

DIW Weekly Report

A policy bulletin from the German Institute for Economic Research

38 2021

Economy. Politics. Science.

DIW BERLIN



287 Report by Tim Kaiser and Lukas Menkhoff

Financial education measures are effective: Germany should develop a national strategy for financial education

- Meta-analysis investigates the effectiveness of financial education measures
- Financial education has a significantly positive effect on financial knowledge and behavior
- Thus, a strategy for financial education should be developed in Germany

LEGAL AND EDITORIAL DETAILS



DIW Berlin — Deutsches Institut für Wirtschaftsforschung e.V.

Mohrenstraße 58, 10117 Berlin

www.diw.de

Phone: +49 30 897 89-0 Fax: -200

Volume 11 September 22, 2021

Publishers

Prof. Dr. Tomaso Duso; Prof. Marcel Fratzscher, Ph.D.; Prof. Dr. Peter Haan;
Prof. Dr. Claudia Kemfert; Prof. Dr. Alexander S. Kritikos; Prof. Dr. Alexander
Kriwoluzky; Prof. Dr. Stefan Liebig; Prof. Dr. Lukas Menkhoff; Prof. Karsten
Neuhoff, Ph.D.; Prof. Dr. Carsten Schröder; Prof. Dr. C. Katharina Spiess;
Prof. Dr. Katharina Wrohlich

Editors-in-chief

Sabine Fiedler; Dr. Anna Hammerschmid (Acting editor-in-chief)

Reviewer

Prof. Dr. Dorothea Schäfer

Editorial staff

Prof. Dr. Pio Baake; Marten Brehmer; Rebecca Buhner; Claudia Cohnen-Beck;
Dr. Hella Engerer; Petra Jasper; Sebastian Kollmann; Sandra Tubik;
Kristina van Deuverden

Sale and distribution

DIW Berlin Leserservice, Postfach 74, 77649 Offenburg

leserservice@diw.de

Phone: +49 1806 14 00 50 25 (20 cents per phone call)

Layout

Roman Wilhelm, Stefanie Reeg, DIW Berlin

Cover design

© imageBROKER / Steffen Diemer

Composition

Satz-Rechen-Zentrum Hartmann + Heenemann GmbH & Co. KG, Berlin

ISSN 2568-7697

Reprint and further distribution—including excerpts—with complete
reference and consignment of a specimen copy to DIW Berlin's
Customer Service (kundenservice@diw.de) only.

Subscribe to our DIW and/or Weekly Report Newsletter at

www.diw.de/newsletter_en

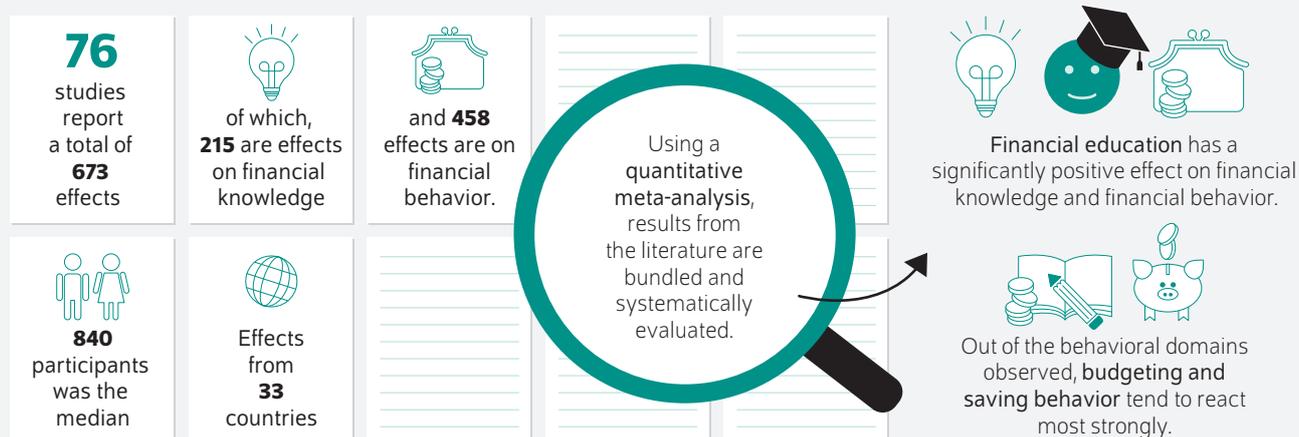
AT A GLANCE

Financial education measures are effective: Germany should develop a national strategy for financial education

