WPS6745

Policy Research Working Paper 6745

Background Paper to the 2014 Global Financial Development Report

Can You Help Someone Become Financially Capable?

A Meta-Analysis of the Literature

Margaret Miller
Julia Reichelstein
Christian Salas
Bilal Zia

The World Bank
Development Research Group
Finance and Private Sector Development Team
&
Financial and Private Sector Development
Financial Inclusion and Infrastructure Practice

January 2014

Policy Research Working Paper 6745

Abstract

This paper presents a systematic and comprehensive meta-analysis of the literature on financial education interventions. The analysis focuses on financial education studies designed to strengthen the financial knowledge and behaviors of consumers. The analysis identifies 188 papers and articles that present impact results of interventions designed to increase consumers' financial knowledge (financial literacy) or skills, attitudes, and behaviors (financial capability). These papers are diverse across a number of dimensions, including objectives of the program intervention, expected outcomes, intensity and duration of the intervention, delivery channel used, and type of population targeted. However, there are a few key outcome indicators where a subset of papers are comparable, including those that address savings behavior, defaults on loans, and financial skills, such as record keeping. The results from the meta analysis indicate that financial literacy and capability interventions can have a positive impact in some areas (increasing savings and promoting financial skills such as record keeping) but not in others (credit default).

This paper is a product of the Finance and Private Sector Development Team, Development Research Group; and the Financial Inclusion and Infrastructure Practice, Financial and Private Sector Development. It is part of a larger effort by the World Bank to provide open access to its research and make a contribution to development policy discussions around the world. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The corresponding authors may be contacted at mmiller5@worldbank.org and bzia@worldbank.org.

Can You Help Someone Become Financially Capable? A Meta-Analysis of the Literature[1]

Margaret Miller
Julia Reichelstein
Christian Salas
Bilal Zia[2]

JEL Codes: D12, D14, I22, O12
Sector Board: FSE

---

[1] This paper is part of the background research conducted for the 2014 World Bank *Global Financial Development Report* on Financial Inclusion. The authors would like to acknowledge comments received on this document from Martin Cihak, from peer reviewers Annamaria Lusardi, David McKenzie, Florentina Mulaj, Valeria Perotti, Oya Pinar and Siegfried Zottel and from Caio Piza and other participants at a May 15 GFDR seminar on this topic. Research assistance was also provided by Hendrick Chan, Meghan Conway, and Anisha Mudaliar.
[2] All authors are from the World Bank. Corresponding authors: Margaret Miller (mmiller5@worldbank.org) and Bilal Zia (bzia@worldbank.org)

I. Introduction

A decade ago there was limited interest in the topic of financial literacy. Now this issue is at the top of the policy agenda for national regulators, international organizations, researchers, and private financial institutions. An important reason for the increased attention to financial literacy is the global financial crisis which highlighted the importance of financial knowledge and skills for consumers. Anecdotal evidence from the crisis immediately suggested that people had taken on financial products – and risks – that they did not fully understand. Later empirical studies confirmed this relationship, including Klapper et al. (2012) with data from Russia and Gerardi et al. (2010) who link outcomes in the subprime housing market in the U.S. with consumers' financial knowledge and skills. Furthermore, Lusardi and Mitchell (2012) present evidence from around the world suggesting that individuals even in developed countries have a difficult time understanding basic financial concepts.

While financial literacy can clearly be a factor in avoiding financial risks, it can also be important for taking advantage of financial opportunities. Studies have shown that financial knowledge is linked to higher levels of retirement planning and savings (Behrman et al., 2012; Alessie, et al., 2011; Bucher-Koenen and Lusardi, 2011; Lusardi and Mitchell, 2011, 2007); investment decisions such as diversification (Abreu and Mendes, 2010) and investments in equities (Van Rooij, et al., 2011; Christelis, et al., 2010); credit management and satisfaction (Akin et al., 2012); and mortgage performance (Gerardi, et al., 2010; Quercia and Spader, 2008; Ding, et al., 2008).

At the lower end of the financial market where consumers are seeking their first access to financial products and services such as opening basic accounts or borrowing small sums of money, there is also evidence that financial literacy may be important. Cole et al. (2011) find that use of insurance in India and bank accounts in Indonesia are both linked to higher levels of financial literacy. Using data from *Finscope* in Africa, Honohan and King (2009) likewise find a positive relationship between financial knowledge and use of financial products and services.

There is also ample evidence that financial literacy levels are relatively low across a wide range of countries and negatively correlated with per capita income,[3] hence suggesting that while financial literacy is important for engaging in financial markets, it remains at low levels for many consumers. With this context, it is not surprising that a recent informal global poll of country officials and financial sector experts – the Financial Development Barometer[4] – undertaken for the 2014 World Bank *Global Financial*

---

[3] The 2014 World Bank *Global Financial Development Report* (GFDR) compares national survey data on responses to three common questions used to evaluate financial knowledge – calculation of compound interest, understanding inflation, and diversification of risk. Based on data from more than 30 countries, average response rates were 56% correct for the question on compound interest, 63% for the question on inflation, and 48% for the question on risk diversification. Lower income countries scored significantly lower than high income countries - when higher income OECD countries are evaluated separately from the rest of the sample, the difference between the percent correct on compound interest is more than 20 percentage points (OECD at 65.5%, lower income countries at 44.5%).

[4] The Financial Development Barometer is an informal poll available on-line through the website for the Global Financial Development Report. In total, officials from 21 developed and 54 developing economies participated in the survey. From 265 polled, 161 responded, a 61 percent response rate.

Development Report (GFDR) identifies financial education as the leading response to the question "What is the most effective policy to improve access to finance among low-income borrowers?" (See Figure 1.)

What still remains to be proven is whether this faith in financial education is substantiated by evidence of impact. Are there approaches to teaching financial skills or modifying financial behaviors through educational programs, training, or other outreach activities which have reliable, positive results? The objective of this paper is to analyze the evidence of impact for financial literacy and capability interventions through a systematic review of the evidence. The review includes the use of meta-analysis, a statistical technique that pools data from different studies to test for significance in the enlarged sample of observations this creates. This paper is also different from most previous narrative reviews in focusing exclusively on research that analyzes the impact of financial education interventions. Key characteristics of 188 papers are coded to create a rich data set with the characteristics of the interventions as well as statistical information on the impact of programs on outcome variables such as general savings, retirement savings, and credit performance. This data set is then used for a descriptive analysis of the literature and for empirical tests using meta-analysis.

More than 140 of the 188 studies identified through this review indicate that financial education can be helpful in improving financial outcomes, although it is important to note that most of these employ non-rigorous empirical methods and may suffer from selection bias or other econometric concerns. Some of the more recent studies employ rigorous analytical tools such as randomized control trials (RCTs), and the impacts reported across these papers are more reliable. Examples of positive impacts come from Cai et al. (2013) who find that financial education sessions for rural farmers increase take-up rates for insurance in China. In South Africa, financial messages delivered through a popular soap opera are shown to improve desirable financial behaviors such as borrowing from formal financial institutions rather than from higher cost options such as retailers (Berg and Zia, 2013). In India, Sarr et al. (2012) find that financial education increases the use of a no-frills savings account even months after the intervention ended. In the U.S. a non-RCT study of the Money Smart financial education curriculum by the FDIC (2007) finds that participants are more likely to open deposit accounts, save money, and adhere to a budget.

However, our review of the literature also finds numerous papers (approximately 40 in our sample) citing either no impact or only a modest impact from the intervention which, may not justify the cost of financial education. Cole et al. (2011) for example, find that a financial education intervention among unbanked consumers in Indonesia is less effective at stimulating savings accounts than a small monetary incentive. Likewise, results from a media intervention in Kenya that included comics with financial literacy messages find no significant impact on key variables including savings rates (Eissa et al., 2013). In the U.S., Cole et al. (2013) evaluate mandated personal finance courses in high schools and find that they have no effect on financial outcomes, while training in mathematics is shown to benefit students through greater levels of financial market participation, more investment income, and better management of debt. Similarly, Hung and Yoong (2010) study retirement savings behaviors of adult populations in the U.S. and find that unsolicited financial advice has no impact on savings and investment decisions.

Pooling and systematically studying these varied impacts through meta-analysis has the potential to provide valuable policy insight on what works in financial education, as well as help identify where the research gaps lie. Yet, the diversity of the research in this field thus far makes such comparison – and drawing conclusions on effectiveness – difficult even if it is a logical response to the varied and constantly evolving needs in this area.[5] Variation in context, purpose and duration of training, target populations, and outcome measures is evident in Appendix 1, which presents brief information on each study and in the descriptive statistics for the 188 papers, which are presented in Section III. Nevertheless, our meta-analysis presents some key insights after controlling for observable differences across studies. Importantly, we find that financial education can consistently improve outcomes such as savings and record keeping, but does less well in preventing outcomes such as loan default. These results suggest a role for financial education in improving behaviors where individuals have the ability or slack to exert greater control. Arguably, loan default is imposed by external agencies (banks or other financial providers) and hence can only be avoided secondarily or over the long term if financial education leads to more prudent borrowing decisions. Savings and record-keeping, in contrast, are immediate and primary decisions that can be acted upon by targeted consumers.

The only other paper which uses meta-analysis to evaluate the literature on financial literacy and capability (Fernandes et al., 2013) discusses another potential source of variance in the results for financial education interventions – omitted variables related to psychological traits such as impulse control, delayed gratification, and self-efficacy. They perform meta-analysis on both financial literacy and capability interventions, which they term “manipulated financial literacy” and on observational literature that links levels of financial knowledge or literacy to outcomes (termed “measured financial literacy” by the authors). Their findings indicate that measured financial literacy has a greater impact on financial outcomes than does manipulated financial literacy. They posit that omitted variables are a source of the different results because people with certain psychometric profiles are more likely to engage in activities that increase their financial literacy levels and improve their financial outcomes, but these behaviors (self-control for example) are not the typical focus of financial education interventions which focus on imparting financial knowledge. Yet, while psychometric measures may indeed explain selection into desirable financial behaviors and choices, they are unlikely to be the only omitted category – moreover, it is difficult to identify empirically whether such measures are the only (or even primary) omitted driver of financial choices.

Our paper does not take a stand on the source of statistical bias in observational studies. Instead, we carefully classify and separate observational studies from impact studies, and more than double the number of financial education impact studies which are available for meta-analysis from slightly more than 80 in the case of Fernandes et al. to 188 -- all papers cited in Fernandes et al. are also included in this paper. Another key difference lies in the choice of variables and statistical rigor in the meta-analysis. As indicated previously, there is great diversity in the sample of studies which makes it impossible to

[5] Over the life cycle there are a number of different financial skills and behaviors that are needed, innovation in financial markets can quickly create demand for new skills or make others irrelevant (such as writing checks) and new technologies are creating new delivery channels for training. Skills required by employed workers in high income countries, such as investment abilities and pension planning, are irrelevant for low income consumers in developing countries, further adding to the diversity of interventions present in a global review.

calculate an effect size that is meaningful and comparable across the entire literature, yet Fernandes et al. estimate such an effect size which includes interventions that are fundamentally different across many characteristics such as how outcomes are measured (binary or continuous), targeted populations, and mode of delivery. We take a more conservative approach and carefully screen and compare studies with similar outcome measures and intervention characteristics. This greater precision comes at a cost, however, as we are only able to compare binary outcomes for a subset of studies that pass our comparability screening. However, this careful analysis allows us to classify interventions among key topics such as savings, record keeping, and debt management, yielding more nuanced results in terms of the evidence of impact. Investigating the details of interventions and outcome measures in this way additionally allows us to present important stylized facts about financial literacy programs.

This paper proceeds as follows. Section II describes the systematic review process including a brief discussion of meta-analysis and the rationale for using this tool for such a diverse body of literature. In this context, we look at previous narrative reviews and the literature they cover to help understand why their findings on the impact of financial education have not been consistent. Section II also discusses the search approach used to identify relevant studies in journals, working papers, and other publications, and the inclusion and exclusion criteria. Section III provides information about the data set including both the program descriptions and outcome variables that were identified. Section IV presents the results of the meta-analysis, its potential unique contribution, and limitations. Section V concludes. Appendices 1 and 2 provide supplemental materials on the meta-analysis, and Appendix 3 summarizes ways to strengthen the research protocols of financial literacy studies going forward.

II. The Systematic Review Process Including Meta-Analysis

This paper uses a systematic review process, including meta-analysis, to compare and contrast the findings of a large body of literature on the impact of financial literacy and capability interventions. The systematic review includes five steps:

i) Hypothesis
ii) Search approach and inclusion / exclusion criteria
iii) Collection and coding of data
iv) Statistical analysis (meta-analysis)
v) Conclusions

A systematic review of a diverse body of literature helps to identify patterns in the data and develop insights on the nature and quality of divergent evidence. The descriptive statistics that are presented in Section III based on the coded data from the 188 studies of financial education interventions provide valuable insights on what has been studied thus far, the research methods which have been used, and initial insights on the evidence. However, there are limits to what can be gleaned from these types of rough comparisons.

Meta-analysis was developed to facilitate a statistically rigorous comparison of data across independent studies. By pooling data and statistical information across studies, papers which may individually point to inconclusive or contradictory results may together yield a statistically significant finding. If there are adequate data available on means and standard deviations in the individual research papers, it may also be possible to identify an effect size which indicates the magnitude of change that may be expected.

There are two general types of meta-analysis models: fixed effects and random effects. Fixed effects models assume that the studies are all roughly equivalent in terms of the intervention studied and thus are estimating the same outcomes. This means that data can be pooled and that larger studies with more observations are more highly weighted than smaller ones. Medical drug trials are common forms of fixed effects meta-analysis since the interventions are identical (provision of a drug or pill) and the outcomes are similar, observable, and uniformly measurable.

Random effects models estimate the mean of a distribution of true effects but assume that each study is measuring a different effect size as the interventions and / or populations are not equivalent. Weights in the random effects models are more balanced across studies and those with large sample sizes do not dominate the results as they would in a fixed effects model. There is only one source of error in a fixed effects model – random error – and as the sample size grows this tends toward zero. In the random effects model, however, there are two sources of error – random error within populations and error in estimation of the true effect size across studies. This means that a large number of observations in a study address only the first kind of error – within population – and not the estimation error across studies, which requires a robust number of studies to increase the precision of the estimate.

The diverse nature of the underlying studies on financial literacy and capability clearly leads to the use of a random effects model. When looking at the available studies and data for this exercise, it is reasonable to assume that there are still substantial sources of error from both limited population sizes for specific interventions and inadequate data on the scope of interventions and studies which are available for analysis. The effect sizes that are estimated in the regression analysis in Section IV, therefore, should not be taken as a true measure of effect size for financial literacy and capability interventions. This is not to say that the measures of effect size contain no information. They provide an aggregate measure of impact and are indicative of the state of evidence, but at the same time should not be seen as definitive proof for or against the null hypothesis (defined below) on financial education activities. More technical details on the estimation model used for this study are available in Appendix 2.

Hypothesis – The null hypothesis for this study assumes that financial literacy and capability interventions do not affect the financial knowledge and/or financial outcomes of people who are subject to the treatment.

Search approach and inclusion / exclusion criteria – For this paper we undertook a comprehensive search of a particular segment of the literature on financial literacy and capability – papers which evaluate the impact of interventions designed to strengthen financial knowledge and behaviors. A broad definition of "financial literacy and capability interventions" was used for this review, which included any kind of intervention (intentional or not) which would impact financial knowledge, attitudes and/or behaviors for individuals.

We identified papers meeting the criteria through several sources:

1) Search of peer-reviewed papers in Econlit under the broad terms *financial awareness, financial capability, financial competence, financial education, financial knowledge* and *financial literacy* between January 2000 and September 2013.
2) Search of papers included in previous literature reviews (starting with literature reviews published in 2007 – see table below).
3) Recent studies completed within the World Bank, many of which are listed in the website finlitedu.org.
4) Websites that are likely to include relevant studies, including the OECD, World Bank, Global Partnership for Financial Inclusion, and Alliance for Financial Inclusion (AFI).

The process of evaluating studies for inclusion or exclusion was performed initially through a review of paper abstracts in the case of both papers identified through Econlit and those cited in previous literature reviews. In the case of World Bank studies and research found on websites the papers themselves were typically available and reviewed directly. All papers that reported on an intervention are included in Appendix 1, even those which lacked sufficient rigor or statistical results for use in the meta-analysis portion of this paper. Descriptive information from these papers is included, where possible, in the descriptive statistics presented in the following section of the paper.

In order to reduce the number of studies to review to a manageable size and to focus the evidence on research results which had been screened for quality, only articles from peer reviewed journals were included from Econlit, for the period January 2000 to September 2013. The reasons for exclusion for papers located through Econlit searches are presented in Table 1.

Table 1

Reasons for Exclusion of Research Papers Identified Through Econlit

Reasons for Exclusion	Papers Included	Measurement of Financial Literacy / Financial Capability	Survey data linking financial literacy to an outcome (no intervention)	Survey data linking financial literacy to retirement (no intervention) [This is a subset of previous column]	Business training	Descriptive or Policy Paper	Theoretical Paper	Evaluation Published Previously or Survey Article	Not About Financial Literacy or Capability	Other	TOTAL Articles
Exclusions for Econlit Searches (January 2000 to September 2013)											
Financial Attitudes	6	1	5	0	0	0	0	0	49	2	63
Financial Awareness	0	0	5	0	0	8	0	0	16	0	29
Financial Capability	2	3	6	1	0	1	1	1	62	0	77
Financial Competence	0	0	2	0	0	3	0	0	15	0	20
Financial Education	34	11	17	2	7	14	14	8	229	5	341
Financial Knowledge	17	14	22	9	4	5	4	1	161	1	238
Financial Literacy	14	13	47	17	2	26	6	7	5	12	149

Many of the excluded papers analyzed the importance of financial literacy or knowledge on various financial and non-financial outcomes. Using the terminology in Fernandes et al. (2013), these are “measured financial literacy” papers. They were excluded because they did not test an intervention but they do provide valuable insights on the importance of financial literacy and knowledge on outcomes. Studies were included when they discussed any program, educational outreach, media intervention or other type of communication or training for consumers which could either strengthen knowledge (financial literacy) or modify attitudes and behaviors (financial capability).

One of the insights from the Econlit search on these key terms is that a relatively small percentage of the literature involves an evaluation of some kind of financial literacy or capability intervention or program. Even for the terms “financial education” and “financial literacy” only about 10% of the studies in these categories evaluated the effectiveness of an intervention. Searches of “financial awareness” and “financial competence” yielded no impact evaluations and even the widely used term “financial capability” produced only two papers for the database out of a total number of 77 citations. With the exception of the search for “financial literacy,” a vast majority of the papers listed under the searches conducted on Econlit are not about personal financial literacy or capability.

The review of nine previously published narrative reviews identified more than 500 unique references which included more than half of the 188 papers that are listed in Appendix 1. The references cited by these nine narrative literature surveys, however, have relatively little overlap. This can be seen with greater precision in Table 2 below which presents the Pearson correlation coefficients and associated R^2 terms for reference lists across the literature survey papers.[6] In only two instances do the survey papers in Table 2 have a correlation coefficient above 0.2 (Martin 2007 with Hathaway and Khatiwada 2008 and Collins and O’Rourke 2010 with Agarwal et.al. 2010), which is already a relatively low level of correlation. The R^2 terms in parentheses (which is simply the squared term of the correlation coefficient) are sometimes called the coefficient of determination and provide another indication of the strength of the relationship among the variables. Approximately 55% of the R^2 figures are below .01 indicating a very weak relationship and relatively little overlap across studies.

[6] A matrix was created based upon the references in each of these papers, for a total of 536 unique citations. For each of the nine literature reviews, a “1” or “0” was entered to indicate whether the reference was cited in the review. This matrix was then used to calculate the Pearson correlation coefficients and r^2 terms.

Table 2

Evaluating similarities between recent literature surveys on financial education (Pearson Correlation Table)

References	Martin 2007	Hathaway and Khatiwada 2008	McCormick 2009	Agarwal et al 2010	Collins and O'Rourke 2010	Gale and Levine 2010	Hastings, Madrian, Skimmyhorn 2012	Xu and Zia 2012	Lusardi and Mitchell 2013
Martin 2007	1.000								
	(1.000)								
Hathaway and Khatiwada 2008	0.416	1.000							
	(0.173)	(1.000)							
McCormick 2009	-0.067	0.001	1.000						
	(0.004)	(0.000)	(1.000)						
Agarwal et al 2010	0.118	0.097	-0.017	1.000					
	(0.014)	(0.009)	(0.000)	(1.000)					
Collins and O'Rourke 2010	0.161	0.104	0.026	0.425	1.000				
	(0.026)	(0.011)	(0.001)	(0.181)	(1.000)				
Gale and Levine 2010	0.171	0.190	-0.088	0.174	0.047	1.000			
	(0.029)	(0.036)	(0.008)	(0.030)	(0.002)	(1.000)			
Hastings, Madrian, Skimmyhorn 2012	-0.057	0.009	-0.060	0.075	0.036	0.084	1.000		
	(0.003)	(0.000)	(0.004)	(0.006)	(0.001)	(0.007)	(1.000)		
Xu and Zia 2012	-0.077	-0.099	-0.065	-0.088	-0.100	-0.083	-0.175	1.000	
	(0.006)	(0.010)	(0.004)	(0.008)	(0.010)	(0.007)	(0.031)	(1.000)	
Lusardi and Mitchell 2013	-0.104	-0.038	-0.155	-0.105	-0.167	0.039	-0.002	-0.217	1.000
	(0.011)	(0.001)	(0.024)	(0.011)	(0.028)	(0.002)	(0.000)	(0.047)	(1.000)
Total Number of References	44	35	45	82	57	61	100	132	187

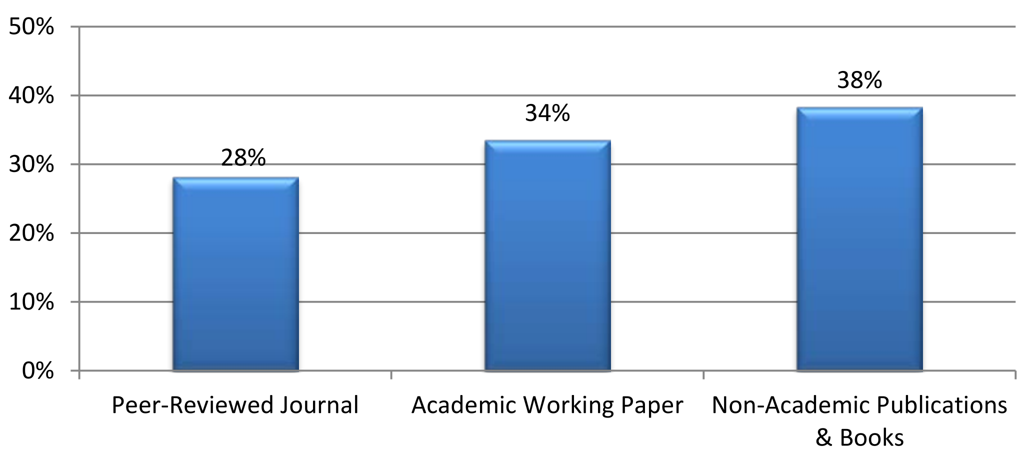
The limited overlap in terms of the literature they are reviewing helps to explain the variety of findings in these narrative literature reviews. Martin (2007), at the Federal Reserve Bank of Richmond, provides one of the earliest reviews and has a limited number of references (44). He assesses the evidence positively, writing "Generally, we can conclude from this literature review that there is a need for financial education and that many existing approaches are effective. More specific conclusions might be best described as tentative given the current scarcity of research in some areas."[7] Just one year later another literature review published by the Federal Reserve Bank of Cleveland (Hathaway and Khatiwada 2008) came to a much less positive conclusion using many of the same research papers. Hathaway and Khatiwada (2008) state, "Unfortunately, we do not find conclusive evidence that, in general, financial education programs do lead to greater financial knowledge, and ultimately, to better financial behavior. However, this is not the same as saying that they do not or could not – it is just that current studies, while at times illustrating some success, leave us with an unclear feeling about whether we can grant a blanket application of these results specifically, to financial education programs more generally."[8]

[7] Martin (2007), page 22.
[8] Hathaway and Khatiwada (2008), page 19.

Several years later, Gale and Levine 2010 also find little evidence of impact, stating, "None of the four traditional approaches to financial literacy – employer-based, school-based, credit counseling, or community-based – has generated strong evidence that financial literacy efforts have had positive and substantial impacts."[9] Still, Gale and Levine 2010 recommend further work in this area, since they find financial planning to be beneficial as well as simplification initiatives to facilitate decision making which public policy can support. Lusardi and Mitchell 2013 provide the most comprehensive and recent of the narrative literature reviews with nearly 200 references. They offer a cautious endorsement of financial education activities but also refer to the issues of endogeneity and omitted variables, "Research on efforts to enhance financial literacy suggest that some interventions work well, but additional experimental work is needed to explore endogeneity and establish causality."[10]

While the search on Econlit was limited to papers that had appeared in peer reviewed journals, this exclusion criteria was not used for the many articles identified through the survey papers or from other key sources (websites, World Bank research) in order to increase the coverage of available research on this topic. Many of the papers included in the analysis have been written in the past few years and thus many (about one-third) are still in working paper format (see Figure 2). Apart from universities, the NBER and the World Bank are the main sources of working papers cited here.

Figure 2
Type of Publication
(n=188)



There are also numerous papers, briefs, and reports which are released by the many public, private, and non-profit organizations involved in this topic but which are not published through the academic press and subject to peer review. Known as "gray literature" these documents include research reports written by academics and researchers in think-tanks evaluating specific curricula using statistical methods and are thus also included in this literature search. However, since the financial education

[9] Gale and Levine (2010), page 2.
[10] Lusardi and Mitchell (2013), page 49.

provider may often also be the funder for the evaluation, these papers are identified separately from working papers published through academic institutions where such conflicts of interest are less likely to occur.

Publication Bias – The first step in any systematic review involves the identification of relevant research so that conclusions are based on a comprehensive body of evidence which is not biased in some important way. If researchers or journal editors have a tendency to publish studies with a certain type of result (for example, in this case studies which show that financial education programs are effective in changing behavior, rather than studies showing no impact) this can result in one form of publication bias. The fact that many studies in the financial education literature (and in social science research more generally) involve little-known research projects with small sample sizes further exacerbates this problem since the broader community of practice may not be aware of instances where research results are not published or widely disseminated. By contrast, medical research trials which involve large public grants and large sample sizes are under more scrutiny and pressure to share results. Including studies from the "gray literature" which have not been published in journals can help to reduce the impact of this type of publication bias.

In addition to including gray literature in the systematic review, this paper reviews all of the impact evaluations cited in previous narrative literature surveys as well as all interventions in the recently released meta-analysis by Fernandes et al. (2013). Further, papers were identified through searches of broad terms in Econlit, and on websites and through World Bank research. As such, this paper encompasses a broader, and more comprehensive, analysis of the literature than previous reviews, which reduces the likelihood of this type of publication bias. Appendix 2 also presents evidence from an econometric test (metafunnel in Stata) for publication bias to help show the extent to which the review may be affected by missing studies.

Failing to publish the results from research is perhaps the most well-known type of publication bias, but it is not the only one. Other types of publication bias (or dissemination bias) which can negatively impact a systematic review include language bias (including only research in a certain language); availability bias (limiting consideration to research which is readily available to the researcher); cost bias (including only research papers that are available for free or at a low cost); familiarity bias (limiting the research to papers in one's own discipline); and outcome bias (reporting selectively on the empirical data in papers to highlight certain types of results) (Rothstein, Sutton and Borenstein 2005). These various types of publication bias are not considered significant issues for this review. In terms of language bias, the vast majority of research on this topic internationally has been done in the United States (perhaps due to the greater level of consumer lending and less heavily regulated financial markets) and in the English language. Further, the search process did not use language as a criterion for inclusion and where non-English language research was identified, efforts were made to include these studies. In terms of availability, studies on financial literacy and capability are generally publicly available through online databases available to academic researchers or on websites of relevant NGOs, public agencies or multilateral organizations. No study was eliminated due to a cost consideration and in some cases authors were contacted directly to request copies of articles not readily available on-line (in a few instances of older research articles). Also, this review extends beyond typical economics journals to include research published by academics in consumer and family sciences, education, sociology and psychology. All empirical findings are reported where a financial intervention was an explanatory variable in a regression model explaining a financial outcome or behavior, including financial knowledge gains.

