

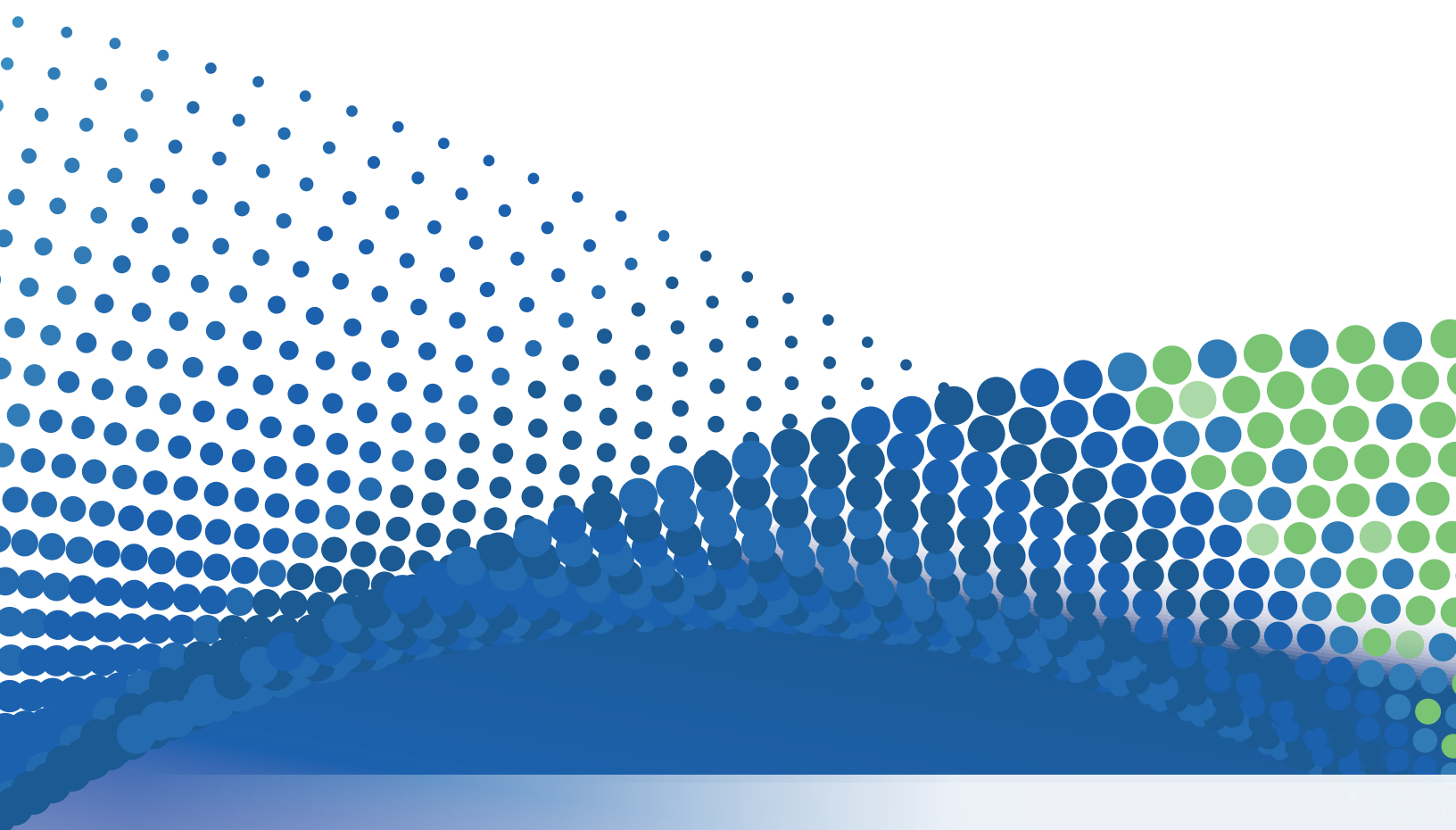


Financial Consumer  
Agency of Canada

Agence de la consommation  
en matière financière du Canada

# Financial Literacy and Retirement Well-Being in Canada:

## An Analysis of the 2014 Canadian Financial Capability Survey



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# Executive summary

The retirement landscape in Canada is changing. The shift towards self-directed retirement planning is coupled with a gradually aging population. These developments require stakeholders to have a better understanding of the factors that impact today's retirees and near-retirees. A growing body of evidence indicates that financial literacy—defined as the knowledge, skills and confidence a person needs in order to make responsible financial decisions—plays an important role in day-to-day and long-term financial planning. Therefore, this research project seeks to better understand the relationship between financial literacy and financial well-being—defined as a state where a person can fully meet current and ongoing financial obligations, feels secure in their financial future, and is able to make financial choices that allow enjoyment of life.

Our study focuses on retirees (Canadians aged 65 and older, who are retired) and near-retirees (Canadians aged 55 and older, who are working). We conducted an analysis using data from the 2014 Canadian Financial Capability Survey to model the impact of an increase in financial literacy on financial well-being. Among the studied age groups, we found that the two most important elements of financial literacy were (1) financial confidence and (2) making use of advice on financial products. In almost every instance, these variables were related to our indicators of financial well-being.<sup>1</sup> Our results suggest that retirees and near-retirees may benefit from experiential learning approaches intended to increase financial confidence as well as from using the skills related to making use of advice on the products that help them reach their financial goals.

Other elements that were factored into our research of financial literacy and were related to indicators of financial well-being include (1) financial knowledge, which appears to be most related to longer-term financial planning in the pre-retirement years; (2) sticking to a budget, which was positively related to knowing how much is needed for retirement; and (3) having more sources of information that influence investment decisions, which was related to meeting financial commitments among retirees. Monitoring financial topics had an inconsistent relationship with financial well-being, but was positively related to knowing how much was needed for retirement.

We conclude that financial literacy has an important relationship with the financial well-being of retirees and near-retirees in Canada. Our findings indicate that, regardless of a consumer's specific demographic situation (i.e., age, gender, marital status, income and education), increasing financial confidence and making use of advice on financial products are both predicted to improve the likelihood of positive outcomes in terms of retirement living standards and retirement planning. Similarly, having more financial knowledge and sticking to a budget both promote retirement planning among near-retirees.

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<sup>1</sup> In this study, financial well-being was operationalized through a series of indicators. For retirees, the indicators were standard of living and ability to meet monthly expenses in retirement. For near-retirees, the indicators were use of RRSPs and TFSAs, confidence that future household income will provide desired standard of living in retirement and knowing how much money is needed for a desired retirement lifestyle.

# 1. Introduction

Canada is expected to see significant changes in the age distribution of its population in the near future. In 2013, 15 percent of Canadians were 65 years old or older. By 2030, this figure is expected to increase to nearly 25 percent (Statistics Canada, 2014a). The proportion of working-aged adults (18 to 64) to seniors (65 and older) will also shift dramatically. It is estimated that there will be 50 seniors for every 100 working-age adults in Canada by 2056, in contrast to 2006 when there were 21 seniors for every 100 working-age people (Statistics Canada, 2015). Given these projections of a rapidly aging Canadian population, it is necessary to understand the factors that contribute to the financial health of today's retirees (Canadians aged 65 and older, who are retired) and near-retirees (Canadians aged 55 and older, who are working). Ultimately, we hope to better understand the relationship between financial literacy—defined by the knowledge, skills and confidence a person needs in order to make responsible financial decisions—and financial well-being—defined as a state where a person can fully meet current and ongoing financial obligations, can feel secure in their financial future, and is able to make financial choices that allow enjoyment of life.

The 2014 Canadian Financial Capability Survey (CFCS) was sponsored by the Financial Consumer Agency of Canada (FCAC) and was conducted by Statistics Canada. Its purpose was to shed light on Canadians' knowledge, abilities and behaviours concerning financial affairs. The nationally representative, cross-sectional survey was designed to collect information related to day-to-day money management and budgeting as well as long-term financial planning among adults (aged 18 and older) living in Canada. Using data from the 2014 survey, this research examines the link between financial literacy and financial well-being for Canadian retirees (aged 65 and older) and near-retirees (aged 55 and older, who are working). After controlling for variables such as gender, marital status, education level and income, we find that the key elements of financial literacy—financial knowledge, skills and confidence—have important relationships with the financial well-being of older Canadians. We conclude that financial literacy has an important relationship with the financial well-being of retirees and near-retirees in Canada.

## 1.1. Background

According to the literature, Canada's public retirement system is generally successful in supporting Canadian retirees. For some lower-income people, its support allows them to maintain pre-retirement standards of living (Mintz, 2009). This helps to explain, at least in part, why Canada has one of the lowest rates of seniors living below the poverty line—7.2 percent, compared to an average of 12.8 percent for countries of the Organisation for Economic Co-operation and Development (OECD, 2013). However, financial literacy literature indicates that Canadians are struggling in some areas of personal financial management, such as knowing how much is needed for retirement (Marshall, 2011), maintaining a household budget (Arrowsmith & Pignal, 2010) and having knowledge of useful financial products (Boisclair, Lusardi, & Michaud, 2014). Four key contextual trends are noteworthy: debt and savings levels, the challenges of aging, and incidents of financial abuse.

