

The influence of consumer socialisation in the home on gender differences in financial literacy

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Abstract

The lower level of financial literacy amongst females relative to males has been well documented in the literature. There has however been a less than compelling argument constructed as to why this discrepancy occurs. This article introduces findings showing the influence the home, particularly financial discussions in the home, has on the financial literacy levels of children and young adults. A key finding is that males have their first financial discussion in the home at a younger age than females on average, with this differential statistically significant across students of differing socioeconomic status. For males, the age of the child when they have their first financial discussion in the home influences their financial literacy levels some years later at university, even accounting for other variables such as socioeconomic status. The findings of this article suggest that financial socialisation in the home may be subject to a gender bias, which over time contributes to differential financial literacy knowledge levels between the genders.

Introduction

The need for citizens to be financially literate is growing in importance, as consumers are tasked with making ever more complex financial decisions in the marketplace (Braunstein and Welch, 2002; Lusardi and Mitchell, 2014). Where in the past workers have been able to rely on employer sponsored pension plans, for example, there is now an increased need for workers to be able to save and invest their own retirement funds. Tertiary students in many countries around the world are now faced with the prospect of government student loans, a relatively recent development since the early 1980's. In the private debt sector, students are faced with financial institutions offering products such as credit cards unsolicited through the post. There has also been an increase in credit opportunities offered by nontraditional organisations to the general population. Where previously credit may have been obtained through a financial institution such as a bank, opportunities now exist to secure payday loans, pawn shop loans and tax refund loans from alternative sources.

With increasing levels of financial sophistication required, it is important that certain groups in society are not disproportionately disadvantaged by displaying lower levels of financial literacy. Researchers have in the past identified females as a group who display lower levels of financial literacy (Hung *et al.*, 2009; Lusardi and Mitchell, 2009; Lusardi and Tufano, 2009a, b; Lusardi *et al.*, 2010). This article focuses on the characteristic of gender, to establish if stereotypes or beliefs held in the home impact on levels of financial literacy, and could

possibly explain the financial literacy differential evident in the literature between males and females.

Literature review

Gender differences in financial literacy levels

Current literature on the topic of gender discrepancy with regard to financial literacy is relatively plentiful, with an increasingly apparent greater awareness of monetary matters and financial knowledge among males than females, regardless of test question sophistication levels (Hung *et al.*, 2009; Lusardi and Mitchell, 2009; Lusardi and Tufano, 2009a, 2009b; Lusardi *et al.*, 2010). Other researchers have also presented support for the idea that the average male financial literacy level is generally greater than the average female's (Volpe *et al.*, 1996; Chen and Volpe, 1998; Goldsmith and Goldsmith, 1997a, 1997b; Chen and Volpe, 2002). They found men to have greater knowledge when it came to managing money, than women. Male participants were also found to be likely to be more knowledgeable about personal finance than female participants before and after controlling the effect of other variables.

While some studies have referred to differences between the financial knowledge levels of males and females being evident amongst both college and high school students (Chen and Volpe, 2002; Mandell & Xiao, 2008), results from the *PISA (Programme for International Student Assessment) 2012 Results: Students and Money* report (OECD, 2014) suggest that this differential may in fact be less prevalent in younger

citizens than in adults. The report showed that studies conducted in one third of the countries which took part in the *PISA* reported that adult men perform better than adult women on surveys measuring financial knowledge. However when using 15-year-old high school students as the subjects for the *PISA* study, only one of the 18 participating countries (Italy) showed a statistically significant difference between the performance of girls and boys on a financial literacy test. The study did find that boys tend to outperform girls in financial literacy when accounting for students' competencies in other subjects (mathematics and reading), and that boys perform better than girls at the top of the distribution, leading the report to conclude that girls may require targeted help to develop the skills necessary to reach the highest levels of financial literacy proficiency.

In attempting to explain the financial literacy gender gap, researchers have suggested that females may accumulate financial literacy in a different manner to males (Fonseca *et al.*, 2012). Differing levels of confidence have been discussed by others who have written on the topic, which may play a part, although this is disputed with some research noting that even otherwise highly intelligent, educated women are not especially financially literate (Bucher-Koenen *et al.*, 2012; Mahdavi and Horton, 2012, unpublished). The *PISA* report (OECD, 2014) touches on an alternative reason, one the report calls 'different socio-economic characteristics of women and men', which may also account for why the gender difference is more pronounced in the adult population, stating:

"For example, as boys and girls grow up, they may be exposed to different opportunities to learn and improve their financial competencies, such as different access to labour and financial markets, and therefore they may develop different levels of financial knowledge and different financial strategies in adulthood over time" (OECD, 2014, p. 81).

