997 Retirement Confidence Survey". *EBRI Issue Brief* 191.

Yoong, Joanne. 2011. "Retirement Preparedness and Individual Decision Making: Implications for Canada." Prepared for the Task Force on Financial Literacy.

Annex 1: Additional Tables

Table A.1.1: OLS Regression results – Financial literacy and demographic variables

Dependent Variable: Financial Literacy Score

	Model 1	Model 2
Gender		
Male	0.04***	0.03***
Female	Reference	Reference
Age	0.00***	0.00*
Labour Force		
Paid Employee	Reference	Reference
Self-employed	0.02**	0.03**
Unemployed	-0.01	0.00
Educational Attainment		
Less than high school	Reference	Reference
High school	0.05***	0.04***
Some post-secondary	0.12***	0.11***
Post-sec cert. or diploma	0.14***	0.12***
Housing Tenure		
Renters	Reference	Reference
Homeowners with mortgage	0.01	0.01
Homeowners w/out mortgage	0.02	0.01
Family Type		
Couple with children	Reference	Reference
Couple without children	0.01	0.00
Lone parent	0.01	0.01
Unattached individual	0.01	0.01
Immigration Status		
Born in Canada, not Aboriginal	Reference	Reference
Born in Canada, Aboriginal	-0.07***	-0.06***
Immigrated before 2000	-0.09***	-0.07***
Immigrated since 2000	-0.15***	-0.13***
Household Income		
Bottom group ($0-50,000)	Reference	Reference
Second group ($50-80,000)	0.02*	0.01
Third group ($81-120,000)	0.05***	0.04***
Top group ($121,000+)	0.07***	0.05***
Person Most Knowledgeable		
Yes	0.03***	0.03***
No	Reference	Reference
Retirement Saving Behaviour		
Proactive saver		0.06***
Naïve saver		0.03**
Non-saver		Reference

Sample: Labour force participants age 25-64.

Annex 2: Objective versus perceived financial literacy

Obtaining a measure of financial literacy by way of quiz scores is not a straight-forward task. For example, in devising an appropriate objective measure of financial literacy, it is not clear how many questions should be included or whether some should be given more weight than others. Moreover, some questions in the CFSC are focused on specific concepts such as an understanding of unit pricing and fees associated with ATM cards rather than broad financial knowledge. Although a self-assessment measure has the advantage of being easy to understand and to answer, it has been shown that individuals often exaggerate their financial acumen (Kotlikoff and Bernheim, 2001; Lusardi and Tufano, 2009).

In this sub-section we examine whether our objective measure of financial literacy correlates well with respondents' perception of their financial knowledge. As respondents had to make the self-assessment before they answered the financial literacy questions, their perceptions are unlikely to be affected by the quiz.

In the CFSC, respondents were asked to rate their level of financial knowledge as "Very Knowledgeable, Knowledgeable, Fairly knowledgeable, or Not very knowledgeable". Overall, about 44 per cent of our respondents assessed themselves as being "Fairly knowledgeable," 29 per cent of respondents stated their level as "Knowledgeable," and 15 per cent that their level is "Not very knowledgeable." Only 6 per cent reported their level as "Very knowledgeable." An additional 5 per cent reported that they do not know the level of their financial knowledge or refused to respond.

Table A.2.1: Financial literacy scores by self-assessment level of financial knowledge

	Financial Literacy Score				Total	
	Top Group (85-100%)	Third Group (71-79%)	Second Group (57-64%)	Bottom Group (0-50%)	Mean Score	% of Total
Self-Assessment on Financial Knowledge:						
Very knowledgeable	30	30	19	22	69	6
Knowledgeable	20	28	25	26	65	29
Fairly knowledgeable	16	29	29	26	64	44
Not very knowledgeable	12	24	28	37	59	15
Don't know or not stated	1	0	1	98	-	5
All respondents	**17**	**26**	**26**	**31**	**61**	**100**

Sample: Labour force participants age 25-64. Note: due to the nature of the distribution of financial literacy scores in our sample, each group does not represent exactly 25% of the sample.

Table A.2.1 provides the average financial literacy scores broken down by self-assessments of financial knowledge. Actual and perceived financial understanding appear to be correlated. For instance, individuals who perceived themselves as "Very knowledgeable" have a mean financial literacy score of 69 per cent compared with a mean score of 59 per cent for those who identified as "Not very knowledgeable,"

Overall, this suggests that our financial literacy index does provide valuable information about financial knowledge.