III. A Systematic Review of Financial Literacy and Capability Interventions Using Meta-Analysis

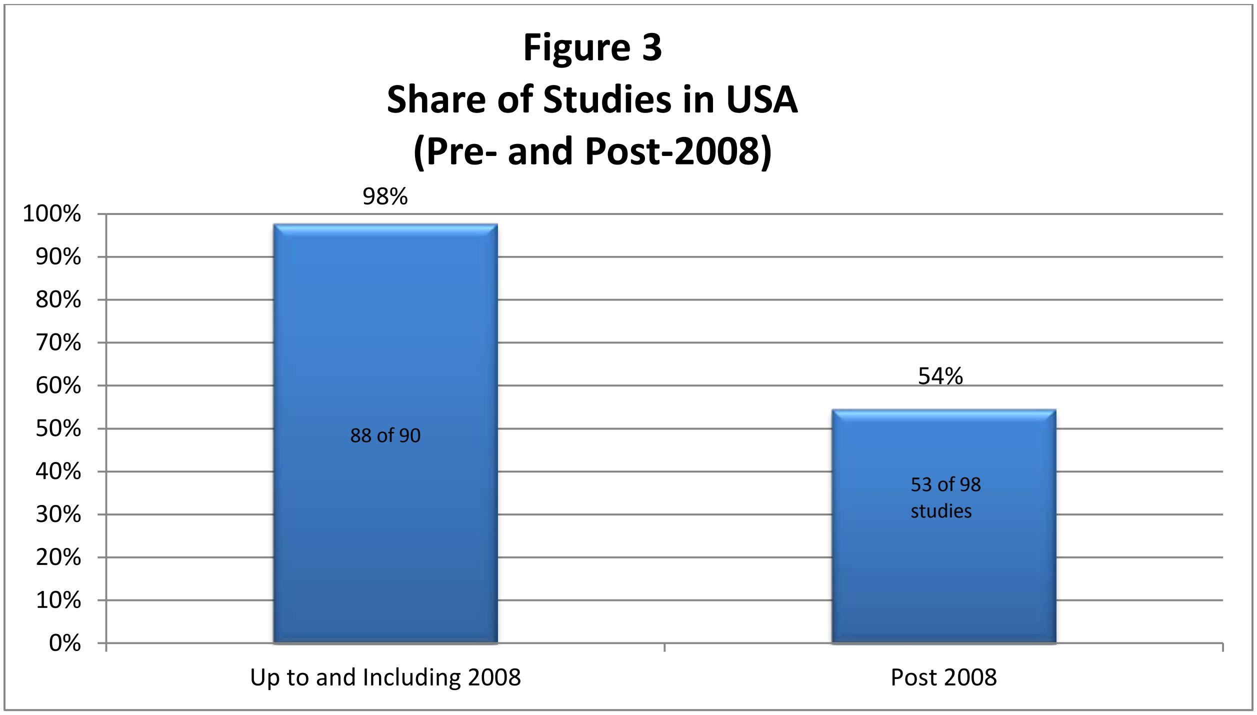
The extensive literature search described in the previous section resulted in 188 journal articles, reports, and other publications that analyze the effectiveness of financial education interventions. The rigor required for meta-analysis of this literature resulted in a unique database that enables us to more precisely describe the types of financial education programs or interventions which have been evaluated as well as their reported impacts.

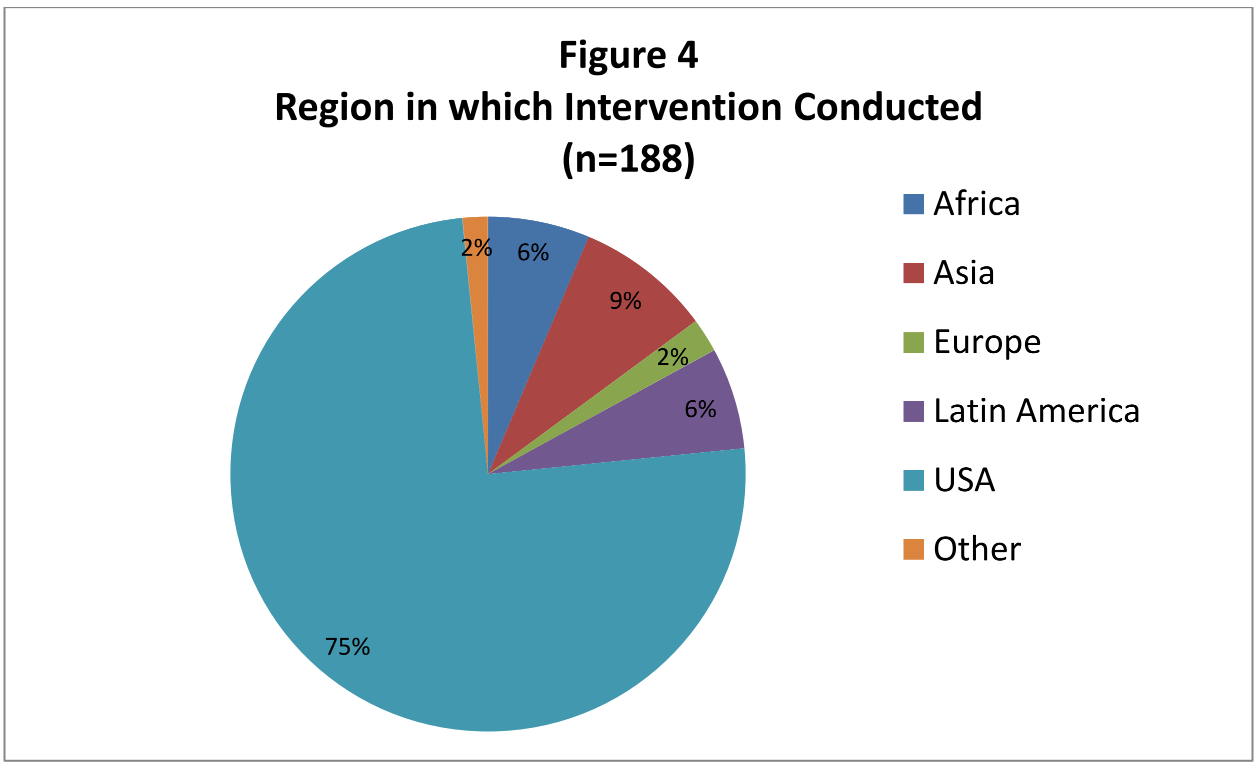
The main relationship that is tested through meta-analysis in this paper is whether financial education interventions have an impact on outcome variables of interest such as general savings levels, retirement savings, record keeping, and credit performance. If data were available outcome variables could extend to other economic indicators of well-being such as total assets, consumption, or income; or on the other hand, to measures of vulnerability such as declaring bankruptcy or losing major assets such as a home or land.

The key characteristics of financial education interventions are also recorded. In the context of meta-analysis these data are referred to as moderator variables because they help to explain the strength of the relationship between the predictor variable (in this case financial education) and the outcome. Moderator variables which are collected for this paper include information on the financial topic which is addressed (i.e. savings, credit, etc.), the type of delivery channel used (classroom instruction, mass media, etc.), the country where the intervention occurred, the location of the intervention (school, workplace, etc.), the number of hours of instruction, whether teacher training was involved, and whether the intervention focused narrowly on the individual or extended to the family or broader social setting. Another important data point which was collected through this exercise concerned the evaluation methods used. In particular, the dataset distinguishes whether studies used a randomized controlled trial (RCT) design.

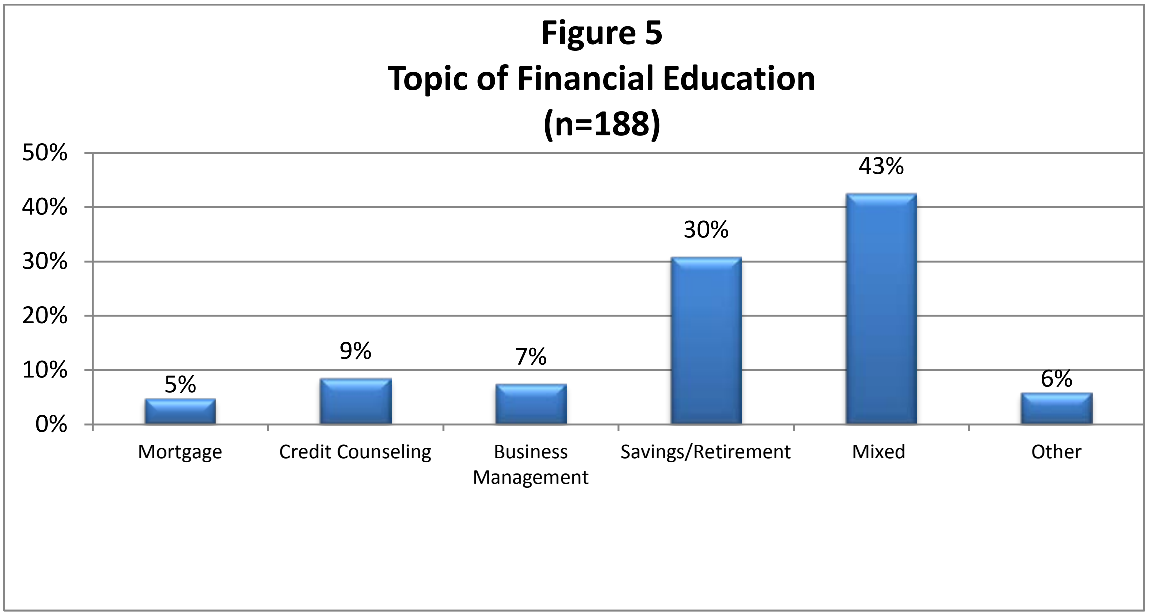
The Dataset – Moderator Variables

Until 2008 the vast majority (98%) of studies on financial education interventions which were identified through this search focused on the United States. This started to change after 2008, when the financial crisis focused attention on the importance of this topic not only in the US but around the world (See Figure 3). The World Bank also contributed to the growth of literature on the impact of financial education interventions in developing country markets with the institution's researchers contributing to more than 20 papers on this topic since 2008. As shown in Figure 4, Africa, Asia, and Latin America are the regions outside the United States with the largest shares of studies in our sample.

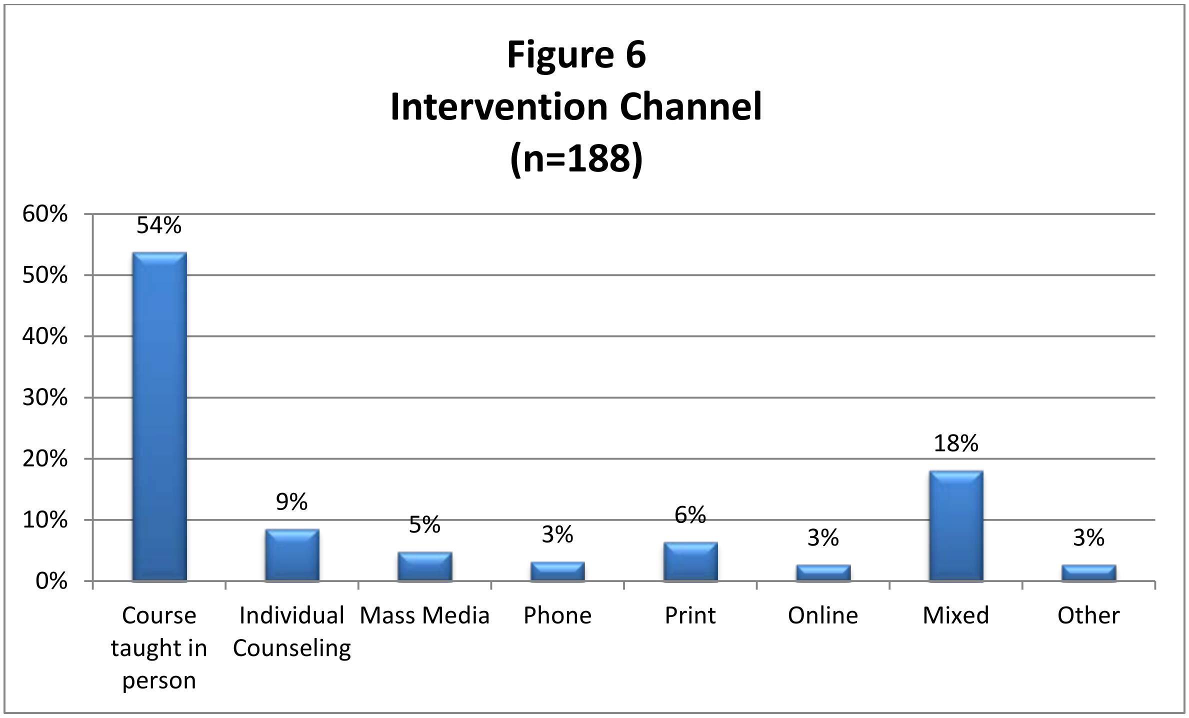




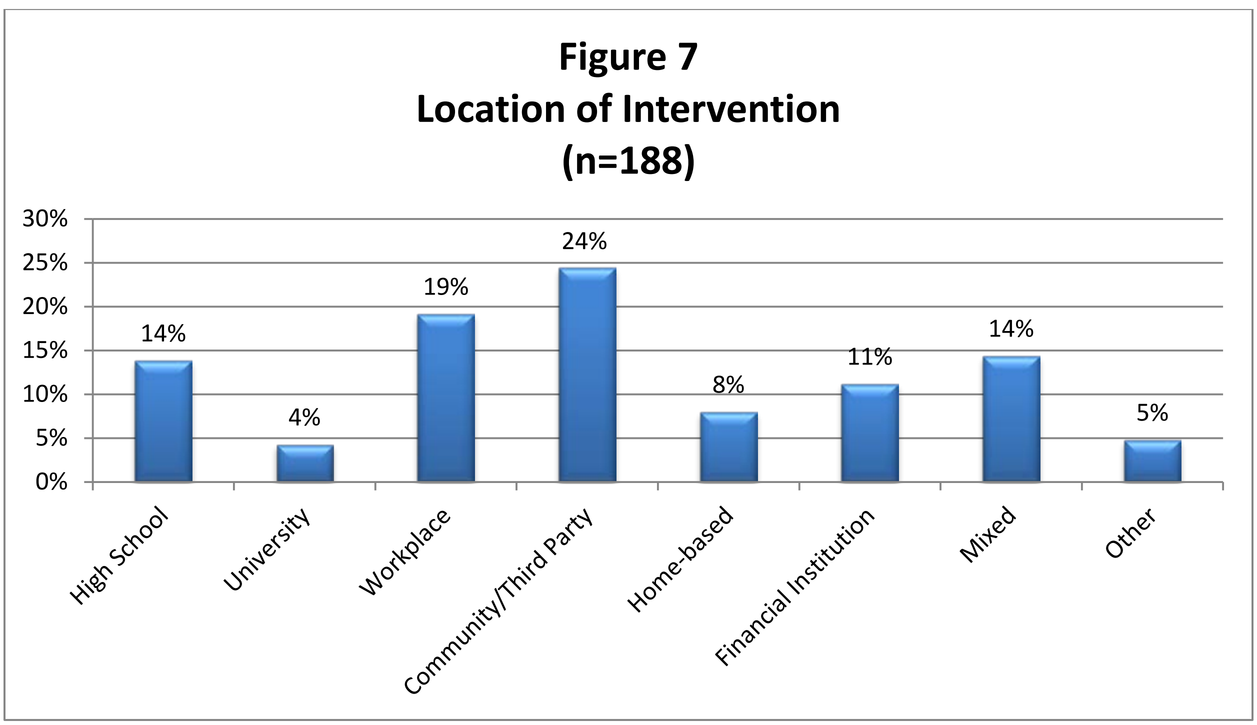
There is a wide range of financial topics covered by financial education interventions in the literature which were grouped into six categories in this paper (Figure 5). Interventions which provide information on a variety of financial issues, coded as "mixed" interventions in the data, are the most common type and represent more than 40% of the total sample. Financial literacy programs in the U.S. are most likely to involve either multiple messages (mixed) or focus on savings and retirement. In developing countries courses that include business management are among the most common in our sample together with those involving multiple messages with each comprising about one-quarter of the sample, with savings and retirement messages a close third.



As is evident in Figure 6, the majority of interventions in this sample involve direct contact with an instructor / advisor typically in a classroom or seminar setting, with a significantly smaller share (9%) involving individualized counseling. In terms of the cost per person reached, these kinds of interventions are likely to be the most expensive. Most interventions studied in the literature also focus on programs using only one delivery channel – classroom, video, phone advice, etc. – although there is widespread awareness in the communications field that a more comprehensive approach using multiple types of media (often referred to as a transmedia or 360^{o} strategy) is more effective. A relatively small number of interventions in the evaluation literature look at use of mass media. These include use of TV soap operas in Africa and in the U.S., both of which show positive results in increasing awareness and shifting attitudes.



While financial education interventions are often associated with youth and programs taught in schools, these are only a relatively small share of the interventions which have been rigorously studied (18% including both high school and university programs). See Figure 7 for locations where financial education programs are provided.



Most programs which have been evaluated are provided through community organizations or in the workplace. Workplace programs almost always relate to a “teachable moment” when employees have an opportunity to immediately use the information they are gaining, such as signing up for benefits or to save part of their salary. Many community based interventions also focus on teachable moments, sometimes related to helping people through challenging financial moments (such as credit counseling for people finding themselves overwhelmed by debt or mortgage counseling for prospective home buyers). Community interventions are almost exclusively focused on low income populations or other groups that are seen as financially vulnerable (battered women for example).

Most of the financial education interventions which have been evaluated are relatively short in terms both of the number of hours of exposure (see Figure 8) and in terms of the period of time during which the exposure occurred (see Figure 9). As can be seen in Figure 8, slightly more than one-third of the interventions (38%) last 10 hours or less and 16% last just 2 hours or less. These shares are probably understated, as many of the interventions labeled as “varied” in terms of hours of exposure likely fit within the 10 hour or less categories.

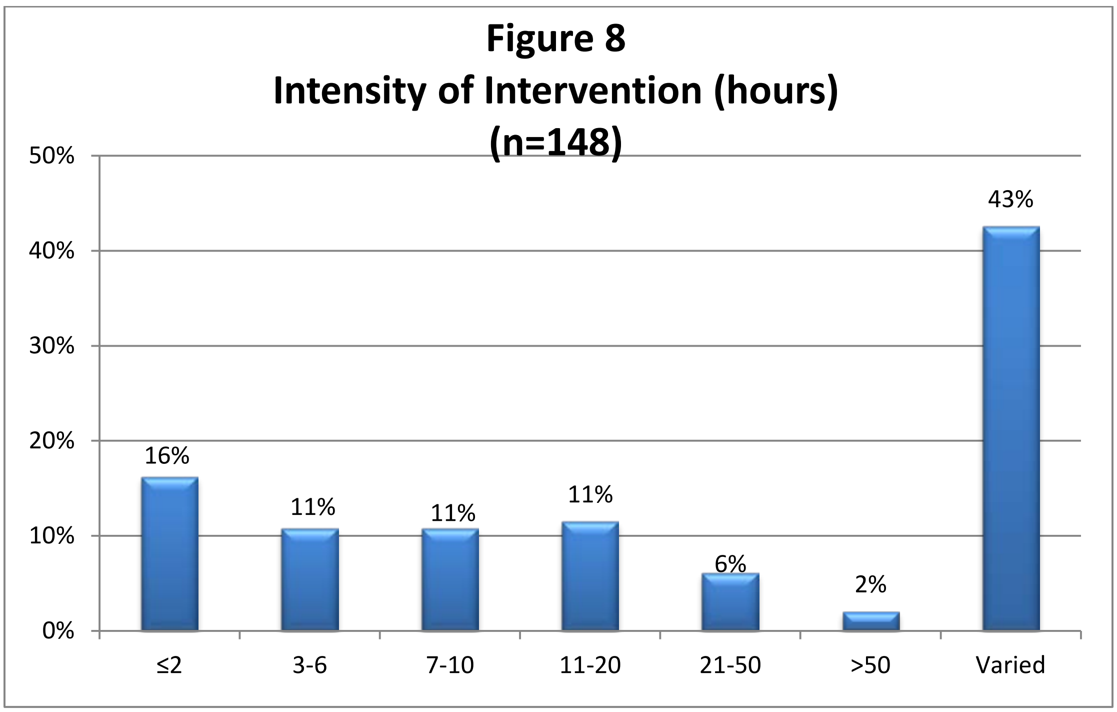
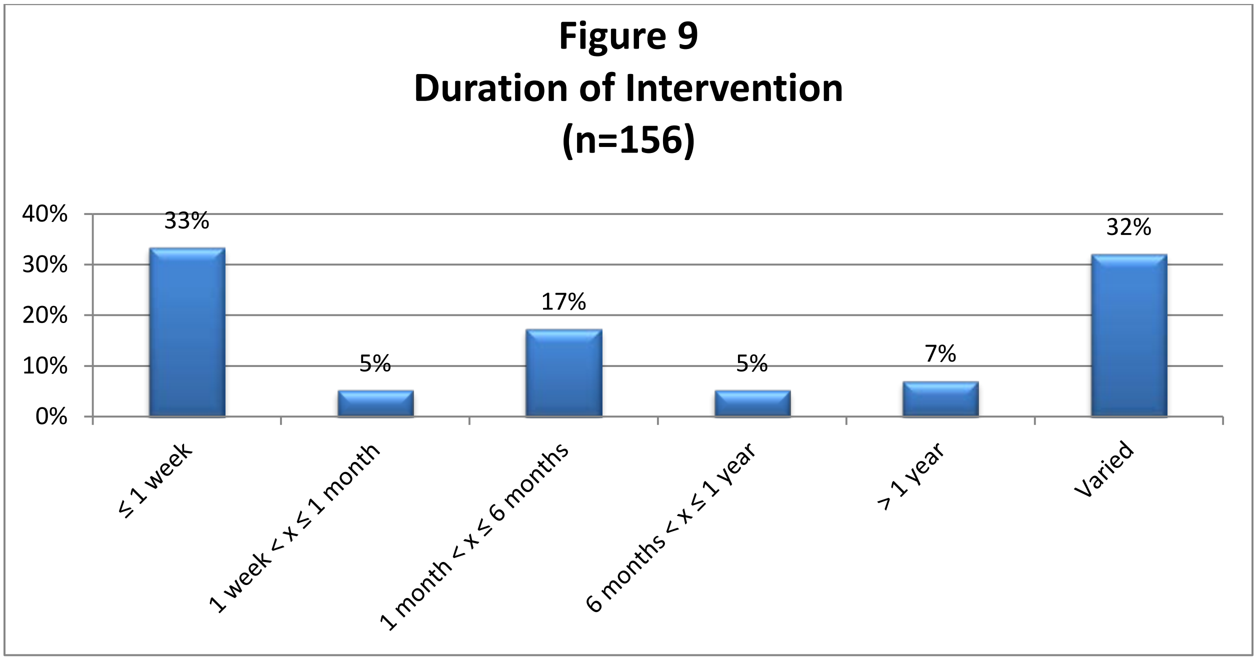
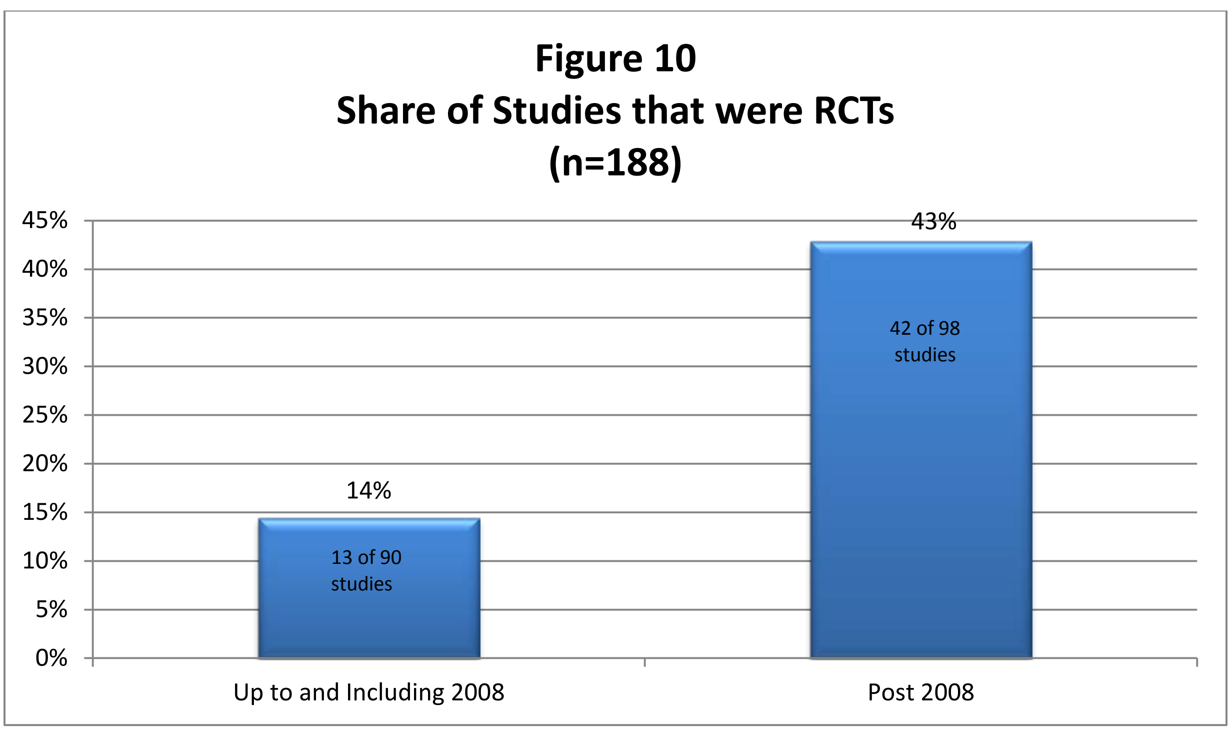


Figure 9 presents information on the duration of interventions and shows that more than one-third are delivered within one week or less and more than one-half of interventions are delivered within 6 months or less. Just as with the classification of intensity, these shares are likely to be underestimates as many of the interventions listed as “varied” are likely to be of relatively short duration (6 months or less). Since repetition is a key element of learning, the limited amount of time typically devoted to interventions may be a factor working against stronger impact results.



Overall, there has been a noticeable evolution in the literature on financial education interventions over the past five years. The increase in research beyond the United States, mentioned previously, has been accompanied by an increase in more rigorous research methods such as randomized controlled trials (RCTs). As can be noted in Figure 10, RCTs have gone from being relatively rare to frequently used, with more than 40% of papers since 2008 using these rigorous methods. In order to be as comprehensive as possible in reviewing the literature, studies were included which used a variety of research methodologies, not only RCTs.



IV. Results from Meta-Analysis

This section presents the results from the application of meta-analysis statistical techniques on the data assembled on impact evaluations of financial education interventions. Before discussing the specific results it is important to place them in context. The diversity of the literature on financial education interventions means that even where there were common outcome variables (such as likelihood to save) the underlying interventions were each unique, making a direct comparison impossible. The limited number of studies available for evaluation in each of the categories (no more than ten, often closer to five) also reduces the strength of the statistical results. Despite these limitations, it is still useful to systematically and quantitatively evaluate the diverse body of evidence on financial education interventions to provide policy makers with an indication of what is working in financial education and to provide researchers insights on where knowledge gaps lie.

Identifying the Issues That Could Be Tested Using Meta-analysis

The majority of the 188 papers identified through the search as presenting results of financial literacy or capability interventions include potentially useful statistical data that could be used for meta-analysis. Many papers report on multiple regressions which are of interest and have multiple outcome variables or results from empirical tests on population subsets based on criteria such as educational attainment, income level, or score on a financial literacy test. In some cases, there are several types of explanatory variables related to the intervention. There are a total of 839 observations from the 188 papers; however, not all contain usable statistical information.

For the meta-analysis of this paper, outcome (dependent) variables were coded among several major categories based on a review of the variable descriptions (savings, borrowing, financial literacy test scores, account opening, and record keeping). Within these categories there was further disaggregation to ensure comparability across studies for the meta-analysis. For example category "S1" corresponds to the savings category and is a binary variable with a value of "1" if the individual reported having saved, while "S4" is a continuous variable indicating total reported savings during a particular period of time. No effort was made to compare these types of disparate data through meta-analysis. Rather, we used the coding of outcome variables to identify those instances where existing studies had similar impact measurements and thus could be reasonably combined in a meta-analysis. The list of coded outcome variables is provided in Appendix 1.

Once the outcome variables were categorized, the data were analyzed to determine the number of studies using this variable and to further identify those which reported adequate statistical information to be able to be included in the meta-analysis. We selected five studies as a minimum number for the meta-analysis.[11] Further, each study had to provide the coefficient on the financial literacy / capability intervention and the standard error (or other statistical data from which to construct the standard error) and studies had to have comparable measurement criteria for the outcome variables. For example, studies that reported on a change in a financial literacy score were not used because the studies were based on potentially very different tests and scales for measuring financial literacy and thus did not

[11] In the case of one of the outcome variables – loan defaults – the number of eligible papers dropped to just four after further review due to the exclusion of a study (Quercia and Spader 2008) which used a logit model instead of one employing linear probability.

represent a true comparison across similar results. This rigorous screening exercise produced just four outcome variables which were used in five or more separate studies.

The four qualifying binary variables (listed below) were analyzed using meta-analysis.