This article proposes that as well as different access to financial and labour markets between women and men, there may also be stereotypical societal expectations and perceptions around the necessity for males to be more financially literate than females, with these influences potentially starting in the home at a relatively young age. Included in the literature is a body of research which suggests that women, in particular, must ready themselves more adequately for financial survival in their later years, which seems to be rooted in traditional stereotypes around female dependence on men for financial resources (Anthes and Most, 2000). An equally if not more important reason that women need to be financially prepared, is due to their longer life expectancy and subsequent reliance on retirement savings.

Financial socialisation based on gender may even start at an early age through the financial attitudes of parents toward their children. The *Westpac Money and Kids Report*, a nationwide survey in New Zealand commissioned to understand the money habits of children that surveyed 540 Westpac customers, all with children aged between 4 and 18 years old found that for those who get pocket money, boys get \$3 more a week on average than girls and chores to earn it are based on gender. Both spend 2.4 hours a week doing chores with girls being more likely to clean their bedroom and do the dishes and laundry, while boys are more likely to take out the rubbish, mow the lawns and clean the car (Wade, 2013).

The role of parents in influencing a child's financial literacy level

The notion that parents are majorly influential in the financial education of their children is well supported, as they are, of course, in many aspects of their lives. Home is where children first learn about money and what is learned is filtered through their parents (Danes and Haberman, 2007; Lusardi *et al.*, 2010). If parents are seen as unable to manage money well, their children are likely to follow suit (Clarke *et al.*, 2005). Research has identified parents as having an important responsibility with regard to ensuring they provide accurate information in order that children may be less likely to develop poor habits (Danes, 1994), while other studies have drawn attention to how children mainly obtain financial education from their parents. Just 10% were found to, predominantly receive information about monetary issues in the school classroom (Bowen, 2002; Mandell & Xiao, 2008; Williams, 2010).

The magnitude of the influence that mothers and fathers can have as their children experience financial socialisation as a younger adult has also drawn attention, with it believed to be much greater than work or educational environments. The need for parents to take care when imparting financial instruction and knowledge has also been stressed, with parents being encouraged to not take this responsibility lightly as how they behave lays the foundation for sound young adult financial attitudes and behaviour (Shim *et al.*, 2010).

The gender divide can be seen to be quite entrenched, and common understandings have become internalised norms. Traditional gender expectations and regularly observed female tendencies could each play a role in the development of these ongoing beliefs. Girls could possibly be trained to be financially dependent and to seek safety and security rather than become risk-takers (Danes and Haberman, 2007). In a recent publication, Lusardi and Mitchell have noted that 'although untested so far' it is possible that young women 'expect they will have someone later in life (a husband or companion) to take care of their finances' (2014, p. 19). This situation may be exacerbated by parents modelling what occurred when they were children. Bowen's (2002) study found that 77% of women did not participate in financial discussions in the home, when they were growing up.

The importance to females of being financially literate

As mentioned earlier, there is an increased requirement to be financially literate in today's world. There are some unflattering reports of female competency with regard to financial illiteracy, which is considered to be widespread among women (Fonseca *et al.*, 2012). This same study noted that many women struggled with a lack of understanding of even very basic financial knowledge, when it came to savings or investment. Worthington (2006) grouped women with nonworkers, those with a low educational level and those who are new to speaking the English language as having an increased chance of being financially illiterate.

Concern has been revealed by other researchers regarding the gender gap in relation to a growing range of monetary decisions to be made in today's society. These things can be

confusing and even more so for those without the wherewithal to make informed, intelligent choices about how to best manage their income or retirement funds (Lusardi and Mitchell, 2007). Also, related issues have been commented on by others, stressing the need for females to ensure security in their old age by becoming better money managers, suggesting this is important for the greater good, as future public policy may have to accommodate the lack of skills if they are not addressed (Lown, 2010).

