



Why Do Financial Literacy Programmes Fail?¹

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Numerous studies have found a positive relationship between financial literacy and financial experience. Typically, this relationship is interpreted as being a causal relationship, i.e. an increase in financial literacy leads to better financial decision making. However, a simple relationship cannot be interpreted in a causal way. In this paper, we show evidence for a causal relationship running the opposite way, i.e. people with more financial experience seem to acquire more financial knowledge and become more financially literate. This finding has important implications as it suggests that programmes targeted at improving financial literacy could be more effective if they incorporate experiential components.

Keywords: Financial Literacy; Financial Experience, Causality.

1. Introduction

An increasing number of studies find low levels of financial literacy among the public in many countries (CFS, 2001; ANZ, 2003; OECD, 2005; FSA, 2006; Lusardi et al., 2011; Colmar Brunton, 2006, 2009). Given the increasing complexity of financial markets, the instruments traded therein, and the current trend where governments are transferring more and more responsibility for retirement savings to individuals (Braunstein and Welch, 2002; Lusardi, 2008), the low level of financial literacy is a major concern for policy-makers.

The consequences of poor financial literacy have been shown to be dire for individuals (less provisions for retirement, higher levels of debt, among others) and countries (lower level of capital, higher inequality in wealth distribution, and less workplace productivity, among others), see Mandell and Klein (2009); OECD (2005).

Government initiatives so far seem to concentrate on improving financial literacy among the public by way of introducing financial education programmes. These programmes have been offered at schools for students, workplaces for employees, and TV and internet for the

general public. However, evidence suggests that the success of these programmes has been limited in improving financial literacy and changing the financial behaviour of the public (Braunstein and Welch, 2002; Lyon et al., 2006; Mandell, 2008).

We argue that one of the reasons why these financial education programmes have generally not been a success is because the relationship between financial literacy and financial decision making is not well understood. Most empirical studies, including our study where we look at a sample of New Zealand tertiary students, find a positive relationship between financial literacy and financial decision making. This positive relationship has been interpreted erroneously to indicate that financial literacy education can influence financial behaviour and decision making, and may explain the overwhelming belief that financial education programmes can improve financial behaviour. However, the existence of a relationship (correlation) between financial literacy and financial decision making does not specify which one causes the other. We cannot

infer the direction of causality from a correlation coefficient (or a standard regression). Arguments could be made for causality running in either direction, i.e., more financially literate people may engage in more financial activity; or, vice versa people learn from their financial activity and therefore become more literate. This is a familiar issue in the academic economics and finance literature known as “endogeneity” and can be solved using a technique known as instrumental variable analysis. Using a strong and valid instrument allows us to infer the direction of causality. Finding a valid and strong instrument is essential but often difficult.

Knowing the direction of causality is crucial, as an incorrect interpretation of the direction of causality can lead to ineffective policies. If we observe that experience increases literacy (and the reverse is not the case), then education programmes purely based on increasing financial literacy and knowledge will not be successful. Such programmes may need to incorporate experiential components to be effective. The literature has typically assumed that increased literacy leads to more experience. In this paper we show that there is a strong causal impact of financial experience on financial literacy.

2. Model

To provide a more formal illustration of the endogeneity issue referred to above in the context of financial literacy and financial experience, consider the following two models,

$$FinLit_i = \alpha_1 + \beta_1 FinExp_i + \gamma_1 Controls + \varepsilon_i, \quad (1)$$

and

$$FinExp_i = \alpha_2 + \beta_2 FinLit_i + \gamma_2 Controls + \eta_i, \quad (2)$$

where the first equation aims to explain financial literacy (*FinLit*) as a function of financial experience (*FinExp*), and the second equation aims to explain financial experience as a function of financial literacy. Using traditional regression techniques, we cannot distinguish between Equations (1) and (2) as they are identical (one can take *FinLit* in Equation (2) to the left hand side of the equation and *FinExp* to the right hand side, in which case Equation (2) essentially becomes Equation (1)). This leads to the situation where β_1 (the causal effect of experience on literacy) and β_2 (the causal effect of literacy on experience) cannot be identified from Equations (1) and (2). This is known as an endogeneity problem, where both financial literacy and financial experience are determined simultaneously. However, we can determine the causal effect of one on the other (i.e. we can estimate either Equation (1) or (2)) if we find a proper instrumental variable.

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In the case of New Zealand, we are able to exploit a unique feature that allows us to identify a suitable instrument to determine the causal effect of experience on financial literacy. New Zealand has several financial products that are only available to permanent residents and citizens, specifically KiwiSaver (voluntary employer and government co-funded retirement scheme) and interest-free student loans. As a result, we can use the residency status of an individual as a proxy for their financial experience. If people cannot participate in KiwiSaver or obtain student loans they will typically have a lower financial experience, but we have no reason to believe that citizens or permanent residents of New Zealand have higher financial literacy, just because of their residency status. As a result, residency status makes a valid instrument that will allow us to assess the causal effect of financial experience on financial literacy.