S1 = savings reported in past period (1 if positive) – binary
S11 = contributes to retirement savings (1 if positive) -- binary
B6 = defaulted on a loan (1 if positive) – binary
R1 = keeps financial records / budgets (1 if positive) – binary

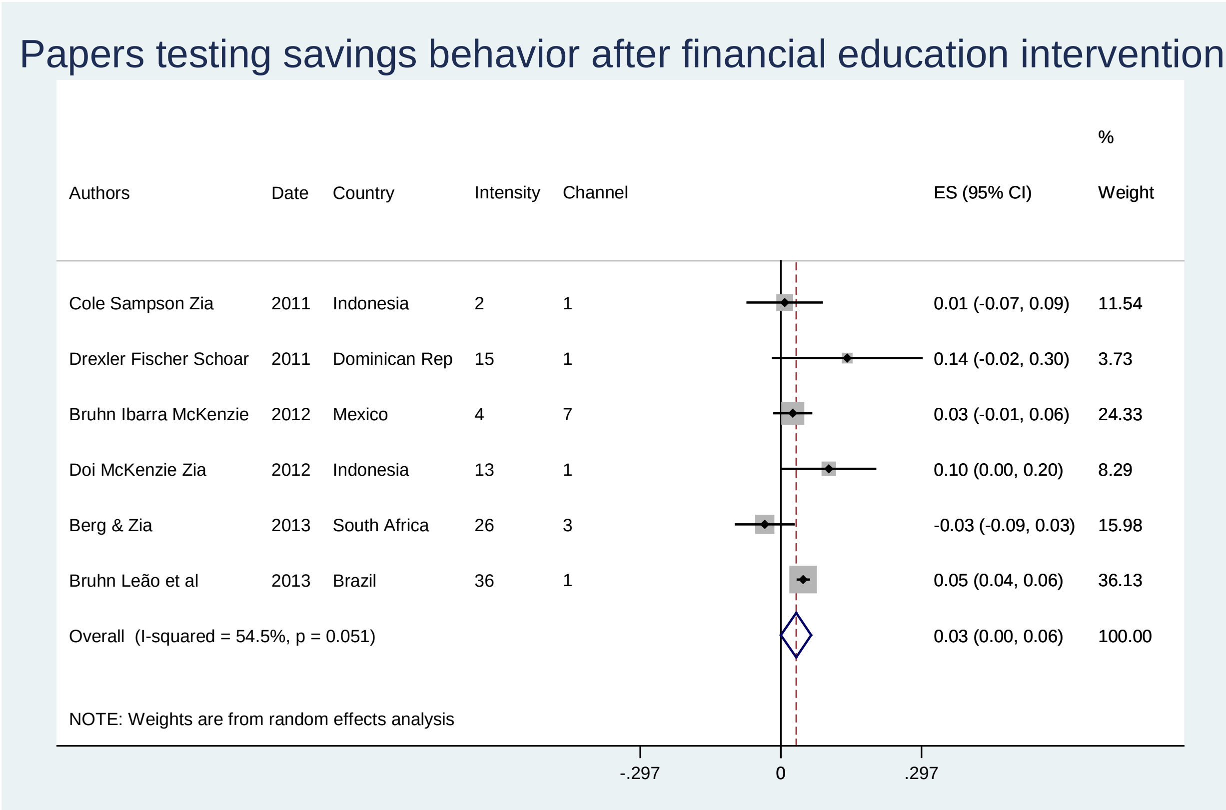
In addition to the development of forest plots with the 4 outcome variables mentioned above, meta-regression analysis was used to determine if specific characteristics of the interventions (the explanatory variables) made significant contributions to results. Due to the small sample sizes these explanatory variables were tested individually on each outcome variable. The intensity of the intervention, measured in terms of number of hours of instruction or exposure, was the only continuous explanatory variable which also was widely reported on (with only one or two exceptions) among the studies used in the meta-analysis. The results from the forest plots and regressions looking at the intensity of the intervention are presented in the next section. Both meta-analysis and meta-regressions are conducted on study-level summary data because individual observations from all studies are not available.

The meta-analysis performed is a two-stage process involving the estimation of a relevant summary statistic for each of a set of studies followed by the calculation of a weighted average of these statistics across the studies (Deeks, Altman, and Bradburn, 2001). In this case, pre-calculated effect estimates and their standard errors from each study are pooled. The meta-analysis includes a forest plot, in which results from each study are displayed as a square and a horizontal line, representing the intervention effect estimate together with its confidence interval. The area of the square reflects the weight the study contributes to the meta-analysis. The combined-effect estimate and its confidence interval are represented by a diamond.

Meta-Analysis Results

The most common single-issue topic for financial education interventions was savings and retirement. The greatest number of comparable papers also addresses this issue. The forest plot from the research papers that address the impact of interventions on savings are shown below in Figure 11. A forest plot graphically displays the treatment effects across multiple studies with a solid line representing the null hypothesis of no effect from the intervention – in this case from exposure to financial education outreach / training. Intensity refers to the number of hours of exposure. Channel refers to the type of intervention / content delivery channel and is coded as follows (1= course taught in person; 2= individual consulting; 3= mass media; 4=phone; 5=print; 6=online; 7=mixed; 8=other).

Figure 11



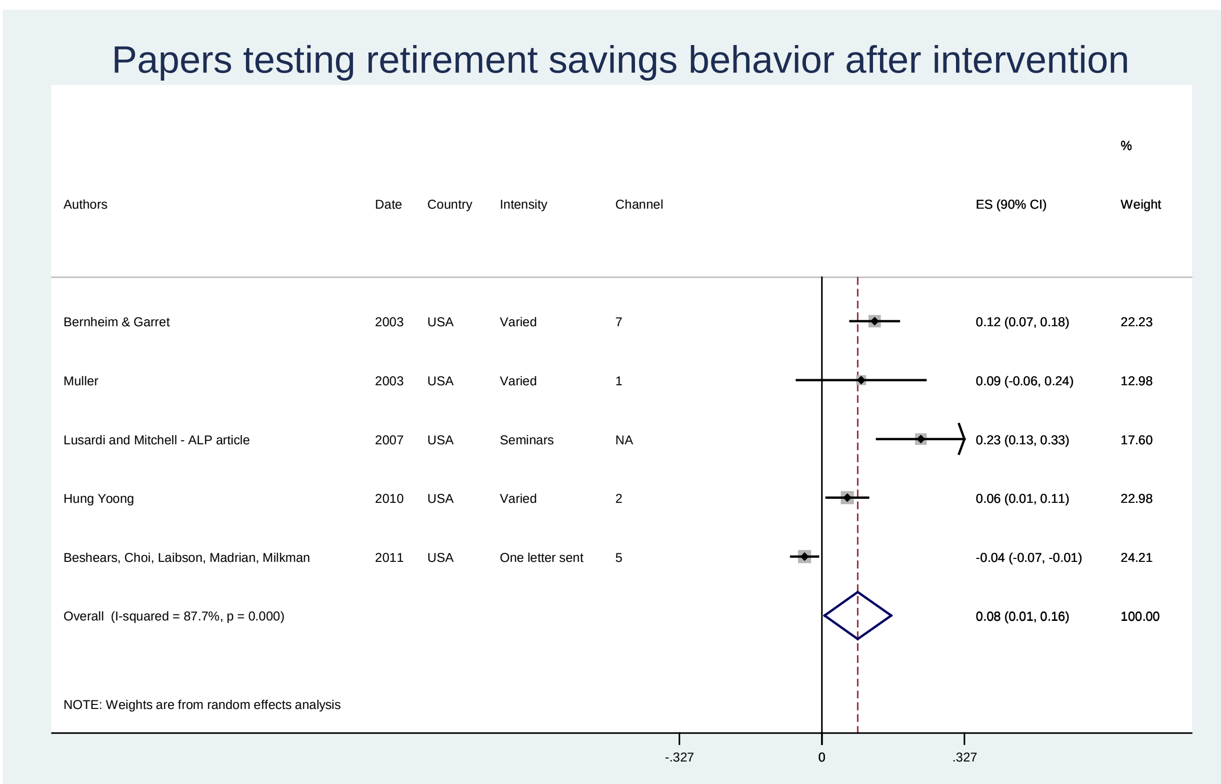
The results are presented with the statistical output from the meta-analysis as well as with data on important characteristics of the interventions. The weight assigned to each of the six studies is provided in the far-right column and is based on the reported strength of the statistical result in the various studies. The size of the shaded squares for each study reflects their weight in the meta-analysis. The horizontal line through the shaded square is the confidence interval for the reported results. When this line intersects the vertical line which represents the null hypothesis (no effect from financial education) then the null cannot be rejected. In this particular meta-analysis, only two of the six papers reject the null hypothesis and indicate a positive impact on savings from financial education while four cannot reject the null hypothesis. Taken together, however, the meta-analysis finds that these papers do provide evidence of impact for financial education at the 95% confidence interval. The confidence interval for the pooled data across the six papers is represented by the diamond at the bottom of the graph and is on the right hand side of the null hypothesis, rejecting a finding that financial education has no impact on savings behavior. We lack the data on control group means to determine the true effect size for this finding. The meta-analysis in Figure 11 was based only on data from RCT studies to increase the quality of the data and thus to strengthen the cross-study analysis.

The I-squared statistic, which is also presented in the forest plots, describes the percentage of variation across studies that is due to heterogeneity rather than chance. Thus, the I-squared is useful for determining the consistency of results between studies in a meta-analysis. A lower I-squared would indicate more consistency underlying the results of the sample studies while a higher I-squared would indicate more heterogeneity in this regard. The p-value also provides a way to test for heterogeneity by examining the null hypothesis that all studies in the meta-analysis are evaluating the same effect. A p-value lower than 0.05 would reject this hypothesis at the 5% significance level and indicate that the results of the studies are more heterogeneous.

As seen in Figure 11 (savings behavior), the I-squared was 54.5%, which is not generally considered a low number (indicating consistency) but which is lower than the I-squared terms for the other outcome variables, indicating *relatively* more consistency among the results for savings. The other meta-analysis results (Figure 12 - retirement savings behavior, Figure 13 - loan default behavior, and Figure 14 - record-keeping behavior) reveal higher I-squared statistics than Figure 11, indicating more heterogeneity between the studies involved in their respective samples.

Meta-analysis to evaluate the impact of financial education interventions on retirement savings produced weaker results and was unable to reject the null hypothesis of no effect on retirement savings at the 95% confidence interval, but it could reject the null when the confidence interval was relaxed to 90% (p=0.077). Five studies were included in this analysis, all based on programs in the U.S., none using randomized controlled trials and only two using exclusively classroom methods. Results are shown in Figure 12.

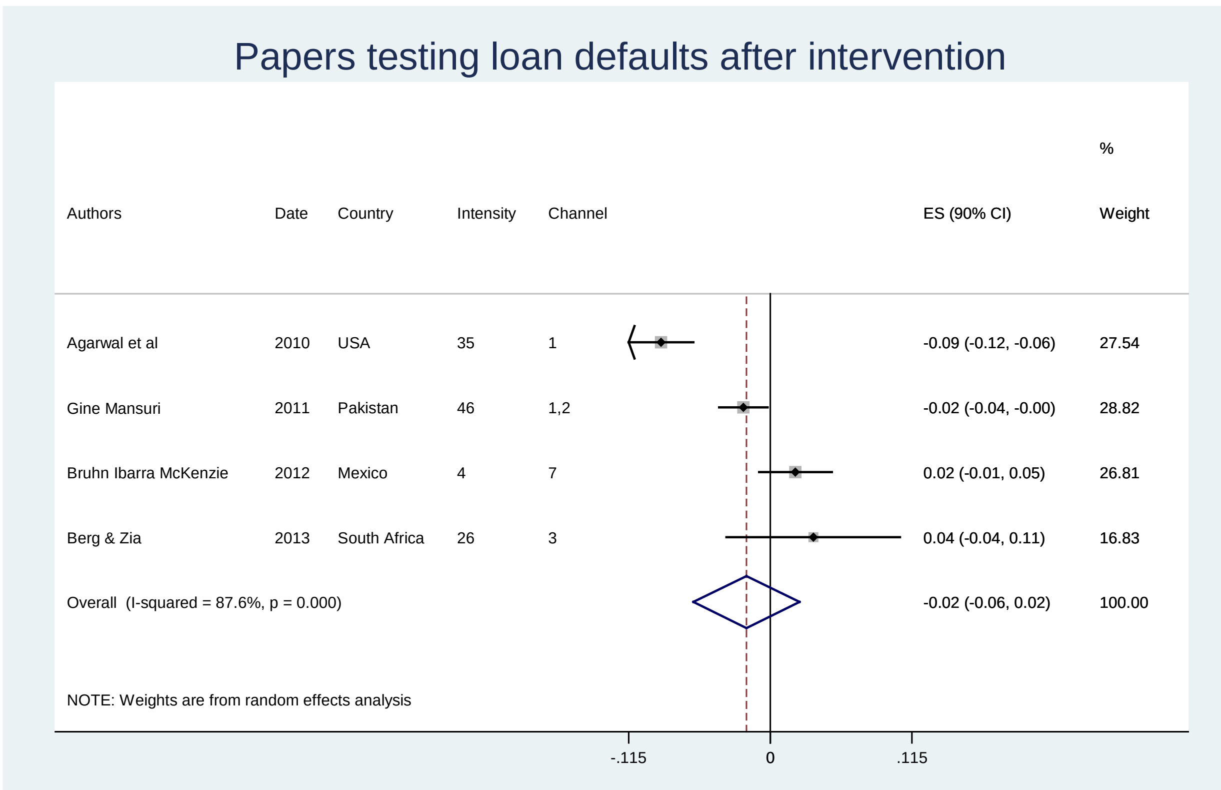
Figure 12



Care should be taken with the interpretation of these results – the sample diversity and small sample size in both the meta-analysis of general savings and retirement savings require that the results are seen as indicative rather than definitive in terms of the impact of financial education on savings. Still, they provide another piece of information to policy makers interested in the use of financial education for increasing saving, whether for general purposes or for retirement / old age.

In addition to the topic of savings, numerous studies focused on credit and borrowing and used information on loan defaults after interventions as an outcome variable. The meta-analysis of these studies found the least evidence of impact from financial education interventions. Figure 13 presents this analysis in a forest plot. Even at the 90% confidence interval, the null hypothesis of no impact from the intervention cannot be discarded.

Figure 13



While the results from the meta-analysis in figure 13 are significantly heterogeneous and do not show a significant overall effect size, they nevertheless provide interesting insights. Two substantive points of difference between the studies that did and did not show impact lie in whether the education intervention was targeted around a specific topic and whether there was an associated immediate opportunity to use the newly-acquired information.

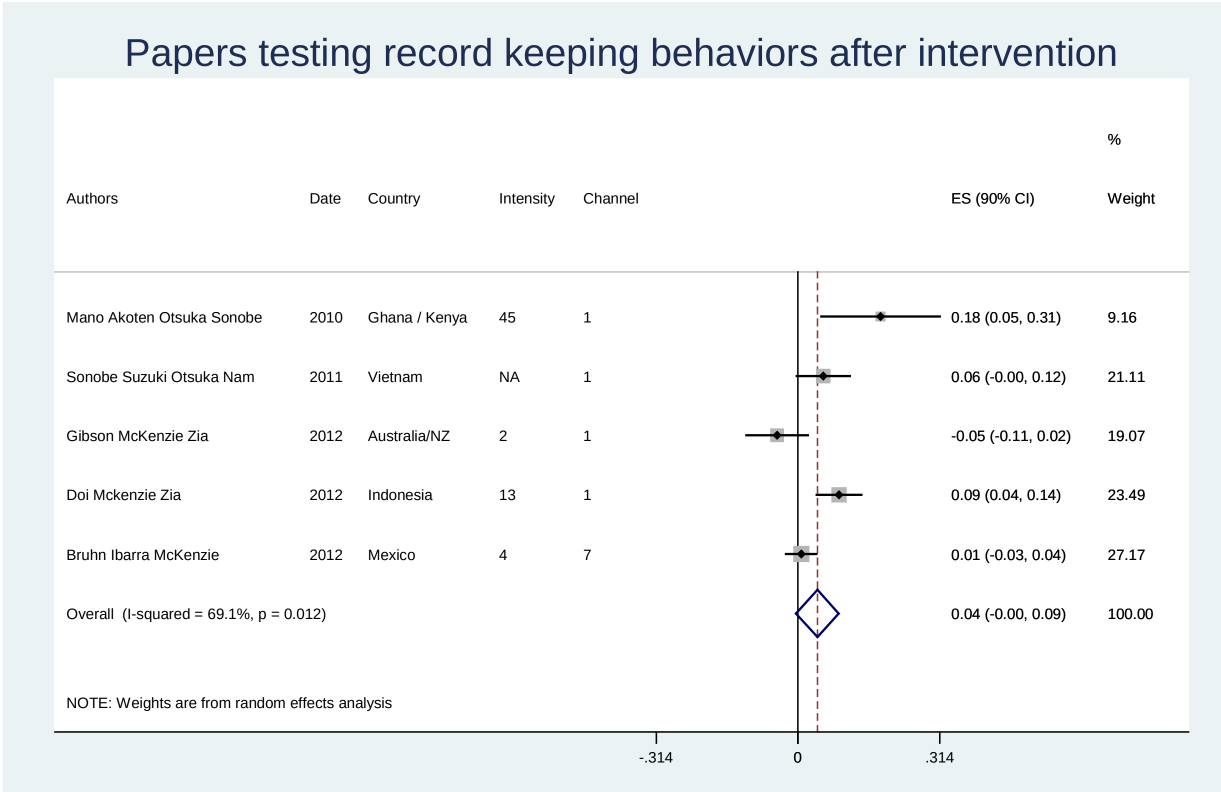
The two studies in particular that showed positive impacts on loan behavior were Agarwal et al (2010) and Gine and Mansuri (2011). The study population in Agarwal et al (2010) consisted of low-income households with lower credit scores who voluntarily participated in a counseling program provided by a non-profit organization. In this sense, the participants in the financial education intervention gained targeted information (specific to home ownership) and had the immediate opportunity to apply their learning in a relevant context (purchase of a home). In this same light, the study participants in Gine and Mansuri (2011) were microfinance clients who could choose to participate in a business training course and loan lottery and then apply their learning directly to their microenterprises and loan behavior. On the other hand, Bruhn, Ibarra and McKenzie (2012) studied the effects of financial education programs that covered a broad range of financial topics in which the population did not experience an immediate circumstance like the purchase of a home or the financing of a business in which they could apply their learning. Bruhn, Ibarra and McKenzie (2012) evaluated a broad-based financial education program in Mexico, and among other factors, the diverse variety of topics covered and lack of a "teachable moment" to apply the learning may have contributed to the lower reported effectiveness of their program on loan default behavior. Similarly, while loan default was an outcome measured in Berg and Zia (2013), the topic was not central to their intervention which focused on source of borrowing (formal vs. retail credit) and gambling behavior.

The final meta-analysis relates to the impact of financial education on record-keeping. Record keeping and tracking expenditures are often cited as critical elements of gaining control of one's finances, much the way that many fitness and diet programs focus on recording eating and exercise habits to control weight and improve health. This is a behavior that is fully under the control of the individual as compared to decisions to default or save money which may be influenced by factors outside one's control such as unexpected illness (and medical fees), loss of a job or other problems that leads to financial distress.

The forest plot and regression results (Figure 14) combine data for record keeping related to both personal finance and to microenterprise or business records. This is necessary due to the small sample size but there are also reasons to believe that effects may be similar across these two types of interventions. Microenterprises frequently co-mingle finances between the business and individual owner so record keeping for a business is likely to include some common elements with personal financial management facilitating comparisons between these two types of interventions.

The meta-analysis presented in Figure 14 indicates that financial education may positively encourage record keeping behaviors although the meta-analysis results are not quite significant at the 90% confidence interval (p=0.134). The effects are weighted fairly evenly across the studies which involve an unusually diverse set of country cases (Ghana/Kenya, Vietnam, Australia / New Zealand, Indonesia and Mexico) but which use, with one exception, classroom methods.

Figure 14



Utilizing the meta regression framework, we were also able to analyze the relationship between the intensity of the treatment (in hours of instruction / exposure to the intervention) and the outcome of financial behaviors for savings (Figure 15), loan default (Figure 16), and record-keeping (Figure 17).[12] While the results were not statistically significant in part due to the small number of observations, they nevertheless provide a sense of the directional relationship between each outcome variable and the intensity of the associated treatment intervention.

In Figure 15, the overall trend line suggests no direct relationship between intensity of treatment exposure and impact on savings behavior. However, on closer inspection of the individual data points, we can see that there is a positive relationship between hours of treatment exposure and impact on savings up to about 15 hours, whereafter impact declines. This result suggests that more instructional time may be important for increased positive impact, but there may also be a point at which diminishing returns set in. Exploring this relationship would be a good candidate for deeper investigation and further research.

[12] Sufficient data on intensity of intervention was not available for the retirement savings behavior variable.

Figure 15: Relationship Between Intensity of Exposure and Savings Behavior

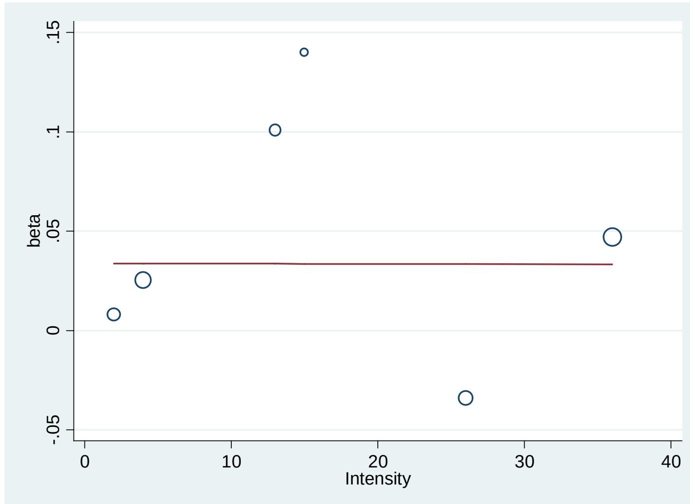


Figure 16 suggests a negative relationship between intensity of exposure and the loan default outcome. Increased exposure to the treatment intervention may reduce the likelihood of loan default, again providing an indication that more instructional time can lead to greater treatment impacts.

Figure 16: Relationship between Intensity of Exposure and Loan Default Behavior

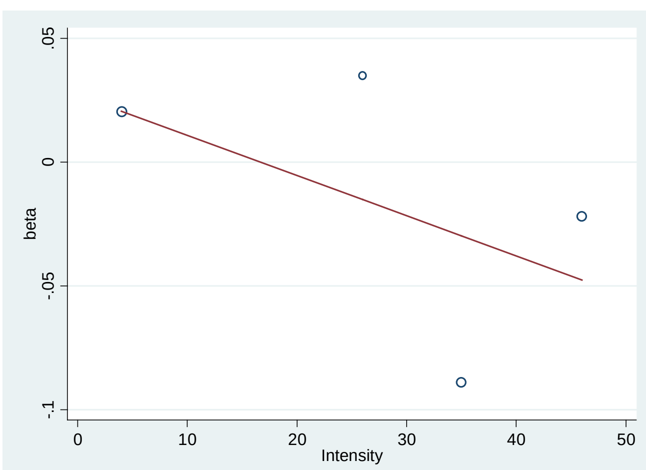


Figure 17: Relationship between Intensity of Exposure and Record Keeping

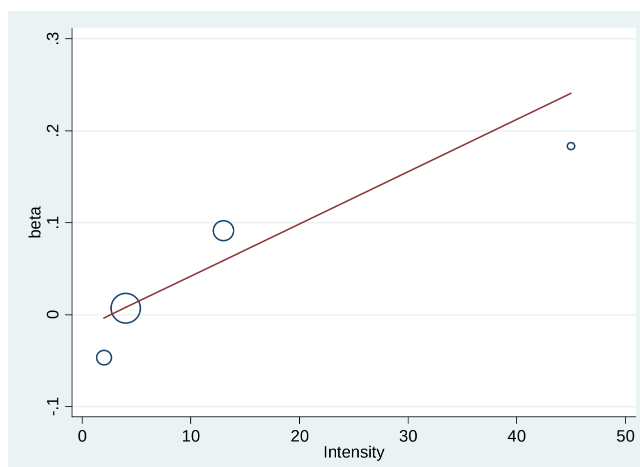


Figure 17 shows that the intensity of exposure to a financial capability intervention is associated with improved record-keeping behavior. While this finding does not rise to the level of causality, the data here seem to be the most supportive of a relationship between these two variables when compared with the previous regression results (shown in Figures 15 and 16). It may be the case that additional instructional time is especially valuable for learning record keeping skills. Another possibility is that regardless of one's financial situation, record keeping can be implemented whereas savings and loan repayment are more dependent on financial standing. Further research to understand these initial findings would help to focus efforts in financial literacy.

V. Conclusion

The 188 papers that were identified for this meta-analysis represent an incredible level of diversity across numerous study characteristics including, importantly, outcome measures. The diversity in both general outcomes (savings, credit performance, record keeping, financial knowledge, etc.) and in how they are measured severely reduces the number of comparable studies for the meta-analysis and meta-regressions. Further, effect sizes are not comparable as typically data on control group means are not available for this estimation from the published works. Where randomized controlled trials have been done, the results of impact appear limited at best, indicating perhaps omitted variables or publication bias may be present for studies not employing these rigorous methods. With these caveats, some insights do emerge.

Our meta-analysis suggests that financial education can impact some financial behaviors, including savings and record keeping. These are both considered fundamental to good personal financial management and are potentially behaviors where individuals can exert greater control than in the case of other outcomes such as loan default. Meta-analysis was unable to provide insights regarding the importance of program characteristics on impact due to the nature of the sample and lack of direct comparability. While the intensity (number of hours of exposure to the intervention) was weakly significant in the case of record keeping it was not significant in the other specifications of the model. Other characteristics which could reasonably be expected to influence the effectiveness of interventions (delivery mechanism, duration or period of time during which subjects were exposed to the treatment, location of the intervention such as school, community, workplace) were not shown to be significant but the small sample size limits the power of the statistical analysis.

The difficulty in evaluating this literature for meta-analysis highlights the importance of strengthening and expanding the use of rigorous evaluation methods. Researchers should take care to report more complete statistical information so that others can better understand the strength of the findings and the limitations of the results as well as possibly use the findings in future applications of meta-analysis to this topic. There is also a potential value from defining outcome variables in common terms, including measurement and reporting of dependent variables, to facilitate comparisons across studies. To increase the likelihood that these variables could be used in a large number of studies they should employ simple and replicable definitions and measurement criteria. The use of common questions and/or survey instruments, such as those developed at the World Bank, DfiD, and OECD in the past few years, to measure financial literacy and capability in a target population is a step in the right direction and will help increase the availability of comparable data on what is working in financial education. Finally, new and ongoing research should make use of social science impact evaluation registries undertaken by the American Economic Association and 3ie, to provide a common repository of research in this area for future meta-analyses, as well as avoid issues related to publication bias. Appendix 3 details some key steps that could strengthen research protocols in financial literacy studies going forward.

Finally, a surprising and yet common omission among virtually all studies is the analysis of costs and benefits of financial literacy interventions. Likewise, we did not find any discussion of potential alternative methods to achieve the desired outcomes across the 188 articles in this literature, which could help benchmark both costs and benefits. Such analyses could be simple to perform in individual studies, and certainly worthwhile to assess returns to development investments.

References

Agarwal, Sumit, Gene Amromin, Itzhak Ben-David, Souphala Chomsisengphet, and Douglas D. Evanoff. 2009. “Do Financial Counseling Mandates Improve Mortgage Choice and Performance? Evidence from a Natural Experiment.” Federal Reserve Bank of Chicago Working Paper 2007-2009.

Agarwal, Sumit, Gene Amromin, Itzhak Ben-David, Souphala Chomsisengphet, and Douglas D. Evanoff. 2010. “Learning to Cope: Voluntary Financial Education and Loan Performance during a Housing Crisis.” *American Economic Review: Papers & Proceedings* 100: 495-500.

Akin, G. Gulsun, Ahmet Faruk Aysan, Serap Ozcelik, and Levent Yildiran. 2013. “Credit Card Satisfaction and Financial Literacy: Evidence from an Emerging Market Economy.” *Emerging Markets Finance & Trade* 48(5): 103-115.

Allgood, Sam, and William B. Walstad. 2012. “The Effects of Perceived and Actual Financial Literacy on Financial Behaviors”. Available on SSRN.

Amromin, Gene, Itzhak Ben-David, Sumit Agarwal, Souphala Chomsisengphet, and Douglas D. Evanoff. 2010. “Financial Literacy and The Effectiveness of Financial Education and Counseling: A Review of the Literature.” The Federal Reserve Bank of Richmond, Working Paper Series WP 07-03.