Yet, this correlation is, perhaps, less pronounced than expected. For instance, the average financial literacy score of the "Knowledgeable" respondents is not much higher than that of the "Fairly knowledgeable" respondents. This disconnection between perception and actual understanding is also noted in other international surveys (Kotlikoff and Bernheim, 2001; Lusardi and Tufano, 2009). This might suggest that some respondents are not able to fully judge their financial knowledge. A person's level of confidence with respect to financial knowledge likely impacts the way in which they make financial decisions and plan for retirement. Overconfidence may be associated with excessive risk-taking or poor decision-making in general. Individuals who are overconfident may also be less inclined to seek out financial advice, believing themselves to be well-informed. Under-confidence, on the other hand, may deter a person from taking action in retirement saving, and could be associated with excessive risk-aversion.

It is possible to identify whether some sub-groups of the population have mistaken beliefs about their financial knowledge by comparing the effect of socio-demographic variables on the quiz score and the self-assessment of financial knowledge. If respondents have accurate perceptions of their financial knowledge, then we would expect to see similarly-sized coefficients on the explanatory variables, with similar significance levels.

Results from two probit regressions are presented in Table A.2.2. In the first regression, the dependent variable is the probability that a respondent scores in one of the top two groups on the financial literacy quiz. In the second regression, the dependent variable is the probability that a respondent reports that they are "Very knowledgeable" or "Knowledgeable" about financial matters. A comparison of these two regressions reveals that the explanatory variables affect quiz scores differently than they affect self-assessed knowledge. Under the assumption that the score accurately measures financial knowledge, this suggests that certain population sub-groups may systematically overestimate or underestimate their financial sophistication. Specifically, results suggest that Aboriginal, immigrants, individuals with high school diploma or less, and younger respondents were more at risk of being overconfident.[22] Most remaining groups are not more or less likely to be overconfident or under-confident.

[22] Alternatively, non-Aboriginal individuals, those born in Canada, those with a post-secondary education or older respondents may be under-confident.

Table A.2.2: Regression results – Comparison of objective vs. subjective assessments of financial literacy, coefficient estimates associated with individual characteristics

	Objective Assessment	*Subjective Assessment*
	Probability of scoring in one of the top two groups	Probability of answering "Very knowledgeable" or "Knowledgeable"
Gender		
Male	0.27***	0.28***
Female	Reference	Reference
Age	0.01***	0.00
Labour Force		
Paid Employee	Reference	Reference
Self-employed	0.15**	0.12*
Unemployed	-0.11	0.05
Educational Attainment		
Less than high school	Reference	Reference
High school	0.36***	-0.03
Some post-secondary	0.79***	-0.02
Post-sec cert. or diploma	0.95***	0.06
Housing Tenure		
Renters	Reference	Reference
Homeowners with mortgage	0.05	0.06
Homeowners w/out mortgage	0.10	0.13*
Family Type		
Couple with children	Reference	Reference
Couple without children	0.06	0.14***
Lone parent	0.09	0.08
Unattached individual	0.05	0.08
Immigration Status		
Born in Canada, not Aboriginal	Reference	Reference
Born in Canada, Aboriginal	-0.38***	0.08
Immigrated before 2000	-0.47***	0.07
Immigrated since 2000	-0.73***	-0.06
Household Income		
Bottom group ($0-50,000)	Reference	Reference
Second group ($50-80,000)	0.12*	0.12*
Third group ($81-120,000)	0.29***	0.09
Top group ($121,000+)	0.39***	0.37***
Person Most Knowledgeable		
Yes	0.17***	0.19***
No	Reference	Reference
Pseudo R-squared	0.10	0.03

Three asterisks (***) indicate that the coefficient is significantly different from zero at the 1% confidence level; two asterisks (**) indicates significance at the 5% level and one asterisk (*) indicates significance at the 10% level. Other variables included in the regression but not shown: province. Missing values are excluded. Coefficients on the province variable were not reported since most were not significant. Sample: Labour force participants age 25-64.

Annex 3: How confident are Canadians about their preparation for retirement?

The CFCS includes a question to gauge respondents' level of confidence about their retirement preparation. About 30 per cent of our respondents indicated that they were either "Not very confident" or "Not at all confident" that their expected retirement income would give them the standard of living they hope for. Only 16 per cent of respondents were "Very confident" about their retirement preparation. Interestingly, near retirees (age 50-64) are equally as likely as the general population to report a lack of confidence in their abilities to maintain desired standards of living in retirement.

