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This issue brief summarizes the findings from a paper titled “Financial education affects financial knowledge and downstream behaviors,” recently published in the [Journal of Financial Economics](#). The corresponding author for this issue brief and the full paper is Annamaria Lusardi ([alusardi@gwu.edu](mailto:alusardi@gwu.edu)).

## Financial Education Matters: Testing the Effectiveness of Financial Education Across 76 Randomized Experiments

### Summary

Do financial education programs affect financial knowledge and behaviors? We examine this question using a meta-analysis that incorporates studies from the past decade, which saw a rapid increase in financial education research. When examining data from 76 financial education randomized experiments across 33 countries covering over 160,000 individuals, we find that financial education improves both financial knowledge and financial behavior. Further, we see that financial education is cost-effective. On average, financial education program costs are deemed “low.” The magnitude of the effect of financial education on financial behaviors is deemed “medium,” while the effect on financial knowledge is considered “large.” Financial education positively impacts nearly all financial behaviors we studied (that is, behaviors related to budgeting, saving, credit and insurance).

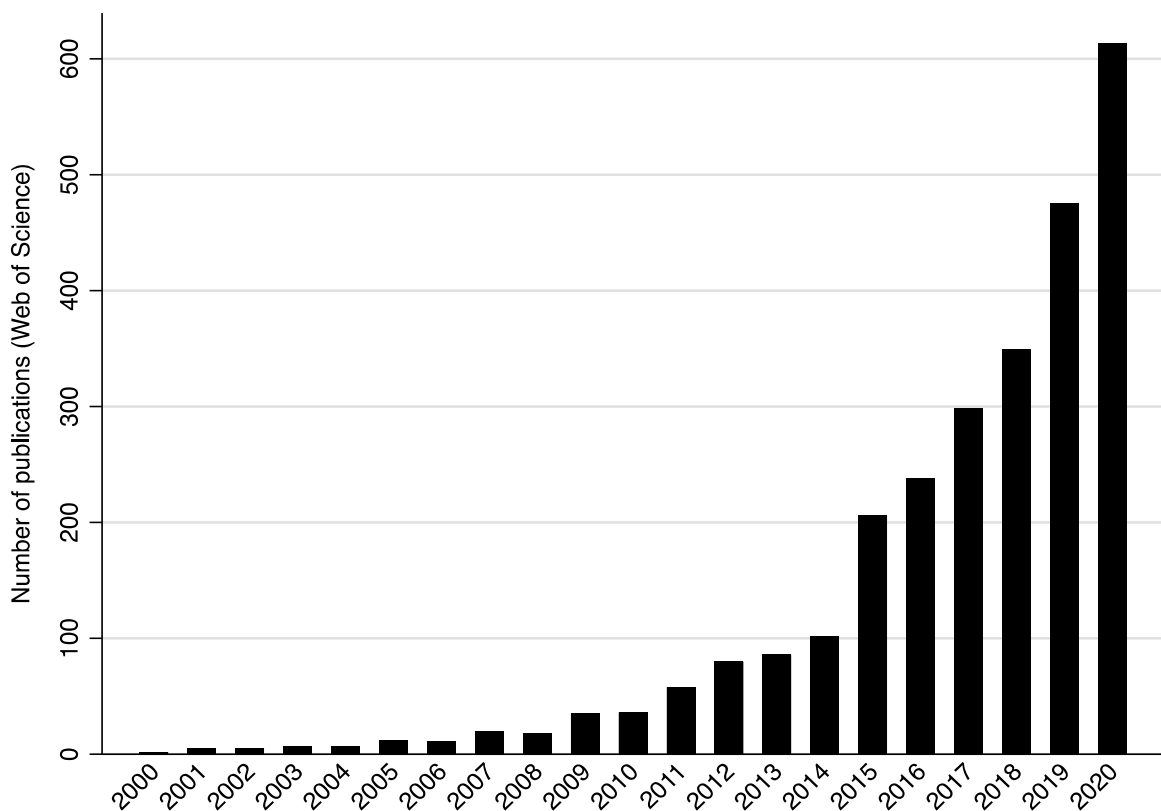
The effects of the financial education interventions on financial knowledge are comparable to interventions designed to improve math and reading scores. Comparing our findings to a popular 2014 meta-analysis on the same topic, our findings suggest that financial education interventions are 3 to 5 times as effective in improving financial knowledge and behaviors than the earlier study found.