### 1.1.1. Debt

Debt-to-disposable-income ratios among Canadians are currently at record-high levels, with Canadian households owing \$1.65 of debt for every dollar of disposable income compared to a ratio of \$0.89 in 1990 (Uppal & LaRochelle-Côté, 2015; Statistics Canada, 2016a). A 2012 study found that more than 60 percent of the debt is held by those under 45 years of age, with particular concentration among younger homeowners, young families and better educated Canadians (Chawla & Uppal, 2012). Although borrowing at a younger age gives consumers the opportunity to accumulate assets, one in three Canadians over age 55 has some form of debt (Marshall, 2011). Because most retirees rely on fixed-income sources for their livelihood, they are especially vulnerable to unresolved debt. For example, retirees with mortgages are far more likely to report that they struggle to keep up with monthly expenses (Schellenberg & Ostrovsky, 2010). A report from Equifax Canada also found that the number of seniors with debt increased by 6.5 percent in 2013 (Equifax Canada, 2013). According to data from the CFCS, the proportion of retirees with a mortgage on their primary residence is rising: in 2014, 19.1 percent of retirees over the age of 65 had a mortgage on their primary residence, compared to 15.9 percent in 2009. Similarly, the proportion of retirees with an outstanding credit card balance increased from 12.2 percent in 2009 to 14.6 percent in 2014.

### 1.1.2. Savings

Financial preparation for retirement has become increasingly important in view of the ongoing changes in the current retirement landscape. With the growing shift toward defined-contribution and self-directed retirement plans, working individuals now have added responsibility for managing their retirement (Lusardi & Mitchell, 2014). While these trends highlight the importance of financial preparation, the mean savings rate in Canada hovers at 4 percent of annual income (Statistics Canada, 2016). More than half of Canadians (57 percent) say they would use savings to pay for an unexpected expense of \$500, with most of the rest indicating that they would instead access differing forms of credit. The proportion that would access savings drops to 31 percent for an unexpected expense of \$5,000. Along the same lines, nearly 6 out of 10 Canadian adults (59.6 percent) do not have a good idea of how much money they need to save in order to maintain their desired standard of living in retirement. The 2014 survey also shows a strong positive correlation between the level of household income and the likelihood that the householders have a Registered Retirement Savings Plan (RRSP)<sup>2</sup> and/or a Tax-Free Savings Account (TFSA).

### 1.1.3. The challenges of aging

McKay (2011) found that Canadians over age 65 were struggling in the same three categories in which other Canadians also demonstrated some weakness: keeping track, planning ahead and staying informed.<sup>3</sup> After age 65, however, Canadians' abilities in these three areas declined with advancing age (McKay, 2011). These results are consistent with findings showing that, with advancing age, people may find themselves struggling with financial decisions in their daily lives (Institute for Social Research, 2008). Using a behaviour-based measure of financial skill and capability, researchers concluded that cost-optimizing performance across a variety of financial decisions occurs on average at age 53 (Agarwal, Driscoll, Gabaix, & Laibson,

2 Canadians benefit from retirement savings plans which are tailored to their own personal financial realities rather than trying to apply a "one-size-fits-all approach." For example, it is recognized that some of the lowest-income households explicitly choose not to contribute to an RRSP in order to avoid exceeding the maximum annual income allowed by certain programs, such as the Government Income Supplement (GIS) (Veall, 2013). For this reason, we have excluded from our analysis of RRSPs those households whose income falls within the lowest quintile.

3 McKay conducted a factor analysis to identify a series of scales that represent five separate "domains of financial capability." This statistical method is used to reduce data from a large number of related variables into a smaller number representing an underlying latent construct. For more information, see McKay, Stephen, *Understanding Financial Capability in Canada: Analysis of the Canadian Financial Capability Survey*, Task Force on Financial Literacy, 2011.

2010). In light of the increasingly complex financial marketplace, a factor that may contribute to changes in financial decision making is the gradual decrease in the ability of the brain to process information<sup>4</sup> (Finke, Howe, & Huston, 2012; Li et al., 2015). However, a recent study suggests that financial literacy may act as a mitigating factor against sub-optimal financial decision making that results from general cognitive decline (Li, et al., 2015).

#### **1.1.4. Financial abuse**

Retirees and near-retirees may also be susceptible to particular risks such as financial abuse. Research from the United States shows that financial capability declines by 1 percent each year after the age of 60, but perceived financial knowledge continues to increase over a lifetime (Finke et al., 2012). Evidence from the 2014 CFCS indicates a similar pattern in Canada: people over age 65 rate their level of financial knowledge higher than younger Canadian adults despite scoring lower on objective measures of financial knowledge. A study by Gamble et al. (2012) found that this discrepancy is a risk factor for falling victim to financial abuse. According to the study, a one-standard-deviation increase in the gap between perceived and actual knowledge increases the odds of falling victim to fraud by 36 percent (Gamble et al., 2012). The implication here is that some seniors are particularly vulnerable participants in the financial system, even though they may rate their skills and knowledge highly.

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<sup>4</sup> Li et al. (2015) refer to the gradual slowing of the brain as “one of the most sizable and robust findings in all of psychology.”



# 2. Methods

The 2014 CFCS has a cross-sectional design and consists of a nationally representative sample of over 6600 adults (aged 18 and older) living in Canada.<sup>5</sup> The purpose of the 2014 CFCS is to collect information on day-to-day money management and budgeting, longer-term money management and general financial planning. More information about the 2014 CFCS can be found in Appendix A.

## 2.1. Definitions and operationalization of key terms

To conduct this analysis, we operationalized the constructs “financial literacy,” “financial well-being of retired seniors” and “planning for retirement well-being among working Canadians (aged 55 and older)” through questions from the 2014 CFCS. That is, for those concepts, we identified variables from the survey to enable measurement. We first introduce a summary of this operationalization (Table 1) followed by a more detailed description of the evidence that underlies these decisions. Technical details related to our coding can be found in Appendix B.

**Table 1: Summary of the definitions and operationalization of key terms**

Variable type	Conceptualized as	Operationalized with
Independent variables	Financial literacy	<ul style="list-style-type: none"> <li>• Confidence in one’s own               <ul style="list-style-type: none"> <li>◦ ability to keep track of money</li> <li>◦ ability to make ends meet</li> <li>◦ ability to shop around for financial products</li> <li>◦ ability to stay informed on financial products</li> <li>◦ level of financial knowledge</li> </ul> </li> <li>• Knowledge               <ul style="list-style-type: none"> <li>◦ score on an objective quiz testing financial knowledge</li> </ul> </li> <li>• Skills               <ul style="list-style-type: none"> <li>◦ sticking to a budget</li> <li>◦ making use of advice on financial products</li> <li>◦ seeking advice on investments</li> <li>◦ monitoring financial topics</li> </ul> </li> </ul>

<sup>5</sup> The sample is based on the Labour Force Survey’s stratified, multi-stage design. Residents of the Yukon, Northwest Territories and Nunavut were not included in the survey, and full-time residents of institutions were excluded. Data were collected using computer-assisted telephone interviewing. More information about the 2014 CFCS is available from Statistics Canada.

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Dependent variable set 1	Financial well-being of retired seniors (65+)	<ul style="list-style-type: none"> <li>• Does standard of living in retirement meet your expectations?</li> <li>• Is retirement income sufficient to cover monthly expenses?</li> </ul>
Dependent variable set 2	Planning for retirement well-being among working Canadians aged 55+	<ul style="list-style-type: none"> <li>• Do you have an RRSP?</li> <li>• Do you have a TFSA?</li> <li>• Will future household income provide an adequate retirement?</li> <li>• Do you have a good idea of how much money is needed for retirement?</li> </ul>