Further literature on the topic has contributed to this line of thought by also asserting the need for women to become more independent when it comes to financial management. They show concern that women may have trouble overcoming what are seen as traditional roles, as many are used to being taken care of financially by men (Anthes and Most, 2000; Lusardi and Mitchell, 2007; Von Rooij *et al.*, 2007). The notion that in many cultures men are more likely than woman to interact daily with financially knowledgeable individuals was also noted by Lusardi and Mitchell (2014).

It is the observed gender difference in financial literacy levels, coupled with an increasing need for woman in particular to be financially sophisticated in an ever more complicated financial world, along with the recognised influence of parental attitudes and behaviours on the financial literacy levels of their children that provide the justification for this article. Specifically, are young females exposed to differing levels of financial discussions in the home relative to males?

Findings from this article will attempt to fill a gap in the literature that has been noted as recently as 2014 with statements such as '...this debate is far from closed, and additional research will be required to better understand these observed gender differences in financial literacy (Lusardi and Mitchell, 2014, p. 20).

Method and results

Research design

The research question this article attempts to answer is 'How does age of the first financial discussion in the home influence a child's financial literacy?' The following secondary research question is also examined:

How does the gender of a child and variables such as gender of the parent or parental education level correlate with financial discussions in the home?

For the purposes of this research, the notion of financial literacy was based on the definition of financial literacy that is used in the OECD document *Measuring Financial Literacy: Questionnaire and Guidance Notes for Conducting an Internationally Comparable Survey of Financial Literacy* (OECD, 2011). This document defines financial literacy as 'A combination of awareness, knowledge, skill, attitude and behaviour necessary to make sound financial decisions and ultimately achieve individual financial wellbeing'. This research focuses on a subset of what the OECD document describes as 'elements of financial literacy identified in the definition' (OECD, 2011), with the elements focussed on being awareness, knowledge and skill. This is in line with the *PISA 2012 Assessment and Analytical Framework* (OECD, 2013) which defines financial literacy as 'knowledge and understanding of financial concepts and risks,

and the skills, motivation and confidence to apply such knowledge and understanding in order to make effective decisions across a range of financial contexts to improve the financial well-being of individuals and society' (OECD, 2013, p. 5). The *PISA* framework describes the knowledge and understanding of financial concepts and risks as including key financial concepts, the purpose and basic product features of financial products, and risks that may threaten financial well-being as well as insurance policies and pensions.

The questions included in the financial literacy quiz (shown in Appendix) are drawn from the general literature, such as Lusardi and Mitchell (2006), and directly from the University of Arizona (Shim & Serido, 2011). The University of Arizona questions were more pertinent than many of the tests found in the literature, as they were designed to evaluate secondary school financial literacy programs, so were pitched at an appropriate level for secondary school and first year tertiary students. Some of the questions were modified to reflect a New Zealand setting. An original pilot test of 17 questions was reduced to 10 in response to feedback from secondary school principals and teachers. Using the *PISA* framework categories mentioned above, the 10 questions could broadly be categorised into key financial concepts (questions 2, 3, 4, 7 and 9) and purpose and basic product features of financial products including insurance policies (questions 1, 5, 6, 8 and 10). See Appendix for the full questions.

The questionnaires were invigilated by classroom teachers using consistent instructions, methods and conditions as stipulated in instructions accompanying the questionnaire.

School sample

Year 10 (14 or 15 year old) students in 19 secondary schools took part in this study. With no decile 1 schools in Christchurch, the sample consisted of students from decile 2 to decile 10 schools. With higher decile schools being more common, all decile 2 to 6 schools in the city were included, with schools chosen at random from those in the decile 7 to decile 10 range. Within each school, the entire Year Ten cohort took part in the study. On the few occasions this was not logistically possible within a school, classes of year 10 students were chosen at random to participate in the study, with any streaming practices within the school accounted for. Of the 20 schools approached to take part in the study, 19 agreed. With the questionnaire completed in class under test conditions by students, the response rate was effectively 100%. This resulted in a sample size of 1 271 students. Decile 2 to 4 schools were categorised as 'low' decile, while decile 5 to 7 schools were considered 'mid' decile. The remaining schools were categorised as 'high' decile. The demographic make-up of the sample is shown in Table 1.

