# Canadian Gender Gap in Financial Literacy: Confidence Matters

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# Canadian Gender Gap in Financial Literacy: Confidence Matters

*Raquel Fonseca* [*†], *Simon Lord* [‡]

## Abstract/Résumé

We construct a financial literacy index as well as a financial confidence index in order to evaluate the effect of confidence on financial literacy, and more specifically, on the gender gap in financial literacy. Results confirm the existence of a gender gap in financial literacy in Canada, and show that having a higher confidence in one's financial skills and knowledge is indeed a factor that increases one's financial literacy. Financial confidence is found not to track actual financial skills very closely across different ages, especially for women, and at older ages. We also find evidence that financial literacy and decision making are related to the relative education level of spouses. Using the Oaxaca-Blinder decomposition, confidence is also found to explain 14.15% of the gender gap in financial literacy, while being self-employed explains 19% of the gap, and taking part in the financial planning accounts for 16.76% of the gender gap difference. We find that most of the gap remains unexplained by differences in coefficients of men and women.

**Keywords/Mots-clés:** Gender, Financial Literacy, Financial Confidence

**JEL Codes/Codes JEL:** G0, I22, H00

# 1 Introduction

Financial literacy is an important skill. It is associated with a host of positive financial outcomes such as higher total household wealth, lower financial stress, higher expected retirement income and higher annual portfolio returns (Bianchi, 2018, Lusardi, Michaud, and Mitchell, 2017, Neubert and Bannier, 2016, Nolan and Doorley, 2019, Van Rooij, Lusardi, and Alessie, 2012).

Yet, there is a general agreement in the empirical literature that women have lower levels of financial knowledge than men (Cupák, Fessler, Schneebaum, and Silgoner, 2018, Drolet, 2016, Fonseca, Mullen, Zamarro, and Zissimopoulos, 2012, Greimel-Fuhrmann and Silgoner, 2018, Neubert and Bannier, 2016, Nolan and Doorley, 2019), and the gap persists throughout the life cycle (Lusardi and Mitchell, 2017, Lusardi and Tufano, 2009, 2015, Lusardi, Mitchell, and Curto, 2010) and across many countries (Agnew and Harrison, 2015, Bucher-Koenen, Lusardi, Alessie, and Van Rooij, 2017, Cupak, Fessler, Silgoner, and Ulbrich, 2018, Filipiak and Walle, 2015, KirbiÅ¡, Vehovec, and Galic, 2017). This finding is robust to whether one uses basic literacy questions or more sophisticated ones (Bucher-Koenen, Lusardi, Alessie, and Van Rooij, 2017, Hung, Parker, and Yoong, 2009, Lusardi, Mitchell, and Curto, 2012).

Potential explanations for this gap range from the division of labour for financial decisions within couples (Bucher-Koenen, Lusardi, Alessie, and Van Rooij, 2017, Fonseca, Mullen, Zamarro, and Zissimopoulos, 2012) to differences in perceptions of mathematical and financial abilities between men and women (Farrell, Fry, and Risse, 2016), differences in institutions (Cupak, Fessler, Silgoner, and Ulbrich, 2018), differences in labour market choices such as sector, occupation, industry, union membership and labour market status (Preston and Wright, 2019), and early differences in financial socialisation between boys and girls (Agnew and Cameron-Agnew, 2015, Agnew, Maras, and Moon, 2018).

This research fits within a wider body of literature that aims to analyze the relationship between non-cognitive characteristics and financial behaviours and outcomes. This includes papers like McCarthy (2011), which investigates the influence of self-control and the propensity to plan on financial distress, as well as papers like Allom, Mullan, Monds, Orbell, Hamilton, Rebar, and Hagger (2018) and Barberis and Thaler (2003), which respectively analyse the role of self-control on saving behaviour, and review work done in the field of behavioural finance. This approach to financial markets argues that some financial phenomena can be better understood using models in which some agents are not fully rational.

In this paper, we investigate the socioeconomic and demographic factors associated with the gender gap in financial literacy in Canada, particularly stressing the importance of confidence.

Confidence has been found to be an important factor in leading to outcomes related to financial well-being (Farrell, Fry, and Risse, 2016, Fernandes, Lynch Jr, and Netemeyer, 2014, Simhon and Trites, 2017). It may very well be that confidence is related to positive financial outcomes through increased financial literacy. Indeed, Simhon and Trites (2017) find that, among retirees and near-retirees, one of the two most important elements of financial literacy is financial confidence. But the relationship between confidence and literacy is not limited only to financial confidence. The relationship is robust and persistent even when testing different and related dimensions of self-confidence. Arellano, Cámara, and Tuesta (2014), for instance, find that Spanish students with higher levels of confidence, whether it be self-confidence in the environment of their college, self-confidence referring to the utility found at school, self-confidence in relation to the results obtained, or self-confidence in a broader sense, score higher in financial literacy tests. Regarding the gender gap in financial literacy more specifically, literature has shown that women generally have less confidence in their financial knowledge than men (Drolet, 2016, Neubert and Bannier, 2016), and this seems to hold across many countries (Bucher-Koenen, Lusardi, Alessie, and Van Rooij, 2017) and occupational choices (Junior and Jose, 2019). This might influence their literacy scores, and research has shown seems to confirm this hypothesis, even if there is still very little research on the influence of confidence on the gender gap in financial literacy. Arellano, Cámara, and Tuesta (2018), for instance, show that confidence explains part of the difference in financial knowledge between Spanish boys and girls. According to Van Rooij, Lusardi, and Alessie (2012), it may be that confidence, amongst other factors, reduces financial planning costs. To be more precise, confidence reduces the economic and psychological barriers to acquiring information, doing calculations and developing a financial plan. Confidence may also be related to positive financial outcomes because it reflects a belief that one has the power to produce desired effects. This facilitates success in tasks where approach and persistence requires the self-belief that gives one an incentive to persevere (Fernandes, Lynch Jr, and Netemeyer, 2014).

In short, confidence appears to reduce the costs of acquiring information, including financial literacy, and thus influences financial outcomes. Given that women have lower levels of confidence than men, it would only naturally follow that a gender gap in financial literacy might result.

However, the research in this area remains limited, and few articles have investigated

the role of confidence in explaining the gender gap in financial literacy in adults. Hence, we investigate how confidence is related to financial literacy, and more specifically, if and to what degree financial confidence can explain the gender gap in financial literacy for Canadians. Our paper adds to the literature in that this question has not yet been explored in Canada.Perhaps more importantly, this question has not yet been, to our knowledge, analysed in adults by many authors. Simhon and Trites (2017) did investigate the influence of confidence on different financial variables, but focused their efforts mostly on retirees and near-retirees. In this paper, we focus on gender and look at how financial confidence is related to financial literacy over the life cycle.

We use the Canadian Financial Capability Survey (CFCS) for 2009 and 2014. We build a financial literacy index used by Lalime and Michaud (2014) that combines multiple dimensions of financial literacy and is based on answers given to five questions about basic areas or concepts relating to personal finances and investing: buying power, credit, interest, inflation and financial products. We examine the determinants of financial literacy by gender, looking more specifically at variables such as age, education, labor force status, having followed a course on personal finance, participation in the family's financial responsibilities, and confidence (self-rated financial knowledge and skills). We also study the determinants of participation in financial planning. Third, we use the Blinder-Oaxaca decomposition to understand the difference in financial literacy between men and women, looking particularly at the role of confidence. This allows us to determine what proportion of the gender gap is explained by differences in covariates, that is, characteristics of the compared groups (such as confidence, labor force status, etc.), or by differences in coefficients, that is, how literacy is produced (i.e. acquired).