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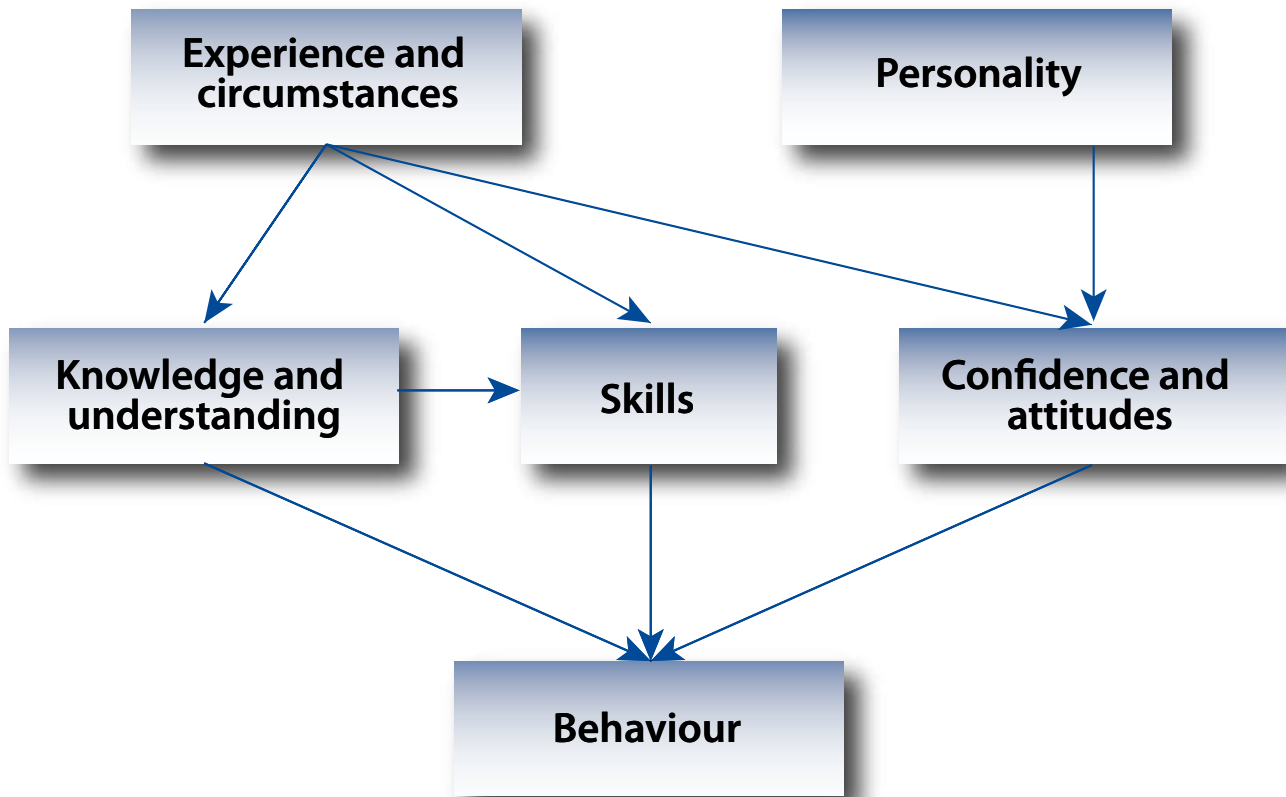
### 2.1.1. Financial literacy

The Task Force on Financial Literacy<sup>6</sup> uses the following definition of financial literacy: having the knowledge, skills and confidence needed to make responsible financial decisions. Kempson et al. (2006) describe the conceptual relationships between these elements (Figure 1). According to this model, a consumer's experiences and circumstances influence the three main elements of financial literacy: knowledge (and understanding), skills, and confidence (and attitudes). All three of these elements contribute to the behaviour of financial consumers. The authors note that personality also influences an individual's financial confidence and that knowledge influences an individual's skills.

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<sup>6</sup> The definition of financial literacy as well as other information on the Task Force on Financial Literacy is available online at <http://financialliteracyincanada.com>.

**Figure 1: A conceptual model of financial literacy - The information and advice environment**



*Source: Kempson et al. (2006)*

As shown in Table 1, financial literacy was operationalized through variables representing its key elements: knowledge, skills and confidence. Financial confidence appears to be a particularly important aspect of financial literacy. A meta-analysis by Fernandes et al. (2013) indicates that confidence related to financial information is critical because it represents a sense of ability to successfully achieve desired outcomes as well as a willingness to persevere through adversity where necessary (Fernandes, Lynch, & Netemeyer, 2013). Researchers have argued that confidence works in tandem with psychosocial factors to reduce the economic and psychological barriers to acquiring information, doing calculations and developing a future financial plan (Van Rooij, Lusardi, & Alessie, 2012). The true nature of financial confidence is, however, more complex. As mentioned, overconfidence in personal financial management has been identified as a prominent factor in saving and investment behaviour, with potential implications for fraud (Finke et al., 2012). Our own analysis of the 2014 CFCS has revealed that seniors score lower on measures of financial knowledge but rate themselves higher on their perceived knowledge than the young adult group (ages 18 to 24) and the working age group (ages 25 to 64).

With these considerations in mind, financial confidence has been measured using a set of five questions designed to capture respondents' perception of their abilities related to financial management.<sup>7</sup> Factor analysis (i.e., principal components analysis) was conducted to reduce these five variables into a single variable in order to facilitate analysis. The resulting financial confidence scores ranged from minus 2 to plus 2; a lower, negative score represents low financial confidence, while a higher, positive number represents greater financial confidence. Respondents who are moderately confident would have a score of approximately zero.

Contemporary research has indicated, perhaps unsurprisingly, that knowledge is also an important element of financial literacy. The link between financial knowledge and planning ahead has been empirically demonstrated in a wide range of studies (Institute for Social Research, 2008; Van Rooij, Lusardi, & Alessie, 2012; Lusardi & Mitchell, 2014). A recent study of Canadian consumers indicates that financial knowledge is associated with retirement planning (Boisclair, Lusardi, & Michaud, 2014). In this particular study, financial knowledge was assessed through three questions about compounding, inflation and risk diversification; these are often referred to in the financial literacy literature as the "big three" (Hastings, Madrian, & Skimmyhorn, 2012). Boisclair, Lusardi, & Michaud (2014) found that respondents scoring highest on the measure of financial knowledge were 10 percentage points more likely to have retirement savings than others after controlling for covariates such as age, sex, education and income, among others. In our study, financial knowledge was measured through 14 objective knowledge questions that are complementary to the "big three" and that assessed respondents' knowledge on topics such as inflation, debt repayment, banking fees and credit reports. Correct responses were summed to generate a score out of 14, with a low score representing comparatively little knowledge about financial matters and a high score representing comparatively greater knowledge.<sup>8</sup> The scores were then grouped into low (5/14 or less), medium (6/14 to 10/14), and high (11/14 or more).

In addition to financial confidence and knowledge, financial literacy includes skills—in other words, the tools an individual uses to manage personal finances. In the model presented in Figure 1 (Kempson et al. 2006), skills are shaped by experience and circumstances, as well as by financial knowledge and understanding. With this model in mind, we chose four financial skills that were related to the actual application of financial confidence and knowledge in everyday life: budgeting, making use of advice on financial products, sources of investment information, and monitoring general financial trends (e.g., changes in the housing market, taxation or job market).

Evidence indicates that those who budget, consult formal sources of information, seek financial advice and regularly keep track of trends affecting their saving and spending have a greater tendency to plan ahead (Lusardi & Mitchell, 2011). In terms of operationalizing budgeting, we were most interested in the role of staying within a budget rather than simply having a budget because consumers tend to be overly optimistic about their intentions to save and unrealistic about their future spending (Peetz & Buehler, 2009). To focus our research on consumers with the most realistic budgeting practices, we operationalized budgeting through the question "How often do you stay within your budget?" Responses were coded so that respondents were grouped as "having a budget and usually staying within it" or "not having a budget, or rarely/never staying within it."

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7 The survey asked respondents to rate themselves on the following: (1) level of financial knowledge; (2) keeping track of money; (3) making ends meet; (4) shopping around to get the best financial product; and (5) staying informed on financial issues. Each of these questions was presented on a four-point Likert scale: Very Good, Good, Fairly Good, Not Very Good. Responses were coded so that higher scores were more positive than lower scores. The "financial confidence" variable that resulted from the principal components analysis shows a good level of internal consistency ( $\alpha = .736$ ).

8 The 14 questions that make up the objective assessment quiz have a good level of internal consistency ( $\alpha = .814$ ).

We were also interested in operationalizing skills related to seeking advice on financial products, seeking advice on investments, and monitoring financial topics. These skills were specifically selected because, along with budgeting, they refer to the ability to seek out and actually apply financial knowledge to aspects of everyday life. In the CFCS, a question about “Advice on Financial Products” quantifies the number of financial topics for which respondents made use of advice during the previous year. The question was worded as follows: “In the past 12 months, did you make use of any advice, free or paid, on any of the following financial products?” Among others, the list included nine possible products, including retirement planning, children’s education planning, tax planning, and general financial planning (saving and investment strategies). We grouped respondents into those with low, medium or high levels of seeking advice on financial products based on the number of topics they sought advice for.<sup>9</sup>

The survey section on “Sources of Financial Investment Information” measures how many sources of information respondents identified as the most influential in their financial investment decisions. The survey asked: “People get information about financial investments from many sources. What sources do you feel most influence your decisions about the financial investments you make?” The response options included advice from a financial adviser, newspapers, the Internet or a knowledgeable friend. We classified respondents as low, medium, or high based on the number of sources influencing their decisions.

Lastly, the “Financial Monitoring” section measures how many financial topics respondents monitored on a regular basis. Respondents were asked: “Are there things that you personally keep an eye on, such as changes in...” The responses included options such as the housing market, interest rates and the job market. We again grouped answers into those with low, medium, or high categories based on the number of financial topics respondents indicated they monitor.

### **2.1.2. Financial well-being in retirement**

According to the U.S. Consumer Financial Protection Bureau (2015), financial well-being is “a state of being wherein a person can fully meet current and ongoing financial obligations, can feel secure in their financial future, and is able to make choices that allow enjoyment of life.” This definition can be better understood by examining four elements:

- having control over day-to-day and month-to-month finances;
- being on track to meet financial goals;
- having the financial freedom to make choices that allow one to enjoy life; and,
- having the capacity to absorb a financial shock.