### Background

The implementation of national strategies promoting financial literacy and the design of financial education policies have become a priority for policymakers worldwide. Many of the largest economies—including most Organisation for Economic Co-operation and Development (OECD)<sup>1</sup> member countries, India and China—have implemented policies enhancing financial education to promote financial inclusion and financial stability.<sup>2</sup> Together, these financial education policies seek to reach more than five billion people in 60 countries, and the number of countries joining this effort continues to grow.

Despite the many initiatives to foster financial literacy, the effectiveness of financial education is still debated. Much of this debate stems from the findings of a 2014 meta-analysis that examined 13 experimental evaluations and showed muted effects of financial education on financial behaviors.<sup>3</sup> However, Figure 1 shows that since 2014, research in the financial education field has grown rapidly. Thus, our study takes stock of the recent empirical evidence documented in randomized experiments and provides an updated and more robust analysis of the existing work. We study 76 financial education experiments across 33 countries to ask: Does financial education affect financial knowledge and/or financial behaviors?

**Figure 1: Number of journal articles on financial literacy in the Web of Science per year**



Notes: Number of journal articles within the social science citation index (Web of Science) that include the term “financial literacy” in the title or the abstract.

## What is Considered Financial Education in the Literature?

While financial education is often considered one classification of intervention, the variety of programs classifying themselves as financial education programs is vast. Programs vary in duration, intensity and populations served, and also the interventions themselves. Below are some non-exhaustive examples of interventions studied in the papers comprising this meta-analysis.

Examples of interventions in school and the workplace	Examples of interventions in other settings
<ul style="list-style-type: none"> <li>▶ Workplace financial education via benefit fairs<sup>4</sup></li> <li>▶ Personal finance coursework in schools<sup>5</sup></li> <li>▶ One-on-one financial coaching<sup>6</sup></li> <li>▶ “Educative nudges” that provide information<sup>7</sup></li> <li>▶ Classroom use of The Stock Market Game™<sup>8</sup></li> </ul>	<ul style="list-style-type: none"> <li>▶ Local experts answering questions and providing financial information to individuals<sup>9</sup></li> <li>▶ A workshop shaping financial education around motivational content<sup>10</sup></li> <li>▶ Financial education on mainstream television<sup>11</sup></li> </ul>

These examples of financial education highlight the differences that exist across programs. In addition to the interventions themselves, study populations vary in age, socioeconomic status and other attributes. In the studies under examination, the design of financial education programs addressed the variety of financial challenges different populations experienced.

Though interventions are diverse, this study aggregates all financial education interventions together. This practice is common in other fields to estimate a general effect size. Estimating this effect allows researchers to know how the broad intervention—financial education in this case—compares to other possible policy levers. This way, policymakers do not rely on only a few studies in making decisions but an entire body of evidence. Of course, policymakers can always use specific papers to inform policy decisions that make sense for a population of interest (e.g., age group, country). A meta-analysis takes a 10,000-foot view of the literature.

## Methods

A meta-analysis is a statistical tool that aggregates the results of many different studies on a particular topic to summarize a body of research. In this case, we use a meta-analysis to examine the overall effectiveness of existing financial education interventions. To ensure studies of poor quality do not influence our results, we restrict the analysis to randomized controlled trials (RCTs), a study design that allows a causal interpretation by randomly assigning participants into either an experimental group or a control group. RCTs are often considered the gold standard of causal research designs.<sup>12</sup>

We make two changes to the original meta-analysis by Fernandes et al. (2014) to determine the average effect of financial education on financial knowledge and behaviors across many studies.<sup>13</sup>

- ▶ We increased the studies included in the meta-analysis from 13 to 76 randomized experiments. These 76 experiments cover more than 160,000 individuals in 33 countries.
- ▶ In addition to using the models Fernandes and colleagues used, we also consider differences across programs. Simply stated, using a more sophisticated model, we do not assume that a brochure and a six-month class should have the same effect size.