The main results confirm the existence of a gender gap in financial literacy in Canada, and show that having a higher confidence in one's financial skills and knowledge is indeed a factor that is associated with one's financial literacy. Financial confidence is found not to track actual financial skills very closely across ages, especially for women, as well as at older ages. We also find evidence that financial literacy and decision making are related to the relative education level of spouses. Additionally, using the Oaxaca-Blinder decomposition, we find that confidence explains a part of the gender gap in financial literacy. However, we find that most of the gap remains unexplained by differences in coefficients of men and women.

While we do not conduct a causal analysis or estimate a causal effect of financial confidence on financial literacy, we do investigate possible causal pathways between them. However, it should be borne in mind that potential endogeneity issues make the causality difficult

to establish between certain variables, notably financial confidence and literacy as well as participation in financial responsibilities and financial literacy. More specifically, it may be that the relation found in this paper between those variables is indicative of a reverse causality. Individuals with higher financial literacy, for instance, could very well be more confident about their financial skills. In addition, we cannot exclude that numeracy may be an omitted variable correlated with both confidence and financial literacy, but the survey does not include any question measuring numeracy. And so although we consider unlikely that our results would be entirely due to reverse causality, in light of the literature, it remains important to mention that we cannot exclude the possibility that some estimates may be biased, and that further research is needed in this area before any firm conclusion can be drawn.

The remainder of the paper is structured as follows. First, section 2 describes the data and offers a descriptive analysis of financial literacy and responsibilities by gender. Second, section 3 presents the empirical strategy. Section 4 presents the results, section 5 discusses the results as well as policy implications, and section 6 concludes.

# 2 Data and Descriptive Statistics

We use the Canadian Financial Capability Survey (CFCS). This cross-sectional survey, designed to measure Canadians' knowledge, abilities and behaviours concerning financial decision-making, money management, budgeting and general financial planning, targets Canadians aged 18 and older. We use the years 2009 and 2014, that is, the only two years available. All dollar amounts are in 2009 constant dollars.

The sample consists of 15,519 respondents for the year 2009 and 6,685 for the year 2014, for a total of 22,204 for both years combined. All in all, 10,000 respondents are men, and 12,204 are women. The Appendix B presents a table with summary statistics (number of observations, mean and standard deviation) for all the variables used hereafter.

## 2.1 Measuring Financial Literacy

To measure the dependent variable, financial literacy, we construct an index similar to that used by Lalime and Michaud (2014) and Drolet (2016), inspired by the works of Lusardi and Mitchell (2007a,b), which is similar to that developed by Hung, Parker, and Yoong (2009).

It is based on five questions we have selected (see Appendix A). It takes the value of 1 if the respondent has answered those five questions correctly. Those are the respondents we classify as having a high level of financial literacy. Respondents with fewer than five correct answers get coded as a 0. As pointed out by Drolet (2016), the âfive questions correctâ indicator has an important advantage (compared to simply using a continuous variable constructed from those five questions), which is to identify individuals who can understand all basic financial concepts (such as interest, inflation, etc.).

## 2.2 Measuring Confidence

The CFCS includes many variables reporting respondents' self-rated level of financial skills. To better measure respondents' confidence in their own financial capabilities, we use those subjective personal assessment variables to construct a single confidence variable.

We use five questions designed to capture respondentsâ perception of their abilities related to financial management, and then use factor analysis (i.e., principal components analysis) to reduce these variables into a single variable with scores ranging from -2 to 2 (see Simhon and Trites, 2017). More specifically, we first select five variables reporting respondents' self-reported financial skills and knowledge. The five variables we selected were chosen because they are the only ones in the survey directly asking respondents to rate their own skills. Table 1 presents these questions. Note that the answers were all rated on a Likert scale of 1 to 4 (from "Not very knowledgeable" and "Fairly knowledgeable" to "Knowledgeable" and "Very knowledgeable", or "Not very good" and "Fairly good" to "Good" and "Very good"), and that respondents could also refuse to answer a question as well as answer that they did not know. We then use principal component analysis to reduce those five variables into one, that we henceforth call the confidence index. The variable thus created shows a good level of internal consistency ($\alpha = .753$). Its scale ranges from 1 to 4.

## 2.3 Other Variables

Some covariates need to be constructed. More specifically, the personal finance training variable takes the value of 1 if the respondent took a course on finances in the past 5 years, and zero otherwise. The role in the familyâs financial planning is measured using a variable that we construct from a question available in the CFCS asking respondents "Overall, who

Table 1: Questions for the five variables used to build the financial confidence index

| | |
|---|---|
| **Financial knowledge** | How would you rate your level of financial knowledge? |
| **Keeping track of money** | How would you rate yourself on each of the following areas of financial management:... keeping track of money? |
| **Making ends meet** | How would you rate yourself on each of the following areas of financial management:... making ends meet? |
| **Shop for financial products** | How would you rate yourself on each of the following areas of financial management:... shop around to get the best financial product such as loans or insurance rates? |
| **Staying informed** | How would you rate yourself on each of the following areas of financial management:... staying informed on financial issues? |

is mainly responsible for making financial investment and planning decisions on behalf of the family?" The choice of answers is the following: "Mainly you", "Partner", "Share", "Someone else", "Nobody in particular", "Someone outside of the household". From this, we create a binary variable taking the value of 1 if the respondent answered "Mainly you" or "Share", and zero otherwise. We use this variable to indicate whether the respondent takes part in the familyâs financial planning, or not. The variable characterizing the respondent's role in the familyâs responsibility for bills is constructed similarly. The labour force status variable has seven categories: employed, self-employed, unemployed, out of labour force, retired, student, doing unpaid housework. The education variable relates to the highest education level attained, and is divided into four levels: no highschool; highschool; college, CEGEP[1], trade; and university.

We measure respondents' work type relative to their spouse's in the following way. First, we create a binary variable indicating whether a respondent is a blue collar worker or white collar worker. We do the same for the respondent's spouse. Note that the CFCS is not a survey with linkage of household survey responses. However, it does provide a variable pertaining to the self-declared occupation for the respondent, and another one in which the respondent declares his or her spouse's occupation. The occupations are classified into ten categories:

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[1]CEGEP is a post-secondary technical and/or preâuniversity education level that is specific to the province of QuÃ©bec. Technical programs typically last three years while pre-university programs usually last two years and fill the gap between secondary school and undergraduate degrees, both of which last one year less in QuÃ©bec compared to the rest of Canada.

1. Management Occupations
2. Business, Finance and Administrative Occupations
3. Natural and Applied Sciences and Related Occupations
4. Health Occupations
5. Occupations in Social Science, Edu, Gvt Service and Religion
6. Occupations in Art, Culture, Recreation and Sport
7. Sales And Service Occupations
8. Trades, Transport and Equipment Operators and Related
9. Occupations Unique to Primary Industry
10. Occupations Unique to Processing, Manufacturing and Utilities

Following Aydede (2014), we create a binary variable for the respondents classifying them as white collar workers if their occupation falls in categories 1-6, and blue collar if their occupation falls in categories 7-10. We do the same for each respondent's spouse. Finally, we create a categorical variable with three categories: respondent and spouse engage in the same type of work; respondent is blue collar and spouse is white collar; respondent is white collar and spouse is blue collar.