By Tim Kaiser and Lukas Menkhoff

- Germany is almost the only OECD country without a national strategy for financial education, in part due to doubts about its effectiveness
- This report investigates the effectiveness of financial education measures
- Seventy-six randomized experimental studies are identified in a systematic literature review and examined using a quantitative meta-analysis
- Financial education has a significantly positive effect on financial knowledge and behavior
- Thus, as the OECD recommends, a strategy for financial education in Germany should be developed

The effectiveness of financial education measures is well proven – Germany should develop a national strategy in this area



Source: Authors' own calculations based on a meta-analysis.

© DIW Berlin 2021

FROM THE AUTHORS

“Our meta-analysis was able to debunk the hypothesis that financial education is ineffective. Now, the concern about ineffectiveness no longer stands in the way of developing a national strategy for financial education in Germany.”

— Lukas Menkhoff —

MEDIA



Audio Interview with L. Menkhoff (in German)
www.diw.de/mediathek

Financial education measures are effective: Germany should develop a national strategy for financial education

By Tim Kaiser and Lukas Menkhoff

ABSTRACT

The OECD recommends its member countries implement national strategies for financial education. Many other countries, such as China and India, also have such strategies, whereas Germany does not. The strongest reason for rejecting such a strategy is the supposition that financial education interventions are ineffective. Using all available randomized experimental studies, this study investigates and unequivocally rejects this hypothesis. On average, financial education interventions are significantly effective and the extent is similar to comparable (educational) interventions. While it is possible that individual interventions may fail, these failures are exceptions. Overall, financial education works: It works also even if is short-lived, if its effectiveness is not verified for over a year, if circumstances are difficult, and if teaching approaches are conventional. The argument that financial education is ineffective is thus invalidated and, against this background, German policymakers can move forward in implementing the OECD recommendations.

Since 2005, the OECD has been recommending that its member countries include financial education as a mandatory part of school curricula.¹ Since then, almost all OECD members have introduced national strategies for financial education. In addition, since 2012, results on financial literacy have also been collected as part of PISA, the OECD comparative school survey.

However, Germany remains behind in this development: there is no country-wide school subject for financial or economic literacy. Germany is one of only two OECD countries without a national strategy for financial education and one of 18 OECD countries not participating in the PISA comparison of students' financial literacy.² Evidently, there are reservations against financial education measures in Germany. In addition to a debate about educational objectives (which cannot be addressed here in detail), the strongest counterargument is its assumed ineffectiveness.³ In the following sections, this hypothesis is tested and, based on the available evidence, invalidated.

Existing evidence systematically bundled and evaluated using a meta-analysis

The first step in this analysis is to collect all existing empirical studies on the effectiveness of financial education that meet high methodological standards.⁴ The results of these studies are summarized and evaluated using a quantitative meta-analysis, which enables a systematic literature review and ultimately answers the question, *Is financial education*

¹ OECD, *Recommendations on Principles and Good Practices for Financial Education* (OECD Publishing: 2005).

² For the countries with strategies for financial education, see OECD, *National Strategies for Financial Education, OECD/INFE Policy Handbook* (OECD Publishing: 2015); for the countries participating in the PISA assessment of financial education, see OECD, *PISA 2018 Results: Are Students Smart about Money?* (OECD Publishing: 2020).

³ In the academic literature, the following study is often cited: Daniel Fernandes, John G. Lynch, and Richard G. Netemeyer, "Financial Literacy, Financial Education, and Downstream Financial Behaviors," *Management Science* 60, no. 8 (2014): 1861–1883.