In this brief, we report three estimates: (A) for comparative purposes, we report the initial estimates Fernandes et al. (2014) documented; (B) the estimates with our updated data and the original model from Fernandes et al. (2014); and (C) the estimates with our updated data and a model that accounts for differences across programs.

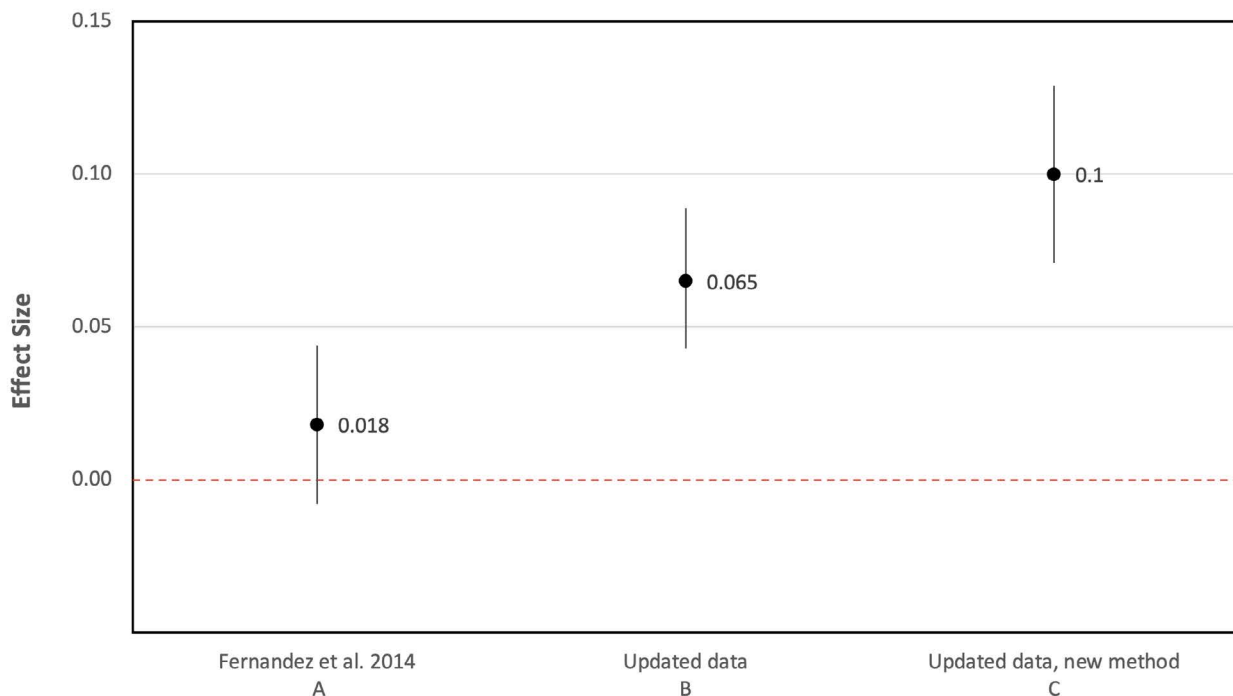
## Findings

The findings from our meta-analysis are clear-cut: Financial education improves financial knowledge and financial behaviors. The magnitude of effects on knowledge are comparable to documented educational interventions in math and reading.<sup>14</sup>

### Overall Effectiveness of Financial Education

For every experiment in our sample, we rescale the results to effect size units that measure the change in outcomes due to the financial education program in standard deviations—a measure that reflects effect size relative to how much the outcome varies across the individuals in the study sample. Figure 2 shows the estimates of the effects of financial education on financial behaviors, measured in standard deviation—or relative effect size—units. We further report the 95 percent confidence interval—a range of estimates where the effects are unlikely to come about due to chance. Using the same methods that Fernandes et al. (2014) employed but on our larger sample of studies, we find the effect of financial education on financial behaviors is more than three times larger than the original study’s estimate (comparing Estimate A and Estimate B in Figure 2). Further, when we account for the fact that programs are unlikely to all have the same magnitude of effect (as is common practice in meta-analyses across fields), our effects are more than five times as large as those in the original study (comparing Estimate A and Estimate C in Figure 2).