To find the causal effect of financial experience on financial literacy, we start by running a regression of financial experience on the instrumental variable (and various other controls), commonly referred to as the first-stage regression, i.e.:

$$FinExp_i = \alpha + \beta IV_i + \gamma_{ik} Control_{ik} + v_i \quad (3)$$

where *FinExp_i* is the observed measure of financial experience of individual *i*, *IV_i* is the instrumental variable and *Control_{ik}* are a set of *k* control variables that are generally recognized to influence the relationship between financial experience and financial knowledge, such as age, wealth, etc. From this first-stage regression, we obtain a proxy for financial experience, i.e.,

$$FinExp_i^{\hat{}} = \hat{\alpha} + \hat{\beta} IV_i + \hat{\gamma}_{ik} Control_{ik}, \quad (4)$$

where $\hat{\alpha}$, $\hat{\beta}$ and $\hat{\gamma}$ are the estimated coefficients of the first-stage regression, and $\hat{}$ is the estimated value of *FinExp_i*. We can then estimate the second-stage regression as

$$FinLit_i = \alpha + \beta_{IV} FinExp_i^{\hat{}} + \delta_k Controls_{ik} + \varepsilon_i. \quad (5)$$

where we substitute the estimates of *FinExp_i^{hat}* for *FinExp_i* into the second-stage regression which also include the same set of control variables. We can now interpret the coefficient β_{IV} as measuring the causal effect of financial experience on financial literacy.

3. Data

We study the relationship between financial experience and literacy by conducting a survey on 338 first-year students in 2011 at the Auckland University of Technology, Faculty of Business and Law. First-year students have intentionally been chosen because they have had either no or little exposure to tertiary teaching on financial concepts and therefore represent a sample with relatively comparable financial knowledge to the general public. Furthermore, many tertiary students are likely to have student loans. Finally, a sample of tertiary students ensures that there will be numerous international students, who are not able to participate in KiwiSaver and student loans scheme, which is needed to make our instrumental variable effective.

Our survey contained 19 questions covering three areas: understanding of financial concepts (such as time value of money, compounding, etc.), financial activity and experience (saving, loans, debt, etc.) and demographics. We construct an overall financial literacy score by summing the number of correct responses to the eight financial literacy questions. Current literature has identified certain demographic features that are indicative of those with better financial literacy including age, gender, ethnicity and wealth. We employ parental education as a proxy for the effects of wealth. Lastly, we consider the educational background of respondents in high school as certain subjects are likely to indicate either an interest or specific education on financial topics (see Frijns, Gilbert and Tourani-Rad (2013) for survey details).

4. Findings

We present the estimation results of OLS and the Instrumental Variables Regression for the financial experience index in Table 1. The results are supportive of the hypothesis that financial experience has a significant causal effect on financial literacy, i.e. increasing financial experience increases financial literacy. The coefficient on financial experience is significant at the 5% level and more than triples to 0.5381 compared with the OLS result, which for the sake of brevity are not reported but are available in Frijns et al (2013).

With regards to the control variables, we observe that Age and Gender are significant. We further note that the Asian ethnicity variable is marginally significant and positive.

Further testing reveals that there is indeed an endogeneity issue in the relationship between financial experience and financial literacy and that the coefficient from an OLS regression (which is also significant) cannot be given a causal interpretation.

The results of our study among New Zealand tertiary students clearly show that there is a positive and significant relationship between financial experience and financial literacy.

Table 1. The Causal Effect of Financial Experience on Financial Literacy

	Fin Exp 1	
	OLS	IV Reg
Constant	1.783*** (2.70)	0.4464 (0.40)
Fin_Experience	0.1683** (2.50)	0.5361** (2.09)
Age	0.0636*** (2.83)	0.0955*** (2.99)
Gender	0.3277** (1.97)	0.2858 (1.60)
European	0.5386* (1.87)	0.4857 (1.54)
Maori and Pacific	-0.2424 (-0.89)	-0.1665 (-0.53)
Asian	0.3617 (1.17)	0.6230* (1.71)
Indian	-0.4693 (-1.25)	-0.3964 (-1.02)
Parents' Education	0.0404 (0.56)	0.0779 (0.95)
Previous Education	0.1019 (1.34)	0.1081 (1.32)
Observations	329	329
R2(adj)	0.0944	0.0202
Weak Instruments Test		32.48
Test of Endogeneity (Durbin-Wu-Hausman Test)		2.74*

5. Implications

An assumption that has permeated the literature and practice of financial literacy is the belief that financial education can improve financial literacy and, by extension, financial behavior and decision making of the public. Unfortunately, much of the existing literature is unable to determine the causal effect of financial experience on financial literacy or vice versa due to methodological issues. However, many of results reported in these studies have been interpreted in a causal way. Due to these inaccurate interpretations, we still have no clear understanding of

the role of experience on financial literacy. We clearly demonstrate that the existence of a relationship cannot be interpreted in a causal way, and that financial experience is crucial and has an impact on financial literacy.

The main implication of our study is that policy makers should consider ways to increase the financial experience of the public as a way of improving their financial literacy. We need to redesign education programs to rely more heavily on experiential learning. Mandell (2008), for instance, concludes that high school financial literacy

programs that incorporate stock market games result in noticeable improvements in financial literacy of students. These stock market games are a form of experiential learning giving controlled exposure to markets without the risk of real financial losses. Experiences gained in such sheltered environments may be just as effective as those obtained when individuals participate in equity markets. Irrespectively, experience seems to be an important link in the relationship between financial education, literacy and behavior and should be considered in the design of financial education programs.

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Note

1. This article is based on Frijns, Gilbert and Tourani-Rad (2013).

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