## 2.4 Descriptive Statistics

Let us begin by looking at descriptive statistics of respondents' financial outcomes, skills and perceived skills (financial confidence). Our sample and analysis focus on couples. This will allow us to relate our results as how couples share financial responsibilities. Women's financial outcomes are on the whole worse than men's (see Table 2). When men are asked, 63.41% of them respond being the highest earner in their couple. The portrait is the same when it is women are the respondents, i.e., women earn less that their respective spouses. Although they have lower levels of debt, women also have lower levels of assets, lower incomes before taxes and a lower net worth. Women, for instance, have a median net worth of $150,000 and an average income before taxes of $32,136 while men have median net worth of $220,000 and an average income before taxes of $52,639.

Table 3 shows weighted summary statistics for men and women related to their actual and perceived financial skills. Women's involvement in the family's financial planning is lower than men's: 71.91% of women take part in their family's financial planning, while 79.87% of men do so. Furthermore, 11.43% of them have taken a class on finances in the past five years, compared to 12.31% for men. On the other hand, they are more likely to take part in the family's responsibility for bills (71.36% compared to 67.24%), although

the nature of this responsibility is more administrative than strategic, and as such might presumably require (and produce) less financial knowledge.

Women's overall reduced involvement in financial matters could possibly explain their lower financial literacy scores. On average, they correctly answer only 2.70 questions of the five questions used to create the financial literacy index (see section 2.1 for more details on this index), while men correctly answer 2.97 questions. This gives women an average score of 0.12 on the financial literacy index, while men get a score of 0.15. Women's reduced confidence in their own financial skills could also possibly explain their lower financial literacy scores. On a scale of four, women rate themselves lower than men for three of the five variables we use to construct the confidence index variable (see section 2.2 for more details on the index): self-rated level of financial knowledge; self-rated skill at shopping for financial products; and staying informed on financial issues. Here again, women outperform men in those (two) skills which are more administrative in nature (self-rated skills at keeping track of money and making ends meet), rather than strategic. On the whole, descriptive statistics for the confidence index variables show that women have lower overall confidence compared to men.

Looking in more detail at financial literacy by gender across many variables, the picture remains largely unchanged: women's financial literacy is lower than men's. Given similar family situations as well as similar levels of general education, training in personal finance, participation in the family's responsibility for bills or financial planning, or profession type, women's financial literacy scores on the index remain lower than men's. Their scores are also lower across most of age groups (although they score higher than men between ages 25 and 44) and labour force status (although women score, on average, higher than men when both are out of the labor force and and equal to men when both are self-employed).

Further analysis of descriptive statistics shows that women are less confident about their financial skills than men, even at equal levels of actual financial literacy. Table 4 shows the average score on the confidence index by gender and actual financial literacy score. Results show that given an identical level of financial literacy, as measured by the number of correct answers given to the five questions used to build the financial literacy index, women will rate themselves as less knowledgeable than men. Women who are highly literate, for example, give themselves a score of 2.87 on average while men give themselves a score of 2.97. This might be due to women having stricter rating criteria rather than them being less confident about their skills. However, looking at Figure 1, we can see that women are also much more likely than men (nearly twice for those with a university diploma), across all levels of education, to declare that they do not know the answer to a

question, which might reflect a lower level of confidence. And while they do answer fewer questions correctly than men, they also answer fewer questions incorrectly for the three lowest education categories, i.e., without a university education. This is in line with what has been found by previous research, which has found that while women are less likely to answer financial literacy questions correctly than men, they are also more likely to answer that they âdo not knowâ an answer to a question (Bucher-Koenen, Lusardi, Alessie, and Van Rooij, 2017, Chen and Garand, 2018), a result that is consistent across countries (Lusardi and Mitchell, 2014). Note that research has also found that the gender gap in financial literacy cannot be simply explained by a higher inclination of men to guess in tests (Cwynar, Cwynar, and Szuba, 2018).

Figure 2 shows the average number of correct, incorrect and do-not-know answers to the financial literacy index's five questions by age and gender. More specifically, it plots a quadratic prediction of correct, incorrect and do-not-know answers from a regression of a quadratic in age for each gender. Confidence intervals (95%) are also shown. The overall trends are relatively similar for both men and women: the number of correct answers rises until the mid-fifties and falls afterwards; the number of do-not-know answers follows the opposite trajectory and falls until the mid-forties while it rises quickly afterwards. Looking at the number of incorrect answers, though, we do notice a difference between men and women. While men's number of incorrect answers decreases until about 60 years old and then stabilizes (or even rises a little bit in old age), women's number of incorrect answers appears to decrease throughout their lives.

Finally, Figure 3 shows the normalized (transformed to have a zero mean and unit variance) average number of correct answers to the financial literacy index's five questions by age plotted against six normalized variables of confidence. The six confidence variables are the confidence index as well as the five confidence variables that are used to build this index. All plot lines are drawn from quadratic predictions. Confidence intervals (95%) are also shown. The plots show that men and women's financial literacy deteriorates, overall, after the mid fifties. They also show that women's perceived skills after their fifties do no track their actual skills as closely as men. More specifically, the plots show that both men and women's financial skills decrease quickly after their fifties, but women appear not to realize it as much as men. Looking at the plot (f), for instance, which shows normalized average number of correct answers plotted against the normalized confidence index, we see that men's confidence in their financial skills falls after their fifties, albeit more slowly than their measured skills, while women's confidence levels continue to increase.

# 3 Empirical Strategy

This paper's aims are twofold. First, we wish to examine the determinants of financial literacy by gender looking at variables such as age, education, labor force status, having followed a course on personal finance, participation in the family's financial responsibilities, and more specifically, confidence (self-rated financial knowledge). We also study the determinants of participation in financial planning. Second, we use the Oaxaca-Blinder decomposition to understand the difference in financial literacy between men and women. This allows us to determine how much of the gender gap is explained by differences in covariates, that is, characteristics of the compared groups (for instance, confidence, labour force status or education), or by differences in coefficients, that is, how literacy is produced (i.e., acquired). We will provide an outline of our methodology in the following paragraphs.

In order to better understand the role of confidence in financial matters, we now turn to three different sets of models. First, we look at the determinants of financial literacy by gender, stressing in particular the importance of confidence. Then, we look at the factors related to the taking part in the family's financial planning, again by gender, to better understand household specialization in financial matters. More specifically, we focus on the effect of confidence as well as education level relative to one's spouse. Third, and finally, we use the Oaxaca-Blinder decomposition to understand which characteristics (financial confidence being among them) can explain the gender gap in financial literacy.

## 3.1 Determinants of Financial Literacy

First, we evaluate the determinants of financial literacy using a weighted logit model. We initially estimate this model for the whole sample and then for men an women separately:

$$P(FL_{it} = 1) = f(\beta_0 + \beta_1 X'_{it} + \beta_2 Confidence_{it} + \epsilon_i), \tag{1}$$

where the dependent variable $FL$ ("Financial literacy") is the financial literacy index defined above, $Confidence_{it}$ is the confidence index, also defined above, and $X'_{it}$ contains all of the following control variables: sex, a quadratic polynomial of age, personal finance training, role in the familyâs financial planning, role in the familyâs responsibility for bills, labour force status, education, respondent's work type relative to spouse's, province and year. Since we include the above-mentioned "respondent's work type relative to spouse's" variable, this set of regressions includes only couples.