**Figure 2: Effects of financial education on financial behaviors across models**

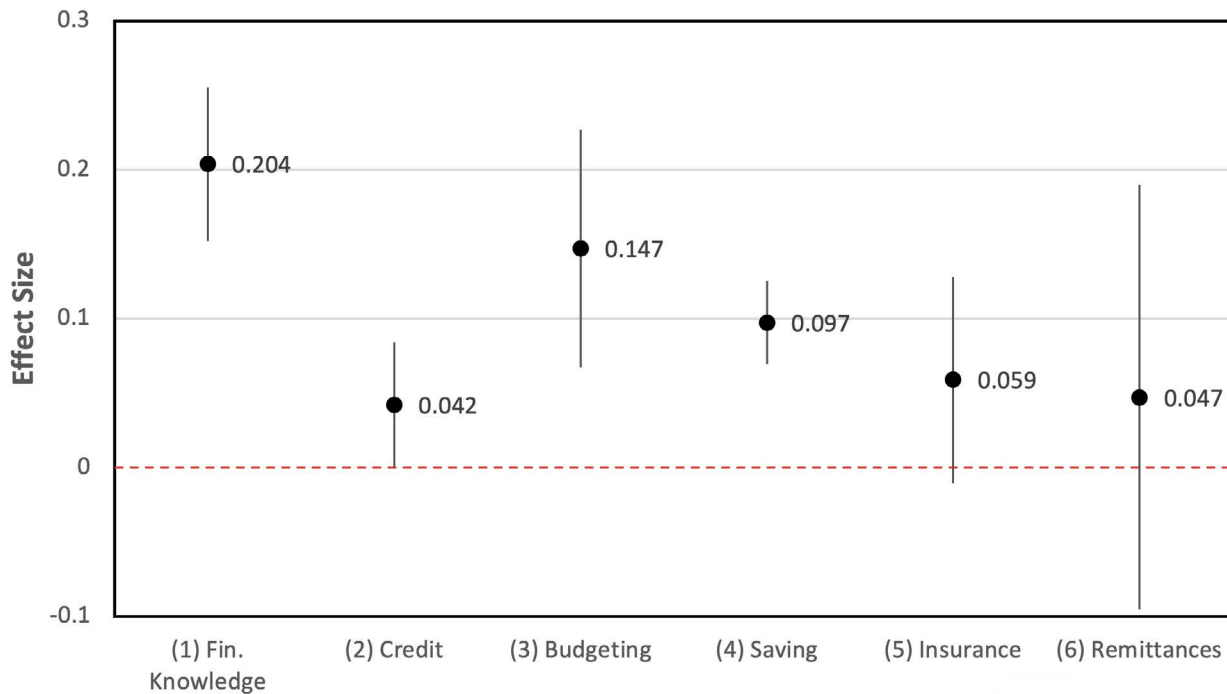


Notes: This figure depicts the effect of financial education on financial behaviors depicted in standard deviation units along with their respective margins of error. Estimate A is the effect obtained directly from Fernandes et al. (2014). Estimate B uses our new data (all studies completed before January 2019) and the estimation method employed by Fernandes et al. (2014). Estimate C uses our new data and a new estimation method that allows for differences across programs more appropriate for meta-analysis.

### Financial Education Effect on Specific Financial Behaviors

Is financial education more effective in changing some outcomes than others? Our research finds that the effects are largest on financial knowledge, though we find positive effects across nearly all financial behaviors we study (Figure 3). Financial education improves behaviors related to budgeting, saving and credit. The evidence regarding the effects of insurance and remittance payments is less conclusive: There are possible effects on insurance and remittances, but these are not precisely estimated.

**Figure 3: Effects of financial education across outcomes**



Notes: This figure depicts the effect of financial education on each outcome depicted in standard deviation units.

### Cost-effectiveness of Financial Education

We interpret the magnitude of the effects using a set of guidelines designed specifically for causal research on education interventions. These guidelines incorporate cost in determining the policy importance of interventions.<sup>15</sup> The guidelines suggest the effects of the financial education interventions on financial behaviors can be considered of “medium” size. Further, using data collected on the cost per participant (for all studies reporting this information), we also find that, on average, interventions are relatively “low cost” for a medium effect size.<sup>16</sup> This suggests that financial education is, on average, cost-effective.