As can be seen from the table, the mean quiz score was low, with a mean of less than 40%. The mean age of the first financial discussion in the home varies by school decile—the higher the decile the earlier the financial discussion. School decile is calculated by the Ministry of Education, and indicates the extent to which the school draws its students from low socioeconomic communities. Decile 1 schools are the 10% of schools with the highest proportion of students from low socio-

Table 1 Demographic variables by gender–school sample

	Female (n = 614)	Male (n = 657)	Total (n = 1271)
Gender	48%	52%	100%
Caucasian ethnicity	74%	71%	73%
Father attended university	41%	52%	47%
Mother attended university	47%	57%	52%
Quiz score mean (10)	3.64	3.93	3.79
Quiz score maximum	9	10	10
Quiz score minimum	0	0	0
Mean age of first discussion	10.99	10.29	10.63
Mean age of first discussion–low decile (Years)	12.04	11.11	11.56
Mean age of first discussion–medium decile (Years)	10.74	10.24	10.49
Mean age of first discussion–high decile (Years)	10.96	9.97	10.42

economic communities, whereas decile 10 schools are the 10% of schools with the lowest proportion of these students.

Various demographic variables were run in an ordinary least squares multiple regression with a dependant variable of financial literacy quiz score (with ethnicity and parental education as binary variables). As the coefficients and *t*-statistics in Table 2 show, variables correlated with a higher financial literacy quiz score were a student whose father attended university, a student from a higher decile school, a student of Caucasian descent, and a student who had their first financial discussion at an earlier age. These same variables were significant for both females and males when the sample was split according to gen-

Table 2 OLS coefficients and *t*-statistics for variables correlated with a higher financial literacy quiz score–school sample

	Females (n = 614)	Males (n = 657)	Both genders (n = 1 271)
Age of first financial discussion	−0.109*** (−3.361)	−0.106*** (−3.143)	−0.109*** (−4.713)
Decile	0.187*** (4.456)	0.208*** (4.679)	0.199*** (6.503)
Caucasian ethnicity	0.674*** (3.437)	0.437** (2.079)	0.542*** (3.767)
Father attended university	0.514***	0.518*** (2.678)	0.521*** (4.147)
Has a part time job	−0.035 (−0.179)	−0.057 (−0.276)	−0.050 (−0.352)
Mother attended university	−0.096 (−0.535)	0.113 (0.630)	0.026 (0.202)
Parents own shares	−0.010 (−0.047)	0.195 (0.937)	0.103 (0.711)
Impulse spent in the last three months	0.025 (0.118)	0.039 (0.181)	0.037 (0.242)
Gender			0.118 (0.372)

*, ** and *** denote statistical significance at the 10, 5 and 1% levels respectively.

der. The rationale for running the OLS separately for females and males in the secondary school sample is to establish if the same pattern found in the previously mentioned PISA (OECD, 2014) results of a gender differential in financial knowledge being less prevalent in younger people exists in this study.

When the sample was split according to school decile, a statistically significant difference between the age of first financial discussion in the home between males and females was observed, across low, medium and high decile school students. The coefficients and *t*-statistics from OLS regressions revealed that in all three decile groupings, males were found to have their first financial discussion at an earlier age than females. Although still statistically significant at the 95% confidence level (with a *t*-statistic of −2.448), and a coefficient of 6 months (0.494 of a year) the gap between females and males was smallest for medium decile school students. For students from low decile schools, the gap was almost a year (−0.932) significant at the 95% confidence level (with a *t*-statistic of −2.311). A similar result was found for students from high decile schools (−0.994 of a year, significant at the 99% confidence level with a *t*-statistic of −3.539). For the entire sample, the gender gap was 8.5 months (−0.707 of a year) significant at the 99% confidence level (with a *t*-statistic of −4.619).

As Table 3 shows, the demographic variables for each school decile grouping show the expected disparities in ethnicity, parental education and mean quiz score from low to high decile schools. There is also a similar effect for the age of first financial discussion in the home variable, with students from higher decile schools having their financial discussions at an earlier age than lower decile schools.

Tertiary sample

To establish if the same relationships existed in a tertiary sample the same model containing the ethnicity, age of first financial discussion in the home, school decile, gender and father's education variables developed on the school sample was applied to a sample of 317 first year microeconomics students from the University of Canterbury, New Zealand. Table 4 shows the demographic characteristics of the tertiary sample, broken down by gender. (Note: 15 students came from schools without decile ratings, predominantly from overseas).