Anderson, Joan Gray, Clarissa Uttley, and Claudia Kerbel. 2006. “Outcomes of a Workplace Financial Education Program.” *The Journal of Consumer Education* 23: 37-49.

Anginer, Coville, Di Maro, Kanz, Legovini, Piza, and Zwager. 2013. “The Impact of Financial Education and Learning by Doing on Household Investment Behavior: Evidence from Brazil.”

Bali Swain, Ranjula, and Adel Varghese. 2010. “Microfinance ‘Plus’: The Impact of Business Training on Indian Self Help Groups.” Uppsala University, Department of Economics Working Paper Series No 2010: 24.

Barcellos, Silvia Helena, James P. Smith, Joanne K. Yoong and Leandro Carvalho. 2012. “Barriers to Immigrant Use of Financial Services.” Financial Literacy Center Working Paper, Wr-923-SSA.

Baron-Donovan, Corinne, Richard L. Wiener, Karen Gross, and Susan Block-Lieb. 2005. “Financial Literacy Teacher Training: A Multiple-Measure Evaluation.” Association for Financial Counseling and Planning Education.

Barron, John M. and Michael E. Staten. 2011. “Is Technology-Enhanced Credit Counseling As Effective as In-person Delivery?” Federal Reserve Bank of Philadelphia, Research Department Working Paper No. 11-11.

Barua, Rashmi, Gauri Kartini Shastry and Dean Yang. 2012. “Evaluating the Effect of Peer-Based Financial Education on Savings and Remittances for Foreign Domestic Workers in Singapore.” Working Paper.

Bauer, et al. 2011. “Dollar Works 2: Impact Evaluation.” University of Minnesota, Extension. Minneapolis, MN.

Bayer, Patrick, B. Douglas Bernheim, and John Karl Scholz. 2008. “The Effects of Financial Education in the Workplace: Evidence from a Survey of Employers.” *Economic Inquiry, Western Economic Association International* 47 (4): 605-624.

Becchetti, Leonardo and Fabio Pisani. 2012. “Financial education on secondary school students: the randomized experiment revisited.” AICCON Working Papers 98.

Becchetti, Leonardo, Stefano Caiazza and Decio Coviello. 2011. “Financial education and investment in attitudes in high schools: evidence from a randomized experiment.” *Centre for Economic and Internation Studeis Tor Vergata* 9(10): 210.

Behrman, Jere R., Olivia S. Mitchell, Cindy K. Soo, and David Bravo. 2012. "The Effects of Financial Education and Financial Literacy: How Financial Literacy Affects Household Wealth Accumulation." *American Economic Review: Papers & Proceedings* 102(3): 300-304.

Bell, Catherine, Daniel Gorin, and Jeanne M. Hogarth. 2009. "Does Financial Education Affect Soldiers' Financial Behaviors?" Available on SSRN.

Berg, Gunhild, and Bilal Zia. 2013. "Financial Literacy through Mainstream Media: Evaluating the Impact of Financial Messages in a South African Soap Opera." World Bank Working Paper, Washington, DC.

Bernheim, B. Douglas, and Daniel M. Garrett. 2003. "The effects of financial education in the workplace: evidence from a survey of households." *Journal of Public Economics* 87: 1487-1519.

Bernheim, B. Douglas, Daniel M. Garret, and Dean M. Maki. 2001. "Education and saving: The long-term effects of high school financial curriculum mandates." *Journal of Public Economics* 80: 435-465.

Berry, Jim, Dean Karlan, and Menno Pradhan. 2013. "Social or Financial: What to focus on in youth financial literacy." Working Paper.

Beshears, John, James J. Choi, David Laibson, and Brigitte C. Madrian. 2006. "Simplification and Saving." NBER Working Paper 12659, National Bureau of Economic Research, Cambridge, MA.

Beshears, John, James J. Choi, David Laibson, Brigitte C. Madrian and Katherine L. Milkman. 2012. "The Effect of Providing Peer Information on Retirement Savings Decisions." Financial Literacy Center Working Paper: WR-800-SSA.

Birkenmaier, Julie, and Sabrina W. Tyuse. 2005. "Does Homeownership Education and Counseling (HEC) Help Credit Scores?" *Journal of Social Service Resarch* 32(2): 81-103.

Bjorvatn, Kjetil, and Bertil Tungodden. 2010. "Teaching Business in Tanzania: Evaluating Participation and Performance." CMI Working Paper 2009:9.

Bolton, Lisa E., Paul N. Bloom, and Joel B. Cohen. 2011. "Using Loan Plus Lender Literacy Information to Combat One-Sided Marketing of Debt Consolidation Loans." *Journal of Marketing Research* XLVIII (Special Issue 2011): 51-59.

Borden, Lynne M., Sun-A Lee, Joyce Serido, and Dawn Collins. 2008. "Changing College Students' Financial Knowledge, Attitudes, and Behavior through Seminar Participation." *J Fam Econ Iss* 29: 23-40.

Bowen, Cathy Faulcon and Heather M. Jones. 2006. "Empowering Young Adults to Control Their Financial Future." *Journal of Family and Consumer Sciences* 98(1): 33-39.

Boyce, Laurie, and Sharon M. Danes. 1998. "Evaluation of the NEFE High School Financial Planning Program® 1997-1998." NEFE High School Financial Planning Program, Denver, CO.

Braucher, Jean. 2001. "Report on a Study of Debtor Education in Bankruptcy." American Bankruptcy Institute, Alexandria, VA.

Bruhn, Miriam, and Bilal Zia. 2013. "Stimulating Managerial Capital in Emerging Markets: The Impact of Business Training for Young Entrepreneurs." The World Bank Working Paper, Washington, DC.

Bruhn, Miriam, Gabriel Lara Ibarra, and David McKenzie. 2012. "Does Financial Literacy Training Promote Saving and Responsible Credit Card Use?" Financial Literacy & Education Russia Trust Fund, Washington, DC.

Bruhn, Miriam, Dean Karlan, and Antoinette Schoar. 2012. "The Impact of Consulting Services on Small and Medium Enterprises: Evidence from a Randomized Trial in Mexico." Yale Economics Department Working Paper 100, New Haven, CT.

Bruhn, Miriam, Luciana de Souza Leao, Arianna Legovini, Rogelio Marchetti, and Bilal Zia. 2013. "Financial Education and Behavior Formation: Large-Scale Experimental Evidence from Brazil." World Bank Working Paper, Washington, DC.

Bucher-Koenen, Tabea, and Annamaria Lusardi. 2011. "Financial literacy and retirement planning in Germany." *Journal of Pension Economics and Finance* 10(4): 565-584.

Burhouse, Susan E., Angelisa M. Harris, and Luke W. Reynolds. 2007. "Banking on Financial Education." FDIC Quarterly: Federal Deposit Insurance Corporation.

Butt, Nicole, Stephen J. Haessler, Mark C. Schug. 2008. "Incentives-Based Approach to Implementing Financial Fitness for Life in the Milwaukee Public Schools." *Journal of Private Enterprise* 24(1): 165-173.

Cai, Jing, Alain De Janvry, and Elisabeth Sadoulet. 2013. "Social Networks and the Decision to Insure." Available on SSRN.

Calderon, Gabriela, Jesse M. Cunha, and Giacomo De Giorgi. 2013. "Business Literacy and Development: Evidence from a Randomized Trial in Rural Mexico." Available on SSRN.

Calderone, Margherita, Florentina Mulaj, Satadarshan Sadhu, and Leopold Sarr. 2013. "Does Financial Education Affect Savings Behavior? Evidence from a Randomized Experiment among Low Income Clients of Branchless Banking in India." Working paper.+

Carlin, Bruice Ian, and David T. Robinson. 2010. "What Does Financial Literacy Training Teach Us?" NBER Working Paper 16271, National Bureau of Economic Research, Cambridge, MA.

Carpena, Fenella, Shawn Cole, Jeremy Shapiro, and Bilal Zia. 2011. "Unpacking the Causal Chain of Financial Literacy." World Bank Working Paper 5798, Washington, DC.

Carswell, A.T. 2009. "Does Housing Counseling Change Consumer Financial Behaviors? Evidence from Philadelphia. *Journal of Family and Economic Issues* 30: 339-356.

Chang, Yunhee and Angela Lyons. 2007. "Are Financial Education Programs Meeting the Needs of Financially Disadvantaged Consumers?" Networks Financial Institute Working Paper, Indiana State University.

Chatterjee, Swarn, Leslie Green-Pimentel, and Pamela Turner. 2010. "Financial Education and Consumer's Willingness to Change Behavior." *Investment Management and Financial Innovations* 7(3): 73-81.

Choi, James J., David Laibson, Brigitte C. Madrian. 2005. "Are Empowerment and Education Enough? Underdiversification in 401(k) Plans." *Brookings Papers on Economic Activity*, 2, 151-214.

Choi, James J., David Laibson, Brigitte C. Madrian. 2010. "Why Does the Law of One Price Fail? An Experiment on Index Mutual Funds." *The Review of Financial Studies* 23(4): 1405-1432.

Choi, James J., David Laibson, Brigitte C. Madrian, and Andrew Metrick. 2001. "Saving for Retirement on the Path of Least Resistance." Prepared for Tax Policy and the Economy 2001.

Clancy, Margaret, Michal Grinstein-Weiss, and Mark Schreiner. 2001. "Financial Education and Savings Outcomes in Individual Development Accounts." Washington University in St. Louis Center for Social Development, St. Louis, MO.

Clark, Robert L. 2004, "Sex Differences, Financial Education, and Retirement Goals." *Pension Design and Structure: New Lessons from Behavioral Finance*.

Clark, Robert L. and Sylvester J. Schieber. 1998. "Factors Affecting Participation Rates and Contribution Levels in 401(k) Plans." *Living with Defined Contribution Pensions: Remaking Responsibility for*

Retirement, Ed. Olivia S. Mitchell and Sylvester J. Schieber. Philadelphia: University of Pennsylvania Press, 1998. 69-96.

Clark, Robert L., Madeleine B. d' Ambrosio, Ann A. McDermed, and Kshama Sawant. 2003. Presented at Sustainable Community Development: What Works, What Doesn't, and Why, Washington, DC.

Clark, Robert L., Melinda Sandler Morrill, and Steven G. Allen. 2010. "Evaluating Workplace Education for New Hires." RAND Working Paper WR-791-SSA.

Clark, Robert L., Melinda Sandler Morrill, and Steven G. Allen. 2011. "Evaluating Employer-Provided Financial Education Programs for Pre-Retirees." Report prepared for the FINRA Investor Education Foundation.

Clark, Robert L., Melinda Sandler Morrill, and Steven G. Allen. 2011. "Pension Plan Distributions: The Importance of Financial Literacy." In *Financial Literacy: Implication for Retirement Security and the Financial Marketplace*, Ed. Olivia S. Mitchell and Annamaria Lusardi, New York: Oxford University Press, 40-58.

Clark, Robert, Melinda Sandler Morrill, and Jennifer Maki. 2011. "Encouraging New Hires to Save for Retirement." Financial Literacy Center Working Paper: WR-892-SSA.

Cole, Shawn, and Gauri Kartini Shastry. 2009. "Smart Money: The Effect of Education, Cognitive Ability, and Financial Literacy on Financial Market Participation." Harvard Business School Working Paper, Cambridge, MA.

Cole, Shawn, and Gauri Kartini Shastry. 2012. "Smart Money: The Effect of Education on Financial Behavior." Harvard Business School Working Paper, Cambridge, MA.

Cole, Shawn and Gauri Kartini Shastry. 2010. "Is High School The Right Time To Teach Self-Control? The Effect of Financial Education and Mathematics Courses on Savings Behavior."

Cole, Shawn and Bilal Zia. 2013. "The Impact of Financial Education on Financial Knowledge, Behavior, and Outcomes: Evidence from a Randomized Experiment in South Africa." Financial Literacy and Education Russia Trust Fund.

Cole, Shawn, Jeremy Shapiro, and Bilal Zia. Forthcoming. "Video-Based Financial Literacy: Experimental Evidence on Savings, Credit, Insurance, and Budgeting from India." Working Paper.

Cole, Shawn, Xavier Gine, Jeremy Tobacman, Petia Topalova, Robert Townsend, and James Vickery. 2013. "Barriers to Household Risk Management: Evidence from India." *American Economic Journal* 5(1): 104-135.

Cole, Shawn, Anna Paulson, and Gauru Kartini Shastry. 2013. "High School and Financial Outcomes: The Impact of Mandated Personal Finance and Mathematics Courses." Harvard Business School Working Paper 13-064.

Cole, Shawn, Thomas Sampson, and Bilal Zia. 2011. "Prices or Knowledge? What Drives Demand for Financial Services in Emerging Markets?" *The Journal of Finance* LXVI (6): 1933-1967.

Collins, J. Michael. 2007. "Exploring the Design of Financial Counseling for Mortgage Borrowers in Default." *Journal of Family and Economic Issues* 28: 207-226.

Collins, J. Michael. 2012. "The Impacts of Mandatory Financial Education: Evidence from a Randomized Field Study." *Journal of Economic Behavior & Organization.*

Collins, J. Michael, and Collin M. O'Rourke. 2010. "Financial Education and Counseling - Still Holding Promise." *Journal of Consumer Affairs* 44(3): 483-498.

Danes, Sharon M. 2004. "Evaluation of the NEFE High School Financial Planning Curriculum: 2003-2004." National Endowment for Financial Education.

Danes, Sharon M. 2010. "Evaluation of the NEFE High School Financial Planning Curriculum: 2009-2010." National Endowment for Financial Education.

Danes, Sharon M. and Heather R. Haberman. 2007. "Teen Financial Knowledge, Self-Efficacy, and Behavior: A Gendered View." *The Journal of the Association for Financial Counseling and Planning Education* 18(2): 48-60.

Danes, Sharon M, Catherine Huddleston-Casas, and Laurie Boyce. 1999. "Financial Planning Curriculum for Teens: Impact Evaluation." Association for Financial Counseling and Planning Education.

De Mel, Suresh, David McKenzie, and Christopher Woodruff. 2011. "Getting Credit to High Return Microentrepreneurs: The Results of an Information Intervention." *The World Bank Economic Review* 25(3): 456-485.

Deb, Anamitra, and Mike Kubzansky. 2012. "Bridging the Gap: The Business Case for Financial Literacy." Citi Foundation.

DeVaney, Sharon, Elizabeth Gorham, Janet Bechman, and Virginia Haldeman. 1996. "Cash Flow Management And Credit Use: Effect Of A Financial Information Program." Association for Financial Counseling and Planning Education.

Di Maro, Vincenzo, Aidan Coville, Siegfried Zottel and Felipe Alexander Dunsch. 2013. "The Impact of Financial Literacy through Feature Films: Evidence from a randomized experiment in Nigeria." Financial Literacy & Education, Russia Trust Fund.

Ding, Lei, Roberto G. Quercia, and Janneke Ratcliffe. 2008. "Post-purchase Counseling and Default Resolutions among Low- and Moderate- Income Borrowers." *Journal of Race, Ethnicity, and Religion* 30(3): 315-344.

Doi, Yoko, David McKenzie and Bilal Zia. 2012. "Who You Train Matters: Identifying Complementary Effects of Financial Education on Migrant Households." World Bank Working Paper 6157, Washington, DC.

Dolvin, Steven D. and William K. Templeton. 2006. "Financial Education and Asset Allocation." *Financial Services Review* 15(1): 133-149.

Duflo, Esther, and Emmanuel Saez. 2003. "The Role of Information and Social Interactions in Retirement Plan Decisions: Evidence from a Randomized Experiment." *The Quarterly Journal of Economics* 188(3): 815-842.

Duflo, Esther, William Gale, Jeffrey Liebman, Peter Orszag, and Emmanuel Saez. 2006. "Saving Incentives for Low- and Middle-Income Families: Evidence from a Field Experiment with H&R Block." *The Quarterly Journal of Economics, November 2006.*

Eades, Kenneth M., Jonathan Fox, Arthur Keown, and Michael E. Staten. 2012. "The Role of Professors in Improving Financial Literacy: Roundtable Session Highlights from the 2012 FMA Annual Meeting." *Journal of Applied Finance* 23(1): 138-144.

Eissa, Nada, James P Habyarimana, and William G Jack. 2013. "Impact of Cartoons on the Effectiveness of Financial Education: Evidence from a Randomized Experiment in Kenya." Financial Literacy & Education Russia Trust Fund, Washington, DC.

Elliehausen, Gregory, E. Christopher Lundquist, and Michael E. Staten. 2007. "The Impact of Credit Counseling on Subsequent Borrower Behavior." *The Journal of Consumer Affairs* 41(1): 1-28.

Employee Benefit Research Institute (EBRI). 1995. "Are Workers Kidding Themselves? Results of the 1995 Retirement Confidence Survey." EBRI Issue Brief Number 168.

Federal Deposit Insurance Corporation. 2007. "A Longitudinal Evaluation of the Intermediate-Term Impact of the Money Smart Financial Education Curriculum Upon Consumer's Behavior and Confidence." Federal Deposit Insurance Corporation.

Fernandes, Daniel, John G. Lynch, Jr., and Richard G. Netemeyer. 2013. "Financial Literacy, Financial Education, and Downstream Financial Behaviors." Forthcoming*, Management Science.*

Field, Erica, Seema Jayachandran, and Rohini Pande. 2010. "Do Traditional Institutions Constrain Female Entrepreneurship? A Field Experiment on Business Training in India." *American Economic Review* 100(2): 125-129.

Finke, Michael. 2012. "Financial Advice: Does it Make a Difference?" *Pension Research Council Working Paper*, Philadelphia, PA.

Fischer, Greg, Alejandro Drexler, and Antoinette Schoar. 2010. "Keeping it simple: Financial Literacy and Rules of Thumb." CEPR Development Economics Workshop, Barcelona, Spain.

Fox, Jonathan J, and Suzanne Bartholomae. 2006. "Considerations in Financial Education Programming for Women." *The Journal of Consumer Education* 23: 77-88.

Fry, Tim R. L., Sandra Mihajilo, Roslyn Russell, and Robert Brooks. 2008. "The Factors Influencing Saving in a Matched Savings Program: Goals, Knowledge of Payment Instruments, and Other Behavior." *Journal of Family and Economic Issues* 29: 234-250.

Gale, William G., and Ruth Levine. 2010. "Financial Literacy: What Works? How Could It Be More Effective?" RAND Corporation Working Paper, Arlington, VA.

Garman, E. Thomas, Jinhee Kim, Constance Y. Kratzer, Bruce H. Brunson, and So-hyun Joo. 1999. "Workplace Financial Education Improves Personal Financial Wellness." *Financial Counseling and Planning* 10(1): 79-88.

Gartner, Kimberly and Richard M. Todd. 2005. "Effectiveness of Online 'Early Intervention' Financial Education for Credit Cardholders." Federal Reserve Bank of Chicago, "Promises and Pitfalls: As Consumer Finance Options Multiply, Who is Being Served and at What Cost?" Conference 2005.

Gaurav, Sarthak, Shawn A. Cole, and Jeremy Tobacman. 2011. "Marketing Complex Financial Products in Emerging Markets: Evidence from Rainfall Insurance in India." Supplement. *Journal of Marketing Research* 48: S150-S162.

Gerardi, Kristopher, Lorenz Goette, and Stephan Meier. 2010. "Financial Literacy and Subprime Mortgage Delinquency: Evidence from a Survey Matched to Administrative Data." Federal Reserve Bank of Atlanta Working Paper Series 2010-10.

Gibson, John, David McKenzie, and Bilal Zia. 2012. "The Impact of Financial Literacy Training for Migrants." World Bank Working Paper 6073, Impact Evaluation Series No. 57, Washington, DC.

Gine, Xavier, and Ghazala Mansuri. 2011. "Money or Ideas? A Field Experiment on Constraints to Entrepreneurship in Rural Pakistan." The World Bank Group Working Paper, Washington, DC.

Gine, Xavier, Dean Karlan, and Muthoni Ngatia. 2013. "Social Networks, Financial Literacy and Index Insurance." Working Paper.

Gine, Xavier, Christina Martinez de Cuellar and Rafael Keenan Mazer. 2013. "Evaluating the effectiveness of loan disclosure reforms on consumer understanding and financial decision making: Evidence from Mexico." Financial Literacy & Education, Russia Trust Fund.

Goda, Gopi Shah, Colleen Flaherty Manchester and Aaron Sojourner. 2012. "What Will My Account Really Be Worth? An Experiment on Exponential Growth Bias and Retirement Saving." *National Bureau of Economic Research* Working Paper No. 17927.

Goldstein, Markus, Francisco Campos, Obert Pimhizai, Antoinette Schoar, Mattea Stein, and Bilal Zia. 2013 draft. "The Impact and Network Effects of Financial Management and Vocational Training in Informal Industrial Clusters in Uganda." Financial Literacy & Education Russia Trust Fund.

Gray, Bobbi, Jennefer Sebstad, Monique Cohen and Kathleen Stack. 2010. "Can Financial Education Change Behavior? Lessons from Bolivia and Sri Lanka." Global Financial Education Program Brief.

Grimes, Paul W., Kevin E. Rogers, and Revecca Campbell Smith. 2010. "High School Economic Education and Access to Financial Services." *The Journal of Consumer Affairs* 44(2): 317-335.

Grinstein-Weiss, Michal, Michael Sherraden, William Gale, William M. Rohe, Mark Schreiner, Clinton Key. 2011. "The Ten-Year Impacts of Individual Development Accounts on Homeownership: Evidence from a Randomized Experiment." Available on SSRN.

Han, Chang-Keun, Michal Grinstein-Weiss, and Michael Sherraden. 2007. "Assets beyond Saving in Individual Development Accounts." Center for Social Development Working Paper No. 07-25.

Hartarska, Valentina and Claudio Gonzalez-Vega. 2005. "Credit Counseling and Mortgage Termination by Low-Income Households." *Journal of Real Estate Finance and Economics* 30(3): 227-243.

Hartarska, Valentina and Claudio Gonzalez-Vega. 2006. "Evidence on the effect of credit counseling on mortgage loan default by low-income households." *Journal of Housing Economics* 15: 63-79.

Hastings, Justine S, Ali Hortacsu, and Chad Syverson. 2013. "Advertising and Competition in Privatized Social Security: The Case of Mexico." NBER Working Paper No. 18881.

Hastings, Justine S., Brigitte C. Madrian, and William L. Skimmyhorn. 2012. "Financial Literacy, Financial Education and Economic Outcomes." National Bureau of Economic Research, NBER Working Paper 18412.

Hathaway, Ian, and Sameer Khatiwada. 2008. "Do Financial Education Programs Work?" Federal Reserve Bank of Cleveland, Working Paper 08-03.

Haynes, Deborah C., George W. Haynes, and Clarann Weinert. 2011. "Outcomes of On-line Financial Education for Chronically Ill Rural Women." Association for Financial Counseling and Planning Education.

Haynes-Bordas, Rebecca, D.E. Kiss, and Tansel Yilmazer. 2008. "Effectiveness of Financial Education on Financial Management Behavior and Account Usage: Evidence from a 'Second Chance' Program." *Journal of Family and Economic Issues* 29: 362-390.

Heinberg, Aileen, Angela A. Hung, Arie Kapteyn, Annamaria Lusardi and Joanne K. Yoong. 2010. "Five Steps to Planning Success." Financial Literacy Center Working Paper, WR-790-SSA.

Hershey, Douglas, John Mowen, and Joy Jacobs-Lawson. 2003. "An Experimental Comparison of Retirement Planning Intervention Seminars." *Educational Gerontology* 29: 339-359.

Hershey, Douglas A., David A. Walsh, Ruby Brougham, Stephen Carter, and Alicia Farrell. 1998. "Challenges of Training Pre-Retirees to Make Sound Financial Planning Decisions." *Educational Gerontology* 24(5): 447-470.

Hilgert, Marianne A., Jeanne M. Hogarth, and Sondra G. Beverly. 2003. "Household Financial Management: The Connection between Knowledge and Behavior." Federal Reserve Bulletin July 2003.

Hira, Tahira K., and Cäzilia Loibl. 2005. "Understanding the Impact of Employer-Provided Financial Education on Workplace Satisfaction." *The Journal of Consumer Affairs* 39(1): 173-194.

Hirad, Abdighani, and Peter M. Zorn. 2001. “A Little Knowledge Is a Good Thing: Empirical Evidence of the Effectiveness of Pre-Purchase Homeownership Counseling.” Low-Income Homeownership Working Paper Series, Joint Center for Housing Studies of Harvard University. Liho-01.4.

Holzman, Robert. 2010. “Bringing Financial Literacy and Education to Low and Middle Income Countries: The Ned to Review, Adjust, and Extend Current Wisdom.” IZA Discussion Paper Series, IZA DP No. 5114.

Holland, Joseph H., Doug Goodman, and Bethany Stitch. 2008. “Defined Contribution Plans Emerging in the Public Sector: The Manifestation of Defined Contributions and the Effects of Workplace Financial Education.” *Review of Public Personnel Administration* 28(4): 367-384.

Huang, Jin, Yunju Nam, and Margaret S. Sherraden. “Financial Knowledge and Child Development Account Policy: A Test of Financial Capability.” *Journal of Consumer Affairs* 47(1): 1-26.

Hung, Angela A, and Joanne K. Yoong. 2010. “Asking for Help: Survey and Experimental Evidence on Financial Advice and Behavior Change.” RAND Corporation Labor and Population Working Paper, WR-714-1.

Joo, So-Hyun, and John E. Grable. 2005. “Employee Education and the Likelihood of Having a Retirement Savings Program.” Association for Financial Counseling and Planning Education: Alexandria, Virginia.

Kanz, Martin, Alex Kaufman, Kelly Shue, and Benedikt Wahler. 2013. “Learning by Doing? Using Savings Lotteries to Promote Financial Inclusion.” Working paper.s

Karlan, Dean, and Martin Valdivia. 2006. “Teaching Entrepreneurship: Impact of Business Training on Microfinance Clients and Institutions.” *Review of Economics and Statistics* MIT Press 93(2): 510-527.

Karlan, Dean, and Jonathan Zinman. 2012. "List Randomization for Sensitive Behavior: An Application for Measuring Use of Loan Proceeds." *Journal of Development Economics* 98(1): 71-75.

Karlan, Dean, Edward Kutsoati, Margaret McConnell, Margaret McMillan and Christopher Udry. 2010. “Savings Account Labeling and Financial Literacy Training in Ghana.” J-PAL, IPA.

Karlan, Dean, Margaret McConnell, Sendhil Mullainathan, and Jonathan Zinman. 2010. “Getting to the Top of Mind: How Reminders Increase Saving.” *National Bureau of Economic Research,* NBER Working Paper No. 16205.

Kast, Felipe, Stephan Meier, and Dina Pomeranz. 2012. “Under-Savers Anonymous: Evidence on Self-Help Groups and Peer Pressure as a Savings Commitment Device.” *National Bureau of Economic Research,* NBER Working Paper No. 18417.

Kim, Jinhee. 2007. “Workplace Financial Education Program: Does Impact on Employees’ Personal Finances?” *Journal of Family and Consumer Science* 99(1): 43-47.

Kim, Jinhee, Dorothy C. Bagwell, and E. Thomas Garman. 1998. “Evaluation of Workplace Personal Financial Education.” *Proceedings of the Personal Finance Employee Education*, 2(1), 187-191, Roanoke, VA.

Kim, Jinhee, E. Thomas Garman, and Benoit Sorhaindo. 2003. “Relationships among Credit Counseling Clients' Financial Wellbeing, Financial Behaviors, Financial Stressor Events, and Health.” Association of Financial Counseling and Planning Education: Alexandria, VA.

Kim, Jinhee, Jasook Kwon, and Elaine A. Anderson. 2005. “Factors Related to Retirement Confidence: Retirement Preparation and Workplace Financial Education.” Association of Financial Counseling and Planning Education: Alexandria, VA.

Kimball, Miles S. and Tyler Shumway. 2006. "Investor Sophistication and the Participation, Home Bias, Diversification, and Employer Stock Puzzles." Working Paper.

Klinger, Bailey and Matthias Schündeln. 2011. "Can Entrepreneurial Activity be Taught? Quasi-Experimental Evidence from Central America." *World Development* 39(9): 1592-1610.

Koenig, Lori A. 2007. "Financial Literacy Curriculum: The Effect on Offender Money Management Skills." *Journal of Correctional Education* 58(1): 43-56.

Langrehr, Frederick W. 1979. "Consumer Education: Does It Change Students' Competencies and Attitudes?" *Journal of Consumer Affairs* 13(1): 41-53.

Lawrence, Edward C. 2008. "Student Managed Investment Funds: An International Perspective." *Journal of Applied Finance* 18(2): 67-83.

Lee, Taejun, Tai Woong Yun, and Eric Haley. 2012. "The Interplay between Advertising Disclosures and Financial Knowledge in Mutual Fund Investment Decisions." *Journal of Consumer Affairs* 46(2): 260-287.

Loibl, Cäzilia and Tahira K. Hira. 2005. "Self-directed Financial Learning and Financial Satisfaction." *Association of Financial Counseling and Planning Education* 16(1): 11-21.