⁴ This report is based on the following study: Tim Kaiser, Annamaria Lusardi, Lukas Menkhoff, and Carly Urban (forthcoming), "Financial Education Affects Financial Knowledge and Downstream Behaviors," *Journal of Financial Economics*. An earlier version is available as *DIW Discussion Paper* no. 1864 (available online; accessed on September 1, 2021. This applies to all other online sources in this report unless stated otherwise).

actually effective? The method of a quantitative meta-study is particularly suited here due to a strongly growing literature on financial education (Figure 1).⁵

Meta-analysis based on 76 studies on financial education

A meta-analysis must include all relevant literature. Therefore, numerous databases were searched to gain as complete an overview as possible. Here, three inclusion criteria were used: 1) Studies must report the causal effects of educational interventions on the financial knowledge and/or financial behavior of participants; 2) The study participants must be assigned to the treatment or control group randomly; and 3) The studies must provide a quantitative assessment so that an effect size as well as the associated standard error can be obtained. Randomized control trials (RCTs) fulfill these criteria. RCTs measure the intervention impact very precisely and tend to show empirically lower effectiveness than less sophisticated methodological measures, such as simple before and after comparisons.⁶

Based on these three criteria, 76 RCTs involving over 160,000 participants were identified in January 2019. The studies span 33 countries, with the most evidence coming from the United States and the second most from India. Developing economies dominate at just over 60 percent, but Germany and Austria are also represented in the data. The median study size was 840 participants who were 33.5 years old on average. The average intervention lasts 11.7 hours and its success is measured about seven months after, with considerable variation.

To compare study results, effects must be standardized

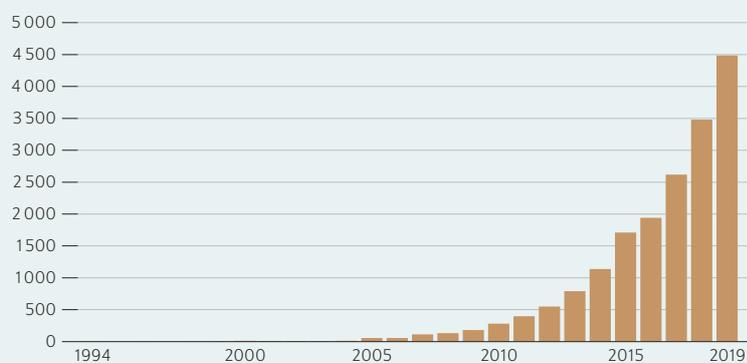
Studies on financial education interventions generally examine not only effects on one specific knowledge or behavior, but rather address a number of related effects. When analyzing interventions in developing economies, for example, it is often investigated whether participants open a formal bank account for the first time, whether they are putting money into (formal or informal) savings, and/or whether their savings are increasing overall. In this simplified case, there are three quantifiable objectives and thus three effects can be investigated in an RCT.⁷

The exact measurement of such effects can vary, but it is always compared how the treatment group behaves relative

Figure 1

Number of times the term "financial literacy" is used in the literature

In articles per year



Sources: Topic search in Web of Science, authors' own depiction.

© DIW Berlin 2021

Literature on the topic of financial literacy has been growing strongly since the 2010s.

to the control group. To take the above example, the savings of the treatment group may increase on average by 100 USD and those of the control group by 25 USD so that the intervention yields a relative benefit of 75 USD. To establish comparability between different variables, the observed effect is usually related to the variation of the change in the control group (here an example of 75 USD). In the current example, the relative strength of a change in relation to the variation (standard deviation, SD) would be 0.1 SD, or ten percent of a standard deviation from the control group. Here, effects are in the form of a standardized mean difference (SMD), i.e., in comparable standard deviation units.

In the present case, the 76 RCTs report a total of 673 effects. Fifty studies report 215 effects on financial knowledge and 64 studies report 458 effects on financial behavior. On average over 673 observations and without further adjustments, this results in an effect size of 0.123 standard deviation units on financial education measures, which is statistically significant at the 95 percent level. While this figure provides initial indications of financial education's effectiveness, it is a highly simplified calculation that ignores important methodological aspects.

For example, in this calculation, effectiveness was calculated as a simple average across all studies included. Although this procedure is used in the literature,⁸ most researchers do not prefer to weight studies or effects equally. Instead, they favor

⁵ The alternative to a meta-analysis is a qualitative literature review, cf. Annamaria Lusardi and Olivia Mitchell, "The Economic Importance of Financial Literacy: Theory and Evidence," *Journal of Economic Literature* 52, no. 1 (2014): 4–44. A qualitative literature review has the disadvantage that a large number of studies can no longer be processed uniformly and the conclusions always contain subjective assessments by the authors.