We drew upon these elements to operationalize financial well-being as an outcome. We used two questions from the 2014 CFCS, asking retired persons aged 65 and older (1) whether they had a standard of living meeting their expectations<sup>10</sup> and (2) whether their retirement income was sufficient to meet monthly expenses.<sup>11</sup>

<sup>9</sup> The distribution of this variable—as well as for “Sources of Financial Investment Information” and “Financial Monitoring”—were highly skewed, with the majority of respondents indicating 0, 1 or 2 topics. Accordingly, the variables for all three skills were recoded into three categories: 0 = 0 topics (i.e., a “low” score); 1 = 1 topic (i.e., a “medium” score); and 2 = 2 or more topics (i.e., a “high” score).

<sup>10</sup> We coded all possible responses into a binary format with two options: “worse than expected” or “as expected or better.”

<sup>11</sup> Once again, the question was coded into a binary format with two options: “able to meet monthly expenses” and “having difficulty meeting monthly expenses.”

### **2.1.3. Planning for retirement well-being**

We analyzed data for retirees and near-retirees to determine whether or not they were using government programs to save for their retirement (for example, whether they had an RRSP or a TFSA). We also analyzed whether they were planning financially for retirement, whether they knew what their expected standard of living in retirement would be, and finally, what they expected their retirement expenses to be. These questions have been coded in a binary “yes” or “no” fashion.

# 3. Results

We generated regression models to assess the relation between financial literacy and financial well-being among retirees and near-retirees. The models predict the probability of a given outcome, based on changes in levels of financial literacy, after controlling for key demographic covariates such as gender, education, marital status and income. Box 1 provides a summary of how to interpret the results of our adjusted logistic regression models. Precise results from the models can be found in Appendix C.

## Box 1: How to interpret results – Example

To make the interpretation of our results easier to follow, this section provides a summary of the table layout for our adjusted logistic regression models. Each table will illustrate the results using four columns:

- Financial literacy: This refers to the independent variables which measure the knowledge, skills and confidence associated with financial literacy.
- Significance: This column outlines the p value, or the probability of obtaining the observed results in our model. A score below 0.05 is determined to be significant in the model.
- Percent change: The value in this column represents a summary of the percentage change in the probability of the dependent variable for a unit increase in the independent variable.
- Direction of relationship: This column addresses the relationship between the dependent variable and each independent variable.
- The body of the table uses these columns to organize data about the interaction between the independent variables (financial literacy as measured by knowledge, skills and confidence) and the dependent variable (variable “X” in this hypothetical example). We interpret the following about our hypothetical examples:

**Strong positive relationship:** In our hypothetical model, financial confidence has a significance of 0.000, a percentage change of 186%, and a positive relationship. We first interpret this to mean that the relationship between financial confidence and variable “X” is a statistically significant one. Second, the percentage change of 186% indicates the effect size of this relationship. Finally, the direction of the relationship is positive, meaning that as the independent variable rises (financial confidence), so too does our dependent variable (variable “X”). Because we operationalized financial confidence through “low, moderate, or high” levels, these results suggest that each additional “level” of financial confidence leads to a consumer to be nearly three times more likely (186 percent) of exhibiting variable X. In short, a person with moderate financial confidence is 186% more likely than a person with low financial confidence to do X, while a person with high financial confidence is 372% more likely ( $186 \times 2 = 372$ ) than a person with low financial confidence to do X.

**No statistically significant relationship:** Aside from financial confidence and budgeting, data for all other independent variables were not presented. This does not mean that they are not relevant for our discussion on financial literacy. However, what these results do mean is that, in our model, a statistically significant relationship does not exist after controlling for other variables. Therefore, the other rows are left blank.

**Sample table: Adjusted logistic regression between financial literacy and variable “X”**

Financial literacy	Hypothetical dependent variable “X”		
	Significance	Percent change	Direction of relationship
Financial confidence	.000	186%	Positive
Financial knowledge		—	
Financial skill 1: Sticking to a budget		—	
Financial skill 2: Advice on financial products		—	
Financial skill 3: Sources of investment information		—	
Financial skill 4: Financial monitoring		—	

### 3.1 Does financial literacy relate to the financial well-being of retired seniors?

We now discuss the detailed results of our analysis of the relationship between financial literacy and standard of living in retirement. As a starting point, we found that 78 percent of Canadian retirees (aged 65 and older) have a retirement standard of living that is as expected or better when compared to their pre-retirement expectations. This suggests that most Canadians have realistic and reasonable expectations of their retirement lifestyle, both during the planning stages and once they enter this stage of their lives. We also wanted to know whether the retirement income of retirees is sufficient to cover their monthly expenses. We found that 84 percent of retirees are able to meet their monthly expenses. This suggests that most Canadian retirees are in good financial standing, able to pay their bills and meet other obligations.



### 3.1.1. Does standard of living in retirement meet your expectations?

Our logistic regression model indicates that financial confidence, seeking advice on financial products, and monitoring different financial topics are all related to a respondent’s standard of living in retirement (Table 2). Every unit increase in financial confidence was associated with a 60 percent greater likelihood that a respondent has a retirement living standard meeting or exceeding expectations. Our model similarly found that making use of advice on financial products is associated with a greater likelihood of a retirement living standard that is as expected or better. In real terms, our model indicates that if a retiree were to go from making use of advice on one product in the previous year to two or more products, they would be more than twice as likely (136 percent) to achieve their expected standard of living in retirement.

**Table 2: Adjusted logistic regression between financial literacy and standard of living in retirement**

Financial literacy <sup>1</sup>	Standard of living in retirement meeting expectations?		
	Significance <sup>2</sup>	Percent change <sup>3</sup>	Direction of relationship
Financial confidence	.000	60%	Positive
Financial knowledge		—	
Financial skill 1: Sticking to a budget		—	
Financial skill 2: Advice on financial products	.041	136%	Positive
Financial skill 3: Sources of investment information		—	
Financial skill 4: Financial monitoring	.013	-31%	Negative

<sup>1</sup> Our model has been adjusted for age, gender, marital status, income quintile and highest level of education.

<sup>2</sup> “Significance” represents the *p* value, or the probability of obtaining the observed result. A score below 0.05 is determined to be significant in the model.

<sup>3</sup> “Percent change” represents a summary of the percentage change in the probability of the dependent variable for a one-unit increase in the independent variable. It is based on the exponentiated Beta coefficient, which is an odds ratio.

We also found a relationship that was unexpectedly negative. We found that monitoring additional financial topics, such as the housing market, stock markets and interest rates, was associated with a 31 percent decrease in the likelihood of having a retirement living standard that meets or exceeds pre-retirement expectations. A person who does not regularly monitor financial topics and would therefore receive a score of zero on our measure of this skill would be more likely to have a retirement living standard that is as expected or better, compared with someone who monitors one of these topics. To further explore this negative relation, we considered the descriptive data related to these variables. We interpret these findings as an indication that retirees who are satisfied with their current standard of living may be less likely to

actively monitor topics such as housing, the stock market or interest rates. It may be that these topics do not have direct relevance and impact on the standard of living of many retirees, with the result that many choose not to monitor them. It may also be that those who are less satisfied with their standard of living continue to monitor one or more of these topics, with the aim of improving their living standard. More research may be required to further explore this relation.

**3.1.2. Is retirement income sufficient to cover monthly expenses?**

We analyzed the relation between financial literacy and whether retirement income adequately covers a person’s monthly expenses. We found that every unit increase in financial confidence increases the likelihood that a retiree can cover monthly expenses by 81 percent (Table 3). The number of sources of investment advice had a positive correlation with managing monthly expenses: additional sources of advice increased by 86 percent the likelihood of managing financial expenses.

**Table 3: Adjusted logistic regression between financial literacy and managing monthly expenses**

Financial literacy <sup>1</sup>	Managing monthly expenses		
	Significance <sup>2</sup>	Percent change <sup>3</sup>	Relationship
Financial confidence	.000	81%	Positive
Financial knowledge	—	—	—
Financial skill 1: Sticking to a budget	—	—	—
Financial skill 2: Advice on financial products	—	—	—
Financial skill 3: Sources of investment information	.000	86%	Positive
Financial skill 4: Financial monitoring	—	—	—

<sup>1</sup> Our model has been adjusted for age, gender, marital status, income quintile and highest level of education.  
<sup>2</sup> “Significance” represents the p value, or the probability of obtaining the observed result. A score below 0.05 is determined to be significant in the model.  
<sup>3</sup> “Percent change” represents a summary of the percentage change in the probability of the dependent variable for a one-unit increase in the independent variable. It is based on the exponentiated Beta coefficient, which is an odds ratio.

## Box 2: Summary of results on financial well-being of retired seniors

After controlling for demographic covariates, such as age, gender, marital status, income and education, we found that financial confidence, seeking advice on financial products and seeking investment advice are important aspects of financial literacy for financial well-being among retirees. Feelings of financial security and being in control of finances were related to desirable outcomes for retirees. Table 4 summarizes at a high level the findings of these analyses.