Also interesting is the relationship between the different retirement saving behaviours and the level of confidence in the adequacy of retirement saving, as shown in Table A.3.1. That is, those who report that they undertook some retirement saving are much more confident in their ability to maintain their living standards than those who said they are not financially saving for their retirement. *Proactive Savers* are the most confident about the adequacy of their retirement savings, with 80 per cent saying they are either "Very confident" or "Fairly confident," relative to 65 per cent of *Naïve Savers* and 43 per cent of *Non-Savers*.

Table A.3.1: Confidence about the adequacy of retirement planning by retirement saving behaviour type

	Level of Confidence (%)					
	Very confident	Fairly confident	Not very confident	Not at all confident	Not stated	Total
Retirement Saving Behaviour Types:						
Proactive Saver	26	54	15	5	0	100
Naïve Saver	11	54	26	6	2	100
Non-Saver	9	34	32	19	6	100
Not stated	9	22	13	6	50	100
Total	**16**	**49**	**22**	**8**	**5**	**100**

Sample: Labour force participants age 25-64.

Annex 4: Robustness Checks

Table A.4.1: Regression results, coefficient estimates (ordered logit regressions)

	Base Model	Model 1 Sample: Only individuals with household income of $30,000 or more	Model 2 Sample: Only individuals who do not have an RPP	Model 3 Ordered dependent variable based on private pension participation patterns
Financial Literacy Score				
Bottom group (0 to 50%)	Reference	Reference	Reference	Reference
Second group (57% to 64%)	0.19**	0.20**	0.14	0.31***
Third group (71% to 79%)	0.32***	0.25***	0.31***	0.40***
Top group (85% to 100%)	0.57***	0.52***	0.56***	0.66***
Gender				
Male	0.31***	0.32***	0.37***	-0.10
Female	Reference	Reference	Reference	Reference
Age	0.03***	0.03***	0.02***	0.02***
Labour Force				
Paid Employee	Reference	Reference	Reference	Reference
Self-employed	-0.30***	-0.20***	-0.33***	-0.34***
Unemployed	-0.95***	-1.04***	-1.00***	-0.50***
Educational Attainment				
Less than high school	Reference	Reference	Reference	Reference
High school	0.54***	0.65***	0.53***	0.72***
Some post-secondary	0.55***	0.71***	0.60***	0.79***
Post-sec cert. or diploma	0.81***	0.97***	0.79***	0.84***
Housing Tenure				
Renters	Reference	Reference	Reference	Reference
Homeowners with mortgage	0.23**	0.15	0.29***	0.61***
Homeowners w/out mortgage	0.57***	0.58***	0.65***	0.78***
Family Type				
Couple with children	Reference	Reference	Reference	Reference
Couple without children	0.08	0.13	0.09	0.17**
Lone parent	-0.17	-0.21	-0.11	-0.27*
Unattached individual	0.04	0.10	-0.03	0.18*
Immigration Status				
Born in Canada, not Aboriginal	Reference	Reference	Reference	Reference
Born in Canada, Aboriginal	-0.01	-0.16	-0.19	-0.03
Immigrated before 2000	-0.14	-0.19	-0.14	-0.18*
Immigrated since 2000	-0.59***	-0.51**	-0.57***	-0.56***
Household Income				
Bottom group ($0-50,000)	Reference	Reference	Reference	Reference
Second group ($50-80,000)	0.55***	0.26*	0.56***	0.77***
Third group ($81-120,000)	0.92***	0.65***	0.99***	1.25***
Top group ($121,000+)	1.30***	1.04***	1.37***	1.42***
Person Most Knowledgeable				
Yes	0.45***	0.43***	0.41***	0.09
No	Reference	Reference	Reference	Reference
Pseudo R-squared	0.11	0.08	0.11	0.11

Three asterisks (***) indicate that the coefficient is significantly different from zero at the 1% confidence level; two asterisks (**) indicate significance at the 5% level and one asterisk (*) indicates significance at the 10% level. Regression also includes a province variable. Sample: Labour force participants age 25-64.

Table A.4.2: Regression results, predicted probabilities of saving for retirement by financial literacy group

Financial Literacy Score	Proactive Saver	Naïve-Saver	Non-Saver
Base model			
Bottom group (0-50%)	0.32	0.49	0.19
Third group (57-64%)	0.37	0.47	0.16
Second group (71-79%)	0.40	0.46	0.14
Top group (85-100%)	0.46	0.43	0.11
Model 1: *Sample - Only individuals with household income of $30,000+*			
Bottom group (0-50%)	0.41	0.48	0.11
Third group (57-64%)	0.46	0.45	0.10
Second group (71-79%)	0.47	0.44	0.09
Top group (85-100%)	0.54	0.39	0.07
Model 2: *Sample - Only those without a RPP*			
Bottom group (0-50%)	0.30	0.49	0.21
Third group (57-64%)	0.33	0.48	0.19
Second group (71-79%)	0.37	0.47	0.16
Top group (85-100%)	0.43	0.44	0.13

Sample: Labour force participants age 25-64. Note: Predicted probabilities for Model 3 are not reported because they relate to a different dependent variable.