Here, one should keep in mind that, as mentioned in the introduction, this approach allows one only to explore and speculate on potential causal pathways between our variables of central interest. It does not, on the other hand, permit concluding outright, where a significant relation between an independent variable and the dependent variable is found, that such a relationship is necessarily causal.

## 3.2 Specialization in Financial Responsibilities

Second, given that the literature points to specialization in financial responsibilities, we then do a similar modeling exercise for the financial planning variable. More specifically, we estimate three specifications (full sample, women only and men only) of a logit model of taking part in the family's financial planning.

To better understand the determinants of taking part in financial planning, we construct the following model:

$$P(TPFP_{it} = 1) = f(\beta_0 + \beta_1 X'_{it} + \beta_2 RelativeIncome_{it} + \epsilon_i), \tag{2}$$

where $TPFP$ ("Taking part in financial planning") is the binary variable indicating whether a respondent takes part, or not, in the family's financial planning, and $X'_{it}$ contains the following variables: sex, a quadratic polynomial of age, couple without children, couple with children, personal finance training, financial literacy index, confidence index, respondent's work type relative to spouse's as well as province and year controls. Once more, since we include the variable "respondent's work type relative to spouse's", this set of specifications includes only couples.

$RelativeIncome_{it}$ is a variable indicating whether the respondents' income is equal, less or greater than their spouse's. It is constructed from the respondent's own self-declared income before taxes as well as the income before taxes of his or her spouse. Since the CFCS does not provide a variable reporting spousal income, we derive spousal income by calculating the difference between total household income, which is provided in the survey (and self-declared by the respondent [2]), and the respondentâs total income, thus following Drolet (2016).

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[2] The question for the years 2014 is the following (it has the same form for 2009): "What is your best estimate of the total income of all household members (including yourself) before taxes and deductions from all sources during the year ending December 31, 2013?"

## 3.3   Gender Financial Literacy Gap

Third, we use the Oaxaca-Blinder decomposition to better understand the role of confidence, as well as other factors, in explaining the gender gap in financial literacy scores.

Because the binary financial literacy index is a dependent variable in our model, we use the logit decomposition proposed by Yun (2004). Hence, suppose that $FL$ ("financial literacy") is the binary financial literacy index variable, $prob(FL = 1) = \sigma(X\beta)$, and $\sigma$ is a standard cumulative logistic distribution function. The decomposition of the difference in financial literacy between men and women can then be written as follows:

$$\overline{FL}_M - \overline{FL}_W = \sum_{i=1}^{i=K} W_{\Delta X}^i [\overline{\sigma(X_M \beta_M)} - \overline{\sigma(X_W \beta_M)}] + \sum_{i=1}^{i=K} W_{\Delta \beta}^i [\overline{\sigma(X_W \beta_M)} - \overline{\sigma(X_W \beta_W)}], \quad (3)$$

where $FL$, $X$, and $\beta$ are respectively an $N \times 1$ vector, an $N \times K$ matrix of independent variables, and a $K \times 1$ vector of coefficients; and the overbar notation represents the value of the sampleâs average. Again following Yun (2004), note that the weight of the contribution of each variable to the characteristics and coefficients effects are calculated as follows:

$$W_{\Delta X}^i = \frac{(\overline{X}_M^i - \overline{X}_W^i)\beta_M^i f(\overline{X}_M \beta_M)}{(\overline{X}_M - \overline{X}_W)\beta_M f(\overline{X}_M \beta_M)} = \frac{(\overline{X}_M^i - \overline{X}_W^i)\beta_M^i}{(\overline{X}_M - \overline{X}_W)\beta_M}, \quad (4)$$

$$W_{\Delta \beta}^i = \frac{\overline{X}_W^i(\beta_M^i - \beta_W^i) f(\overline{X}_W \beta_W)}{\overline{X}_W(\beta_M - \beta_W) f(\overline{X}_W \beta_W)} = \frac{\overline{X}_W^i(\beta_M^i - \beta_W^i)}{\overline{X}_W(\beta_M - \beta_W)}, \text{ and} \quad (5)$$

$$\sum_{i=1}^{i=K} W_{\Delta X}^i = \sum_{i=1}^{i=K} W_{\Delta \beta}^i = 1 \quad (6)$$

In the first model, we use the following independent variables: a quadratic polynomial of age, financial training, role in the familyâs financial planning, role in the familyâs responsibility for bills, education, labour force status. In the second model, we add the proposed confidence index variable.

# 4 Results

We first show the results for the logit model evaluation of the determinants of financial literacy using the financial literacy index as a dependent variable. Table 5 shows the results for the three specifications: the first for men and women (grouped), the second for women only, and the third for men only. We run each of these three models twice: one without the financial responsibility variables, and another one with the financial responsibility variables. Looking first at the regressions including the financial responsibility variables, we see in the model for both men and women that women are significantly less likely to have a high financial literacy then men, confirming that there exists a gap in financial literacy. Age is only significant for men. Confidence appears to play an important role as it is positive and significant for the three specifications, although it should be noted here one more time that this result could be the result of endogeneity, and as such, should not be interpreted as a one that is necessarily causal. It should be noted that the effect is stronger for men (5.0 pp vs 3.2 pp).

Having taken a class on finances has a positive and significant coefficient for the three specifications. More specifically, having received financial training is associated with an increase in the probability of being highly literate for both sexes, but the effect for men is roughly twice the one observed for women (9.8 pp vs 5.3 pp). General education also has an effect and it is much stronger than financial training. For women, compared to not having a high school diploma, for instance, having a college, CEGEP or trade diploma increases the probability to be higly literate by 10.9 pp. The effect for a university degree is 18.4 pp. The magnitude of this effect is even higher for men. The corresponding increases for them are approximately 35.9 pp (college, CEGEP or trade degree) and 44.2 pp (university).

Compared to being an employee, being self-employed also increases the probability of being highly literate. The effect size is 6.4 pp in women, but not significant in men. Finally, for all three models, we find that respondents whom we classify as "blue collar" are less likely to be highly literate when their spouse is "white collar" compared to couples whose work type is the same (both blue collar or both white collar). Here once more, the effect for women is stronger than for men (-9.0 pp vs -5.2 pp). Crucially, though, we have re-rerun the models and regressions shown in section 3 with a continuous variable (which measures the number of correct answers to the five questions used for the indicator), as a test of robustness, and the results remain qualitatively similar.

In order to look at heterogeneity in how confidence could affect financial literacy, we have

also added an interaction between confidence and education level, but the interactions have been found to be non significant. Other robustness checks include looking at the same models, but excluding the financial responsibility variables, we see that, overall, our results remain qualitatively and quantitatively similar (see Table 5).

We now turn to the determinants of taking part in financial planning. The analyses are summarized in Table 6. Results confirm that there exists a household specialization in financial planning. On the whole, women are 10.3 pp less likely than men to take part in the family's financial planning.

Looking at the relative earnings of respondents and their spouse, we see that a respondent who is outearned by his/her spouse will be 9.9 pp less likely to take part in the family's financial planning. It should be noted, howewer, that the effect is a between two and three times as strong for women (-14.6 pp) than for men (-5.4 pp). The results are similar for the "relative collar type" variable. More specifically, respondents who are "white collar" while their spouse is "blue collar" are more likely to take part in the family's financial planning, compared to respondents whose spouse is in the same type of job category as them. The effect is stronger for men. Inversely, women who are blue collar while their spouse is white collar are less likely to participate in the family's financial planning, while the effect is not significant for men, again showing important sex differences in household financial matters. Interestingly, being highly literate has no significant effect on the probability to take part in the family's financial planning while confidence in one's financial skills has an important effect. On the whole, an increase of one point in confidence (scale of 1-4) increases the probability by 9.3 pp, but the effect is about twice as strong for women as for men (12.3 pp vs 6.5 pp). Having taken a course on finances has a positive effect, but the difference is not great between both sexes (8.0 pp for women compared to 6.8 pp for men).