Loibl, Cäzilia and Tahira K. Hira. 2006. "A Workplace and Gender-Related Perspective on Financial Planning Information Sources and Knowledge Outcomes." *Financial Services Review* 15(1): 21-42.

Lusardi, Annamaria. 2002. "Preparing for Retirement: The Importance of Planning Costs." National Tax Association Proceedings, 95th Annual Conference on Taxation.

Lusardi, Annamaria. 2005. "Financial Education and the Saving Behavior of African-American and Hispanic Households." Working Paper.

Lusardi, Annamaria. 2005. "Saving and the Effectiveness of Financial Education." *Journal of Financial Transformation*. 15: 159-169.

Lusardi, Annamaria. 2008. "Household Saving Behavior: The Role of Financial Literacy, Information and Financial Education Programs." *National Bureau of Economic Research*, NBER Working Paper No. 13824.

Lusardi, Annamaria, and Olivia S. Mitchell. 2007. "Financial Literacy and Retirement Planning: New Evidence from the Rand American Life Panel." Michigan Retirement Research Center Research Paper No. WP 2007-157.

Lusardi, Annamaria, and Olivia S. Mitchell. 2009. "How Ordinary Consumers Make Complex Economic Decisions: Financial Literacy and Retirement Readiness." National Bureau of Economic Research, Working Paper No. 15350.

Lusardi, Annamaria, and Olivia S. Mitchell. 2011. "Financial Literacy around the World: An Overview." National Bureau of Economic Research Working Paper 17107.

Lusardi, Annamaria, and Olivia S. Mitchell. 2013. "The Economic Importance of Financial Literacy: Theory and Evidence." National Bureau of Economic Research Working Paper 18952.

Lusardi, Annamaria, Punam Anand Keller, and Adam M. Keller. 2009. "Increasing the Effectiveness of Retirement Saving Programs for Females and Low Income Employees: A Marketing Approach." National Endowment for Financial Education.

Lusardi, Annamaria, Punam Anand Keller, and Adam M. Keller. 2009. "New Ways to Make People Save: A Social Marketing Approach." *National Bureau of Economic Research,* Working Paper 14715.

Lusardi, Annamaria, Daniel Schneider, and Peter Tufano. 2011. "Financially Fragile Households: Evidence and Implications." *Brookings Papers on Economic Activity*, Spring 2011: 83-150.

Lynch, John G Jr., Daniel Fernandes, and Richard G. Netemeyer. "A Meta-Analytic and Psychometric Investigation of the Effect of Financial Literacy on Downstream Financial Behaviors." Work in progress, target: *Journal of Consumer Research.*

Lyons, Angela C., and Erik Scherpf. 2004. "Moving from Unbanked to Banked: Evidence from the Money Smart Program." *Financial Services Review* 13: 215-231.

Lyons, Angela C., Yunhee Chang, and Erik M. Scherpf. 2006. "Translating Financial Education into Behavior Change for Low-Income Populations." *Financial Counseling and Planning* 17 (2): 27-45.

Lyons, Angela C., Tommye White, and Shawn Howard. 2008. "The Effect of Bankruptcy Counseling and Education on Debtors' Financial Well-Being: Evidence from the Front Lines." *Money Management International*.

Maki, Dean M. 2004. "Financial Education and Private Pensions." In *Private Pensions and Public Policies*, Eds. William G. Gale, John B. Shoven, and Mark J. Warshawsky. Washington, DC: Brookings Institution Press.

Mandell, Lewis. 2005. "Financial Literacy – Does it Matter?" Presented at the ACCI Annual Meeting, Columbus Ohio, April, 2005. Available on Jump$tart.

Mandell, Lewis. 2006. "Does Just in Time Instruction Improve Financial Literacy?" *Credit Union Magaz*ine, Savingteen Supplement, January 2006.

Mandell, Lewis. 2008. "Teaching Young Dogs Old Tricks: The Effectiveness of Intervention in Pre-High School Grades." in *Financial Literacy for Children and Youth,* Eds. Thomas A. Lucey and Katherine S. Cooter. DigitalTextbooks.biz, 2008.

Mandell, Lewis. 2009. "Starting Younger: Evidence Supporting the Effectiveness of Personal Financial Education for Pre-High School Students." The National Theater for Children.

Mandell, Lewis. 2009. "The Impact of Financial Education in High School and College on Financial Literacy and Subsequent Financial Decision Making." American Economic Association Meetings, San Francisco, CA.

Mandell, Lewis and Linda Schmid Klein. 2007. "Motivation and financial literacy." *Financial Services Review* 16(1): 105-116.

Mandell, Lewis and Linda Schmid Klein. 2009. "The Impact of Financial Literacy Education on Subsequent Financial Behavior." *Journal of Financial Counseling and Planning* 20(1): 15-24.

Mano, Yukichi, Alhassan Iddrisu, Yutaka Yoshino, and Tetsushi Sonobe. 2011. "How Can Micro and Small Enterprises in Sub-Saharan Africa Become More Productive? The Impacts of Experimental Basic Managerial Training." *National Graduate Institute for Policy Studies*, GRIPS Policy Research Center Discussion Paper: 11-06.

Martin, Matthew. 2007. "Literature Review on the Effectiveness of Financial Education." Federal Reserve Bank of Richmond Working Paper No. 07-03.

Martinez A., Claudia, Esteban Puentes, and Jaime Ruiz-Tagle. 2013. "Micro-Entrepreneurship Training and Asset Transfers: Short Term Impacts on the Poor." Economiay Negocios Universidad De Chile, Departamento De Economia, Santiago, Marzo.

Mastrobuoni, Giovanni. 2007. "Do Better-Informed Workers Make Better Retirement Choices? A Test Based on the Social Security Statement." Collegio Carlo Alberto Working Paper No. 51.

Maurer, Trent W. and Sun-A Lee. 2011. "Financial Education with College Students: Comparing Peer-Led and Traditional Classroom Instruction." *Journal of Family and Economic Issues* 32(1): 680-689.

Mayer, Neil, Peter A. Tatian, Kenneth Temkin, Charles A. Calhoun. 2009. "National Foreclosure Mitigation Counseling Program Evaluation: Preliminary Analysis of Program Effects." Prepared for NeighborWorks® America, The Urban Institute.

Maynard, Nicholas W., Preeti Mehta, Jonas Parker and Jeffrey Steinberg. 2012. "Can Games Build Financial Capability?" Financial Literacy Center Working Paper, WR-963-SSA.

McCormick, Martha Henn. 2009. "The Effectiveness of Youth Financial Education: A Review of the Literature." *Journal of Financial Counseling and Planning* 20(1):70-83.

McKeever, Marybeth, and Education Development Center. 2011. "International Education Week: Somali Soap Opera Teaches Young People to Take Control of Their Finances." USAID Impact Blog.

Mills, Gregory, Rhiannon Patterson, Larry Orr, and Donna DeMarco. 2004. "Evaluation of the American Dream Demonstration: Final Evaluation Report." Prepared for The Ford Foundation and Charles Stewart Mott Foundation, Abt Associates Inc.

Muller, Leslie A., 2003. "Does Retirement Education Teach People to Save Pension Distributions?" *Social Security Bulletin* 64(4): 48-65.

National Endowment for Financial Education. 2009. "Financial Management Practices of College Students from States with Varying Financial Education Mandates." National Endowment for Financial Education, Denver, CO.

Norvilitis, Jill M., Michael G. MacLean. 2010. "The Role of Parents in College Students' Financial Behaviors and Attitudes." *Journal of Economic Psychology* 31(1): 55-63.

Osteen, Sissy, Glenn Muske and Joyce Jones. 2007. "Financial Management Education: Its Role in Changing Behavior." *Journal of Extension* 45(3): 1077-5315.

Peng, Tzu-Chin Martina, Suzanne Bartholomae, Jonathan J. Fox, and Garrett Cravener. 2007. "The Impact of Personal Finance Education in High School and College Courses." *Journal of Family and Economic Issues* 28(1): 265-284.

Quercia, Roberto and Jonathan Spader. 2008. "Does Homeownership Counseling Affect the Prepayment and Default Behavior of Affordable Mortgage Borrowers*?" Journal of Policy Analysis and Management* 27(2): 304-325.

Robb, Cliff A., Patryk Babiarz, and Ann Woodyard. 2012. "The Demand for Financial Professional's Advice: The Role of Financial Knowledge, Satisfaction, and Confidence." *Financial Services Review* 21(4): 291-305.

Romagnoli, Angela, and Maurizio Trifilidis. 2013. "Does Financial Education at School Work? Evidence from Italy." Bank of Italy Occasional Paper No. 155.

Rothstein, Hannah R., Alexander J. Sutton and Michael Borenstein, editors. 2005. Publication Bias in Meta-Analysis – Prevention, Assessment and Adjustments. John Wiley & Sons Ltd.

Russell, Roslyn, Sandra Mihajilo and Rob Brooks. 2007. "Saver Plus- encouraging savings and increasing financial capabilities among low-income families." RMIT University.

Ryack, Kenneth. 2011. "The Impact of Family Relationships and Financial Education on Financial Risk Tolerance." Financial Services Review 20: 181-193.

Sanders, Cynthia K., Terri L. Weaver and Meg Schnabel. 2007. "Economic Education for Battered Women: An Evaluation of Outcomes." *Journal of Economic Abuse in the Lives of Survivors* 27(1): 411-430.

Sarr, Leopold and Santadarshan Sadhu. 2013. "The Role of Financial Access, Knowledge and Service Delivery in Savings Behavior: Evidence from a Randomized Experiment in India." Financial Literacy and Education Russia Trust Fund.

Sarr, Leopald, Santadarshan Sadhu and Nathan Fiala. 2012. Bringing the Bank to the Doorstep: Does Financial Education Influence Savings Behavior among the Poor? Evidence from a Randomized Financial Literacy Program in India." Institute for Financial Management and Research, Centre for Micro Finance Working Paper.

Schreiner, Mark and Michael Sherraden. 2007. *Can the Poor Save?: Saving and Asset Building in Individual Development Accounts.* New Brunswick, NJ: Transaction, 2007.

Schreiner, Mark, Michael Sherraden, Maragret Clancy, Lissa Johnson, Jami Curley, Michal Grinstein-Weiss, Min Zhan and Sondra Beverly. 2001. "Savings and Asset Accumulation in Individual Development Accounts: Downpayments on the American Dream Policy Demonstration." Center for Social Development, Washington University in St. Louis.

Schug, M.C. & Hagedorn, E.A. 2004. "Can charter schools improve financial and economic education: The case of the Milwaukee Urban League Academy of Business and Economics." *Journal of Private Enterprise* 20(1) 100-111.

Schug, Mark C., M. Scott Niederjohn, and William C. Wood. 2006. "Your Credit Counts Challenge: A Model Program for Financial Education for Low and Moderate Income Adults." *Journal of Private Enterprise* 21(2): 196-208.

Seligman, Jason S., and Rana Bose. 2012. "Learning by doing: Active employer sponsored retirement saving plan participation and household wealth accumulation." *The Quarterly Review of Economics and Finance* 52: 162-172.

Servon, Lisa J., and Robert Kaestner. 2008. "Consumer Financial Literacy and the Impact of Online Banking on the Financial Behavior of Low-Income Bank Customers." *The Journal of Consumer Affairs* 42(2): 271-305.

Seshan, Ganesh, and Dean Yang. 2013. "Transnational Household Finance: A Field Experiment on the Cross-Border Impacts of Financial Education for Migrant Workers." Working Paper.

Shelton, Gladys G. and Octavia Hill. 1995. "First-Time Homebuyers Programs as an Impetus for Change in Budget Behavior." *Financial Counseling and Planning* Vol. 6.

Sherraden, Margaret, Lissa Johnson, Baorong Guo and William Elliot. 2011. "Financial Capability in Children: Effects of Participation in a School-based Financial Education and Savings Program." *Journal of Family and Economic Issues* 32: 385-399.

Shim, Soyeon, Bonnie L. Barber, Noel A. Card, Jing Jian Xiao, and Joyce Serido. 2009. "Financial Socialization of First-year College Students: The Role of Parents, Work, and Education." *Journal of Youth Adolescence. 39(12): 1457-1470.*

Shim, Soyeon, Jing Jian Xiao, Bonnie L. Barber, and Angela C. Lyons. 2009. "Pathway to Life Success: A Conceptual Model of Financial Well-being for Young Adults." *Journal of Applied Developmental Psychology* 30: 708-723.

Shockey, Susan S. and Sharon B. Seiling. 2004. "Moving Into Action: Application of the Transtheoretical Model of Behavior Change to Financial Education." *Financial Planning and Counseling.*

Skimmyhorn, William. 2012. "Essays in Behavioral Household Finance." Faculty of Arts and Sciences Theses and Dissertations, Harvard, Cambridge, MA.

Song, Changcheng. 2011. “Financial Illiteracy and Pension Contributions: A Field Experiment on Compound Interest in China.” Working Paper.

Sonobe, Tetsushi, Yukichi Mano, John Akoten, and Keijiro Otsuka. 2010. “Assessing the Impacts of Management Skill Training in Ghana and Kenya.” Center for the Study of African Economies, Economic Development in Africa Conference 2010.

Sonobe, Tetsushi, Ava Suzuki, Kijiro Otsuka and Vu Hoang Nam. 2011. “KAIZEN for Managerial Skills Improvement in Small and Medium Enterprises: An Impact Evaluation Study in a knitwear cluster in Vietnam.” DEPOCEN Working Paper Series No. 2012/29.

Spader, Jonathan, Janneke Ratcliffe, Jorge Montoya, and Peter Skillern. 2009. “The Bold and the Bankable: How the Nuestro Barrio Telenovela Reaches Latino Immigrants with Financial Education.” *The Journal of Consumer Affairs* 43(1): 56-79.

Stuart, Guy. 2012. “Uganda Financial Education Impact Project.” MFO- microfinance opportunities, Washington, DC.

Tennyson, Sharon and Chau Nguyen. 2001. “State Curriculum Mandates and Student Knowledge of Personal Finance.” *Journal of Consumer Affairs* 35(2): 241-262.

Tufano, Peter, Timothy Flacke and Nicholas W. Maynard. 2010. “Better Financial Decision Making amoung Low-Income and Minority Groups.” Financial Literacy Center Working Paper, WR-795-SSA.

Van Rooij, Maarten, Annamaria Lusardi, and Rob Alessie. 2011. “Financial literacy and stock market participation.” *Journal of Financial Economics* 101: 449-472.

Varcoe, Karen P., Allen Martin, Zana Devitto, and Charles Go. 2005. “Using A Financial Education Curriculum For Teens.” *Financial Counseling and Planning* 16(1): 63-71.

VISA. 2009. “Financial Literacy Education in Sub-Saharan Africa.” VISA, FIFA Worldwide Partner.

Walstad, William B., Ken Rebeck, and Richard A. MacDonald. 2010. “The Effects of Financial Education on the Financial Knowledge of High School Students.” *The Journal of Consumer Affairs* 44(2): 336-357.

Wiener, Richard, Corinne Baron-Donovan, Karen Gross and Susan Block-Lieb. 2005. “Debtor education, financial literacy, and pending bankruptcy legislation.” *Behavioral Sciences & the Law* 23(3): 347-366.

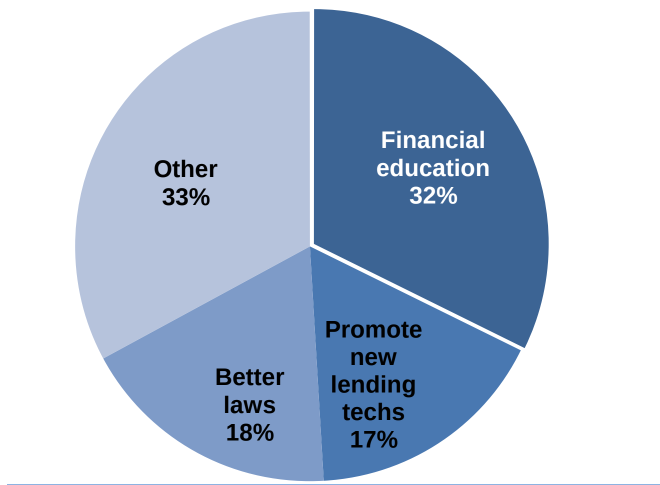
Xiao, Jing Jian, Joyce Serido, and Soyeon Shim. 2012. “Financial Education, Financial Knowledge and Risky Credit Behavior of College Students.” In *Consumer Knowledge and Financial Decisions: Lifespan Perspectives.* Ed. Douglas J. lamdin. New York: Springer, 113-128.

Xiao, Jing Jian, Benoit Sorhaindo, and E. Thomas Garman. 2006. “Financial Behaviors of Consumer in Credit Counseling.” *International Journal of Consumer Studies* 30(2): 108-121.

Xu, Lisa, and Bilal Zia. 2012. “Financial Literacy around the World: An Overview of the Evidence with Practical Suggestions for the Way Forward.” World Bank Working Paper 6107, Washington, DC.

Figure 1

"What is the most effective policy to improve access to finance among low-income borrowers?"



Responses from the 2012 Survey of the Financial Development Barometer
Source: 2014 Global Financial Development Report

Appendix 1

No	Authors	Title	Yr	Summary	Country	Overall Impact?	Subgroup Impact?	RCT	Intensity	TM	Subgroup	Intervention Type
1	Agarwal, Amromin, Ben-David, Chomsisengphet and Evanoff	Do Financial Counseling Mandates Improve Mortgage Choice and Performance?	2009	Evaluates a counseling program (a mandatory third-party review of mortgage contracts) in Illinois for borrowers considered at high risk. Counseling is seen as a burden, lowering both supply and demand of credit, and doesn't affect default rates overall. However, the counseling is linked to a reduction in defaults among low-FICO-score counseled borrowers.	USA	Yes	Yes	N	1.5	Y	Low-FICO (Low Income)	Individual Counseling
2	Agarwal, Amromin, Ben-David, Chomsisengphet and Evanoff	Learning to Cope: Voluntary Financial Education Programs and Loan Performance During a Housing Crisis	2009	Evaluates a financial literacy counseling program, run by Indianapolis Neighborhood Housing Partnership, Inc., which targets low- to moderate-income households. Analysis shows lower ex-post delinquency rates among counseling program graduates (with strongest effects among low income and low FICO score individuals).	USA	Yes	Yes	N	35	Y	Low-FICO and Low-income	Classroom based seminar
3	Anderson, Uttley and Kerbel	Outcomes of a Workplace Financial Education Program	2006	Individuals participated in a workplace financial planning and retirement planning workshop in Rhode Island. For most, participating in a financial education workshop resulted in the adoption of a number of the recommended financial practices. Participants seemed to have a greater inclination to change savings-related behaviors rather than behaviors related to credit.	USA	Yes	N/A	N	2	N	N/A	Classroom based seminar
4	Anginer, Coville, Di Maro, Kanz, Legovini, Piza and Zwager	The Impact of Financial Education and Learning by Doing on Household Investment Behavior: Evidence from Brazil	2013	This study explores the effectiveness of an online stock market simulator as a tool to overcome investor biases and improve performance. Using data from 40,000 participants, results show limited impact on behavioral biases but an impact on transition to participation in the actual stock market.	Brazil	Yes	N/A	N	10	Y	N/A	Stock market simulator (online)
5	Bali Swain Varghese	Microfinance 'Plus': The Impact of Business Training on Indian Self Help Groups	2010	Measures impact of MFI training (through Self Help Group Promoting Institutions) on households in India. The provision of business training with microfinance leads to a positive impact on assets for the participating households but no impact on income.	India	Yes	N/A	N	Varied	Y	Mostly women in Study	Classroom based seminar
6	Barcellos, Smith, Yoong and Carvalho	Barriers to Immigrant Use of Financial Services	2012	Investigated barriers to the use of financial services faced by immigrants and designed and evaluated new financial education materials targeted at immigrants. Focused on the potential barriers of limited English proficiency, lack of U.S. experience and return migration expectations. Used the RAND American Life Panel materials. Found groups receiving the education intervention had increased financial knowledge but had little effect on overall behavior changes.	USA	No	No	N	Varied	N	Mostly low-income, minority in study	Mixed
7	Baron-Donovan, Wiener, Gross and Block-Lieb	Financial Literacy Teacher Training: A Multiple-Measure Evaluation	2005	Evaluates a *train the trainer* program designed to provide instructors with the tools needed to teach financial literacy to individual debtors. Trained teachers reported satisfaction with their training and felt prepared to teach. Pre- and posttest questionnaires reveal a 9% increase in financial knowledge and positive changes in attitude.	USA	Yes	N/A	N	10-16	N	N/A	Classroom based training sessions

8	Barron and Staten	Is Technology-Enhanced Credit Counseling as Effective as In-Person Delivery?	2011	Compares outcomes for borrowers who received face-to-face credit counseling with borrowers who got counseling via the telephone or Internet. Technology-assisted delivery was found to generate outcomes no worse- at some margins better – than face-to-face delivery of counseling services.	USA	Yes	N/A	N	Varied	N	N/A	Individual counseling, Internet and telephone.
9	Barua, Shastry and Yang	Evaluating the Effect of Peer-Based Financial Education on Savings and Remittances for Foreign Domestic Workers in Singapore	2012	Evaluates a financial literacy intervention on Filipino foreign domestic workers in Singapore, looking to effect financial knowledge and behavior, savings and remittances. Preliminary evidence suggests that financial education has no effect on financial knowledge, outcomes or behavior. Assignment of a financial education class has a negative effect on saving outcomes among female migrants.	Philippine s	No	No	Y	27	N	Gender	Classroom based seminars
10	Bauer, Son, Hur, Anderson-Porisch, Heins, Petersen, Hooper, Marczak, Olson, Wiik	Dollar Works 2: Impact Evaluation Report	2011	Evaluates the Dollar Works 2 education program, a University of Minnesota Extension program, targeting a range of financial topics. The impact evaluation study was with community participants who are considered high risk in the financial education field. Found to be effective in pre- and post-test comparisons in enhancing financial knowledge & behaviors.	USA	Yes	N/A	Y	6	N	Lower-income	Classroom based seminars
11	Bayer, Bernheim and Scholz	The Effects of Financial Education in the Workplace: Evidence from a Survey of Employers	2008	Analysis of retirement planning seminars in workplaces where the employer sponsored pension plans. Retirement seminars were generally associated with significantly higher rates of participation and contributions (esp. with high seminar frequency. Effect particularly strong for non-highly compensated employees.	USA	Yes	Yes	N	Varied	N	Lower-Income	Mixed
12	Becchetti and Pisani	Financial education on secondary school students: the randomized experiment revisited	2012	Analyzed the effects of financial education on a large sample of secondary school students in Italy. Found that the course increases significantly financial literacy at both student and class level but the effect is different in different urban environments.	Italy	Yes	Yes	Y	16	N	Location, income	Classroom based seminars
13	Becchetti, Caiazza and Coviello	Financial education and investment attitudes in high schools: evidence from a randomized experiment	2011	Evaluated the effects of a financial education training program for Italian high school students on their investment attitudes. Difference-in-difference estimates of the effect of the course are not significant. However, the course in finance did reduce the virtual demand for cash.	Italy	No	N/A	Y	16	N	N/A	Classroom based seminars
14	Bell, Gorin and Hogarth	Does Financial Education Affect Soldiers' Financial Behavior	2009	The Amy Emergency Relief and the Federal Reserve Board jointly offered financial education courses to soldiers at the U.S. Army post at Ft. Bliss in El Paso TX. Participants were more likely to both report using an informal spending plan, and know the difference between discretionary and non-discretionary spending.	USA	No	No	N	2 days	N	N/A	Individual Counseling
15	Berg and Zia	Financial Literacy Through Soap Operas: A Mass Media Experiment in South Africa	2013	Financial education was provided via showing of a soap opera with financial messages in South Africa. Participants assigned to want the show had higher financial knowledge on issues covered in the soap opera plot, and (while no more likely to change borrowing amounts) were more likely to borrow form formal sources.	South Africa	Yes	N/A	Y	26	N	N/A	Mass Media
16	Bernheim and Garrett	The Effects of Financial Education in the Workplace: Evidence from a Survey of	2003	Evaluation, through a household survey, of workplace financial education among US employers. Findings suggest that employer-based financial education stimulates saving,	USA	Yes	N/A	N	Varied	N	N/A	Mixed

		Households		both in general and for retirement.								
17	Bernheim, Garrett and Maki	Education and Saving: The Long Term Effects of High School Financial Curriculum Mandates	2001	Explores effects of state high school financial education course mandates across the US. Mandates have raised both exposure to financial curricula and subsequent asset accumulation once exposed students reached adulthood.	USA	Yes	N/A	N	Varied	N	N/A	Classroom based seminar
18	Berry, Karlan and Pradhan	Social or Financial: What to Focus on in Youth Financial Literacy Training	2013	Examined the effectiveness of two distinct financial literacy training programs; Aflatoun, which incorporates social skills into the trainings, and Honest Money Box, which focuses purely on financial skills. Both programs had significant impacts on savings behavior, but little else.	Ghana	Yes	N/A	Y	8	N	N/A	Classroom based seminars
19	Beshears, Choi, Laibson and Madrian	Simplification and Saving	2006	Examines the effect of an opportunity to enroll in a retirement plan with a pre-selected contribution rates and asset allocation. The intervention (a letter offering the plan as a simple, binary choice) increased plan enrollment rates by 10 to 20 percentage points.	USA	Yes	N/A	N	N/A	Y	N/A	Sent letter
20	Beshears, Choi, Laibson, Madrian and Milkman	The Effect of Providing Peer Information on Retirement Savings Decisions	2013	Measured how receiving information about coworker's savings behavior affects recipients' savings choices. Found an oppositional reaction: peer information decreased the savings of recipients who were shown the additional information.	USA	No	N/A	Y	N/A	Y	N/A	Sent a simplified 401(K) with information on saving levels of co-workers
21	Birkenmaier and Tyuse	Does Homeownership Education and Counseling (HEC) Help Credit Scores?	2005	Studied effectiveness of credit counseling, by Homeownership Education and Counseling (HEC), on credit scores. While client age, step-in-service delivery systems, and initial credit score were found to be significant variables, no overarching significant impact was found due to the counseling.	USA	No	Yes	N	.75	N	Higher initial credit score, age (older)	Classroom based seminar, also using mass media
22	Bjorvatin and Tungodden	Teaching Business in Tanzania: Evaluating Participation and Performance	2010	300 small-scale entrepreneurs, clients of the MFI PRIDE Tanzania, took a business training course developed and implemented by University of Dar es Salaam Entrepreneurship Centre. Results found a positive average treatment effect on business knowledge. It also appears that training has a stronger effect on the entrepreneurs with less formal training or more irregular attendance.	Tanzania	Yes	Yes	N	15.75-21	N	Lower education/training	Classroom based seminar
23	Bolton, Bloom and Cohen	Using Loan Plus Lender Literacy Information to Combat One-Sided Marketing of Debt Consolidation Loans	2011	Two experiments demonstrate that a financial literacy intervention combining information about loans and lenders can help consumers understand and respond to debt consolidation loan marketing (whereas a basic financial numeracy intervention does not).	USA	Yes	N/A	N	Varied	N	N/A	Classroom based course
24	Borden, Lee, Serido and Collins	Changing College Students' Financial Knowledge, Attitudes and Behavior through Seminar Participation	2008	Pilot study examining influence of Credit Wise Cats (a financial education seminar presented by Students in Free Enterprise), on the financial knowledge and behaviors of college students. Seminar effectively increased students' financial knowledge, increased responsible attitudes toward credit and decreased avoidant attitudes towards credit from pre-test to post-test. A seminar format may be useful in reaching a wider audience of college students and, thus, warrants future longitudinal evaluation.	USA	Yes	Yes	N	1.5	N	Ethnicity, gender	Classroom based seminar
25	Bowen and Jones	Empowering Young Adults to Control Their Financial Future	2006	Evaluated the impact of the Commonwealth Credit Project-a financial education class to college students- on	USA	Yes	N/A	N	6	N	N/A	Classroom based seminar