**Table 4: Summarized findings of analyses of financial well-being among retired seniors**

Financial literacy	Financial well-being of retired seniors	
	Does standard of living in retirement meet your expectations?	Is retirement income sufficient to cover monthly expenses?
Financial confidence	✓ (Positive)	✓ (Positive)
Financial knowledge	—	—
Financial skill 1: Sticking to a budget	—	—
Financial skill 2: Advice on financial products	✓ (Positive)	—
Financial skill 3: Sources of investment information	—	✓ (Positive)
Financial skill 4: Financial monitoring	✓ (Negative)	—

## 3.2. Is financial literacy related to retirement planning?

Four dependent variables were analyzed to determine the extent to which financial literacy helps people prepare for retirement. These four variables were as follows: whether respondents have an RRSP,<sup>12</sup> whether they have a TFSA, whether they believe their future household income will provide adequately for future retirement, and lastly, whether they have a good idea of how much money they must have in savings to achieve their desired standard of living in retirement. The 2014 CFCS shows that 76 percent of those surveyed have an RRSP, 43 percent had a TFSA, 66 percent believed that their income would adequately provide for their retirement, and 46 percent believed they had a good idea of how much money they needed to have saved for retirement. These four variables were then analyzed against our indicators: knowledge, skills and confidence. The following sections present the results of our analyses.

<sup>12</sup> Households in the lowest-income quintile were excluded from our analysis of RRSPs.

### 3.2.1. Registered Retirement Savings Plan

A Registered Retirement Savings Plan (RRSP) is a tax-assisted, individual savings plan that permits Canadians to contribute a percentage of earned income annually, up to a specified dollar limit (contributions are tax-deductible, investment income is not taxed as it is earned in the plan, and withdrawals are included in income for tax purposes). RRSPs are a key vehicle for retirement planning because the tax assistance provided on the savings encourages Canadians to save now in order to replace earnings that stop upon retirement. It is recognized, however, that lower-income households may be less likely to contribute to an RRSP for one or more of the following reasons: public pensions alone provide significant earnings replacement rates for lower-income earners; RRSP withdrawals may reduce income-tested benefits and credits received (such as GIS benefits) in retirement; and lower-income households may be consumption constrained (i.e., have little or no income available for saving).

We have excluded from our analysis near-retirees who are in the lowest quintile of household income. We found that objective measures of knowledge were associated with a greater likelihood of having an RRSP. Higher scores on the knowledge quiz led to a 58 percent increase in the likelihood of having an RRSP (Table 5). For example, a person with a high score on financial knowledge (11/14 or more) is 56 percent more likely to have an RRSP than someone with a medium score (6/14 to 10/14). Our model also found a statistically significant relation with making use of advice on financial products. Respondents who made use of advice, free or unpaid, about more financial products were found to be five times more likely (401 percent) to have an RRSP. For example, a person with a medium score on making use of advice on financial products (2/3) is 401% more likely to have an RRSP than someone with a low score (1/3).

**Table 5: Adjusted logistic regression between financial literacy and RRSP**

Financial literacy <sup>1</sup>	Do you have an RRSP?		
	Significance <sup>2</sup>	Percent change <sup>3</sup>	Relationship
Financial confidence		—	
Financial knowledge	.017	56%	Positive
Financial skill 1: Sticking to a budget		—	
Financial skill 2: Advice on financial products	.001	401%	Positive
Financial skill 3: Sources of investment information		—	
Financial skill 4: Financial monitoring		—	

<sup>1</sup> Our model has been adjusted for age, gender, marital status, income quintile and highest level of education.

<sup>2</sup> "Significance" represents the *p* value, or the probability of obtaining the observed result. A score below 0.05 is determined to be significant in the model.

<sup>3</sup> "Percent change" represents a summary of the percentage change in the probability of the dependent variable for a one unit increase in the independent variable. It is based on the exponentiated Beta coefficient, which is an odds ratio.

### 3.2.2. Tax-Free Savings Accounts

A Tax-Free Savings Account (TFSA) is a flexible, registered, general-purpose savings vehicle that allows Canadians to earn tax-free investment income so that they might more easily meet lifetime savings needs (contributions are not tax-deductible but investment income and withdrawals are tax-free). The TFSA complements existing savings plans such as RRSPs and can be an important component of retirement planning. In addition, in contrast to RRSPs, TFSA withdrawals do not affect eligibility for federal income-tested benefits and credits, which makes TFSA an attractive savings vehicle for lower-income earners. For this reason, near-retirees who are in the lowest quintile of household income have not been excluded from the analysis. We found a positive relationship between financial confidence and having a TFSA (Table 6). More specifically, every unit increase in our four-point financial confidence score increases (by 58 percent) the likelihood that a person will have a TFSA. We found that an increase in the number of financial products on which advice is sought was associated with a doubling (97 percent) in the likelihood of having a TFSA, which indicates that seeking advice for managing money is an important skill.

**Table 6: Adjusted logistic regression between financial literacy and TFSA**

Financial literacy <sup>1</sup>	Do you have a TFSA?		
	Significance <sup>2</sup>	Percent change <sup>3</sup>	Relationship
Financial confidence	.000	58%	Positive
Financial knowledge	—		
Financial skill 1: Sticking to a budget	—		
Financial skill 2: Advice on financial products	.000	97%	Positive
Financial skill 3: Sources of investment information	—		
Financial skill 4: Financial monitoring	—		

<sup>1</sup> Our model has been adjusted for age, gender, marital status, income quintile and highest level of education.

<sup>2</sup> "Significance" represents the *p* value, or the probability of obtaining the observed result. A score below 0.05 is determined to be significant in the model.

<sup>3</sup> "Percent change" represents a summary of the percentage change in the probability of the dependent variable for a one-unit increase in the independent variable. It is based on the exponentiated Beta coefficient, which is an odds ratio.

### 3.2.3. Household income sufficient for future retirement

We also examined the relation between financial literacy and whether a respondent has a household income that will provide adequately for future retirement. Potential answers were coded in a binary fashion, meaning that respondents would either agree or disagree that their household income will provide them with an adequate retirement. We found that every unit increase in financial confidence doubled (increased by 95 percent) the likelihood that a person would believe their household income to be sufficient to

provide an adequate standard of living in retirement (Table 7). Making use of advice on additional financial products was related to an even larger increase (135 percent) in the likelihood of household income being sufficient to provide adequately for retirement.

**Table 7: Adjusted logistic regression between financial literacy and household income providing adequately for retirement**

Financial literacy <sup>1</sup>	Household income providing for retirement		
	Significance <sup>2</sup>	Percent change <sup>3</sup>	Relationship
Financial confidence	.000	95%	Positive
Financial knowledge		—	
Financial skill 1: Sticking to a budget		—	
Financial skill 2: Advice on financial products	.003	135%	Positive
Financial skill 3: Sources of investment information		—	
Financial skill 4: Financial monitoring		—	

<sup>1</sup> Our model has been adjusted for age, gender, marital status, income quintile and highest level of education.  
<sup>2</sup> "Significance" represents the *p* value, or the probability of obtaining the observed result. A score below 0.05 is determined to be significant in the model.  
<sup>3</sup> "Percent change" represents a summary of the percentage change in the probability of the dependent variable for a one-unit increase in the independent variable. It is based on the exponentiated Beta coefficient, which is an odds ratio.

**3.3.4. Good idea of how much is needed for retirement**

Finally, we analyzed the relation between financial literacy and knowing how much money is needed to maintain the desired standard of living in retirement. The results are especially noteworthy given the number of positive relations in this analysis: financial confidence, knowledge, sticking to a budget, making use of advice on financial topics and actively monitoring financial topics all have a statistically significant relationship in this model. Specifically, we found that every unit increase in financial confidence was related to a 37 percent increase in the likelihood of knowing how much is needed for retirement (Table 8). For knowledge, we found that a higher score on the objective quiz translated into a 76 percent increase in the likelihood of knowing how much is needed for retirement. Sticking to a budget was related to a 98 percent increase in the likelihood of knowing how much money is needed for retirement. Making use of advice on financial products corresponded to a 60 percent increase in the probability of having a good idea of how much is needed for retirement. Last, our analysis indicated that monitoring additional financial topics was related to a 31 percent increase in the likelihood of having a good idea of how much is needed for retirement. This finding stands in contrast to the negative correlation found in our analysis of retirees, which we will interpret further in Section 3.

**Table 8: Adjusted logistic regression between financial literacy and knowing how much is needed for retirement**

Financial literacy <sup>1</sup>	Good idea of how much is needed for retirement		
	Significance <sup>2</sup>	Percent change <sup>3</sup>	Relationship
Financial confidence	.000	37%	Positive
Financial knowledge	.000	76%	Positive
Financial skill 1: Sticking to a budget	.000	98%	Positive
Financial skill 2: Advice on financial products	.011	60%	Positive
Financial skill 3: Sources of investment information		—	
Financial skill 4: Financial monitoring	.001	32%	Positive

<sup>1</sup> Our model has been adjusted for age, gender, marital status, income quintile and highest level of education.

<sup>2</sup> “Significance” represents the *p* value, or the probability of obtaining the observed result. A score below 0.05 is determined to be significant in the model.

<sup>3</sup> “Percent change” represents a summary of the percentage change in the probability of the dependent variable for a one-unit increase in the independent variable. It is based on the exponentiated Beta coefficient, which is an odds ratio.