Table A.4.3: Regression results, Generalized Ordered Logit Regression – Predicted probabilities of being a Proactive Saver, a Naïve Saver and a Non-Saver

	Proactive Saver	Naïve Saver	Non-Saver	"Knowing how much saving is needed" – Conditional on saving for retirement
Financial Literacy Score				
Bottom group (0 to 50%)	0.33	0.50	0.17	0.40
Second group (57% to 64%)	0.38	0.48	0.14	0.44
Third group (71% to 79%)	0.41	0.46	0.13	0.47
Top group (85% to 100%)	0.47	0.43	0.10	0.52
Gender				
Male	0.44	0.43	0.13	0.51
Female	0.34	0.51	0.14	0.40
Age				
20 years old	0.26	0.52	0.22	0.33
30 years old	0.31	0.51	0.18	0.38
40 years old	0.37	0.49	0.15	0.43
50 years old	0.42	0.46	0.12	0.48
60 years old	0.49	0.42	0.10	0.54
Educational Attainment				
Less than high school	0.25	0.52	0.23	0.32
High school	0.36	0.49	0.15	0.42
Some post-secondary	0.36	0.49	0.15	0.42
Post-sec cert. or diploma	0.43	0.45	0.12	0.49
Labour Force				
Paid Employee	0.40	0.49	0.11	0.45
Self-employed	0.39	0.39	0.23	0.50
Unemployed	0.29	0.40	0.31	0.42
Housing Tenure				
Renters	0.35	0.47	0.18	0.43
Homeowner with mortgage	0.37	0.50	0.13	0.43
Homeowner w/out mortgage	0.47	0.41	0.12	0.53
Immigration Status				
Born in Canada, not Aboriginal	0.40	0.47	0.13	0.46
Born in Canada, Aboriginal	0.35	0.55	0.10	0.39
Immigrated before 2000	0.37	0.48	0.15	0.44
Immigrated since 2000	0.27	0.51	0.22	0.35
Household Income				
Bottom group ($0-50,000)	0.28	0.47	0.25	0.37
Second group ($50-80,000)	0.36	0.49	0.15	0.42
Third group ($81-120,000)	0.45	0.45	0.10	0.50
Top group ($121,000+)	0.54	0.39	0.06	0.58
Person Most Knowledgeable				
Yes	0.41	0.46	0.13	0.47
No	0.31	0.51	0.19	0.38

Note: For each variable, all other variables are held constant at their mean. Listed variables are significant at the 5% level or less (this excludes the following variables: provinces, number family type). Sample: Labour force participants age 25-64.

Table A.4.4: Regression results – OLS versus IV Estimates of Financial Literacy Impact

	OLS – Dependent variable is equal to 1 if Proactive Saver (0 else)	First stage IV – Dependent variable is the Financial Literacy Score	IV – Dependent variable is equal to 1 if Proactive Saver (0 else)
Financial Literacy Measure			
Financial literacy score	0.66***		2.62***
First language – English or French		0.08***	
Person most knowledgeable		0.04***	
Gender			
Male	0.24***	0.04***	0.14*
Female	Reference	Reference	Reference
Age	0.02***	0.00***	0.01***
Educational Attainment			
Less than high school	Reference	Reference	Reference
High school	0.30***	0.05***	0.17
Some post-secondary	0.30***	0.12***	0.04
Post-sec cert. or diploma	0.50***	0.14***	0.18
Labour Force			
Paid Employee	Reference	Reference	Reference
Self-employed	-0.03	0.02***	-0.08
Unemployed	-0.30***	-0.00	-0.27***
Housing Tenure			
Renters	Reference	Reference	Reference
Homeowner with mortgage	0.08	0.02	0.05
Homeowner w/out mortgage	0.35***	0.02	0.28***
Family Type			
Couple with children	Reference	Reference	Reference
Couple without children	0.04	0.00	0.02
Lone parent	-0.18*	0.00	-0.17***
Unattached individual	-0.01	0.01	-0.03
Immigration Status			
Born in Canada, not Aboriginal	Reference	Reference	Reference
Born in Canada, Aboriginal	-0.13	-0.07***	0.02
Immigrated before 2000	-0.10	-0.04***	0.08
Immigrated since 2000	-0.34***	-0.10***	-0.01
Household Income			
Bottom group ($0-50,000)	Reference	Reference	Reference
Second group ($50-80,000)	0.19***	0.02*	0.13*
Third group ($81-120,000)	0.42***	0.05***	0.28***
Top group ($121,000+)	0.65***	0.06***	0.44***
Person Most Knowledgeable			
Yes	0.23***		
No	Reference		

Notes: Listed variables are significant at the 5% level or less (a province variable is excluded). Sample: Labour force participants age 25-64.