				participant's changes in knowledge, attitudes, and behaviors related to credit cards and other money matters. Results indicate that a narrowly defined program can be a positive step in increasing knowledge, developing skills, and influencing attitudes.								
26	Braucher	An Empirical Study of Debtor Education in Bankruptcy	2001	Study on effects debtor education courses, using data from five Chapter 13 trusteeships, on plan completion. Use of wage orders (having the debtors' employers pay the trustee directly) is associated with a higher rate of plan completion, while debtor education is not associated with increased plan completion.	USA	No	No	N	2-4	Y	N/A	Classroom based seminar
27	Bruhn and Zia	Stimulating Managerial Capital in Emerging Markets: The Impact of Business and Financial Literacy for Young Entrepreneurs	2013	Studies the impact of a business and financial literacy program on firm outcomes of young entrepreneurs in Bosnia and Herzegovina. The program did not influence business survival, but significantly improved business practices, investments, and loan terms for surviving businesses.	Bosnia/ Herzegovi na	No	Yes	Y	9	N	Women, financial literacy level	Classroom based seminar
28	Bruhn, Ibarra, McKenzie	Does Financial Literacy Training Promote Savings and Responsible Credit Card Use?	2012	Evaluates the effectiveness of a large scale financial literacy program offered by a major bank in Mexico City. Attending training results in a 9 percentage point increase in financial knowledge and a 9 percentage point increase in saving outcomes, but no impact on borrowing behavior. The results suggest people are making optimal choices not to attend financial education courses.	Mexico	No	No	N	4	N	Gender, Education level	Mixed
29	Bruhn, Karlan and Schoar	The Impact of Consulting Services on Small and Medium Enterprises: Evidence from a Randomized Trial in Mexico	2012	RCT provided small and medium enterprises in Puebla Mexico, with the Puebla Institute for Competitive Productivity. The study evaluated weather SMEs with access to management consulting services increased their managerial capital and led to better firm performance. Within one year, firms reported positive effects on return on assets and total factor productivity.	Mexico	Yes	N/A	N	208	N	N/A	Classroom based seminar
30	Bruhn, Laeo, Zia, Legovini and Marchelli	Financial Education and Behavior Formation: Large-Scale Experimental Evidence from Brazil	2013	Randomized evaluation of financial education program for Brazilian high school students. Program increased student financial knowledge by a quarter of a standard deviation- which led to a 1.4 percentage point increase in savings. Complementary workshop for parents induces children to save even more.	Brazil	Yes	N/A	Y	36-108	N	N/A	Classroom based seminars
31	Burhouse, Harris, Reynolds	Banking on Financial Education	2007	Highlighted results from a Federal Deposit Insurance Corporation study of the effectiveness of the *Money Smart* financial education program. Study found that *Money Smart* graduates had positive changes in their knowledge, confidence, and behaviors related to financial matters.	USA	Yes	Yes	N	11-22	N	Students, Immigrants , Low & Moderate Income Households	Classroom based seminars
32	Butt, Haessler, Schug	Incentives-Based Approach to Implementing Financial Fitness for Life in the Milwaukee Public Schools	2008	Evaluated the effectiveness of incentives for teachers to implement a financial and economic education curriculum. Utilizing pre- and post-test scores of students to provide empirical evidence regarding implementation of the financial education curriculum, analyses found that students' knowledge gains were statistically significant and that they significantly outperformed students who did not	USA	Yes	N/A	N	N/A	N	N/A	Classroom based curriculum

				participate in the curriculum.								
33	Cai, De Janvry and Sadoulet	Social Networks and the Decision to Insure: Evidence from Randomized Experiments in China	2013	RTC studies the influence of social networks on weather insurance adoption by rural famers in China, by examining influences and effects of financial education. For untreated farmers, the effect of having an additional treated friend on take-up is equivalent to offering a 15% reduction in the insurance premium. Positive social network effect is driven by the *diffusion* of knowledge about insurance.	China	Yes	N/A	Y	.33-.75	N	N/A	Classroom based seminar
34	Calderon, Cunha, and De Giorgi	Business Literacy and Development: Evidence from and Randomized Trial in Mexico	2013	Examines effectiveness of basic business training, provided by CREA (a Mexican NGO), for female entrepreneurs in rural Mexico. Found positive effects of basic training on profits, revenues and number of clients served. Also found a positive effect on the use of "formal" accounting techniques.	Mexico	Yes	Yes	Y	48	N	Gender-only women in study	Classroom based seminar
35	Calderone, Mulaj, Sadhu and Sarr	Does Financial Education Affect Savings Behavior? Evidence from a Randomized Experiment Among Low-Income Clients of Branchless Banking in India	2013	Research presents results of a financial education program on savings behavior among low income clients of branchless banking in India, using a RCT design. Two day intervention increased savings by 29% compared to the control group.	India	Yes	N/A	Y	6	Y	Low income clients of branchless banking	Video delivered in classroom setting followed by discussion
36	Campos, Goldstein, Pimhidzai, Stein and Zia	The Impact and Network Effects of Financial Management and Vocational Training in Informal Industrial Clusters in Uganda	2013 *draft*	The authors find some short---term effects from the financial management training on the core sample of members corresponding to financial literacy, technical knowledge, optimism and adherence to standards and procedures. Preliminary results do not show a statistically significant positive impact on profits or revenues.	Uganda	Not yet avail	Not yet avail	Y	24	N	Owners of small firms	Classroom based seminar (part of broader technical training)
37	Carlin and Robinson	What Does Financial Literacy Training Teach Us?	2010	Studies how financial education changes savings, investment, and consumer behaviors of high school students who complete a tour through the Junior Achievement Finance Park. Treatment effects strong. Trained students showed greater up-take of decision support that was offered in the park-showing decision support and financial literacy training are complements, not substitutes.	USA	Yes	N/A	N	19	Y	N/A	Went through a "finance park" making hypothetical financial decisions
38	Carpena, Cole, Shapiro and Zia	Unpacking the Causal Chain of Financial Literacy	2011	Studies the experimental impact of financial literacy, for 1,200 urban households in Ahmadabad, on three dimensions of financial knowledge. Found that financial literacy does not enable individuals to discern costs and rewards that require high numeracy skills, but does improve basic awareness of financial choices and attitudes.	India	Yes	N/A	Y	12.5	N	N/A	Video based classroom seminars
39	Carswell	Does Housing Counseling Change Consumer Financial Behavior? Evidence from Philadelphia	2009	Examines pre-purchase homeownership counseling for low- to moderate-income households, specifically studying whether counseled borrowers have experienced financial behavior changes within 5 years after having purchased a home. Mixed results.	USA	No	N/A	N	1	Y	N/A	Classroom based seminar

40	Chang and Lyons	Are Financial Education Programs Meeting the Needs of Financially Disadvantaged Consumers?	2007	Uses data from a retrospective pre-test to investigate the impact that the financial education program for low-income adults, All My Money, has on financial behaviors. Found that the program benefited all the participants, with the greatest improvement in behavior coming from those who reported lower levels of financial ability prior to the program.	USA	Yes	Yes	N	8	N	Financial ability (pre), Gender, Education	Classroom based seminar
41	Chatterjee, Green-Pimentel and Turner	Financial Education and Consumer's Willingness to Change Behavior	2010	Uses proprietary data comprising of 4,155 participants who attended financial education seminars conducted by a major U.S. consumer credit counseling agency to examine knowledge gains. Results indicate that those most likely to gain knowledge from attending the financial education seminars were respondents between 18 and 24 years of age, lower income groups and respondents who did not complete college.	USA	No	Yes	N	Varied	N	Age Income Education	Classroom based seminar
42	Choi, Laibson, and Madrian	Are Empowerment and Education Enough? Underdiversification in 401(k) Plans	2005	Assessed the effectiveness of the "empower and educate" regulatory approach and media information at reducing and diversifying away from 401(k) employer stock holdings. Found that educational interventions yielded remarkably small changes in employee behavior.	USA	No	N/A	N	N/A	Y	N/A	Mixed
43	Choi, Laibson, and Madrian	Why Does the Law of One Price Fail? An Experiment on Index Mutual Funds	2010	Studied how test subjects at Harvard and Wharton allocated funds across four S&P index funds. When provided with transparent and salient fee information, investors shifted towards cheaper funds but did not come close to minimizing index fund fees.	USA	Modest	N/A	Y	N/A	Y	N/A	Provision of information
44	Choi, Laibson, Madrian and Metrick	Saving for Retirement on the Path of Least Resistance	2001	Assess the impact on savings behavior of several different 401(k) plan features, including financial education. Analysis identifies a key behavioral principle that should partially guide the design of 401(k) plans: employees often follow "the path of least resistance." Financial education found to not be a powerful mechanism for encouraging 401(k) retirement savings overall.	USA	No	No	N	1	Y	N/A	Classroom based seminar
45	Clancy, Grinstein-Weiss and Schreiner	Financial Education and Savings Outcomes in Individual Development Accounts	2001	Studies effects of financial education provided by the American Dram Policy Demonstration on IDA savings outcomes for the "working poor". Financial education has sizeable effects—courses need not be long to take advantage of them.	USA	Yes	N/A	N	12	N	N/A	Classroom based seminar
46	Clark	Sex Differences, Financial Education and Retirement Goals	2004	Examines sex differences in retirement goals and responses to employee financial education seminars. Seminars altered individual retirement objectives, with participants likely to raise income objectives post seminar. Gender differences observed in terms of desired retirement age, and savings and investment choices.	USA	Yes	Yes	N	1	Y	Gender	Classroom based seminar
47	Clark and Schieber	Factors Affecting Participation Rates and Contribution Levels in 401(k) Plans	1996	Evaluated factors affecting participation rates and contribution levels in 401(k) plans. Found that the quality of communication from the workplace significantly affects participation rates, with greater effects seen from the provision of specifically-tailored information for a company's own plan rather than generic information.	USA	Yes	N/A	N	Varied	Y	N/A	Print materials

48	Clark, D'Ambrosio, McDermed and Sawant	Financial Education and Retirement Savings	2003	Measures impact of TIAA-CREF Financial Education Seminars on employees of education institutions and non-profit organizations' retirement goals and savings behaviors. A significant proportion of the respondents revised their goals and planned to modify savings and investment.	USA	Yes	Yes	N	1	N	Gender, Age	Classroom based seminars
49	Clark, Morill, and Allen	Evaluating Workplace Education for New Hires	2010	Examined how employer-provided financial education for newly hired workers affects participation in retirement savings plans. Found that auto-enroll programs and match savings do increase retirement savings plan participation.	USA	Yes	N/A	N	Varied	Y	N/A	Classroom based seminar
50	Clark, Morrill and Maki	Encouraging New Hires to Save for Retirement	2011	Using administrative data from five large employers, examines the impact of employer-provided financial education for newly hired workers on contributions to voluntary retirement savings plans. Average participation rates increased, while the same fraction of workers took advantage of the full employer match once eligible.	USA	Yes	Yes	N	Varied	Y	Age	Mixed
51	Clark, Morrill, and Allen	Pension Plan Distributions: The Importance of Financial Literacy	2011	Assessed the impact of employer-provided retirement planning seminars on workers. Found that participants change their planned distribution choices after attending seminars that enhance financial knowledge and understanding of retirement plans.	USA	Yes	N/A	N	N/A	N	N/A	Classroom based seminar
52	Clark, Morrill, and Allen	Evaluating Employer-Provided Financial Education Programs for Pre-Retirees	2011	Evaluated employer-provided financial education programs. Found that workers who participate in the retirement planning seminars significantly increase their level of financial literacy and their knowledge of retirement programs. On the basis of this new knowledge, many workers alter their retirement plans including their expected age of retirement from their career employer, their plans to work after retirement, their age of claiming Social Security benefits, and the method of accessing pension accounts.	USA	Yes	Yes	N	Varied	Y	Low-income, Less-educated, Women	Classroom based seminar
53	Cole and Shastry	Is High School The Right Time To Teach Self-Control? The Effect of Financial Education and Mathematics Courses on Savings Behavior	2010	Studied variation in state reforms on high school graduation requirements in regards to financial education to evaluate the impact on asset accumulation. Found that state mandates on financial literacy courses did not significantly affect the propensity to save. Also found that reforms increasing the number of required mathematics courses improved financial behavior for women, but not men.	USA	No	Yes	N	Varied	N	Women	High school financial education classes
54	Cole and Zia	The Impact of Financial Education on Financial Knowledge, Behavior, and Outcomes: Evidence from a Randomized Experiment in South Africa	2013	Examined results from a randomized experiment in South Africa to assess how a financial education program offered by Old Mutual Bank, the "On the Money" program, affects individuals' behavior. Found that financial education significantly increases savings, both in terms of the number of people that report saving and in the monetary value of monthly savings. However, while members of "Women Developing Business" groups that received treatment report an improvement in their financial perceptions and higher welfare, members of burial society groups faced the opposite effects, highlighting the heterogeneous effect of financial education on different populations.	South Africa	Yes	N/A	Y	8	N	N/A	Classroom based courses

55	Cole, Gine, Tobacman, Topalova, Townsend and Vickery	Barriers to Household Risk Management: Evidence from India	2013	Conducted a series of randomized field experiments to test importance of price and non-price factors (including financial literacy) on adoption of an innovative rainfall insurance product. Found lack of trust, liquidity constraints, and limited salience are significant frictions that constrain demand.	India	No	No	Y	1	N	N/A	Individual education sesion
56	Cole, Paulson and Shastry	High School and Financial Outcomes: The Impact of Mandated Personal Finance and Mathematics Courses	2013	Paper reviews impact of state financial education mandates using plausibly exogenous exposure to these courses and administrative data on financial performance in adulthood such as investment holdings, credit performance. Financial education has no significant impact but mathematics courses do improve financial outcomes.	USA			N	Varied	N	High school students	Classroom based seminar
57	Cole, Sampson and Zia	Prices or Knowledge? What Drives Demand for Financial Services in Emerging Markets?	2011	Through a field experiment in India and Indonesia, studied theories of low demand for financial services in emerging markets. Found strong correlation between financial literacy and behavior, with modest effects of financial education programs- increasing demand for bank accounts only for those with limited education or financial literacy.	India, Indonesia	Modest	Yes	Y	2	Y	Education, Financial Literacy	Classroom based seminar
58	Collins	Exploring the Design of Financial Counseling for Mortgage Borrowers in Default	2007	Analyzes the effects of the Credit Counseling Resource Center counseling provided to Chicago Neighborhood Housing Services borrowers in mortgage default. Found that additional counseling results in a reduced probability of foreclosure (greater success with longer durations of counseling).	USA	Yes	N/A	N	Varied	Y	N/A	Classroom based seminar
59	Collins	The Impacts of Mandatory Financial Education: Evidence from a Randomized Field Study	2012	Studied very low-income families in a subsidized housing program who received financial education programs. Led to improvements in self-reported behaviors but no measurable effects on savings or credit.	USA	No	Yes	N	12	N	N/A	Classroom based seminar
60	Danes	Evaluation of the NEFE High School Financial Planning Curriculum: 2003-2004	2004	18 month evaluation of the NEFE High School Financial Planning Program, a financial education curriculum provided by the National Endowment for Financial Education. Found that participants reported significant improvement in financial knowledge, behavior, and confidence. Impact increased over time.	USA	Yes	N/A	N	>10	N	N/A	Classroom based seminar
61	Danes	Evaluation of the National Endowment for Financial Education (NEFE) High School Financial Planning Program 2009-2010	2010	An impact evaluation of the competency-based NEFE High School Financial Planning Program® (HSFPP), a curriculum provided by the National Endowment for Financial Education® (NEFE®), shows that students who completed the HSFPP reported significant improvement in their financial knowledge, behavior, and confidence immediately after studying the HSFPP.	USA	Yes	N/A	N	6	N	N/A	Classroom based seminars
62	Danes and Haberman	Teen Financial Knowledge, Self-Efficacy and Behavior: A Gendered View	2007	Evaluated gender differences in financial knowledge, confidence, and behavior of teenagers (using NEFE data). Found male teens reinforced their existing knowledge, whereas female teens learned significantly more about finances in areas in which they were unfamiliar with prior to the curriculum.	USA	Yes	Yes	N	>10	N	Gender	Classroom based seminar
63	Danes, Huddleston-Casas and Boyce	Financial Planning Curriculum for Teens: Impact Evaluation	1999	Studied the impact of NEFE financial planning curriculum on the financial knowledge, behavior, and self-efficacy of teenagers. Significant changes in all three found.	USA	Yes	Yes	N	>10	N	Gender	Classroom based seminar

64	De Mel, McKenzie and Woodruff	Getting Credit to High Return Microentrepreneurs: The Results from an Information Intervention	2011	Examines intervention designed to improve access to credit among high-return microenterprises without subsidizing interest rates or requiring group lending - the intervention consisted of info sessions providing details of the loan product. 10% of the microenterprises invited to the info meetings received a new loan. Loans seem to go to firms with more household assets (instead of high return firms). Results suggest that info alone is unlikely to be enough for most firms and point to the need for credit bureaus that cover microfinance loans.	Sri Lanka	No	N/A	N	4	Y	N/A	Classroom based seminar
65	DeVaney, Gorham, Mechman and Haldeman	Cash Flow Management and Credit Use: Effect of a Financial Information Program	1996	Examined cash flow and credit use three months after participants in the Women's Financial Information Program (WFIP) completed as series of women's financial information workshops. Highlights importance of feelings and attitudes in changing practices related to cash flow and credit use.	USA	Yes	Yes	N	14	N	Gender, Age	Classroom based seminar
66	Di Maro, Coville, Zottel and Dunsch	The Impact of Financial Literacy Through Feature Films: Evidence from a Randomized Experiment in Nigeria	2013	Explores the savings decisions of a group of micro-entrepreneurs and how short-term decisions and longer term behavior are influenced by a motivational film, *The Story of Gold*. Found that influencing short-term decisions is possible, but longer-run behavior is far less malleable and the intervention had no impact on it.	Nigeria	Yes	N/A	Y	3	N	N/A	Movie screenings
67	Ding, Quercia and Ratcliffe	Post-Purchase Counseling and Default Resolutions Among Low-Income and Moderate-Income Borrowers	2008	Empirically examines the impact of a proactive post-purchase counseling service (provided by the Self-Help Ventures Fund's Community Advantage Program) on moderately delinquent mortgages. Found that counseling effectively increased the curing probability of delinquent borrowers.	USA	Yes	N/A	N	1	Y	N/A	Over the phone counseling
68	Doi, McKenzie and Zia	Who You Train Matters: Identifying Complementary Effects of Financial Education on Migrant Households	2012	RCT in Indonesia which provided a financial literacy program and evaluated its effects on financial knowledge, behaviors, remittance and savings outcomes. Found training both the migrant and the family had a larger impact than training the family alone. Found large effects when provided at a teachable moment, but large variation of impact.	Indonesia	Yes	N/A	Y	15	Y	N/A	Classroom based seminar
69	Dolvin & Templeton	Financial Education and Asset Allocation	2006	Analysis the effects of a financial education seminar offered to employees in a workplace about to restructure its 401(k) plan. Found seminar attendance is associated with increased portfolio diversification and improved risk management.	USA	Yes	Yes	N	1.5	Y	N/A	Classroom based seminar
70	Duflo and Saez	The Role of Information and Social Interactions in Retirement Plan Decisions: Evidence from a Randomized Experiment	2011	Studied the role of information and social interactions in employees' decisions to enroll in a Tax Deferred Account retirement plan within University. TDA enrollment was higher in departments where some individual was treated. However, effect was almost as large for individuals in treated departments who did not receive training as for those who did.	USA	Yes	N/A	Y	9	Y	N/A	Attendance at a benefits information fair at the University
71	Duflo, Gale, Liebman, Orszag and Saez	Saving Incentives for Low- and Moderate-Income Families: Evidence from a Field	2006	Analyzed a randomized experiment where 14,000 low- and middle-income tax filers in H&R Block offices in St. Louis received varying match percentages. Take up rates	USA	Yes	N/A	N	1	Y	N/A	In-person individual counseling

		Experiment with H&R Block		increased accordingly. Tax professionals significantly influenced contribution choices- suggesting that both incentives and information affect behavior.								
72	Eades, Fox, Keown, Staten	The Role of Professors in Improving Financial Literacy	2012	Showed that college students who attend campus financial counseling clinics left with reduced levels of financial stress and higher levels of financial self-efficacy.	USA	Yes	N/A	N	Varied	N	N/A	Individual counseling sessions
73	Eissa, Habyarimana and Jack	The Impact of Cartoons and Comics on the Effectiveness of Financial Education: Evidence from a Randomized Experiment in Kenya	2013	Intervention worked with two Kenyan organizations, Well Told Story and Junior Achievement Kenya, to compose and distribute print and media educational materials that incorporated financial lessons. Overall, found no significant impact of the interventions.	Kenya	No	N/A	Y	Varied	N	N/A	Mass media and print
74	Elliehausen, Lundquist and Staten	The Impact of Credit Counseling on Subsequent Borrower Behavior	2007	The study examined the impact of individualized credit counseling delivered to nearly 8,000 consumer clients. Receipt of counseling was associated with a positive change in borrower credit profiles.	USA	Yes	N/A	N	Varied	N	N/A	Individual counseling sessions
75	Employee Benefit Research Institute	Are Workers Kidding Themselves? Results of the 1995 Retirement Confidence Survey	1995	Survey findings indicated that workplace financial education was effective, as two-fifths of participants reported that education materials led them to increase their contributions to their 401(k) plans. One-half indicated that financial education materials led them to change their asset allocations. Workers with less formal education less likely to utilize the provided education material, but when they do use the material, they are equally or more likely to alter their behavior as a result.	USA	Yes	N/A	N	Varied	N	N/A	Workplace financial education
76	FDIC	A Longitudinal Evaluation of the Intermediate-Term Impact of the Money Smart Financial Education Curriculum Upon Consumers' Behavior and Confidence	2007	Evaluated the Money Smart financial education curriculum upon the financial opinions and behaviors of course participants during the survey period. Data showed that training positively affected consumer behaviors (and held over time). Participants were more likely to open deposit accounts, save money in a mainstream deposit product, and use and adhere to a budget.	USA	Yes	N/A	N	Varied	N	N/A	Online course or classroom based seminars
77	Field, Jayachandran and Pande	Do Traditional Institutions Constrain Female Entrepreneurship? A Field Experiment on Business Training in India	2010	Explores how a randomized field experiment training poor self-employed women in India in basic financial literacy and business skills influenced their financial attitudes and behaviors. Studies how traditional religious and caste institutions impose restrictions on women's' behavior and influence their business activity. Found training increased borrowing and business income for Hindu women facing more restrictions, however Muslim women do not benefit.	India	Yes	Yes	Y	18	N	Religion	Classroom based seminar
78	Finke	Financial Advice: Does it Make a Difference?	2012	Provides evidence that financial advisers can improve financial outcomes when the interests of the advisor and household are aligned- yet professional advice can harm consumers if conflicts of interest create high agency costs. Examines how differences in compensation methods and regulatory frameworks affect incentives – finds essential to improving the breadth and quality of professional advice.	USA	Yes	Yes	N	Varied	N	Retirement minded	Personal financial advisor
79	Fischer, Drexler and Schoar	Keeping it Simple: Financial Literacy and Rules of Thumb	2010	Test the impact of financial training on firm-level and individual outcomes for micro entrepreneurs in the Dominican Republic. No significant effect found from a fundamentals-based accounting training. However, a rule-	Dominica n Republic	Yes	Yes	Y	36	N	Education	Classroom based seminar

				of-thumb training produced meaningful improvements in business practices.								
80	Fox and Bartholomae	Considerations in Financial Education Programming for Women	2006	Studied impacts of a community-based financial education program, Ohio Women and Money, on perceived financial knowledge and learning. Found length of program, and whether or not information was thought to be personally relevant, was important factors in increasing knowledge. Also, women with prior financial decision making experience made fewer gains.	USA	Yes	N/A	N	9	N	Only women in study	Classroom based seminar
81	Fry, Mihajilo, Russell and Brooks	The Factors Influencing Saving in a Matched Savings Program: Goals, Knowledge of Payment Instruments, and Other Behavior	2008	Explores the saving behavior of the group of low-income households that have participated in the Australian Saver Plus matched savings program. Found that even after controlling for the unobservable individual response to the program incentive, the saving goal and education/ financial literacy variables play a positive role in encouraging saving behavior.	Australia	Yes	Yes	N	10	N	N/A	Classroom based, highly interactive, seminars
82	Garman, Kim, Kratzner, Brunson and Joo	Workplace Financial Education Improves Personal Financial Wellness	1999	Studied employee benefits in a workplace financial education program, administered by the EDSA Group, at a Southeastern chemical production plant. Found strong evidence that workplace financial education is effective because it resulted in better financial wellness for workers.	USA	Yes	N/A	N	5	N	N/A	Classroom based seminar, data collected through mail survey
83	Gartner and Todd	"Effectiveness of Online "Early Intervention" Financial Education for Credit Cardholders"	2005	Three credit card issuers conducted randomized tests of whether offering online credit card education to credit cardholders is effective in changing behavior. Found that completion of online credit education correlates with more responsible credit card usage, but the experiments don't prove that the education causes this behavior as the results were not statistically significant.	USA	No	N/A	Y	N/A	Y	N/A	Online education
84	Gaurav, Cole, and Tobacman	Marketing Complex Financial Products in Emerging Markets: Evidence from Rainfall Insurance in India	2011	Evaluated a field experiment involving the offer of rainfall insurance to 600 small-scale farmers in India. Found that a customized financial literacy and insurance education module communicating the need for personal financial management had a positive and significant impact on rainfall insurance adoption.	India	Yes	N/A	Y	N/A	Y	N/A	Classroom based seminar
85	Gibson, McKenzie and Zia	The Impact of Financial Literacy Training for Migrants	2012	Measured the impact of providing financial literacy training to migrants in Australia and New Zealand. Training appeared to increase financial knowledge and information seeking behavior and reduce the risk of switching to costlier remittance products. Did not find an impact on either the frequency or level of remittances.	Australia and New Zealand	No	N/A	Y	2	N	N/A	Classroom based seminar
86	Gine and Mansuri	Money or Ideas? A Field Experiment on Constraints to Entrepreneurship in Rural Pakistan	2011	Field experiment in rural Pakistan where microfinance clients were provided business training and the opportunity to participate in a lottery to access larger business loans. Found offering training led to increased business knowledge, better business practices and improvements in household and member outcomes. Concentrated improvements for men.	Pakistan	Yes	Yes	Y	46	Y	Gender	Classroom setting and individual counseling
87	Gine, Karlan and Ngatia	Social Networks, Financial Literacy and Index Insurance	2013	Field experiment in Kenya measuring the direct impact and social network spillovers of providing financial literacy and discount vouchers on farmers' decision to purchase index-	Kenya	Yes	N/A	Y	N/A	Y	N/A	Shown a comic on index insurance and

				based drought insurance. Found social network spillovers to the provision of financial literacy materials but no spillovers to the provision of discount vouchers on farmers' decision to purchase insurance.								given discount vouchers for the insurance
88	Goda, Manchester and Sojourner	What Will My Account Really Be Worth? Experimental Evidence on How Retirement Income Projections Affect Saving	2012	Measures how provision of retirement income projections along with enrollment information affects individuals' contributions to employer-sponsored retirement accounts. Measure effect on participation and the level of contributions. Those who sent retirement income projections were more likely to change their contribution level and they increased annual contributions more than those without the intervention.	USA	Yes	N/A	N	N/A	Y	N/A	Individual counseling
89	Gray, Cohen, Sebstad and Stack	Can Financial Education Change Behavior? Lessons from Bolivia and Sri Lanka	2010	Analyzed effects of financial education targeted at addressing issues of budgeting, debt management and savings. Results from quantitative and qualitative data from three partners suggest that knowledge and behavior change did occur, including increased knowledge regarding the product characteristics clients should understand when evaluating their loans as well as how to calculate their debt capacity.	Bolivia and Sri Lanka	Yes	N/A	N	Mixed	N	N/A	Classroom based seminars and group discussion
90	Grimes, Rogers & Smith	High School Economic Education and Access to Financial Services	2010	Assesses high school economic education by examining an individual's decision to have a bank account. Found courses in economics and business reduced the probability that an adult was unbanked, *ceteris paribus*.	USA	Yes	Yes	N	Varied	N	N/A	Classroom courses
91	Grinstein-Weiss, Sherraden, Gale, Rohe, Screiner, Key	The Ten-Year Impacts of Individual Development Accounts on Homeownership: Evidence from a Randomized Experiment	2012	Evaluated the impact of an Individual Development Account (IDA) program in Oklahoma that provided low-income households with financial education and matching funds for qualified savings withdrawals, including a 2:1 match for housing down payments. The IDA program had no significant effect on homeownership rates among the full sample and had no effect on the duration of homeownership during the study period.	USA	No	Yes	Y	12	Y	Above-sample median income	Classroom based courses
92	Han, Grinstein-Weiss, Sherraden	Assets beyond Saving in Individual Development Accounts	2007	Examined whether participation in Individual Development Accounts (IDAs) leads to significant growth in assets beyond saving in the IDA accounts. Program participation included 12 hours of financial education classes. Results show that IDA participants have more real assets and total assets than the control group while there are no significant differences in liquid and financial assets between the treatment and control.	USA	Yes	N/A	Y	12	Y	N/A	Classroom based courses
93	Hartarska and Gonzalez-Vega	Evidence on the Effect of Credit Counseling on Mortgage Loan Default by Low-Income Households	2006	Studies the effects of counseling on default by adopting an option-based approach to mortgage termination, with sources of data coming from a large Midwest bank, Community churches, and a local development company. Found evidence that counseled borrowers defaulted less and that counseling affects the optimal exercise of the default option.	USA	Yes	N/A	Y	Varied	Y	N/A	Individual counseling
94	Hartarska and Gonzalez-Vega	Credit Counseling and Mortgage Termination by Low-Income Households	2005	Using a competing-risks framework, studies the effects on default and prepayment of a counseling program implemented in several Midwest states. Found weak	USA	Yes	N/A	N	Varied	N	N/A	Varied

				evidence that the default hazard was lower for graduates of the counseling program but that their default behavior was more optimal. The prepayment hazard was higher for counseled borrowers, but their prepayment behavior was not more optimal.									
95	Hastings, Hortacsu and Syverson	Advertising and Competition in Privatized Social Security: The Case of Mexico	2012	Examined data on pension fund choices in Mexico's privatized social security system, seeing how advertising can affect prices, competition, and efficiency in a private pension market. Estimated a flexible model of demand for fund managers, and found that advertising was a key channel used to gain customers by increasing brand value and decreasing price sensitivity.	Mexico	Yes	N/A	N	N/A	N	N/A	N/A
96	Haynes, Haynes and Weinert	Outcomes of On-line Financial Education for Chronically Ill Rural Women	2011	Study part of a larger longitudinal study (Women to Women Project) of chronically ill rural women to determine if computer tech could be effective in allowing them to take control of their own wellbeing. This study looked at the effects of an on-line personal finance education program on the financial literacy level of the women. Results indicate that intensive and intermediate intervention strategies significantly increase financial knowledge.	USA	Yes	N/A	Y	Varied	N	N/A	Online
97	Haynes-Bordas, Kiss, and Yilmazer	Effectiveness of Financial Education on Financial Management Behavior and Account Usage: Evidence from a 'Second Chance' Program	2008	The Get Checking program is a ''second chance'' program that aims to provide financial education to consumers who were reported to ChexSystems by a previous financial institution for account abuse or mismanagement. Findings show that the program was successful in positively influencing the financial management behavior of participants in terms of recording transactions and communicating with financial institutions.	USA	Yes	Yes	N	6	Y	Non-whites, young adults	Classroom based seminar
98	Heinberg, Hung, Kapteyn, Lusardi and Yoong	Five Steps to Planning Success	2010	Investigated the effectiveness of videos and narratives in improving people's understanding of basic financial planning. Administered a quiz in the American Life Panel to establish a baseline. Found significant improvements in understanding the concepts, as compared to the control group.	USA	Yes	N/A	Y	Varied	N	N/A	Mass media and online course and discussion
99	Hershey, Mowen and Jacobs-Lawson	An Experimental Comparison of Retirement Planning Intervention Seminars	2003	The efficacy of three different retirement seminars (combining goal setting and informational content) was evaluated on the basis of goal clarity and planning and savings practices. Found strongest impact on behavior came on those participating in both information and goal setting seminars, and a modest impact of information only seminars.	USA	Yes	N/A	N	1.5-3	N	N/A	Combination of individual counseling and classroom setting seminars.
100	Hershey, Walsh, and Brougham	Challenges of Training Pre-Retirees to Make Sound Financial Planning Decisions	1998	Measures the effectiveness of a brief education training program to improve decision performance of pre-retirees regarding the affordability of retiring from regular employment. Results indicate that although subjects' knowledge of the domain increased significantly as a function of training, the overall quality of their decisions did not significantly improve from pretest to posttest.	USA	Modest	N/A	N	NEED INFO FROM PAPER	NEED INFO FROM PAPER	N/A	NEED INFO FROM PAPER