To better understand the gender gap in financial literacy, we turn next to the Oaxaca-Blinder decomposition. Table 7 presents the results of the Oaxaca-Blinder decomposition of the gender gap in financial literacy scores to the index into variations due to endowments, coefficients and their interaction. Two models are tested: (1) without the confidence index; (2) with the confidence index. The analysis of the model with the confidence variable, in column (1), shows once more that a gender gap in financial literacy exists. The difference explained by the endowments is 24.92%. The fraction of the difference explained by the taking part of the respondent in the family's financial planning is 18.56%, while that explained by being self-employed is 17.88%.

In the analysis of the model with the confidence variable, in column (2), the financial

literacy gap remains virtually unchanged, but the fraction explained by the characteristics of men and women (the endowments) increases from 24.92% to slightly more than a quarter (26.36%). More than two thirds (67.87%) of the remaining difference is due to differences in coefficients, that is, how literacy is produced. The remaining difference can be attributed to the interaction between coefficients and characteristics.

In this specification, women have an 12.15% probability to be highly financially literate while men's probability is 15.76%, resulting in a gap of 3.60%. Looking at the characteristics (endowments) that explain the difference, three of them are statistically significant: taking part in the family's responsibility for financial planning, confidence, and being self-employed. The characteristic that explains most of the difference is self-employment: it accounts for 19.05% of the gap. Taking part in the family's financial planning is the second most important characteristic: it accounts for 16.76% of the difference. Confidence, the third characteristic, accounts for 14.15% of the difference.

# 5 Discussion

Given these results, the implications for policy are numerous. First, it would be tempting to simply suggest that women's confidence should be nurtured. Since a better financial literacy leads to better financial outcomes such as planning for retirement, savings, wealth accumulation, stock market participation, choice of a low-fee investment portfolio, better diversification and more frequent stock trading (Alessie, Van Rooij, and Lusardi, 2011, Ameriks, Caplin, and Leahy, 2003, Choi, Laibson, and Madrian, 2011, Graham, Harvey, and Huang, 2009, Hung, Parker, and Yoong, 2009, Kimball and Shumway, 2006, Lusardi and Mitchell, 2007c, 2011, Stango and Zinman, 2009, Van Rooij, Lusardi, and Alessie, 2012) and low financial literacy is associated with negative credit behaviors such as debt accumulation, high-cost borrowing, poor mortgage choice, mortgage delinquency and home foreclosure (Gerardi, 2010, Moore, 2003, Stango and Zinman, 2009, Tufano and Lusardi, 2009), while confidence is positively related with financial literacy, this conclusion appears to follow. This is even more so the case considering that Bannier and Schwarz (2017) observe, looking at highly-educated women, that underconfidence hampers long-term financial planning.

On the other hand, other analyses conducted here, as well as previous findings in the literature, suggest prudence. More specifically, we have shown that confidence about one's own ability does not track very closely one's actual financial knowledge, as measured by financial literacy scores, through the life cycle. This is similar to Finke, Howe, and Huston

(2016), which looks at U.S. data and finds a consistent linear decline in financial literacy score after age 60, and also finds that confidence in financial decision-making abilities does not decline with age. The authors also show that the less educated, non-whites, and females are more likely to be financially overconfident in the old age sample. Our result is also related to Bannier and Schwarz (2017), who show that German women increasingly underestimate their financial abilities when their level of education increases. We add to this literature by showing that while men's confidence does fall after their mid 50's, albeit at a slower rate than their actual financial literacy scores, women's financial literacy continues to increase after their mid 50's, at least in Canada, while their actual financial literacy scores are falling. This is cause for concern since individuals who do not recognize the decline in their abilities might not take the appropriate measures to counterbalance this decline, such as getting expert help and advice. And overconfidence can be dangerous and lead to negative or otherwise undesirable outcomes. In the consumer realm, for instance, overconfidence (in the form of an inaccurate appraisal of one's knowledge) lowers the probability that an individual pays off their credit card each month (Peach and Yuan, 2017). In a personal finance context, empirical research has confirmed predictions of theoretical models that overconfident investors will trade excessively, thus reducing their returns (Barber and Odean, 2001). Similarly, financial literacy overconfidence, as defined as the gap between consumers' subjective and objective financial knowledge, leads consumers to be less likely to seek professional financial advice in saving/investment and mortgage but more likely to ask for advice related to debt counseling and tax planning (Porto and Xiao, 2016).

Thus, our conclusions lead us to suggest that it would be advisable not simply to aim at improving individual's financial confidence, and more specifically, women's confidence, but rather to aim at decreasing the gap between individuals' confidence and their actual knowledge. In other words, it would be helpful to improve individuals' self-assessment of their actual capacities. This could be potentially achieved in two ways. First, new measures could be put in place, or current ones enhanced, to improve financial literacy. Research such as Kruger and Dunning (1999) suggests that any measure successful in increasing individuals' actual financial literacy might have a positive impact in helping them better assess their actual capacities, and hence reduce overconfidence. This is because unskilled individuals do not possess the very knowledge that would allow them to better recognize their limitations. For instance, as suggested by Simhon and Trites (2017) (although in the specific context of retirees and near-retirees), individuals of all ages might benefit from experiential learning approaches that would allow consumers to gain first-hand experience with actual financial products and skills relevant to them. And

even if the authors note that such programs are already available, the quality of individual initiatives may be variable, and could be possibly improved. Second, new programs could be put in place, or current ones modified, specifically to better help individuals calibrate their financial confidence in relationship with their actual financial literacy. Prior research indicates ways that this could be done.

It has been known for a long time now that older drivers do not rate their sensory abilities as poorer than people much younger than them despite marked declines in their objective sensory efficiency (Holland and Rabbitt, 1992). Yet, when those drivers are provided with objective results of their eyesight and hearing tests, which showed a decline in their sensory abilities, twoâthirds of them reported, one month later, that they had made important changes in their behaviour on the roads. Many of them now avoided or took particular care in dangerous situations, for instance, while some had started to wear prescribed spectacles more often. Although more research into this question would be useful, the above-mentioned result suggests, tentatively, that it would be possible to improve individuals' calibration of their financial confidence to their actual financial knowledge by making them aware of the discrepancy between their self-assessed knowledge/skills, and their actual self-knowledge/skills.

Another important implication of the results concerns household responsibility. To re-iterate, it was found that gender differences in taking part in the family's responsibility for financial planning explained in part the gender gap in financial literacy (16.76%). Given this result, it appears reasonable to suggest keeping this information in mind when drafting policy so as not to unduly discourage women from participating in the family's responsibility for financial planning. Perhaps, in the optic of reducing the gender gap in financial literacy, it could also be possible to create training programs aimed at women, and aiming at increasing their involvement in their household's financial matters. Indeed, in light of their critical review of previous research investigating the impact of financial education programs, Hathaway and Khatiwada (2008) conclude that programs have to be timely and highly targeted towards a specific audience and area of financial activity if they are to be effective.