**Box 3: Summary of results on financial literacy and planning for retirement well-being of near retirees**

We found that financial confidence, knowledge and certain skills, such as seeking advice on financial products, were related to desirable outcomes for near-retirees. Table 9 provides a clearer summary of the statistically significant relationships between financial literacy and planning for retirement well-being among near-retirees.

**Table 9: Summary of correlations for working Canadians aged 55 and older**

Financial literacy	Dependent variable set 2: Planning for retirement well-being among working Canadians (55+)			
	Do you have an RRSP?	Do you have a TFSA?	Will future household income provide an adequate retirement?	Do you have a good idea of how much money is needed for retirement?
Financial confidence	—	✓ (Positive)	✓ (Positive)	✓ (Positive)
Financial knowledge	✓ (Positive)	—	—	✓ (Positive)
Financial skill 1: Sticking to a budget	—	—	—	✓ (Positive)
Financial skill 2: Advice on financial products	✓ (Positive)	✓ (Positive)	✓ (Positive)	✓ (Positive)
Financial skill 3: Sources of investment information	—	—	—	—
Financial skill 4: Financial monitoring	—	—	—	✓ (Positive)



## 4. Discussion

Our analysis of financial well-being in retirement and near-retirement focused on the knowledge, skills and confidence of Canadians—the core, modifiable elements of financial literacy that have the potential to be addressed by the national strategy for financial literacy. The purpose of the regression modelling was to control for variables that correlate with financial well-being (e.g., age, education and income) in order to model the potential impact of an increase in financial literacy on financial well-being. Among retirees and near-retirees, we found that the two most important elements of financial literacy were (1) financial confidence and (2) making use of advice on financial products. In almost all cases, these variables were positively related to our financial well-being dependent variables.

### 4.1. Financial confidence

Our results related to financial confidence are consistent with the literature, which indicates that psychosocial factors, such as self-efficacy and confidence, play an important role in leading to outcomes related to financial well-being (Fernandes, Lynch, & Netemeyer, 2013). We found that retirees who feel that they are knowledgeable and capable of managing finances (e.g., making ends meet, choosing products) are more likely to report having a better standard of living. Similarly, near-retirees with higher levels of financial confidence are more likely to exhibit three of the four dependent variables.

The analysis performed is cross-sectional in nature, meaning that cause and effect cannot be clearly delineated. For this reason, it is quite likely that the relation between financial confidence (as well as other variables in our models) and financial well-being in retirement and pre-retirement reinforce each other. For example, financial confidence probably enables consumers to be more active participants in their financial affairs, and more active participation can in turn lead to more knowledge, more skills and a further increase in financial confidence.

Our results suggest that retirees and near-retirees may benefit from experiential learning approaches intended to increase financial confidence. One such approach that is inspired by the conceptual model of Kempson et al. (2006) might focus on experiential learning opportunities that allow consumers to gain first-hand experience with actual financial products and skills relevant to their own life circumstances. Although a large number of such programs are available across the country, their corresponding quality may vary. Such initiatives are most effective when they are relevant, targeted and accessible (Fernandes, Lynch, & Netemeyer, 2013). Even though entering retirement is an infrequent event in one's life, planning for such events should be an ongoing process. Automatic saving plans and self-enrolment features provide individuals with a framework to save automatically for their future. Automatic savings programs offered by various financial institutions give consumers the experience of regularly contributing to a savings plan, thereby encouraging saving habits.

Other resources, such as FCAC's [Retirement Planning page](#) and Employment and Social Development Canada's [Canadian Retirement Income Calculator](#), provide individuals with the resources to plan for their expenses in retirement and calculate their own financial goals. Connecting Canadians with accurate and unbiased information at the right time can further encourage consumers to think about what their financial future will look like. These resources allow users to estimate the impact of changes in savings behaviour and readjust personal financial management according to how confident they are in meeting financial goals.

## 4.2. Making use of advice

Among near-retirees, people who make use of advice on financial products are more likely to be financially planning for retirement well-being. This skill had a positive correlation with all of the four related dependent variables for near-retirees as well as for retirement living standards among retirees. The key message is that making use of advice, free or paid, on more products is an extremely beneficial aspect of retirement planning. From this perspective, it may benefit near-retirees (as well as retirees) to use advice on the products that are relevant to their current and future financial well-being as a basis for their decisions.

## 4.3. Keeping a budget

Sticking to a budget was positively related to knowing how much is needed for retirement. This result is consistent with previous findings indicating that those who are most realistic about their past spending habits are also most realistic about their future spending (Peetz & Buehler, 2009). In this sense, sticking to a budget may enable near-retirees to realistically plan for the future.

According to the 2014 Canadian Financial Capability Survey, 46 percent of Canadian adults say that they have a budget. The proportion peaks for those in the 35–44 and 45–54 age groups and then decreases with age. It is also clear that there may be considerable variation in what is considered a budget. Consumers use a variety, and sometimes a combination, of different practices to plan and monitor their spending, including writing down planned expenditures, documenting spending and mental accounting. Many who do not write down a formal spending plan say they do not need to do so (Davis & Weber, 1990).

Evidence from behavioural research by Fernbach et al. (2015) indicates that a written budget plays a particularly important role under conditions of financial constraint: having a written budget allows people to pre-commit to a spending plan and helps them set priorities for making purchases. It also allows consumers to identify an emerging financial problem in time to address it. Conversely, people without a written budget tend to act erratically when faced with financial constraint (Fernbach, Kan, & Lynch, 2015).

In view of the evidence of the benefits of maintaining a written budget, the considerable financial demands placed on retirees and near-retirees, and the combination of high levels of debt and low levels of savings, it is advisable to continue conducting behavioural research to further assess the benefits of budgeting at different life stages. The evidence may be most pertinent for middle-class retirees and near-retirees, as well as others who are likely to encounter financial constraints. It may also be appropriate to test approaches for promoting more widespread use of written budgets among different priority groups.

## 4.4. Knowledge

Level of financial knowledge was positively related to the following two of the indicators of financial well-being among near-retirees: (1) having an RRSP, and (2) knowing how much money is needed for retirement. It appears, therefore, that financial knowledge is most related to longer-term financial planning in the pre-retirement years. We also found that having more sources of information influencing investment decisions plays a role in managing monthly expenses; this highlights the importance of seeking the input of financial planners and other experts.

Again, this is likely to be a bi-directional relationship: those who are covering their monthly expenses are more likely to have the means to invest and, therefore, are more likely to seek advice on investments. At the same time, seeking investment advice from multiple sources is also likely to help some retirees make decisions that support meeting monthly expenses.

## 4.5. Monitoring financial topics

There were inconsistent results concerning the relationship between monitoring financial topics and our indicators of financial well-being. The number of financial topics being actively monitored was negatively related to standard of living among retirees, meaning that an increase in the number of topics being monitored was associated with a decrease in the well-being of retirees. We believe that these topics may be of greater interest and pertinence to people who are actively engaged in financial planning. Since use of advice on products was positively associated with retirement living standards, it appears that retired seniors seek out information relevant to their situation but may rely on others to keep abreast of broader trends in the marketplace. This interpretation is reinforced by the finding that monitoring financial topics was positively related to knowing how much is needed for retirement. Accordingly, it appears that monitoring financial topics, such as inflation, interest rates or unemployment, is of greater benefit to near-retirees, for whom the topics are the most relevant—specifically, those who are actively planning for retirement.

## 5. Conclusion

We conclude that financial literacy is related to the financial well-being of retirees and near-retirees in Canada. The key findings from this research have useful applications for future work on retirees and their financial literacy. Our findings indicate that, regardless of a consumer's specific demographic situation (i.e., age, gender, marital status, income and education), increasing financial confidence and making use of advice on financial products are both predicted to improve the likelihood of positive outcomes related to retirement living standards and planning for a future retirement. Similarly, encouraging greater financial knowledge and sticking to a budget both promote retirement planning among near-retirees.

These findings can provide insights to FCAC as well as to those developing and delivering financial literacy programs. Ultimately, if consumers are encouraged to access numerous sources of objective information and advice on financial products through various channels, such as government programs or financial professionals, there is likely to be a positive effect on retirement planning among near-retirees in Canada. Retirees and near-retirees with access to the right information at the right time will be in a better position to build the skills they need in order to have greater financial comfort and security. Evidence also suggests that providing opportunities for greater levels of financial confidence will help Canadians financially prepare for and thrive in retirement. Financial literacy programs can help in this regard by providing experiential learning opportunities to gain first-hand experience with actual financial products and skills relevant to their own life circumstances. These initiatives should also be supplemented by efforts to improve financial knowledge as well as assistance to maintain and live within a budget.

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# 7. Appendix

## 7.1. Appendix A - Canadian financial capability survey

*The following information about the 2014 Canadian Financial Capability Survey has been excerpted from Statistics Canada.<sup>13</sup>*

### Description

The Canadian Financial Capability Survey (CFCS) sheds light on Canadians' knowledge, abilities and behaviour concerning financial decision-making. In other words, how Canadians understand their financial situation, the financial services available to them and their plans for the future. The survey is designed to collect information surrounding respondents' approaches to day-to-day money management and budgeting, longer term money management and general financial planning.