To put the effects into further context, our results on financial knowledge are comparable to meta-analyses studying the effects of math and reading education.<sup>17</sup> Similarly, our results on financial behaviors are comparable to meta-analyses of anti-smoking interventions, tailored online health interventions and energy conservation.<sup>18</sup>

## Longer-Term Effects of Financial Education

We find no evidence to support or refute the decay of effects over time. We urge more researchers to estimate the long-run effects of educational interventions years after the education occurred.

## Takeaways

Our findings show that financial education, on average, improves financial knowledge and downstream financial behaviors. The interventions particularly improve financial knowledge, budgeting and savings behavior, with the improvements in financial knowledge of comparable size to those made in educational interventions in math and reading. Contrary to prior work, we find no clear evidence to support or deny that the effects of financial education diminish over time, and a research need persists for more studies that examine the longer-term impact of financial education interventions.

While the findings do not suggest that all financial education initiatives produce similar results, they provide robust evidence that financial education, on average, is a cost-effective method of increasing financial knowledge and improving financial behaviors. These insights are critical to a broad range of stakeholders tasked with improving people's financial capability amidst an increasingly complex financial world. At the same time, we caution readers that the vast variability in study design means that not all programs are effective. Further, as policymakers and practitioners continue to create innovative financial education programs, researchers must evaluate their effectiveness to inform best practices.

Several avenues remain critical for future research. First, continued research examining which programs can produce the greatest benefits at minimum costs—or at scale—is important for helping policymakers design policies that assist individuals worldwide in achieving financial wellbeing. Second, more research should investigate which types of programs are most effective for vulnerable and financially constrained populations. Third, while we show that financial education can improve average outcomes, we acknowledge that systemic barriers to access and distortions in the financial system exist. Thus, additional research is needed to understand how lifting barriers can complement financial education efforts.

## Acknowledgement

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For access to the full report, please see one of the following outlets:

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## About the National Endowment for Financial Education

The National Endowment for Financial Education (NEFE) champions effective financial education. NEFE is the independent, centralizing voice providing leadership, research and collaboration to advance financial well-being. As one of the first organizations to embark on the mission of wholly dedicating its efforts on improving the effectiveness of financial education, NEFE continues its legacy of strengthening action-oriented research agendas, mobilizing intermediaries, and creating better solutions for researchers, educators, practitioners and policymakers. For more information, visit [www.nefe.org](http://www.nefe.org).

## About the FINRA Investor Education Foundation

The FINRA Investor Education Foundation supports innovative research and educational projects that give underserved Americans the knowledge, skills and tools to make sound financial decisions throughout life. For more information about FINRA Foundation initiatives, visit [www.finrafoundation.org](http://www.finrafoundation.org).

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## Endnotes

1. The OECD consists of 38 (as of January 2022) member countries that collaborate to shape social and economic policy.
2. See the [OECD recommendation for financial literacy](#).
3. Fernandes et al. (2014).
4. Duflo and Saez (2003).
5. Alan and Ertac (2018); Bruhn et al. (2016); Frischno (2018); Lührmann et al. (2018).
6. Carpena et al. (2017).
7. Boyer et al. (2020); Choi et al. (2010).
8. Hinojosa et al. (2010).
9. Flory (2018).
10. Seshan and Yang (2014).
11. Berg and Zia (2017).
12. Studies included in this meta-analysis were obtained from a search of all relevant databases for journal articles and working papers. Studies with working papers or published papers that appeared in January 2019 or earlier were included in the meta-analysis.
13. In addition to these changes, we show models that adjust for publication bias. This means we consider the possibility that the results of some experiments were never published, which could thus overstate (or understate) our effects. Using new methods in meta-analysis to account for this phenomenon, we show that our results remain qualitatively unchanged after this adjustment.
14. Hill et al., 2008; Cheung and Slavin, 2016; Fryer, 2016; Kraft, 2020.
15. Kraft (2020).
16. Kraft (2020).
17. See Hill et al. (2008); Cheung and Slavin (2016); Fryer (2016); Kraft (2020).
18. Rooney and Murray (1996); Portnoy et al. (2008); Noar et al. (2017); Karlin et al. (2015).

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