# 6  Conclusion

In this paper, we constructed a financial literacy index as well as a financial confidence index in order to evaluate the effect of confidence on financial literacy, and more specifically, on the gender gap in financial literacy. Our analyses confirm the existence of a

gender gap in financial literacy in Canada, and shows that having a higher confidence in one's financial skills is indeed a factor that increases one's financial literacy. We have also shown, using the Oaxaca-Blinder decomposition, that differences in self-employment choice between the sexes explain in part the gender gap in financial literacy. More specifically, analyses indicate that differences in self-employment between the sexes can explain 19.05% of the gender gap in financial literacy. It may be that the self-employed are more likely to handle financial responsibilities, in virtue of needing to manage their business, compared to employees. This would help them acquire financial skills and improve their financial literacy. Because women are less likely to be self-employed than men, it then follows that this non-involvement contributes to reducing their literacy in comparison with men, and thus explains a part of the gender gap.

It was also found that gender differences in taking part in the familyâs responsibility for financial planning explained another part the gender gap in financial literacy (16.76%).

Furthermore, results show that, although the major part of the gap remains unexplained by differences in characteristics of men and women, confidence does explain a third of the gender gap in financial literacy. More precisely, results show that differences in financial confidence between men and women can account for 14.15% of the overall difference in financial literacy between the sexes. This result supports previous research, such as Arellano, Cámara, and Tuesta (2018), who find that confidence can explain a part of the gender gap for 15-year-old students in Spain.

However, further research should continue to study gender financial literacy gap, since our results show that most of the gap remains unexplained by differences in the coefficients of men versus those of women.

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# Figures

Figure 1: Average Number of "Correct", "Incorrect" and "Do not know" Answers to the Financial Literacy Index's Five Questions, by Sex and Education



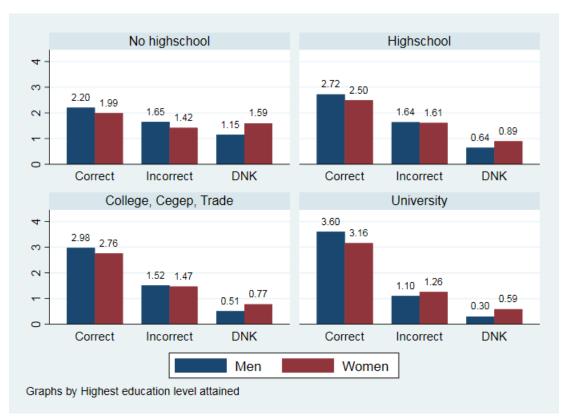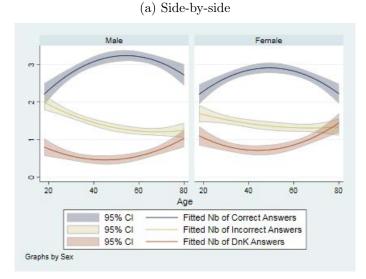Graphs by Highest education level attained

Figure 2: Average Number of "Correct", "Incorrect" and "Do not know" Answers to the Financial Literacy Index's Five Questions, by Age and Sex (Quadratic Prediction with Confidence Intervals)
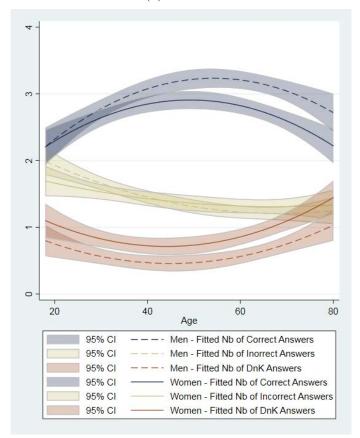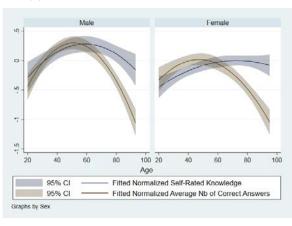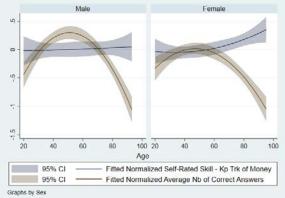
(a) Side-by-side



(b) Overlaid

Figure 3: Normalized Number of Correct Answers to the Index's Five Questions and Normalized Average Score on Different Indexes of Confidence (Quadratic Predictions with Confidence Intervals)
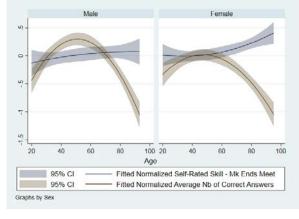
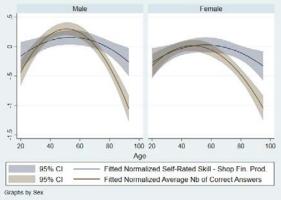(a) Self-rated level of financial knowledge



(b) Self-rated skill: keeping track of money
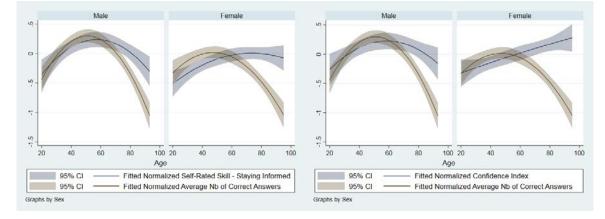


(c) Self-rated skill: making ends meet



(d) Self-rated skill: shopping for fin. products



(e) Self-rated skill: staying informed (fin. issues)



(f) Confidence index

# Tables

Table 2: Financial Outcomes by Sex

|  | Male | Female |
|---|---|---|
| Spouse with the highest income | | |
|     Respondent | 63.41* | 38.76* |
|     Spouse | 29.22* | 54.35* |
|     Equal | 7.38 | 6.90 |
|  | | |
| Median net worth | 220000.00* | 150000.00* |
| Median debt | 54825.00* | 45687.00* |
| Median assets | 325000.00* | 242142.00* |
| Mean income before taxes (respondent) | 52639.00* | 32136.00* |
| Mean income before taxes (spouse) | 40323.00* | 50653.00* |

[*] Differences across gender are significant at least at the 5% level. For the means, a t-test was used; for the medians, the Wilcoxon rank-sum test was used.
Weighted data.
Data: CFCS (2009; 2014).