### Target population

The target population for the CFCS is all persons 18 years of age and over living in Canada. Full-time residents of institutions and residents of the Yukon, Northwest Territories and Nunavut are not included in this survey. Telephone numbers that might correspond to these areas have been excluded from the sample.

### Instrument design

In the case of the Canadian Financial Capability Survey, it was proposed from its conception in 2009 that it be collected by telephone interview; an approach that reflected previous successes in other countries with similar subject matter. A first round of cognitive testing, including one-on-one interviews and focus group discussions, across Canada in spring 2007 confirmed that this was indeed the best way to proceed. With the addition of Finance Canada and the Bank of Canada as active partners, the content was modified to reflect each of the partners data needs. This led to a second round of cognitive testing in only a few selected cities in the spring of 2008. The computer-assisted telephone interviewing (CATI) application was developed and tested during the summer and fall months in 2008. In an attempt to maintain comparability, the 2014 Canadian Financial Capability Survey has kept the 2009 CFCS's content intact, making only very slight updates where necessary. The 2014 application was then re-developed and tested in the early months of 2014.

### Sampling

This is a sample survey with a cross-sectional design.

This sample survey is based on the current Labour Force Survey (LFS, record number 3701) cross-sectional design, a very complex design of a probability sample that is based on a stratified multi-stage design. Each province is divided into large geographic stratum. The first stage of sampling consists of selecting smaller geographic areas, called clusters, from within each stratum. The second stage of sampling consists of selecting dwellings from within each selected cluster. The LFS covers the civilian, non-institutionalised population 15 years of age and over.

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<sup>13</sup> This information was accessed on March 4, 2015, on the Statistics Canada website: <http://www23.statcan.gc.ca/imdb/p2SV.pl?Function=getSurvey&SDDS=5159>

The LFS uses a rotating panel sample design so that selected dwellings remain in the LFS sample for six consecutive months. Each month about 1/6th of the LFS sampled dwellings are in their first month of the survey, 1/6th are in their second month of the survey, and so on. One feature of the LFS sample design is that each of the six rotation groups can be used as a representative sample by itself. To ensure people from all parts of the 10 provinces were represented in the CFCS sample, we took two rotation groups and selected a systematic sample from this based on a power allocation (a balance between a proportional and equal allocation of the provinces) to ensure estimates at the national level are releasable.

## Data sources

Data collection for this reference period: 2014-05-12 to 2014-06-21

Responding to this survey is voluntary.

Data are collected directly from survey respondents.

Proxy interviews are not permitted. Data are collected using computer-assisted telephone interviewing (CATI). A front-end module contains a set of standard response codes for dealing with all possible call outcomes, as well as the associated scripts to be read by the interviewers. A standard approach set up for introducing the agency, the name and purpose of the survey, the survey sponsors, how the survey results will be used, and the duration of the interview is used. The CATI application ensure that only valid question responses are entered and that all the correct flows are followed. Edits are built into the application to check the consistency of responses, identify and correct outliers, and to control who gets asked specific questions. This means that the data are already quite “clean” at the end of the collection process.

View the [Questionnaire\(s\) and reporting guide\(s\)](#).

## 7.2. Appendix B – Participants and analyses

### Participants

Analyses were conducted using the CFCS 2014 Master File at the Statistics Canada Federal Research Data Centre (FRDC). The FRDC disclosure rules prohibit the reporting of unweighted sample sizes. Therefore, weighted descriptive data are presented to report on the population that is represented by the sample.

### Near-retirees

The near-retirees group consisted of a weighted sample of 3,153,143 cases<sup>14</sup> that met the criteria of being aged 55 or older ( $RESPAGE \geq 55$ ) and any of the following: employed ( $LF\_01 = 1$ ), self-employed ( $LF\_01 = 2$ ), not working and looking for work ( $LF\_01 = 3$ ). This group was predominantly in the 55–64 age range (82.8 percent) and was 51 percent female. Approximately three quarters (74.3 percent) of the sample was in a couple relationship ( $GMARSTAT = 1$ ). Household income was distributed such that 8.1 percent were in the lowest income quintile (less than \$32,001 per year;  $HINCQUIN = 1$ ) and 28.6 percent were in the highest (more than \$120,000 per year;  $HINCQUIN = 5$ ).

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<sup>14</sup> A number of exclusion rules were applied to our samples (see the description of the key variables). The sample described for the near-retirees and retirees is the final sample after all exclusions were applied.



## Retirees

The retired seniors group consisted of a weighted sample of 3,839,037 cases that met the criteria of being aged 65 or older (variable RESPAGE, value  $\geq 65$ ) and retired (variable LF\_01 = 5). The mean age of this group was 74 years (RESPAGE = 73.92 years) and the group was 51.3 percent female. Compared to the near-retirees group, a smaller majority was in a couple relationship (64.8 percent) and more retirees had a household income in the lower three quintiles (83.2 percent).

## Weighting

In order to conduct the analyses, cases were re-weighted by applying “normalized” weighting. This process was performed by dividing each of the “Master File Survey Weight, person” (variable: WTPM, available in the CFCS dataset) as assigned by Statistics Canada by the mean value of the “Master File Survey Weight, person.” This was done in order to maintain appropriate relative weighting, which ensures a representative population-level sample while reducing the inflationary effect of population-level weighting on significance tests.

## Independent variables

### Financial confidence

Financial confidence was measured using five questions that asked respondents to rate themselves on the following: (1) level of financial knowledge; (2) keeping track of money; (3) making ends meet; (4) shopping around to get the best financial product; (5) staying informed on financial issues. Each of these questions was presented on a 4-point Likert scale: Very Good, Good, Fairly Good, Not Very Good. Responses were coded such that higher scores were more positive than lower scores. A Principle Components Analysis was conducted in order to reduce these variables into a single score between the range of -2 and 2. A low, negative score between -2 and -0.5 suggested low financial confidence, while a higher, positive number between 0.5 and 2 suggested greater financial confidence. Respondents “moderately” confident in their financial knowledge and skills would have a score between -0.49 and 0.49. The resulting financial confidence variable has a good level of internal consistency ( $\alpha = .736$ ).

### Objective knowledge

The Knowledge Score was calculated by summing correct scores to the 14 objective assessment questions (i.e., OA\_01 – OA\_14) for a maximum score of 14 and a minimum score of 0. This method of calculating the quiz score captured respondents who had not provided responses to any of the fourteen objective assessment questions as having a score of 0, which affected the accuracy of the variable’s distribution. Our assessment indicated respondents with a total score of 0 represented only those who had skipped the questions entirely, so all of these cases were excluded from the analysis. The remaining were then grouped into low scores ( $\leq 5$ ); medium scores (6–10); and high scores ( $\geq 11$ ). The resulting scale had a good level of internal consistency ( $\alpha = .814$ ).

## **Sticking to a household budget**

This variable was calculated based on responses to question “How often do you stay within your budget?” (OE\_12). Respondents indicating Always and Usually were coded as 1 and all others (including those who had validly skipped because they indicated that they did not have a budget in question OE\_11) were coded as 0.

## **Summed variables**

The following three variables were treated in a manner similar to one another:

- Making use of advice on financial products (FC\_01A – FC\_01G)
- Seeking advice on investments (FC\_04A – FC\_04H)
- Monitoring financial topics (FC\_05A – FC\_05J)

For each of these questions, respondents were asked to select all of the options that apply to their situation. The “yes” responses were summed per question for each participant. This method captured respondents who had not provided responses to any of the questions as having a score of 0 and our assessment indicated that some respondents with a total score of 0 had actively chosen that answer. Therefore, respondents who had not provided answers to the questions were excluded from the analysis, whereas those who had actively answered 0 were included. The distribution of these sum variables were highly skewed, with the majority of respondents indicating 0, 1 or 2 topics. Accordingly, the variables were recoded into three categories: 0 = 0 topics; 1 = 1 topic; and 2 = 2 or more topics.

## **Dependent variable set 1 (retirees)**

### **Does standard of living in retirement meet your expectations?**

This variable was calculated based on responses to question “Compared to your expectations before you retired, how would you describe your financial standard of living in retirement?” (RP\_10). The question was recoded into a binary variable: (1) retirement standard of living is as expected or better; (2) retirement standard of living is worse than expected.

### **Is retirement income sufficient to cover monthly expenses?**

This variable was calculated based on responses to question “Is your retirement income sufficient to comfortably cover your monthly expenses?” (RP\_11). The question was recoded into a binary variable: (1) able to meet monthly expenses in retirement; (2) having trouble meeting monthly expenses in retirement.

## **Dependent variable set 2 (near-retirees)**

### **Do you have an RRSP?**

This variable was calculated based on responses to question “Do you or anyone in your family currently have any Registered Retirement Savings Plans (RRSPs)?” (AD\_03). The question was recoded into a binary variable: (1) Has an RRSP or has family members with an RRSP; (2) Does not have an RRSP or have family with an RRSP.