Annex 5: Objective Assessment Questions, Canadian Financial Capability Survey

Q1. If the inflation rate is 5 per cent and the interest rate you get on your savings is 3 per cent, will your savings have at least as much buying power in a year's time?

- Yes (0)
- No (+1)
- Don't Know (0)

Q2. A credit report is...?

- A list of your financial assets and liabilities (0)
- A monthly credit card statement (0)
- A loan and bill payment history (+1)
- A credit line with a financial institution (0)
- Don't Know (0)

Q3. Who insures your stocks in the stock market?

- The National Deposit Insurance Corporation (0)
- The Securities and Exchange Commission (0)
- The Bank of Canada (0)
- No one (+1)
- Don't Know (0)

Q4. True or False? By using unit pricing at the grocery store, you can easily compare the cost of any brand and any package size.

- True (+1)
- False (0)
- Don't Know (0)

Q5. If each of the following persons had the same amount of take home pay, who would need the greatest amount of life insurance?

- A young single woman with two young children (+1)
- A young single woman without children (0)
- An elderly retired man, with a wife who is also retired (0)
- A young married man without children (0)
- Don't know (0)

Q6. If you had a savings account at a bank, which of the following statements would be correct concerning the interest that you would earn on this account?

- Sales tax may be charged on the interest that you earn (0)
- You cannot earn interest until you pass your 18th birthday (0)
- Earnings from savings account interest may not be taxed (0)
- Income tax may be charged on the interest if your income is high enough (+1)
- Don't know (0)

Q7. Inflation can cause difficulty in many ways. Which group would have the greatest problem during periods of high inflation that lasts several years?

- Young working couples with no children (0)
- Young working couples with children (0)

- Older, working couples saving for retirement (0)
- Older people living on fixed retirement income (+1)
- Don't know (0)

Q8. Lindsay has saved $12,000 for her university expenses by working part- time. Her plan is to start university next year and she needs all of the money she saved. Which of the following is the safest place for her university money?

- Corporate bonds (0)
- Mutual Funds (0)
- A bank savings account (+1)
- Locked in a safe at home (0)
- Stocks (0)
- Don't know (0)

Q9. Which of the following types of investment would best protect the purchasing power of a family's savings in the event of a sudden increase in inflation?

- A twenty-five year corporate bond (0)
- A house financed with a fixed-rate mortgage (+1)
- A 10-year bond issued by a corporation (0)
- A certificate of deposit at a bank (0)
- Don't know (0)

Q10. Under which of the following circumstances would it be financially beneficial to borrow money to buy something now and repay it with future income?

- When something goes on sale (0)
- When the interest on the loan is greater than the interest obtained from a savings account (0)
- When buying something on credit allows someone to get a much better paying job (+1)
- It is always more beneficial to borrow money to buy something now and repay it with future income (0)
- Don't know (0)

Q11. Which of the following statements is not correct about most ATM (Automated Teller Machine) cards?

- You can get cash anywhere in the world with no fee (+1)
- You must have a bank account to have an ATM card (0)
- You can generally get cash 24 hours-a-day (0)
- You can generally obtain information concerning your bank balance at an ATM machine (0)
- Don't know (0)

Q12. Which of the following can hurt your credit rating?

- Making late payments on loans and debts (+1)
- Staying in one job too long (0)
- Living in the same location too long (0)
- Using your credit card frequently for purchases (0)
- Don't know (0)

Q13. What can affect the amount of interest that you would pay on a loan?

- Your credit rating (0)
- How much you borrow (0)
- How long you take to repay the loan (0)
- All of the above (+1)
- Don't know (0)

Q14. Which of the following will help lower the cost of a house?

- Paying off the mortgage over a long period of time (0)
- Agreeing to pay the current rate of interest on the mortgage for as many years as possible (0)
- Making a larger down payment at the time of purchase (+1)
- Making a smaller down payment at the time of purchase (0)
- Don't know (0)