Table 3 Demographic variables by school decile–school sample

	Low decile (n = 189)	Medium decile (n = 703)	High decile (n = 379)
n = 1271			
Female	48%	50%	45%
Caucasian ethnicity	54%	70%	86%
Father attended university	23%	42%	65%
Mother attended university	35%	47%	68%
Quiz score mean (10)	2.72	3.65	4.59
Quiz score maximum	8	10	10
Quiz score minimum	0	0	0
Mean age of first discussion (years)	11.56	10.49	10.42

Table 4 Demographic variables by gender–tertiary sample

	Female (n = 138)	Male (n = 179)	Total (n = 317)
Average decile	7.21	7.64	7.46
Low decile	59%	41%	22
Medium decile	43%	57%	179
High decile	38%	62%	101
Caucasian ethnicity	40%	60%	211
Father attended university	46%	54%	134
Mother attended university	40%	60%	147
Quiz score mean	6.79	7.51	7.20
Quiz score maximum	10	10	10
Quiz score minimum	2	2	2
Age of first discussion	11.60	10.73	11.11

When the same ordinary least squares model developed on the school sample was run on the tertiary sample, males, Caucasian students and students who had their first financial discussion in the home at an earlier age were likely to score higher on the financial literacy quiz. When the sample was split by gender, the Caucasian and age of first financial discussion in the home variables were significant for male students, with only the Caucasian variable being significant for female students, as shown in Table 5.

The same gender difference in age of first discussion in the home exists in the tertiary sample as in the school sample, with female students in the tertiary sample reporting having their first discussion in the home on average 10 and a half months (0.875 years) older than male students. This difference is statistically significant at the 95% confidence level. The gender variable was included in the model even though it was not significant in the school sample, due to the evidence from the aforementioned *PISA* report which suggested a gender differential in financial literacy test scores was more prevalent in adults than in 15 year olds.

In an attempt to establish some possible reasons for the gender difference in the age of first discussion in the home, the tertiary student sample were asked some additional questions. As

Table 5 OLS coefficients and *t*-statistics for variables correlated with a higher financial literacy quiz score in the school sample applied to the tertiary sample, with the addition of gender

n = 317	Male	Female	Both genders
Caucasian ethnicity	0.822*** (2.716)	1.026*** (3.086)	0.912*** (4.086)
Age of first financial discussion	−0.062* (−1.757)	−0.032 (−0.718)	−0.49* (−1.775)
Father attended university	0.383 (1.427)	−0.499 (−1.492)	0.015 (0.071)
School	−0.075 (−1.001)	0.122 (1.476)	0.012 (0.211)
Male			0.650*** (3.184)

*, ** and *** denote statistical significance at the 10, 5 and 1% levels respectively.

Table 6 Chi square results comparing male and female samples

n = 317	Odds ratios	Chi-square statistic	Level of significance
Caucasian	1.44	2.156	<i>P</i> = 0.14
Decile	0.68	1.423	<i>P</i> = 0.23
Father's education	0.92	0.117	<i>P</i> = 0.73
Mother's education	1.24	0.836	<i>P</i> = 0.36

a precursor to analysis using these responses, chi-square analysis was used to test for independence between gender and each variable. The results showed there was no significant difference between the male and the female sample on ethnicity, school decile, whether or not the mother attended university, and whether or not the father attended university, as shown in Table 6. The female and male samples were compared to establish if the proportion of Caucasians, fathers who had attended university, or mothers who had attended university, varied significantly between the samples. For the decile variable, the number of students from decile 1 to 5 schools was compared to the number of students from decile 6 to 10 schools for each sample. As can be seen from the odds ratios, the male sample had slightly more Caucasians and students with mothers who had attended university compared to the female sample, but a slightly lower density of students from low decile schools, and students with fathers who had attended university. As mentioned early, none of the differences between the samples were statistically significant.

When the responses to the additional questions were analysed using odds ratios and chi-square analysis, students were more likely to answer father then mother to the following three questions:

- 1 In most homes which parent do you think knows the most about money? (An odds ratio of 1.61 significant at the 95% confidence level, with a chi square statistic of 4.186).
- 2 Growing up, which parent talked to you the most about money? (An odds ratio of 1.56 significant at the 90% confidence level, with a chi square statistic of 3.806).
- 3 Growing up, which parent most influenced how you spent your money? (An odds ratio of 2.16 significant at the 99% confidence level, with a chi square statistic of 10.81).