## Table 3: Characteristics of Respondents

|  | Male | Female |
|---|---|---|
| Takes part in the family's financial planning (%) | 79.87* | 71.91* |
| Takes part in the family's responsibility for bills (%) | 67.24* | 71.36* |
|  |  |  |
| Took a course on finances in the past 5 yrs (%) | 12.31* | 11.43* |
| Mean nb of correct answers to 5 fin. lit. questions | 2.97* | 2.70* |
|  |  |  |
| Mean confidence (scale 1-4) | 2.78* | 2.70* |
| Mean self-rated level of financial knowledge (scale 1-4) | 2.34* | 2.14* |
| Mean self-rated skill - keeping track of money (scale 1-4) | 2.96* | 3.01* |
| Mean self-rated skill - making ends meet (scale 1-4) | 3.20 | 3.23 |
| Mean self-rated skill - shopping for financial products (scale 1-4) | 2.84* | 2.75* |
| Mean self-rated skill - staying informed on financial issues (scale 1-4) | 2.52* | 2.32* |
|  |  |  |
| % of respondents who have high fin. lit. |  |  |
|     All | 0.15* | 0.12* |
|  |  |  |
|     No highschool | 0.05* | 0.03* |
|     Highschool | 0.10* | 0.09* |
|     College, Cegep, Trade | 0.14* | 0.11* |
|     University | 0.27* | 0.19* |
|  |  |  |
|     Profession type (respondent) |  |  |
|      White collar | 0.24* | 0.16* |
|      Blue collar | 0.10* | 0.07* |
|     Profession type (spouse) |  |  |
|      White collar | 0.21* | 0.17* |
|      Blue collar | 0.15* | 0.11* |
|  |  |  |
|     Took a course on finances in the past 5 yrs |  |  |
|      No | 0.14* | 0.11* |
|      Yes | 0.25* | 0.17* |
|  |  |  |
|     Takes part in the family's financial planning |  |  |
|      No | 0.07 | 0.07 |
|      Yes | 0.17* | 0.14* |
|     Takes part in the family's responsibility for bills |  |  |
|      No | 0.11* | 0.08* |
|      Yes | 0.17* | 0.13* |
|  |  |  |
|     25-34 | 0.08* | 0.11* |
|     35-44 | 0.14* | 0.15* |
|     45-54 | 0.17 | 0.13 |
|     55-59 | 0.21 | 0.13 |
|     60-64 | 0.24* | 0.16* |
|     65-69 | 0.19* | 0.11* |
|     70+ | 0.11* | 0.07* |
|  |  |  |
|     Couple w/o kid(s) | 0.18* | 0.13* |
|     Couple w/ kid(s) | 0.17* | 0.12* |
|  |  |  |
|     Employed | 0.16* | 0.13 |
|     Self-Employed | 0.23* | 0.23* |
|     Unemployed | 0.08 | 0.07 |
|     Out of Labor Force | 0.07 | 0.09 |
|     Retired | 0.14* | 0.10* |
|     Student | 0.06 | 0.04 |

* Differences across gender are significant at least at the 5% level (t-test).
Weighted data.
Data: CFCS (2009; 2014).

Table 4: Average Score on the Confidence Index (Scale of 1-4), by Actual Financial Literacy Scores

|  | Male | Female |
|---|---|---|
| Nb of correct answers to FL index question |  |  |
| 0/5 | 2.57* | 2.43* |
| 1/5 | 2.60 | 2.56 |
| 2/5 | 2.67 | 2.67 |
| 3/5 | 2.77 | 2.72 |
| 4/5 | 2.87* | 2.77* |
| 5/5 | 2.97* | 2.87* |

[*] Differences across gender are significant at least at the 5% level (t-test).
Weighted data.
Data: CFCS (2009; 2014).

## Table 5: Determinants of Financial Literacy

| | —w/ fin. resp. vars— | | | —w/o fin. resp. vars— | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| | All | Women | Men | All | Women | Men |
| Female | -0.040*** | | | -0.042*** | | |
| | (0.01) | | | (0.01) | | |
| Age | 0.007 | 0.005 | 0.011* | 0.007 | 0.005 | 0.011* |
| | (0.00) | (0.01) | (0.01) | (0.00) | (0.01) | (0.01) |
| Age squared | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) |
| Tk a course on fin. in the past 5 yrs | 0.085*** | 0.053** | 0.098*** | 0.086*** | 0.054** | 0.099*** |
| | (0.02) | (0.02) | (0.03) | (0.03) | (0.02) | (0.03) |
| Takes part in the family's fin. plan. | 0.021 | 0.019 | 0.024 | | | |
| | (0.02) | (0.02) | (0.03) | | | |
| Takes part in the family's resp. for bills | 0.012 | 0.009 | 0.015 | | | |
| | (0.02) | (0.02) | (0.02) | | | |
| Confidence index | 0.042*** | 0.032** | 0.050*** | 0.044*** | 0.034** | 0.052*** |
| | (0.01) | (0.01) | (0.02) | (0.01) | (0.01) | (0.02) |
| Employed | ââ | ââ | ââ | ââ | ââ | ââ |
| Self-Employed | 0.041* | 0.064** | 0.018 | 0.040* | 0.063** | 0.017 |
| | (0.02) | (0.03) | (0.03) | (0.02) | (0.03) | (0.03) |
| Unemployed | -0.026 | -0.026 | -0.038 | -0.025 | -0.025 | -0.036 |
| | (0.03) | (0.04) | (0.05) | (0.03) | (0.04) | (0.05) |
| Out of Labor Force | 0.032 | 0.077 | 0.000 | 0.029 | 0.074 | 0.000 |
| | (0.09) | (0.07) | (.) | (0.09) | (0.07) | (.) |
| Retired | 0.065 | 0.108** | 0.026 | 0.067 | 0.111** | 0.026 |
| | (0.04) | (0.05) | (0.05) | (0.04) | (0.05) | (0.05) |
| Student | -0.065 | -0.099 | -0.048 | -0.066 | -0.102 | -0.043 |
| | (0.04) | (0.10) | (0.09) | (0.05) | (0.10) | (0.09) |
| Doing unpaid housework | 0.024 | 0.003 | 0.290** | 0.020 | 0.000 | 0.281* |
| | (0.06) | (0.06) | (0.15) | (0.06) | (0.06) | (0.15) |
| No highschool | ââ | ââ | ââ | ââ | ââ | ââ |
| Highschool | 0.081*** | 0.076 | 0.307*** | 0.081*** | 0.075 | 0.308*** |
| | (0.02) | (0.05) | (0.06) | (0.02) | (0.05) | (0.06) |
| College, Cegep, Trade | 0.118*** | 0.109** | 0.359*** | 0.118*** | 0.108** | 0.362*** |
| | (0.01) | (0.05) | (0.06) | (0.01) | (0.05) | (0.06) |
| University | 0.210*** | 0.184*** | 0.442*** | 0.212*** | 0.184*** | 0.446*** |
| | (0.02) | (0.05) | (0.06) | (0.02) | (0.05) | (0.06) |
| Same collar | ââ | ââ | ââ | ââ | ââ | ââ |
| Respondent white collar, spouse blue collar | -0.013 | -0.019 | 0.007 | -0.012 | -0.018 | 0.009 |
| | (0.02) | (0.02) | (0.03) | (0.02) | (0.02) | (0.03) |
| Respondent blue collar, spouse white collar | -0.054*** | -0.090* | -0.052* | -0.056*** | -0.094** | -0.053* |
| | (0.02) | (0.05) | (0.03) | (0.02) | (0.05) | (0.03) |
| Province controls | Yes | Yes | Yes | Yes | Yes | Yes |
| Year controls | Yes | Yes | Yes | Yes | Yes | Yes |
| N | 6,235 | 3,212 | 2,999 | 6,247 | 3,218 | 3,005 |

* Weighted data, marginal effects.
â * p<0.10, ** p<0.05, *** p<0.01
   Data: CFCS (2009; 2014).