### Do you have a TFSA?

This variable was calculated based on responses to question “Excluding any Registered Retirement Savings Plans (RRSPs), do you or anyone in your family own any of the following financial assets? (Tax Free Savings Plan - TFSA)?” (AD\_07D). The question was recoded into a binary variable: (1) Has a TFSA or has family members with a TFSA; (2) Does not have a TFSA or have family with a TFSA.

### Confident that future household income will provide for an adequate retirement?

This variable was calculated based on responses to question “Taking all of the various sources of retirement income into account for your household, how confident are you that your household income at the time of retirement will give you the standard of living you hope for?” (RP\_08). The question was recoded into a binary variable: (1) Very or fairly confident that income will adequately provide for retirement; (2) Not very or not at all confident that income will adequately provide for retirement.

### Do you have a good idea of how much money is needed for retirement?

This variable was calculated based on responses to question “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?” (RP\_09). The question is already binary: (1) Yes; (2) No.

## 7.3. Appendix C – Logistic regression results

The following tables detail the results of the logistic regression analyses that are summarized and discussed in the document.

**Table C-1: Logistic regression model of standard of living in retirement and financial literacy**

Variable	Exp ( $\beta$ )	SE	p	95% CI Exp ( $\beta$ )
Age	1.058	.015	.000	1.028 – 1.088
Sex	1.014	.182	.937	7.10 – 1.449
Marital status	1.043	.192	.828	7.16 – 1.518
Household income quintile 1	Referent			
Household income quintile 2	1.120	.206	.584	.747 – 1.677
Household income quintile 3	1.372	.267	.236	.813 – 2.317

Household income quintile 4	1.888	.377	.091	.902 – 3.950
Household income quintile 5	7.201	.668	.003	1.944 – 26.672
Education level	1.086	.037	.027	1.010 – 1.168
Financial confidence score	1.602	.096	.000	1.326 – 1.936
Financial knowledge	1.056	.152	.723	7.83 – 1.423
Sticking to budget	.732	.182	.086	.513 – 1.045
Investment information	1.175	.135	.233	.901 – 1.533
Advice on products	2.362	.421	.041	1.036 – 5.386
Financial monitoring	.698	.104	.001	.569 – .856
Constant	.106	1.492	.133	

The model is significant  $\chi^2(14) = 96.729, p = .000$ . The model explains 15.6 percent (Nagelkerke  $R^2$ ) of the variance in standard of living in retirement and correctly classified 78.2 percent of cases.

**Table C-2: Logistic regression model of managing monthly expenses in retirement and financial literacy**

Variable	Exp ( $\beta$ )	SE	p	95% CI Exp ( $\beta$ )
Age	1.053	.017	.002	1.019 – 1.088
Sex	1.073	.209	.738	.711 – 1.617
Marital status	.753	.213	.184	.496 – 1.144
Household income quintile 1	Referent			
Household income quintile 2	1.823	.237	.011	1.146 – 2.901
Household income quintile 3	2.395	.333	.009	1.247 – 4.601

Household income quintile 4	2.803	.452	.023	1.156 – 6.798
Household income quintile 5	2.449	.476	.060	.964 – 6.223
Education level	.903	.043	.017	.831 – .982
Financial confidence score	1.813	.109	.000	1.464 – 2.245
Financial knowledge	1.218	.175	.259	.865 – 1.715
Sticking to budget	.775	.175	.237	.509 – 1.182
Investment information	1.862	.164	.000	1.349 – 2.570
Advice on products	1.277	.458	.593	.521 – 3.133
Financial monitoring	.936	.124	.593	.735 – 1.193
Constant	.151	1.618	.243	

The model is significant  $\chi^2(14) = 98.512, p = .000$ . The model explains 17.9 percent (Nagelkerke  $R^2$ ) of the variance in managing monthly expenses in retirement and correctly classified 85.8 percent of cases.

**Table C-3: Logistic regression model of near-retiree households having an RRSP and financial literacy**

Variable	Exp ( $\beta$ )	SE	p	95% CI Exp ( $\beta$ )
Age	.967	.022	.116	.927 – 1.008
Sex	1.016	.224	.943	.655 – 1.577
Marital status	.444	.221	.000	.287 – .685
Household income quintile 2	Referent			
Household income quintile 3	2.349	.269	.001	1.387 – 3.979

Household income quintile 4	2.659	.280	.000	1.536 – 4.604
Household income quintile 5	8.007	3.81	.000	3.795 – 16.896
Education level	1.047	.046	.314	.957 – 1.146
Financial confidence score	1.137	.106	.226	.924 – 1.398
Financial knowledge	1.555	.184	.017	1.084 – 2.232
Sticking to budget	.681	.224	.086	.439 – 1.055
Investment information	1.088	.174	.630	.773 – 1.531
Advice on products	4.010	.405	.001	1.813 – 8.867
Financial monitoring	1.026	.131	.845	.794 – 1.326
Constant	2.287	1.438	.565	

The model is significant  $\chi^2(13) = 146.55, p = .000$ . The model explains 29.7 percent (Nagelkerke  $R^2$ ) of the variance in near-retiree households having an RRSP and correctly classified 81.2 percent of cases.

**Table C-4: Logistic regression model of near-retiree households having a TFSA and financial literacy**

Variable	Exp ( $\beta$ )	SE	p	95% CI Exp ( $\beta$ )
Age	1.017	.017	.339	.983 – 1.052
Sex	.553	.178	.001	.390 - .783
Marital status	.772	.193	.182	.529 – 1.128
Household income quintile 1	Referent			
Household income quintile 2	1.570	.366	.218	.766 – 3.217

Household income quintile 3	1.101	.362	.790	.541 – 2.239
Household income quintile 4	1.359	.359	.393	.672 – 2.748
Household income quintile 5	2.467	.367	.014	1.203 – 5.060
Education level	1.047	.037	.209	.974 – 1.126
Financial confidence score	1.583	.089	.000	1.330 – 1.885
Financial knowledge	1.130	.145	.401	.850 – 1.502
Sticking to budget	.752	.175	.104	.534 – 1.061
Investment information	1.244	.136	.108	.953 – 1.625
Advice on products	1.967	.201	.001	1.325 – 2.919
Financial monitoring	1.013	.103	.899	.828 – 1.240
Constant	.136	1.145	.081	

The model is significant  $\chi^2(14) = 122.829, p = .000$ . The model explains 20.5 percent (Nagelkerke  $R^2$ ) of the variance in near-retiree households having a TFSA and correctly classified 68.3 percent of cases.

**Table C-5: Logistic regression model of household income providing adequately for retirement and financial literacy among near-retirees**

Variable	Exp ( $\beta$ )	SE	p	95% CI Exp ( $\beta$ )
Age	1.043	.020	.037	1.003 – 1.086
Sex	.975	.190	.893	.671 – 1.415
Marital status	.615	.202	.016	.414 - .913
Household income quintile 1	Referent			

Household income quintile 2	.200	.366	.000	.098 - .409
Household income quintile 3	.653	.360	.237	.323 - 1.322
Household income quintile 4	.308	.001	.359	.152 - .622
Household income quintile 5	1.318	.395	.484	.608 - 2.858
Education level	1.081	.040	.052	.999 - 1.170
Financial confidence score	1.947	.098	.000	1.606 - 2.361
Financial knowledge	.777	.157	.108	.571 - 1.057
Sticking to budget	.873	.194	.483	.597 - 1.276
Investment information	1.174	.148	.280	.878 - 1.569
Advice on products	2.352	.264	.001	1.402 - 3.945
Financial monitoring	.916	.113	.436	.764 - 1.143
Constant	.284	1.312	.338	

The model is significant  $\chi^2(14) = 191.171, p = .000$ . The model explains 31.4 percent (Nagelkerke  $R^2$ ) of the variance in household income providing adequately for retirement among near-retirees and correctly classified 74.3 percent of cases.

**Table C-6: Logistic regression model of knowing how much is needed for retirement and financial literacy among near-retirees**

Variable	Exp ( $\beta$ )	SE	p	95% CI Exp ( $\beta$ )
Age	1.042	.018	.020	1.007 - 1.079
Sex	1.357	.174	.080	.964 - 1.910
Marital status	.881	.193	.510	.604 - 1.285



Household income quintile 1	Referent			
Household income quintile 2	1.482	.356	.270	.737 – 2.980
Household income quintile 3	1.051	.352	.888	.528 – 2.093
Household income quintile 4	1.024	.351	.946	.514 – 2.038
Household income quintile 5	1.569	.359	.209	.777 – 3.167
Education level	.997	.037	.931	.927 – 1.072
Financial confidence score	1.366	.087	.000	1.152 – 1.621
Financial knowledge	1.764	.146	.000	1.325 – 2.347
Sticking to budget	1.984	.173	.000	1.413 – 2.785
Investment information	1.080	.138	.574	.825 – 1.415
Advice on products	1.602	.209	.024	1.063 – 2.413
Financial monitoring	1.317	.101	.007	1.080 – 1.606
Constant	.004	1.201	.000	

The model is significant  $\chi^2(14) = 156.419, p = .000$ . The model explains 25.2 percent (Nagelkerke  $R^2$ ) of the variance in knowing how much is needed for retirement and correctly classified 71.5 percent of cases.

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