In an attempt to better understand the nuances between gender and the student responses to these three questions, logistic regressions were run for each of the three questions, with a binary mother/father as the dependant variable, and three independent variables of gender, whether the father attended university and whether the mother attended university. This analysis was then replicated using ordinary least squares regressions which yielded the same results as for the logistic regressions. For ease of reporting, the ordinary least squares regression coefficients and *t*-statistics are shown below in Table 7.

The results confirm that males are more likely to answer father than females are, the same result found in table nine. Interestingly, if a student's father attended university, the student is more likely to answer father to the questions 'In most homes which parent do you think knows the most about money?' and 'Growing up, which parent most influenced how you spent your money?' than a student whose father did not

Table 7 OLS coefficients and *t*-statistics showing the influence of gender and parental education on whether father rather than mother was given as an answer

	In most homes which parent do you think knows the most about money? (Father = 1)	Growing up, which parent talked to you the most about money? (Father = 1)	Growing up, which parent most influenced how you spent your money? (Father = 1)
Male	0.116** (2.169)	0.111* (1.962)	0.189*** (3.415)
Father attended university	0.215*** (3.564)	0.087 (1.367)	0.108* (1.740)
Mother attended university	0.048 (0.804)	0.037 (0.591)	−0.029 (−0.471)

*, ** and *** denote statistical significance at the 10, 5 and 1% levels respectively.

attend university. However, there was no such correlation between a student's answer to any of the three questions and whether or not their mother attended university. A son is more likely to answer father than a daughter simply because they are a son, while a child is more likely to answer father if the father has a higher level of education.

Discussion

Results from the secondary school sample showed that males on average have their first financial discussion in the home at an earlier age than females. This was consistent across students from low, medium and high decile schools. Whilst still statistically significant, students from medium decile schools had the smallest difference between males and females of 6 months, almost half the difference between males and females in the age of first financial discussion in the home at low and high decile schools. Reasons for this disparity could include that the parents of students in middle decile schools, as a group, exhibit a less 'extreme' view of the disparity between male and female roles. Parents of students attending high decile schools are, for example, likely to contain a greater proportion of people working in commerce, where factors such as the 'glass ceiling', and 'old boys' networks' exist, reinforcing the idea that it is more important males are financially educated than females. There is a possibility that low socioeconomic families see the male being more likely to be the predominant breadwinner than medium decile families, where occupations such as teaching are likely to be more prevalent.

Across the entire sample, the variables which correlated with a higher financial literacy quiz score were students whose fathers attended university, students from a higher decile school, a student of Caucasian descent, and a student who had their first financial discussion at an earlier age. These same variables were significant for both females and males when the sample was split according to gender.

Interestingly, the level of a mother's education did not have a significant influence on a student's financial literacy test score, which suggests that their father may be the provider of financial knowledge in the home. Other reasons may relate to the female parent possibly showing less interest in financial matters, or a male parent being more concerned with the financial situation of the household. Past studies have suggested that

there appears to be some reflection of traditional gender-related norms when it comes to monetary issues in the home. Whether the, generally-speaking, innate nature of the genders or patriarchal constructs are responsible, is uncertain.

With the inclusion of decile (a variable explained in the Method and Results section) of the school attended by the student, along with other socioeconomic status variables in initial regressions that were not significant, such as parental ownership of shares, home ownership and so on, indications are that the level of father's education is not merely picking up socioeconomic status. Rather, it appears to be an indicator of, possibly, the level of financial knowledge a student's father possesses which is able to be passed on to their children. The fact that the level of a father's education has a significant influence on a child's financial literacy quiz score (after accounting for socioeconomic status) suggests that financial discussions in the home may be the domain of the father.

The results in this article mirrored those found in the *PISA* study that gender did not significantly impact on the financial literacy test scores of 15-year-olds (OECD, 2014). Where the *PISA* report suggests this may be due to different access to labour and financial markets, this article suggests financial socialisation in the home may in fact have a major influence. With financial discussions in the home commencing on average at around 10 or 11 years of age (depending on demographic variables), it may be that while 15-year olds have been exposed to a period of socialisation in the home based on gender expectations, the exposure has been over an insufficient period of time to flow through to significant differences in financial literacy quiz scores. People in older cohorts who do exhibit a gender based difference in financial literacy test scores however, may have had a longer exposure to financial attitudes being verbalised in the home compared to the school samples 4 or 5 years exposure.