Table 6: Determinants of Taking Part in Financial Planning

|  | (1)<br>All | (2)<br>Women | (3)<br>Men |
|---|---|---|---|
| Female | -0.103*** |  |  |
|  | (0.02) |  |  |
| Age | 0.001 | 0.011 | -0.006 |
|  | (0.00) | (0.01) | (0.01) |
| Age squared | -0.000 | -0.000** | 0.000 |
|  | (0.00) | (0.00) | (0.00) |
| Couple w/o kid(s) | ââ | ââ | ââ |
|  |  |  |  |
| Couple w/ kid(s) | -0.005 | -0.035 | 0.020 |
|  | (0.02) | (0.03) | (0.02) |
| Took a course on finances in the past 5 yrs | 0.069*** | 0.080** | 0.068** |
|  | (0.02) | (0.03) | (0.03) |
| High literacy | 0.029 | 0.020 | 0.037 |
|  | (0.02) | (0.03) | (0.02) |
| Confidence | 0.093*** | 0.123*** | 0.065*** |
|  | (0.01) | (0.02) | (0.02) |
| Respondent outearns spouse | ââ | ââ | ââ |
|  |  |  |  |
| Spouse outearns respondent | -0.099*** | -0.146*** | -0.054** |
|  | (0.02) | (0.03) | (0.02) |
| Spouses earn the same | -0.037 | -0.078* | -0.017 |
|  | (0.03) | (0.05) | (0.03) |
| Same collar | ââ | ââ | ââ |
|  |  |  |  |
| Respondent white collar, spouse blue collar | 0.060*** | 0.070*** | 0.084** |
|  | (0.02) | (0.03) | (0.04) |
| Respondent blue collar, spouse white collar | -0.047* | -0.096** | -0.017 |
|  | (0.02) | (0.04) | (0.02) |
| Province controls | Yes | Yes | Yes |
| Year controls | Yes | Yes | Yes |
| N | 6,121 | 3,157 | 2,964 |

* Weighted data, marginal effects.
â * p<0.10, ** p<0.05, *** p<0.01
  Data: CFCS (2009; 2014).

Table 7: Blinder-Oaxaca Decomposition of Gender Gap in Financial Literacy Scores on the Financial Literacy Index

|  | (1) | | (2) | |
|---|---|---|---|---|
|  | Coef. | P>\|z\| | Coef. | P>\|z\| |
| Men | .153 | 0.000 | .157 | 0.000 |
| Women | .117 | 0.000 | .121 | 0.000 |
| Difference | .036 | 0.000 | .036 | 0.000 |
| Endowments | .008 | 0.005 | .009 | 0.007 |
| Coefficients | .026 | 0.001 | .024 | 0.003 |
| Interaction | .000 | 0.849 | .002 | 0.634 |
|  |  |  |  |  |
| Endowments |  |  |  |  |
| Age | -.022 | 0.083 | -.021 | 0.192 |
| Age squared | .020 | 0.070 | .018 | 0.186 |
| Took a course on finances in the past 5 yrs | .000 | 0.365 | .001 | 0.269 |
| Takes part in the family's financial planning | .006 | 0.005 | .006 | 0.045 |
| Takes part in the family's responsibility for bills | -.000 | 0.574 | -.000 | 0.787 |
| Confidence index |  |  | .005 | 0.022 |
| No highschool | -.002 | 0.223 | -.003 | 0.229 |
| Highschool | .000 | 0.764 | .000 | 0.822 |
| College, Cegep, Trade | -.000 | 0.777 | -.000 | 0.629 |
| University | .000 | 0.830 | -.000 | 0.919 |
| Employed | .000 | 0.250 | .000 | 0.563 |
| Self-Employed | .006 | 0.004 | .006 | 0.025 |
| Unemployed | -.001 | 0.187 | -.002 | 0.247 |
| Out of Labor Force | .000 | 0.952 | -.000 | 0.743 |
| Retired | -.001 | 0.137 | -.000 | 0.330 |
| Student | .001 | 0.133 | .001 | 0.207 |
| Doing unpaid household work | -.000 | 0.771 | -.001 | 0.529 |
| N |  | 20,398 |  | 18,937 |

Weighted data.
Data: CFCS (2009; 2014).

# Appendix A

This index is constructed as follows. First, we select five questions amongst the 14 available in the CFCS. We use the following five, which are the same as those used by Lalime and Michaud (2014). Note that, for each question, the respondents could also refuse to answer or answer that they did not know. Asterisks denote right answers.

**Buying power**: If the inflation rate is 5% and the interest rate you get on your savings is 3%, will your savings have at least as much buying power in a year's time?
1: Yes
2*: No

**Credit**: A credit report is...?
1: A list of your financial assets and liabilities
2: A monthly credit card statement
3*: A loan and bill payment history
4: A credit line with a financial institution

**Interest**: 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?
1: Sales tax may be charged on the interest that you earn
2: You cannot earn interest until you pass your 18th birthday
3: Earnings from savings account interest may not be taxed
4*: Income tax may be charged on the interest if your income is high enough

**Inflation**: Inflation can cause difficulty in many ways. Which group would have the greatest problem during periods of high inflation that lasts several years?
1: Young working couples with no children
2: Young working couples with children
3: Older, working couples saving for retirement

4*: Older people living on fixed retirement income


**Financial products**: 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?

1: Corporate bonds

2: Mutual Funds

3*: A bank savings account

4: Locked in a safe at home

5: Stocks

# Appendix B

Table B.1: Summary Statistics of the Variables

| Variable | n | Mean | Std. Dev. |
|---|---|---|---|
| Female | 22,204 | 0.508 | 0.500 |
| Age | 22,204 | 46.710 | 17.672 |
| Took a course on finances in the past 5 yrs | 22,188 | 0.119 | 0.323 |
| Financial literacy index | 20,626 | 0.134 | 0.341 |
| Confidence index | 19,479 | 2.738 | 0.646 |
| Income before taxes (Respondent) | 22,204 | 42230 | 74742 |
| Income before taxes (Spouse) | 22,204 | 45567 | 100381 |
| Couple w/o children | 22,122 | 0.328 | 0.470 |
| Couple w/ children | 22,122 | 0.321 | 0.467 |
| Respondent outearns spouse | 22,204 | 0.509 | 0.500 |
| Spouse outearns respondent | 22,204 | 0.420 | 0.494 |
| Spouses earn the same | 22,204 | 0.071 | 0.257 |
| Same collar | 6,819 | 0.603 | 0.489 |
| Respondent white collar, spouse blue collar | 6,819 | 0.212 | 0.408 |
| Respondent blue collar, spouse white collar | 6,819 | 0.185 | 0.388 |
| Employed | 22,171 | 0.521 | 0.500 |
| Self-Employed | 22,171 | 0.089 | 0.285 |
| Unemployed | 22,171 | 0.053 | 0.224 |
| Out of labour force | 22,171 | 0.053 | 0.224 |
| Retired | 22,171 | 0.206 | 0.405 |
| Student | 22,171 | 0.054 | 0.227 |
| Doing unpaid housework | 22,171 | 0.023 | 0.149 |
| Takes part in the family's financial planning | 22,010 | 0.758 | 0.428 |
| Takes part in the family's responsibility for bills | 22,191 | 0.693 | 0.461 |
| No highschool | 22,098 | 0.153 | 0.360 |
| Highschool | 22,098 | 0.209 | 0.407 |
| College, Cegep, trade | 22,098 | 0.374 | 0.484 |
| University | 22,098 | 0.264 | 0.441 |
| Atlantic provinces | 22,204 | 0.070 | 0.254 |
| Québec | 22,204 | 0.234 | 0.424 |
| Ontario | 22,204 | 0.389 | 0.488 |
| Manitoba and Saskatchewan | 22,204 | 0.066 | 0.249 |
| Alberta | 22,204 | 0.105 | 0.307 |
| British Columbia | 22,204 | 0.136 | 0.342 |

Data: CFCS (2009; 2014).