101	Hilgert, Hogarth, and Beverly	Household Financial Management: The Connection between Knowledge and Behavior	2003	Analyzed data from the Surveys of Consumers to explore some of the connections between knowledge and behavior and where households obtain their financial knowledge. Found that households with low knowledge index scores were less likely to report learning from friends and family. Households that reported learning a lot from the media and the Internet had a 50 percent chance of being in the high index group.	USA	Yes	N	N	Varied	N	N/A	Mixed
102	Hira and Loibl	Understanding the Impact of Employer-Provided Financial Education on Workplace Satisfaction	2005	Examines the linkage between workplace financial education and workplace satisfaction. Data gathered from a national sample of employees of an insurance company favor the hypothesis that employees who participate in workplace financial education more fully understand personal finances and recognize how financial literacy impacts their future financial expectations.	USA	Yes	N/A	N	Varied	N	N/A	Classroom based seminars
103	Hirad and Zorn	A Little Knowledge Is a Good Thing: Empirical Evidence of the Effectiveness of Pre-Purchase Homeownership Counseling	2001	Uses data on mortgages originated under Freddie Mac's Affordable Gold program to assess the claim that pre-purchase homeownership counseling programs lower mortgage delinquency rates. Found counseling can increase the success of affordable lending programs by helping families keep their homes. However, counseling's effectiveness is influenced far more by how it is delivered than by the organization that delivers it.	USA	Yes	N/A	N	Varied	Y	N/A	Mixed- classroom, home study, one on one, other
104	Holland, Goodman, and Stich	"Defined Contribution Plans Emerging in the Public Sector: The Manifestation of Defined Contributions and the Effects of Workplace Financial Education"	2008	Evaluated results from a nonexperimental single group pretest/posttest design to investigate the effects of a workplace financial literacy program. The findings suggest that participants are less stressed, more satisfied with their financial situation, less worried about monthly living expenses, and more confident about overcoming financial emergencies after participating in the financial literacy program.	USA	Yes	N/A	N	N.A	N	N/A	DVD Sessions
105	Huang Nam Sherraden	Financial Knowledge and Child Development Account Policy: A Test of Financial Capability	2012	Evaluated results from the SEED OK program, a statewide randomized policy experiment of child development accounts (CDAs) to encourage families to accumulate savings for their children's future. Found that the treatment group who received additional financial incentives and information on the benefits of the OK 529 plan had a positive impact on participants' likelihood to open a 529 account.	USA	Yes	N/A	Y	N/A	Y	N/A	Print materials
106	Hung and Yoong	Asking for Help: Survey and Experimental Evidence on Financial Advice and Behavior Change	2010	Using data from current defined-contribution plan holders in the RAND American Life Panel, found little evidence of improved DC plan behaviors due to advice. Results show that unsolicited advice has no effect on investment behavior, in terms of behavioral outcomes	USA	No	N/A	Y	1 or Varied	N	N/A	Individual counseling or online
107	Joo and Grable	Employee Education and the Likelihood of Having a Retirement Savings Program	2005	Develops a framework that can be used to examine the retirement savings decision using Retirement Confidence Survey data determined that respondents with higher education levels, higher income, a smaller household size, and favorable financial attitudes tend to have a retirement	USA	Yes	Yes	N	Varied	N	N/A	Varied

				savings program. Found those who are exposed to workplace financial education are more likely to have a retirement savings program and having a retirement savings program related positively to retirement confidence.								
108	Kanz, Kaufman, Shue and Wahler	Learning by Doing? Using Savings Lotteries and Social Marketing to Promote Financial Inclusion	2013	Examined unique intervention of the "I-Save-I-Win" program. Several components comprised the intervention-giving cash and non-cash prizes for holding saving accounts at certain levels, social media, flyers, and text message reminders and advertisements, celebrity endorsements, and a lottery for cash. No evidence incentive program inspired long term savings increases.	Nigeria	No	N/A	N	N/A	N	N/A	Mass media
109	Karlan and Valdivia	Teaching Entrepreneurship: Impact of Business Training on Microfinance Clients and Institutions	2006	Measured the marginal impact of adding business training to a Peruvian group lending program for female microentrepreneurs. Treatment led to improved business knowledge, practices and revenues. Found treatment led to improved business knowledge, practices and revenues. The program also improved repayment and client retention rates for the microfinance institution.	Peru	Yes	Yes	Y	6-104	N	Business size, education, interest ex-ante towards training	Classroom based seminar
110	Karlan, McConnell, Mullainathan and Zinman	Getting to the Top of Mind: How Reminders Increase Saving	2010	Analyzed three field experiments that randomly assign reminders to new savings account holders. Tested their model of limited attention in intertemproal choice- positing that individuals fully attend to consumption in all periods but fail to attend some future lumpy expenditure opportunities. Also saw that reminders may increase saving and will be more effective when increase the salience of a specific expenditure.	Bolivia, Peru, and Philippine s	Yes	N/A	N	1 text or letter per month	N	N/A	Reminder letters and texts
111	Kast, Meier, and Pomeranz	Under-Savers Anonymous: Evidence on Self-Help Groups and Peer Pressure as a Savings Commitment Device	2012	Using randomized field experiments among microentrepreneurs in Chile, found that holding people accountable through feedback test messages can be a powerful tool to encourage savings, with an effect size similar to that of self-help peer groups.	Chile	Yes	N/A	Y	N/A	Y	N/A	Feedback texts
112	Kim	Workplace Financial Education Program: Does It Have An Impact on Employees Personal Finances?	2007	Examines the impacts of a Cooperative Extension workplace financial education program on university employees' financial knowledge, behavior, and perceived well-being. Found participants made significant improvements in all three categories.	USA	Yes	N/A	N	8	N	N/A	Classroom based seminars
113	Kim, Bagwell, and Garman	Evaluation of Workplace Personal Financial Education	1998	Investigated the evaluation of a financial education seminar. The survey results show that participants were satisfied and intended to take actions in personal finances due to the financial education.	USA	Yes	N/A	N	N/A	N	N/A	Classroom based seminars
114	Kim, Garman, and Sorhaindo	Relationships among Credit Counseling Clients' Financial Well-Being, Financial Behaviors, Financial Stressor Events, and Health	2003	Evaluated data from a large credit counseling organization to examine the relationships among credit counseling, financial behaviors, financial stressor events, perceived financial well-being, and health. Credit counseling and debt management program directly affect financial stressor events in a helpful way and indirectly affect perceived financial well-being and health of the participants after 18 months. Results provide some evidence of the effectiveness of credit counseling in improving financial health variables.	USA	Yes	N/.A	N	N/A	N	N/A	Individual Counseling

115	Kim, Kwon and Anderson	Factors Related to Retirement Confidence: Retirement Preparation and Workplace Financial Education	2005	Examined the 2004 Retirement Confidence Survey to asses retirement confidence. Results suggest that those who calculated their retirement fund needs, had more savings, higher levels of confidence in government programs such as Social Security and Medicare, higher household income, better health, and who received workplace financial education and advice had higher levels of retirement confidence than others.	USA	Yes	Yes	N	Varied	N	N/A	Varied
116	Kimball and Shumway	Investor Sophistication, and the Participation, Home Bias, Diversification, and Employer Stock Puzzles	2007	Evaluated data from the April 2005 Survey of Consumer Attitudes, finding evidence that financial education might help investors overcome suboptimal behavior.	USA	Yes	N/A	N	Varied	N	N/A	Varied
117	Klinger and Schundeln	Can Entrepreneurial Activity be Taught? Quasi-Experimental Evidence from Central America	2011	Studied the effects of a business training program for micro entrepreneurs in Central America. Found that business training significantly increases the probability that an applicant to the workshop starts a business or expands an existing business.	El Salvador, Guatemal a, Nicaragua	Yes	N/A	N	Varied	Y	N/A	Classroom based seminars
118	Koening	Financial Literacy Curriculum: The Effect on Offender Money Management Skills	2007	Studied the effects of a basic financial curriculum on offenders within a medium security correctional facility. Offenders gained financial knowledge, as measured by pre and posttests covering financial topics.	USA	Yes	N/A	N	4	N	N/A	Classroom based seminars
119	Langrehr	Consumer Education: Does It Change Students' Competencies and Attitudes?	1979	Examined research conducted in a state that requires consumer education of all students to see if there was a change in competency level and attitudes toward business. Found that students who took a course specifically designed to present consumer education topics did improve their consumer economics competency and developed a more positive attitude toward business.	USA	Yes	N/A	N	Varied	N	N/A	Classroom based courses
120	Lawrence	Student Managed Investment Funds: An International Perspective	2008	Evaluated the effectiveness of student-managed investment funds in increasing student knowledge and career success. Found positive impacts.	USA	Yes	N/A/	M	N/A	N	Varied	Mixed (classroom-based and hands-on)
121	Lee, Yun, and Haley	The Interplay between Advertising Disclosures and Financial Knowledge in Mutual Fund Investment Decisions	2012	Examined the relationship between financial disclosures and investors' financial knowledge on investor decision making within the context of mutual fund advertising. Results suggested that mutual fund ads with financial disclosures are more likely to generate higher levels of recall and positive thoughts regarding advertised information for the mutual fund, more favorable attitudes toward the mutual fund, and greater investment intention.	USA	Yes	Yes	Y	Varied	N	Low financial knowledge	Advertising disclosures
122	Loibl and Hira	A Workplace and Gender-Related Perspective on Financial Planning Information Sources and Knowledge Outcomes	2006	Examines financial learning in the workplace through employer provided, self-directed financial learning media, such as newsletters, print publications, software, and the Internet. Results suggest that the social network influences utilization of employer-provided financial learning media which, in turn, increases actual retirement-specific and self-reported financial knowledge.	USA	Yes	N/A	N	Varied	N	N/A	Self-direct learning from education materials
123	Loibl and Hira	Self-directed Financial Learning and Financial Satisfaction	2005	Analyzed the effect of self-directed financial learning from employer-provided materials on financial management practices, financial satisfaction, and career satisfaction. Results demonstrated the effectiveness of self-directed	USA	Yes	N/A	N	Varied	N	N/A	Self-directed from educational materials

				financial learning and the role good financial management practices play in the relationship of financial learning with financial satisfaction and workers' satisfaction with their career progression.								
124	Lusardi	Preparing for Retirement: The Importance of Planning Costs	2002	Uses data from the Health and Retirement Study (HRS) to examine workers' planning activity toward retirement, looking at whether employers' initiatives to reduce planning costs via retirement seminars affect savings. Found seminars do stimulate savings, especially for low income and less educated individuals.	USA	Yes	Yes	N	Varied	N	Income, Education	Classroom based seminars
125	Lusardi	Financial Education and the Saving Behavior of African American and Hispanic Households	2005	Uses the 1992 HRS' data set to examine the effect of financial education seminars on retirement accumulation for older African American and Hispanic households. Found seminars did not affect the portfolio choice of minorities. Only African-Americans were affected by the education- Hispanics were not.	USA	Yes	Yes	N	Varied	N	Race, age	Classroom based seminars
126	Lusardi	Saving and the Effectiveness of Financial Education	2005	Examines whether employers' initiatives to reduce planning costs via retirement seminars have an effect on workers' saving. Uses data from the Health and Retirement Study. Found that seminars foster saving- especially for those with low education and those who save little.	USA	Yes	Yes	N	Varied	N	Education, amount of savings (low income)	Classroom based seminars
127	Lusardi	Household Saving Behavior: The Role of Financial Literacy, Information and Financial Education Programs	2008	Largely a survey paper detailing the extent of financial illiteracy in the US- especially among women, minority populations, and low-income people. Briefly mentions and provides evidence that financial education may help to improve savings a financial decision-making. No specific financial literacy intervention for this paper done.	USA	Yes	Yes	N	Varied	N	Minority status, gender, income	Varied
128	Lusardi and Mitchell	Financial Literacy and Retirement Planning: New Evidence from the Rand American Life Panel	2007	Using the Rand American Life Panel (ALP) dataset, evaluates financial knowledge of employees. Financial literacy proved to be a key determinant of retirement planning. Also found that respondent literacy is higher when participants were exposed to economics in school and to company-based financial education programs.	USA	Yes	Yes	N	Varied	N	Age, gender, education	Varied
129	Lusardi and Mitchell	How Ordinary Consumers Make Complex Economic Decisions: Financial Literacy and Retirement Readiness	2009	Assesses the American Life Panel (ALP) on a number of financial literacy measures, trying to evaluate the causal relationship between financial literacy and retirement planning. Found financial literacy contributes importantly to retirement readiness, after correcting for potential endogeneity biases.	USA	Yes	Yes	N	Varied	N	Age, gender, education	Varied
130	Lusardi, Keller and Keller	Increasing the Effectiveness of Retirement Saving Programs for Females and Low Income Employees: A Marketing Approach	2009	Studied effects of a financial education intervention on participant's mental wellbeing and financial outlook. Measured financial awareness, retirement saving behavior, and overall anxiety. Across the board, found the communication program helped to reduce anxiety levels about future retirement needs, increased financial knowledge, and increased participation and contribution to supplementary retirement accounts.	USA	Yes	Yes	N	Varied	N	Gender and income	Mass media and literature
131	Lusardi, Keller and Keller	New Ways to Make People Save: A Social Marketing Approach	2009	Used a social marketing approach to develop a planning aid to help new employees at a not-for-profit institution contribute to supplementary pensions. Found there was a	USA	Yes	Yes	N	N/A	N	Gender, income	Print and online

				sharp increase in supplementary retirement accounts after the implementation of the program: the election rate more than tripled in a 30-day period and doubled in a 60-day period.								
132	Lusardi, Schneider and Tufano	Financially Fragile Households: Evidence And Implications	2011	Examined households' financial fragility by looking at their capacity to come up with $2,000 in 30 days, using data from the 2009 TNS Global Economic Crisis Study. Found approximately one-quarter of U.S. respondents are certain they could not come up with the sum. While financial fragility is more severe among those with low educational attainment and no financial education, families with children, those who suffered large wealth losses, and those who are unemployed, a sizable fraction of seemingly "middle class" Americans also judge themselves to be financially fragile.	USA	Yes	Yes	N	N/A	N	Education, income	N/A
133	Lyons and Scherpf	Moving from unbanked to banked: Evidence from the Money Smart program	2004	Using data collected from participants of the FDICs *Money Smart* program, this study investigates the impact that financial education has on an individual's decision to move from unbanked to banked. The best measure of program "success" may not be the number of accounts opened, but instead whether the program has provided the unbanked with the skills and tools necessary to make sound financial decisions given their financial circumstances.	USA	No	N/A	N	5-10	N	N/A	Classroom based seminar
134	Lyons, Chang and Scherpf	Translating Financial Education into Behavior Change for Low-Income Populations	2006	Evaluated the effectiveness of a financial education program geared towards low-income individuals. Results provide some evidence that financial education may result in improved financial behaviors. However, prior level of financial experience may matter more than the number of lessons completed.	USA	No	N/A	N	16-20	N	N/A	Classroom based seminar
135	Lyons, White and Howard	The Effect of Bankruptcy Counseling and Education on Debtors' Financial Well-Being: Evidence from the Front Lines	2008	Money Management International, Inc. (MMI) examined the education value of the Bankruptcy Abuse and Consumer Protection Act's educational provisions. The evidence suggests that debtors' financial literacy improved as a result of the counseling. Moreover, even after participating in the counseling, debtors' financial literacy continued to improve as a result of the education.	USA	Yes	N/A	N	3-3.5	Y	N/A	Phone
136	Maki	Financial Education and Private Pensions	2004	Evaluated the impact of workplace and high school financial education on financial knowledge. Found that both employer and school-based financial education appear to reduce employees' ignorance of their pension plans, and high school financial education improved respondents' knowledge of relative asset returns and pension plans.	USA	Yes	N/A	N	Varied	N	N/A	Varied
137	Mandell	Does Just in Time Instruction Improve Financial Literacy?	2006	Four Jumpstart surveys since 1997, encompassing more than 10,000 high-school seniors, showed little overall difference in financial literacy test scores between those who had taken an entire semester's course in financial management and those who had not.	USA	No	N/A	N	Varied	N	N/A	Classroom based courses
138	Mandell	Financial Literacy – Does it Matter?	2005	Evaluated data from Four Jumpstart Surveys since 1997, finding that financial education somehow affects propensity to save without necessarily improving financial	USA	Yes	N/A	N	Varied	N	N/A	Classroom based courses

				literacy. Students who take a financial education course may emerge from the course with little improvement in financial literacy, as measured by test scores of what they know, but end up more savings oriented than those who have not had such a course.								
139	Mandell	Teaching Young Dogs Old Tricks: The Effectiveness of Intervention in Pre-High School Grades	2006	Examined the effectiveness of a financial education intervention at the middle-school level in improving saving-related knowledge and behavior on younger students. After seeing a live play on the advantages of saving, students showed a small improvement in knowledge, but this improvement was most pronounced among the youngest students, in the 6th grade. Some positive attitudinal change was also found but it was not possible to find behavioral differences as a result of the intervention	USA	Modest	Yes	N	<1	N	Sixth-grade students, boys	Live play
140	Mandell	Starting Younger: Evidence Supporting the Effectiveness of Personal Financial Education for Pre-High School Students	2009	Evaluated the effect of personal finance education in the form of a live play and supporting classroom instruction revolving around the benefits of saving. Pre- and post-test results showed that learning and attitude change were inversely related to age, suggesting that earlier education might be more effective. The treatment group was not significantly more likely to engage in savings behavior as a result of the educational intervention.	USA	Modest	N/A	Y	<1	Y	N/A	Live play and classroom instruction
141	Mandell	The Impact of Financial Education in High School and College On Financial Literacy and Subsequent Financial Decision Making	2009	Examines the effectiveness of personal finance education on both financial literacy and behavior in a sample of college and high school students. Finds there is little evidence showing that courses increase financial literacy. However, do find positive impacts on financial behavior.	USA	No	N/A	N	10	N	N/A	Mixed
142	Mandell and Klein	Motivation and Financial Literacy	2009	Examined Jump$tart survey of high school seniors to assess the hypothesis that low financial literacy scores among adults is related to lack of motivation to learn or retain these skills, regardless of participation in personal finance courses. Found that the motivational variables significantly increased ability to explain differences in financial literacy.	USA	No	N/A	N	10	N	N/A	Classroom based seminar
143	Mandell and Klein	The Impact of Financial Literacy Education on Subsequent Financial Behavior	2009	Examined the differential impact on 79 high school students of a personal financial management course completed 1 to 4 years earlier. Findings indicated that those who took the course were no more financially literate than those who had not.	USA	No	N/A	N	Varied	N	N/A	Classroom based courses
144	Mano, Akoten, Otsuka and Sonobe	Assessing the Impacts of Management Skill Training in Ghana and Kenya	2009	Study carries out a randomized experiment in which entrepreneurs in study sites in Kumasi, Ghana, and Nairobi, Kenya receive managerial training, and the improvements in their behaviors and business results are measured. The econometric analysis finds strong evidence of positive training impacts on business practices and performances.	Ghana / Kenya	Yes	N/A	N	9 or 45	N	N/A	Classroom based seminar
145	Martinez, Puentes and Ruiz-Tagle	Micro-Entrepreneurship Training and Asset Transfers: Short Term Impacts on the Poor	2013	RCT of a large-scale publicly run micro-entrepreneurship program in Chile assessing the effectiveness of business training and asset transfers on individual's employment and income. Found significant increases in individuals'	Chile	Yes	Yes	Y	60	Y	Income	Classroom based seminars

				employment and income and improvement of the business practices of its beneficiaries. Effect on wage earners only positive for low income individuals.								
146	Mastrobuoni	Do Better-Informed Workers Make Better Retirement Choices? A Test Based on the Social Security Statement	2007	Analyzed the effect of the provision of information through the Social Security Statement on workers' retirement and claiming decision making. Found that despite the previous availability of information, the Statement has a significant impact on workers' knowledge about their benefits and consequent decisions.	USA	Yes	Yes & No	N	N/A	N	Low-educated workers (Y), black workers (N)	
147	Maurer and Lee	Financial Education with College Students: Comparing Peer- Led and Traditional Classroom Instruction	2011	Project compares the learning gains from teaching financial literacy skills to undergraduate students through multiple methods. Students in the course received extended instruction on budgeting, credit, and other topics. Results found similar gains between methods on shared content and on planned financial behaviors.	USA	Yes	N/A	N	1 or 6.25	N	N/A	Classroom based seminars or peer led discussion session
148	Mayer, Tatian, Temkin and Calhoun	National Foreclosure Mitigation Counseling Program Evaluation- Preliminary Analysis of Program Effects	2009	Studied data from the National Foreclosure Mitigation Counseling program, administered by NeighborWorks America, which provided a foreclosure intervention counseling program in response to the nationwide foreclosure crisis. So far, have found strong evidence to suggest the program is having intended effect of helping homeowners cure existing foreclosures, receive loan modifications, and sustain cures to delinquencies or foreclosures.	USA	Yes	N/A	N	Varied	Y	N/A	Mixed
149	Maynard, Mehta, Parker and Steinberg	Can Games Build Financial Capability?	2012	Evaluated Doorways to Creams ("D2D") Fund's Financial Entertainment innovation, which incorporates financial education into video games. Data suggests that the FE games can be successful at engaging consumers, cultivating financial self-efficacy and financial literacy, and enabling real-world financial action. More rigorous research and testing is needed.	USA	Yes	N/A	N	Varied	N	N/A	Video games
150	Mills, Patterson, Orr, DeMarco	Evaluation of the American Dream Demonstration: Final Evaluation Report	2004	Evaluated the effects of an individual development accounts (IDAs) program (which included financial education classes) on the savings and asset accumulation of low-income individuals. Found that that the Statement significantly improve the decisions of low–educated workers and works with a dependent spouse who usually disregarded their spouse's benefits in their calculations. The information did not seem to help back workers. and black, made, on average, worse retirement decisions, and that workers with a dependent spouse usually disregarded their own spouse's benefits in their calculations. The information contained in the Statement appears to have helped both groups, though with the important exception of black workers.	USA			Y	12			
151	Muller	Does Retirement Education Teach People to Save Pension Distributions?	2003	Examines effect of retirement education on how employees use distributions from their defined contribution pension plans. Found education substantially increases the probability that participants age 40 and under will save a distribution, but decreases the probability that college	USA	No	Yes	N	Varied	N	Age, Gender, Education	Classroom based seminars

				graduates and women will save one.							
152	National Endowment for Financial Education	Financial Management Practices of College Students from Sates with Varying Financial Education Mandates	2009	Uses three categories of financial outcome indicators (financial knowledge, dispositions, and behaviors) to assess the effectiveness of high school financial education programs. Find results vary by state policy (even with host of controls), showing that both social learning and formal education are important determinants of financial behaviors.	USA	No	Yes	N	Varied	N	Program forms	Mixed
153	Norvilitis, MacLean	The Role of Parents in College Students' Financial Behaviros and Attitudes	2010	Examined how parents' teaching and modeling of financial concepts affects college student credit card debt. Parental hands-on mentoring of financial skills was most strongly related to lower levels of credit card debt	USA	Yes	N/A	N	Varied	N	N/A	Parental instruction
154	Osteen, Muske and Jones	Financial Management Education: Its Role in Changing Behavior	2007	The study examined the results of Money 2000TM and its ability to influence behavior and financial preparedness. Participants made greater use of banks and less use of loan and check cashing services, increased savings, and decreased debt. The data supports financial literacy training as enhancing financial well-being.	USA	Yes	N/A	N	3 years	N	N/A	Classroom based seminars
155	Peng, Bartholomae, Fox and Cravener	The Impact of Personal Finance Education Delivered in High School and College Courses	2007	This study investigates the impact of personal finance education delivered in high school and college on investment knowledge and household savings rates measured years after the financial education was delivered. Participation in a college level personal finance course was associated with higher levels of investment knowledge. No significant relationship between taking a high school course and investment knowledge was found. Financial experiences were found to be positively associated with savings rates.	USA	No	No	N	Varied	N	N/A	Varied
156	Querica and Spader	Does Homeownership Counseling Affect the Prepayment and Default Behavior of Affordable Mortgage Borrowers?	2008	Examines the impact of HEC completion on pre-payment and default among borrowers receiving HEC from a variety of providers across 42 states. Found programs based on classroom instruction and individual counseling improves a borrower's exercise of the mortgage prepayment options, though no effect on default propensities.	USA	No	Yes	N	Varied	Y	Different counseling channels	Mixed- classroom based seminars, phone, or home study materials
157	Robb Babiarz Woodyard	The Demand for Financial Professional's Advice: The Role of Financial Knowledge, Satisfaction, and Confidence	2012	Analyzed the effect of using financial advice on personal financial knowledge and satisfaction. Found that financial knowledge (both objective and subjective) and satisfaction are positively related to using any type of financial advice, and specifically with using advice related to investing and saving, mortgage decisions, insurance, and tax planning. In contrast, knowledge and satisfaction are inversely related to the use of debt counseling.	USA	Yes	N/A	N	Varied	N	N/A	Individual counseling
158	Romagnoli & Trifilidis	Does Financial Education at School Work? Evidence from Italy	2013	Examines the effectiveness of a nation-wide initiative by the Bank of Italy and the Italian Ministry of Education that incorporated financial education into school curricula. Knowledge gains are measured via series of tests, results find the education successful in increasing financial knowledge.	Italy	Yes	Yes	N	Varied	N	N/A	Classroom based courses
159	Russell, Mihajilo and Brooks	Saver Plus- encouraging savings and increasing	2007	Report provides results from the second follow-up survey of post-Saver Plus saving behavior. Program includes a	USA	Yes	Yes	N	Varied	N	Income, age, gender	Classroom based seminars and

		financial capabilities among low-income families		matched savings ratio of 1:1, financial literacy education and support from the delivering organizations. Results find significant increases in saving-oriented financial behaviors.								matching program
160	Ryack	The Impact of Family Relationships and Financial Education on Financial Risk Tolerance	2011	This study explores how family relationships and financial education impact financial risk tolerance using a sample of college freshmen and their parents. College students who had some financial education in high school are found to be more risk tolerant, especially when they played a stock market game as part of the course.	USA	No	N/A	N	Varied	N	N/A	Varied – surveyed past exposure to financial education
161	Sanders, Weaver and Schnable	Economic Education for Battered Women: An Evaluation of Outcomes	2007	Looked at the financial literacy outcomes of an economic education program which was created specifically for battered women. Aim of the program was to increase awareness of financial choices, opportunities, and consequences. Found limited gains in financial knowledge and significant improvements in financial self-efficacy.	USA	No	No	N	12	N	N/A	Classroom based seminars
162	Sarr and Sadhu	The Role of Financial Access, Knowledge and Service Delivery in Savings Behavior: Evidence from a Randomized Experiment in India	2013	Details the impacts of a two pronged financial intervention in rural India. First, to promote financial inclusion, CSPs were set up in key rural locations. Financial education classes were also held periodically.	India	Yes	N/A	Y	2	N	N/A	Classroom based seminar
163	Sarr, Sadhu and Fiala	Bringing the Bank to the Doorstep: Does Financial Education Influence Savings Behavior among the Poor? Evidence from a Randomized Financial Literacy Program in India	2012	Explores the uptake of branchless banking in one of the largest banking correspondent programs, FINO. Did a randomized financial literacy training program to FINO clients on the transaction activities in their savings account. Results show a persistent treatment effect on account usage in the short run, with more pronounced effects for females.	India	Yes	Yes	Y	5	N	Gender	Classroom setting where video shown
164	Schreiner and Sherraden	Can the Poor Save?	2007	Examines the effectiveness of Individual Development Accounts in helping the poor to save. Found that savings increase significantly as a result of the first 1 to 10 hours of financial education. Results were not significant for 10 to 20 hours or 20 to 30 hours.	USA	Yes	N/A	N	Varied	Y	N/A	Classroom based seminars
165	Schreiner, Sherraden, Clancy, Johnson, Curley, Grinstein-Weiss, Zhan and Beverly	Savings and Asset Accumulation in Individual Development Accounts: Downpayments on the American Dream Policy Demonstration	2001	Provides midway results of the American Dream Demonstration's intervention, which tests if the introduction of Individual Development Accounts will help the poor save and build financial literacy. Preliminary research suggests increased savings.	USA	Yes	N/A	N	10.5	N	N/A	Classroom based seminars
166	Schug & Hagedorn	Can Charter Schools Improve Financial and Economic Education? The Case of the Milwaukee Urban League Academy of Business and Economics	2004	Describes an inner city charter school the Milwaukee Urban League Academy of Business and Economics that specializes in a business and economics curriculum. Describes the special curriculum in one charter school and present an evaluation of the second year of the effort to implement the curriculum.	USA	Yes	Yes	N	Varied	N	N/A	Classroom based courses
167	Schug, Niederjohn and Wood	Your Credit Counts Challenge: A Model Program for Financial Education for Low and Moderate Income Adults	2006	Reports on the impact on attitudes of a program designed to improve the financial literacy of low- and moderate-income adults. The program involves three national partners-Household International, National Center for Neighborhood Enterprise, and National Council on Economic Education.	USA	Yes	Yes	N	4	N	Income	Classroom based seminar