In an attempt to shed some light on the above discussion, the model developed in the school sample was applied to a cohort of tertiary students, a cohort who have had 7 or 8 years exposure to financial socialisation in the home, with some additional pertinent questions added.

Males, Caucasian students and students who had their first financial discussion in the home at an earlier age were likely to score higher on the financial literacy quiz. However, when the sample was split by gender, the Caucasian and age of first

financial discussion in the home variables were significant for male students, with only the Caucasian variable being significant for female students. Gender was introduced into the tertiary sample model even though it did not have a significant impact on financial literacy test scores in the school sample, to establish if the trend of gender being significant in older samples was evident at the tertiary level. As it transpired, it was. Given the tertiary students would have had limited access to labour and financial markets to that point, this finding lends more weight to the financial culture in the home being a factor in the gender differential in financial literacy tests at the tertiary level than the alternatives suggested in the *PISA* report (OECD, 2014). With the average age of the first financial discussion falling between 10 and 12 years, depending on gender and socioeconomic status, it is intuitively reasonable to expect the effect of this differential on financial literacy test scores to be more prevalent at 18 or 19 years of age than 15 years of age.

When compared to the school sample, school decile and the level of fathers' education have dropped out as significant variables, as has the age of first discussion for females in the sample. One possible reason for these differences is that the tertiary sample has an average school decile score of 7.5, in the middle of the medium decile school range, with just over half of the students in the tertiary sample having attended a medium decile school. This appears to have nullified the effect of school decile by having a relatively homogenous sample by decile.

The medium decile grouping was also the group where the difference between males and females in terms of the age of the first financial discussion in the home was smallest. The same gender difference in age of first financial discussion in the home does exist in the tertiary sample as in the school sample, with female students in the tertiary sample reporting having their first discussion in the home on average 10 and a half months older than male students. The level of a father's education may not be significant for the tertiary sample, as students at university are more likely to have had parents who also attended university, once again, making the sample more homogenous.

What is interesting to note is that even for the more homogenous tertiary sample, the age of first discussion in the home for males endures through to adulthood. The fact that it does not for females suggests that not only are males having financial discussions in the home at an earlier age, but that the effect of financial discussions in the home are more enduring for males than for females. The quality of the discussion with boys in the home could be somehow different than for females, perhaps because as Lusardi and Mitchell (2014) suggest, it may be felt that females will be financially supported later in life by a partner, so it is more important for males than females to be financially literate.

When testing the gender stereotypes that exist in the home around financial literacy, it was found that students in the tertiary sample were more likely to answer father than mother to the three questions, 'in most homes which parent do you think knows the most about money?', 'growing up, which parent talked to you the most about money?' and 'growing up, which parent most influenced how you spent your money?'. The

largest difference was in the last question, where students were more than twice as likely to answer that their father most influenced how they spent their money growing up rather than their mother. These findings emphasise traditional stereotypes around a child's father being more knowledgeable than the mother, and playing a larger role in financial discussions than the mother, and having a larger influence on children's behaviours than the mother.

Interestingly, if a student's father attended university, the student is more likely to answer father to the questions 'In most homes which parent do you think knows the most about money?' and 'Growing up, which parent most influenced how you spent your money?' than a student whose father did not attend university. However, there was no such significant correlation between a student's answer to any of the three questions and whether or not their mother attended university. This may suggest a more educated mother may not play a more significant role in the financial culture of a household than a less educated mother, where the more educated the father, the more likely they played a more dominant role. If true, this reinforces the stereotypes mentioned above. The mother's education may not matter, if it is predominantly the father leading the financial culture of the household.

Given it is the father that is more likely to talk to a child about money, influence how they spend their money, and be perceived as knowing more about money than the mother, this raises the question, are fathers equally as likely to talk to sons about financial topics as they are to their daughters? Why is it that the father is the dominant figure? Does the mother 'leave it' to the father, due to traditional stereotypes? Are these stereotypes then further perpetuated by the father talking more (and possibly more in-depth) to sons than daughters, because one day he will need to be the financial 'head of the household'? This would seem a reasonable explanation for why sons receive their financial discussion earlier than daughters, and could also explain why the effect of the age of first discussion endures for sons more than daughters in the tertiary cohort—because daughters are receiving a more superficial discussion, it has less impact later in life whether you had the discussion or not at an early age.