168	Seligman and Bose	Learning by Doing: Active Employer Sponsored Retirement Savings Plan Participation and Household Wealth Accumulation	2012	Investigated the impact of household exposure to employer pension plan features using the Health and Retirement Survey. Does exposure to active management or participation in plan-sponsored financial education seminars impact household portfolio allocations or wealth? Found that both of the plan features improve asset allocations and financial outcomes for recent retirees, especially when used together.	USA	Yes	Yes	N	Varied	N	N/A	Mixed
169	Servon and Kaestner	Consumer Financial Literacy and the Impact of Online Banking on the Financial Behavior of Lower-Income Bank Customers	2008	Analyzed a demonstration program mounted by a major bank to understand whether access to information and communications technologies, combined with financial literacy training, can help low- and moderate-income individuals in inner-city neighborhoods be more effective financial actors. No significant effects found.	USA	No	N/A	Y	12	N	Only low- to moderate-income studied	Computer based classroom seminars
170	Seshan & Yang	Transnational Household Finance: A Field Experiment on the Cross-Border Impacts of Financial Education on Migrant Workers	2013	Study examined effectiveness of a financial literacy intervention for migrant Indian works in Qatar on the financial decision-making of the migrant workers, migrants' attempts to influence the financial decision-making of their wives in the home country, migrant beliefs about their wives' behaviors, and the wives' actual behaviors. Treatment led to substantial changes in migrant financial practices, and more joint financial decision-making. Migrants with below-median baseline savings are most responsive to the treatment.	Qatar	Yes	Yes	N	5	N	Income	Classroom based seminar and discussion dinner
171	Shelton and Hill	First-Time Homebuyers Programs as an Impetus for Change in Budget Behavior	1995	Examined whether participation in a First-Time Homebuyers Educational Program affects budgeting behavior. Results suggest that the program had a substantial impact on consumers' knowledge, regardless of gender, race, age, education level or income category.	USA	Yes	Yes	N	12	Y	Gender, Age, Income, Education, Race	Classroom based seminars
172	Sherraden, Johnson, Guo and Elliott	Financial Capability in Children: Effects of Participation in a School Based Financial Education and Savings Program	2011	Analyzed an innovative four-year school-based financial education and savings program, "I Can Save", impacts' on financial knowledge. Results suggest young children increase financial capability when they have access to financial education and it is accompanied by participation in financial services.	USA	Yes	N/A	N	150	N	N/A	Classroom based seminars
173	Shim, Barber, Card, Xiao, and Serido	Financial Socialization of First-year College Students: The Role of Parents, Work, and Education	2010	Structural equation modeling from a cross-sectional study indicates that parents, work, and high school financial education during adolescence predicted young adults' current financial learning, attitude and behavior, with the role played by parents substantially greater than the role played by work experience and high school financial education combined.	USA	Yes	N/A	N	Varied	N	N/A	Varied
174	Shim, Xiao, Barber, Lyons	Pathway to Life Success: A Conceptual Model of Financial Well-being for Young Adults	2009	Tested a conceptual model of the potential antecedents and consequences of financial well-being in young adulthood. Results suggest the importance of formal financial education at school in the ways that young adults acquire knowledge about financial matters and form attitudes and behavioral intentions based on that knowledge.	USA	Yes	N/A	N	Varied	N	N/A	Classroom based courses
175	Shockey and Seiling	Moving into Action: Application of the	2004	Study sued the Transtheoretical Model of Behavior Change to assess change in financial behavior among participants	USA	Yes	N/A	N	10	N	Only low-income	Classroom based seminars

		Transtheoretical Behavior Change to Financial Education		enrolled in an IDA financial education program. All six money management behavior means increased.							participants studied	
176	Skimmyhorn	Essays in Behavioral Household Finance: Assessing Financial Education: Evidence from a Personal Financial Management Course	2012	Estimated the effects of the Personal Financial Management Course (PFMC) on retirement savings and other financial outcomes using a RTC within the U.S. Army. Found attendance doubles retirement savings, and has moderately sized beneficial effects for other financial decisions (such as reducing cumulative credit account balances and monthly credit payments).	USA	Yes	N/A	N	8	N	N/A	Classroom based seminars
177	Song	Financial Illiteracy and Pension Contributions: A Field Experiment on Compound Interest in China	2011	Evaluated results from a randomized control trial testing the effectiveness of a financial education program on rural households in China. Found that the financial education treatment had a positive and significant effect on household understanding of compound interest and increased contributions to pension savings.	China	Yes	N/A	Y	N/A	Y	N/A	Individual counseling
178	Sonobe, Suzuki, Otsuka and Nam	KAIZEN for Managerial Skills Improvement in Small and Medium Enterprises: An Impact Evaluation Study in a Kitwear Cluster in Vietnam	2011	Presents preliminary results of ongoing study of a corrective financial education program in a knitwear cluster of industrial development in Hatay, Vietnam. Found training program improved the participants' business practices and their recognition of the importance of management knowledge.	Vietnam	Yes	N/A	Y	N/A	N	N/A	Classroom based seminars
179	Spader, Ratcliffe, Montoya and Skillern	The Bold and the Bankable: How the Nuestro Barrio Telenovela Reaches Latino Immigrants with Financial Education	2009	Evaluates a Spanish telenovela, Nuestro Barrio, in its effectiveness to teach general financial education. The teaching method relies on an incremental build-up of knowledge to sustain long term behavior changes. Found behavioral outcomes are consistent with intended educational effects.	USA	Yes	N/A	N	13	N	N/A	Mass-media telenovela
180	Stuart	Uganda Financial Education Impact Project	2012	Evaluated a Habitat for Humanity financial education intervention in rural Uganda, using Financial Diaries and interviews to gain data about the knowledge, skills, attitudes, and behaviors of the participants. Did not find significant effects of behavior changes.	Uganda	No	N/A	N	7	N	N/A	Classroom based seminars
181	Tennyson and Nguyen	State Curriculum Mandates and Student Knowledge of Personal Finance	2001	Analyzed the relationship between high school students' scores on a test of personal financial literacy and their state's personal finance curriculum mandate. Results showed that students in states that required specific financial education course work scored significantly higher than those in states with either a general mandate or with no mandate.	USA	Yes	N/A	N	Varied	N	N/A	Classroom based courses
182	Tufano, Flacke and Maynard	Better Financial Decision Making Among Low-Income and Minority Groups	2010	Details a Doorways to Dreams Fund (D2D) project which tests the effectiveness of financial education through video games. Geared towards low-income and minority adults, *Farm Blitz* and *Bit Club* are meant to teach effective money management and saving behaviors. Study quantifying effectiveness to come.	USA	N/A	N/A	N	1.5	N	N/A	Video game
183	Varcoe, Martin, Devitto and Go	Using a Financial Education Curriculum for Teens	2005	Examines the effectiveness of the "Money Talks: Should I be Listening?" curriculum on financial knowledge and behavior of teenagers. Findings indicate that using the curriculum improved financial literacy high school students, with positive behavior changes, improved	USA	Yes	N/A	N	Varied	N	N/A	Classroom based seminars

				knowledge, and new skills in making their money go farther.								
184	VISA	Financial Literacy Education in Sub-Saharan Africa	2009	Details the *Visa Financial Literacy Roadshow*, a living tutorial theatre spurred and sponsored by the 2010 FIFA World Cup South Africa, which teaches financial knowledge. Found high understanding and retention of key messages by surveyed audience members.	South Africa, Botswana, Zambia, Kenya	Yes	N/A	N	1	N	N/A	"Industrial Theatre" in townships
185	Walstad, Rebeck and MacDonald	The Effects of Financial Education on the Financial Knowledge of High School Students	2010	Investigates the effects of a financial education program, *Financing Your Future*, on high school student's knowledge of personal finance. Financial knowledge post-intervention scores increased regardless of specific course in curriculum.	USA	Yes	N/A	N	6	N	N/A	Media based classroom learning
186	Wiener, Baron-Donovan, Gross and Block-Lieb	Debtor Education, Financial Literacy and Pending Bankruptcy Legislation	2005	Evaluates a financial education training program for New York residents who had filed for bankruptcy. Results revealed that trained debtor's financial knowledge increased, as did positive financial behaviors such as cautious use of credit cards, paying bills, and budgeting.	USA	Yes	N/A	N	3	Y	N/A	Classroom based seminar
187	Xiao, Serido, and Shim	Financial Education, Financial Knowledge and Risky Credit Behavior of College Students	2010	Examined associations among financial education, financial knowledge, and risky credit behavior of college students. Found that both high school and college personal finance courses are positively associated with subjective financial knowledge, which in turn reduces the chance of engaging in risky credit behavior.	USA	Yes	N/A	N	Varied	N	N./A	Classroom based courses
188	Xiao, Sorhaindo and Garman	Financial Behaviors of Consumer in Credit Counseling	2006	Positive financial behaviors of consumers were examined using a national sample of consumers who use credit counseling services in the US from a behavior economic perspective. Found indicate that consumers in credit counseling may follow a hierarchal pattern- paying off debts and adjusting spending before considering saving.	USA	Yes	N/A	N	Varied	N	N/A	Mixed

GROUP	VARIABLE	DEFINITION
General Study Information	Authors	Authors of the Paper
	Date	Date that paper was published or released as a working paper
Intervention Information	Country	Country in which intervention was conducted
	Years	Years over which intervention was conducted
	Duration	Number of years that intervention lasted
	Intensity	Number of hours in total that were effectively "taught"
	T_after	Amount of time in months elapsed between intervention and endline evaluation
	TT	1=Individuals assigned to intervention treatment were treated; 0=Individuals were offered intervention treatment
	Channel	*Channel of Intervention:* 1=Course Taught in Person; 2=Individual Consulting; 3=Mass Media; 4=Phone; 5=Print; 6=Online; 7=Mixed; 8=Other
	Location	*Location of Intervention:* 1=High School; 2= University; 3= Workplace; 4=Community/Third-Party; 5=Home-based; 6=Other; 7=Mixed; 8=Financial Institution
	Topic	*Topic Taught through Intervention:* 1= Mortgage; 2=Credit Counseling; 3=Business Management; =Savings/Retirement; 5=Other; 6=Mixed
	Method	*Methodology Used to Identify Impact of Intervention:* 1=Randomized Control Trial; 2=Natural Experiment; 3=Non-experimental regression analysis
	Journal	*Publication in which Study of Intervention Appeared:* 1=Peer-reviewed Journal; 2=Non-academic Publication or Book; 3=Academic Working Paper
Estimation Information	DV_id	ID assigned to dependent variable (see Dependent Variable ID Legend)
	DepVar	Name of dependent variable
	tm	*Teachable Moment Intervention:* 1=Intervention directly linked to behavior/action soon to take place; 0=Intervention does not involve teachable moment
	f	*Function of the dependent variable:* 1=Level; 2=Logarithm; 3=Z-score; 4=Binary; 5=% in 0 to1; 6=% in 0 to 100
	SR	*Self-Reported Data:* 1=Data is self-reported; 0=Data is not self-reported
	cmean	Control mean of dependent variable
	csd	Control standard deviation of dependent variable
	mean	Mean of dependent variable
	SD	Standard deviation of dependent variable

	beta	Estimated coefficient
	SE	Standard error of the estimated coefficient
	pv	p-value associated with estimation of the beta coefficient
	tvalue	t-value associated with estimation of the beta coefficient
	Sample	From the total set of individuals that participated in the intervention, which sample was used in the estimation?
	N	Number of observations used in the estimation

	doff	Degrees of freedom of estimation (N minus the number of regressors used in the estimation)

DEPENDENT VARIABLE ID	THEME	DESCRIPTION
S01	Savings	Binary: 1 = saves at least something (in a given period of time in the past); 0 = if not
S02	Savings	Total amount of money saved
S03	Savings	Savings rate: total savings in a given period divided by total income in a given period
S04	Savings	Total amount of money saved in a given period (e.g. amount saved last month)
S05	Savings	Change in contribution rate to retirement savings plan
S06	Savings	Change in participation rate to retirement savings plan
S11	Savings	Binary: 1 = contributed to retirement savings (in a given period of time in the past); 0 = if not
S12	Savings	Total amount of money allocated as retirement savings
T13	Savings	Retirement savings rate: total retirement savings in a given period divided by total income in a given period
T14	Savings	Total amount of money allocated for retirement in a given period (e.g. amount allocated for retirement savings last month)
T16	Savings	Participation rate for retirement savings plan
B01	Borrowing	Binary: 1 = borrows or has borrowed at least something; 0=if not
B02	Borrowing	Total amount of money borrowed
B03	Borrowing	Borrowing rate: total borrowing in a given period divided by total income in a given period
B04	Borrowing	Total amount of money borrowed in a given period (e.g. amount borrowed last month)
B05	Borrowing	Credit score
B06	Borrowing	Binary: 1 = has defaulted on a loan; 0 = if not
B07	Borrowing	Credit score (binary over cutoff)
B11	Borrowing	Binary: 1 = was bankrupt; 0 = if not
T01	Financial Literacy Test Score	Score on a financial literacy test that evaluates content of financial literacy intervention
T02	Financial Literacy Test Score	Dummy indicating whether above/below a predetermined financial literacy score
A01	Opening of Accounts	Binary: 1 = opened any bank account (in a given period of time in the past); 0 = if not
A02	Opening of Accounts	Binary: 1 = opened a savings account (in a given period of time in the past); 0 = if not
A03	Opening of Accounts	Binary: 1 = has any bank account (in a given period of time in the past); 0 = if not
A04	Opening of Accounts	Binary: 1 = has a credit card (in a given period of time in the past); 0 = if not

R01	Recordkeeping / Budgeting	Binary: 1 = keep records (in a given period of time in the past); 0 = if not
R02	Recordkeeping / Budgeting	Binary: 1 = knows how to make a budget (expense + income); 0 = if not
R03	Recordkeeping / Budgeting	Binary: 1 = set financial goals (in a given period of time in the past); 0 = if not
R04	Recordkeeping / Budgeting	Binary: 1 = makes budget (in a given period of time in the past); 0 = if not
R05	Recordkeeping / Budgeting	Binary: 1 = separates business and personal accounts (in a given period of time in the past); 0 = if not
DQ01	Delinquencies	Varied
IA01	Investments / Assets	Varied
IA02	Investments / Assets	Stock Ownership
K01	Knowledge - other	Know difference: discretionary & non-discretionary
K02	Knowledge - other	Understands interest rate
K03	Knowledge - other	Can compare financial options
N01	Intention to do something	Intention to save
P01	Participation	Discusses financial matters with parents, peers, etc
X01	Behavior - other	Uses an informal saving plan
X02	Behavior – other	Reached saving goal
PS01	Psychology / Personality	Varied

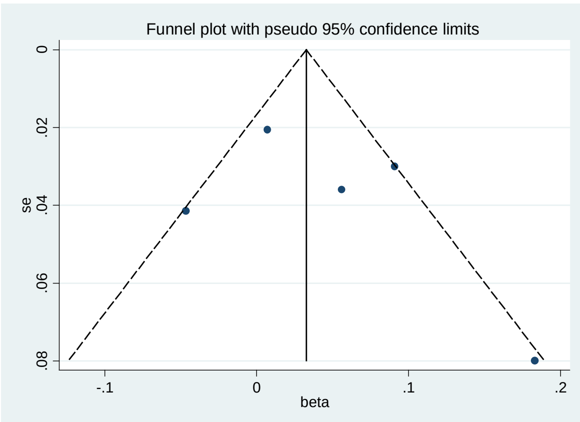
Appendix 2:
Additional Meta-Analysis

In this paper we chose to use a random effects model using the method of DerSimonian and Laird (1986), which is a variation on the inverse-variance method in order to incorporate the assumption that the different studies are estimating different, yet related, intervention effects. The Stata command used is *metan*. This produces a random-effects meta-analysis, and the simplest version is known as the DerSimonian and Laird method. To undertake a random-effects meta-analysis, the standard errors of the study-specific estimates are adjusted to incorporate a measure of the extent of variation, or heterogeneity, among the intervention effects observed in different studies. The amount of variation, and hence the adjustment, can be estimated from the intervention effects and standard errors of the studies included in the meta-analysis.

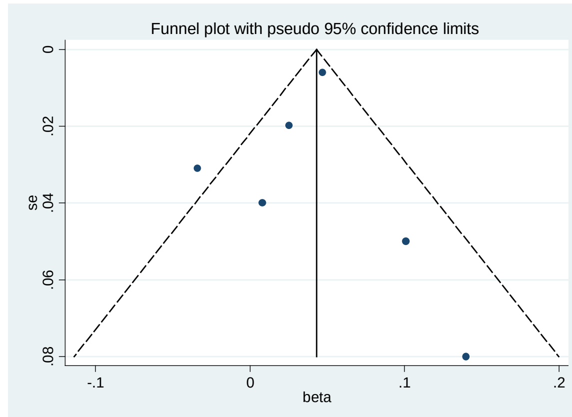
On the other hand, a meta-analysis regression routine intends to investigate the extent to which statistical heterogeneity between results of multiple studies can be related to one or more characteristics of the studies. In this case, we perform a random-effects meta-regression with the use of the Stata command *metareg*, which uses the effect estimates and its standard error for each study in an equivalent way as the *metan* command does for the meta-analysis described above. In summary, this procedure first estimates the between-study variance, and then estimates the coefficient corresponding to the study characteristic by weighted least squares, using the weights $1/(x_i + y_i)$, where x_i is the between-study variance and y_i is the standard error of the estimated effect in each study i. The graphs shown below plot each study in circles, where the size of the circle corresponds to its weight, and a line whose slope is the resulting coefficient associated with the study characteristic.

Funnel Plots to evaluate publication bias by outcome variable.

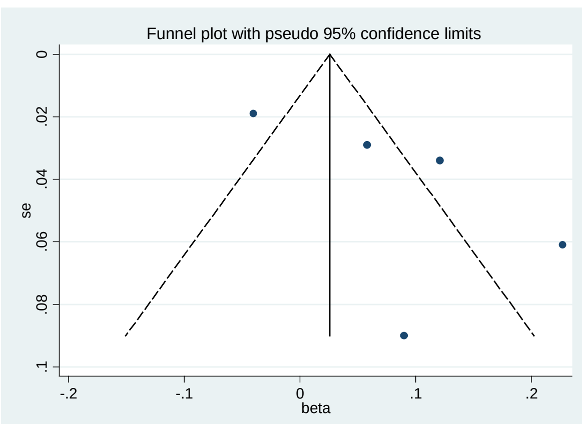
Record keeping



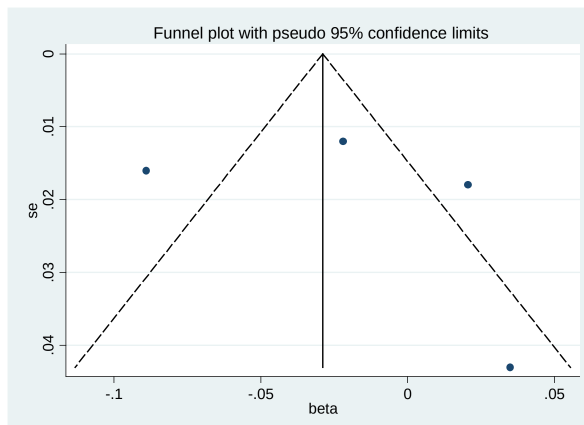
Savings



Retirement



Loan Defaults



Appendix 3:
Ways to Strengthen the Body of Research on
Impact Analysis of Financial Literacy and Capability Interventions

1) Report fully on the intervention being tested.

Basic data on the intervention(s) being tested should be clearly reported in any impact evaluation. For meta-analysis in this paper, the following data were coded for each study when available.

a. Country where the intervention occurred
b. Year when the intervention occurred
c. Duration of the intervention (period of time over which the intervention occurred)
d. Intensity of the intervention[13] (time that students/ subjects were directly engaged in the intervention)
e. Main intervention channel (1= course taught in person; 2= individual consulting; 3= mass media; 4=phone; 5=print; 6=online; 7=mixed)
f. Main Location of financial literacy (1=High School; 2= University; 3= Workplace; 4= Community/Third Party; 5= Home-based; 6= other; 7=mixed; 8=financial institution)
g. Main Topic of financial education (1= Mortgage; 2=Credit Counseling; 3= business management; 4=savings/retirement; 5=other; 6=mixed)
h. Main Methodology used to identify impact of intervention (1=RCT; 2=Natural Experiment; 3=Non-experimental regression analysis)
i. Indication if people who were assigned to treatment were actually treated
j. Level of Peer Review (1 = study published in peer reviewed journal; 2 = appears in non-academic publication; 3 = academic working paper)
k. Amount of time elapsed between intervention and evaluation (in months)

Based upon insights from literature on this topic, some additional data which should be reported upon in papers includes:

l. Linked directly with a "teachable moment" – Is the financial education intervention linked to a financial decision or opportunity immediately available for participants?
m. Indication of motivation – Do participants volunteer or self-select into the training / intervention or are they required to participate?
n. Leveraging social relationships – Does the intervention leverage or involve social relationships (parents and children; remittance senders and receivers; co-workers; spouses; peers; etc.)?
o. Training for instructors – What training or specific skills do any instructors have in financial education?
p. Provide links to the actual financial education materials when possible.

Multi-country studies which evaluate the same (or a very similar) intervention should also be encouraged to add to insights on what elements of an intervention are most critical for success.

[13] To understand the difference between duration and intensity, imagine a 6 week course that meets for two hours each week. The duration is 6 weeks and the intensity is 12 hours.

2) **Report on the cost of the financial education intervention**

There is virtually no reporting on the cost of the financial education intervention in papers which evaluate impact. The following issues should be addressed to clarify the value proposition of any particular intervention.

a. Total direct cost of providing the financial education intervention. This data should include any development costs, licensing materials, paying instructors, print materials, technology costs, counseling expenses (for one-on-one support), etc.
b. Estimated per person cost for the intervention. This could be presented in the context of the specific intervention being reported upon (which may be a pilot in some cases) and estimated for eventual roll out to a larger audience.
c. Cost of the impact evaluation indicating cost of data collection (by survey or administrative data) and analysis / research.
d. Any imbedded or indirect costs (teacher time dedicated to financial education; work time spent by employees in financial education; etc.)

Where possible, more than one intervention or combination of interventions should be evaluated to determine the most cost effective approach. This may include other types of actions such as choice architecture, defaults, generic products, etc. as well as financial education activities.

3) **Improve the comparability of research through increased standardization in how outcomes are measured** *(including the measurement of financial knowledge / capability)*

Comparing results across studies is facilitated when the interventions are similar (or at least when differences in the interventions can be accounted for – see point #1 in this Appendix) and when common outcome indicators are used in the empirical tests. The literature on financial capability interventions does not currently have standardized metrics to determine whether an intervention was successful. Instead, outcome measures are highly specific to each study which makes comparison difficult. The following suggestions could increase comparability of results:

a. Use common measurement tools for financial knowledge, financial capability and psycho-social traits. There are several widely available survey tools which can be used including the core financial knowledge questions used by Lusardi and Mitchell, the World Bank survey for financial capability and consumer protection and the OECD survey for financial literacy. The World Bank survey is formulated with lower income, lower access environments in mind, such as those found in many developing countries and includes psycho-social indicator questions.
b. Increase the use of binary dependent variables when evaluating the impact of financial capability interventions. When the dependent variable is too narrowly defined it becomes hard to compare impacts across studies. In addition to study-specific variables, there may often be scope for organizing the results according to more general descriptive variables such as binary variables which indicate whether any impact was noted (i.e. an increase in savings, a reduction in defaults, opening an account, etc.). Some specific recommendations for binary variables include the following:
    i. Savings (increase in total savings = 1; increase in savings in specific account = 1; increase in savings with provider = 1)

ii. Wealth (increase in total assets = 1; increase in financial assets = 1)
iii. Credit (defaulted on a loan = 1; late on a credit payment in last 6 months = 1; credit score improved = 1; reduced total debt = 1)
iv. Financial inclusion (opened an account = 1; use formal sources of credit = 1; use mobile payments = 1)
v. Pension / retirement (enrolled in pension plan = 1; increased contribution to retirement savings / plan = 1; delayed age for taking pension benefits = 1)
vi. Record keeping and budgeting (initiated record keeping = 1; uses a budget to plan and track expenditures = 1; follows budget = 1)

c. There are also ways to facilitate comparison of continuous data across studies including by providing information on income and assets as well as financial data so that figures can be scaled. In terms of credit, including data on loan maturity, interest rates, monthly payments and whether the loan is secured or unsecured can also facilitate more relevant comparisons.

4) **Register studies (prior to results) and report on results afterward** – In the medicine and public health literature in particular, there are several registries for research studies and clinical trials. These include the listing of clinical trials administered by the U.S. National Institutes of Health (http://clinicaltrials.gov/) as well as the Cochrane Collaboration(http://www.cochrane.org/) for evidence based health care and the Campbell Collaboration which is an international research network that systematically reviews social research (http://www.campbellcollaboration.org/).

These networks promote knowledge sharing and communities of practice as well as increase transparency (and perhaps reduce publication bias) by encouraging researchers to register their projects before results are available. The databases that can be developed through these collaborative endeavors can be used for meta-analysis and other systematic reviews of the literature and findings. In economic research, there are new efforts underway to create similar registries, for instance the American Economic Association Social Science RCT Registry (https://www.socialscienceregistry.org) and the 3ie and RAND collaborative effort for experimental and quasi-experimental evaluations (http://www.3ieimpact.org/en/evaluation/ridie). Ongoing and new research should take advantage of these registries.