Conclusions

In response to the research questions 'How does age of the first financial discussion in the home influence a child's financial literacy?' and 'How does the gender of a child and variables such as gender of the parent or parental education level correlate with financial discussions in the home?' a correlation exists between the age of first financial discussion in the home and scores on a financial literacy quiz for both genders in the school sample. The findings in this article suggest it is predominantly the male parent that engages with their child in financial discussions in the home. These results may say something about the quality of financial discussion males have relative to female. If the discussions are more superficial for females, it is likely they are less enduring, and of less benefit into adulthood than the less superficial discussions males have in the home.

This article makes an important addition to the somewhat limited debate on the gender differential between males and

females on financial literacy quizzes. While literature has readily identified the gender difference, there has been a lack of findings examining the cause. The authors of this article suggest the home environment may play a substantial part, with the age of first financial discussion in the home an important indicator of the general attitudes of parents to the necessity of their sons or daughters being financially literate. The fact that the influence of the age of first financial discussion on quiz results endures to the tertiary level for males shows the importance of these family discussions. The overall attitudes of the tertiary respondents reinforcing the notion that the male parental figure is seen as having a greater knowledge and influence than the female parental figure, regardless of the level of educational attainment of the female parental figure highlights these ingrained traditional attitudes. A further study investigating the prevalence of these attitudes across families with less traditional structures could be illuminating.

A limitation of this study is a lack of a student sample across educational institutions in several countries. Further research investigating the impact of different cultural norms in terms of gender roles on the financial socialisation of boys and girls in the home in different countries would add to the discussion.

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Appendix

1 Which of the following is true about New Zealand's goods and services tax (GST)?

- The GST percentage rate is 12.5%.
- The government will take it from your pay.
- You do not have to pay the tax if your income is very low.
- It makes things more expensive for you to buy.

2 If you went to university and earned a degree, how much more money could you expect to earn than if you only had a high school qualification?

- a. About 10 times as much.
- b. No more, I would make about the same either way.
- c. A little more, about 20% more.
- d. A lot more, about 70% more.

3 David just found a job with a take-home pay of \$2 000 per month. He has the following monthly expenses:

\$900 for rent
\$150 for groceries
\$250 for transport
\$100 for clothes
\$200 for eating out
\$250 for other expenses

How long will it take him save \$600?

- a. 3 months.
- b. 4 months.
- c. 1 months.
- d. 2 months.

4 Rob and Mary are the same age. At age 25 Mary began saving \$2 000 a year while Rob saved nothing. At age 50, Rob started saving \$4 000 per year while Mary kept saving her \$2 000. Now they are both 75 years old.

Who has the most money in their account?

- a. They would each have the same amount because they put away exactly the same.
- b. Rob, because he saved more each year.
- c. Mary, because she has put away more money.
- d. Mary, because her money has grown for a longer time at compound interest.

5 If a borrower chooses to pay back a car loan over a longer period of time, the monthly payment is generally

- a. lower and the total interest paid is lower.
- b. lower and the total interest paid is higher.
- c. higher and the total interest paid is lower.
- d. higher and the total interest paid is higher.

6 Suzy backs her car into a metal fence, causing \$500 of damage to her car. Suzy has an auto insurance policy with a \$200 excess. To get her car fixed, how much will her auto insurance company pay?

- a. \$0.
- b. \$200.
- c. \$300.
- d. \$500.

7 Charlie opens a savings account and deposits \$500 at an interest rate of 5%. What amount will Charlie have in his savings account at the end of two years?

- a. Exactly \$50.
- b. Exactly \$550.
- c. Less than \$550.
- d. More than \$550.

8 Which of the following credit card users will pay the most in interest?

- a. Jessica, who pays at least the minimum amount each month and more, when she has the money.
- b. Vera, who generally pays off her credit card in full but, occasionally, will pay the minimum when she is short of cash.
- c. Megan, who always pays off her credit card bill in full shortly after she receives it.
- d. Erin, who only pays the minimum amount each month.

9 What is the general relationship between financial risk and financial return?

- a. There is no relationship between risk and return.
- b. The lower the risk, the higher the return.
- c. The higher the risk, the lower the return.
- d. The higher the risk, the higher return.

10 Daylon's aunt agrees to co-sign a car loan for him. By doing so, she has agreed to

- a. pay the loan as a gift to Daylon.
- b. pay the loan if Daylon cannot pay.
- c. share the payments equally with Daylon.
- d. make the payments until Daylon can make them himself.