⁶ Cf. for example Tim Kaiser and Lukas Menkhoff, "Schlechte Evaluierung rentiert sich kaum: Lehren aus dem Bereich der finanziellen Bildung," *DIW Wochenbericht* no. 26 (2017): 531–538 (in German; available online).

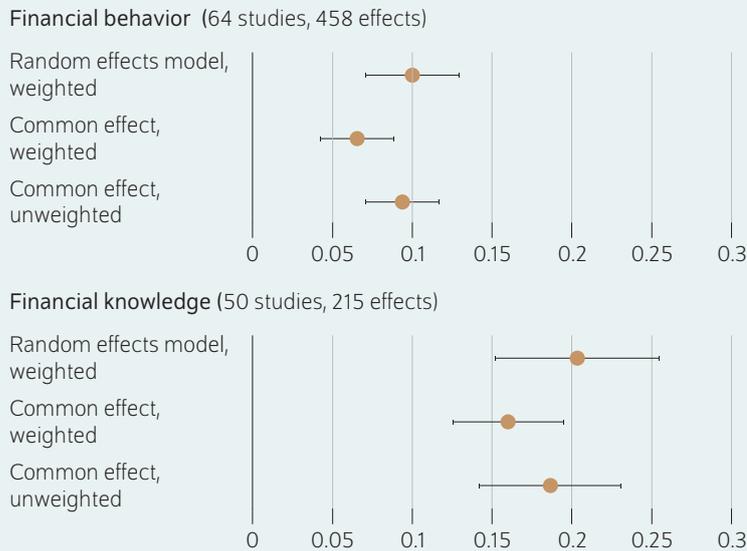
⁷ In the exact modeling, the effects are not treated as completely independent of each other in the case mentioned (see Box).

⁸ For example David Card, Jochen Kluge, and Andrea Weber, "What Works? A Meta Analysis of Recent Active Labor Market Program Evaluations," *Journal of the European Economic Association* 16, no. 3 (2018): 894–931.

Figure 2

Effects of financial education on financial behavior and knowledge using different empirical models

In standard deviations with 95 percent confidence intervals



Notes: The random effects model assumes that the 76 original studies are so different that they cover multiple true effects; studies with less variance are weighted more strongly. The "common effect, weighted" model assumes that the studies are so homogeneous that only one true effect is estimated; again, the studies are weighted. In the "common effect, unweighted" model, it is assumed there is one true effect and the studies are weighted equally. The 95 percent confidence interval means that in 95 percent of cases, the unknown actual value is in this interval. The error probability is thus five percent. The smaller the interval, the more exact the estimated effect.

Source: Authors' own calculations based on a meta-analysis.

© DIW Berlin 2021

In all empirical models, there is a significantly positive effect of financial education on financial knowledge and financial behavior.

placing more weight on precisely estimated effects. In the following analysis, this weighting method is used.⁹

In addition, further methodological assumptions are made below to obtain the most realistic estimate of the effectiveness of financial education. This includes, for example, the assumption that there is not only one "true" effect, but rather a wide range of effects ("random effects," see Box for methodological details).¹⁰

Robust results demonstrate the effectiveness of financial education measures

The methodologically preferred model (random effects, weighted) shows an effect size on financial knowledge of around 0.2 SD units. The value is around 0.1 for financial behavior (Figure 2). Both values are statistically significant.

9 Precision is usually understood as the lowest possible variance of individual study results, so studies with larger numbers of participants tend to have more weight. Specifically, effects are weighted here by the inverse of their variance.

10 Assuming a common effect is not consistent with previous literature on financial literacy. This literature is very heterogeneous and encompasses all age groups, very different intensities, different forms of teaching, etc. Consequently, an empirical model that allows for different true effects seems far more appropriate.

The weaker effect on behavior is well-known in the literature and understandable, as it is easier to impart knowledge than to change behavior. The magnitude of these effect sizes is also in line with the effectiveness of educational interventions when compared with test results in mathematics, science, and reading comprehension¹¹ or behavioral interventions in health care settings.¹²

An average significant effectiveness is also found when other models and assumptions are used (Figure 2): When assuming one common "true" effect, effect sizes decrease significantly, which is to be expected when effects are actually heterogeneous ("common effect, weighted" in Figure 2). When all effects are equally weighted ("unweighted"), the average effect sizes are slightly below the preferred weighted random effects estimate. In summary, financial education has a significant effect on average, regardless which model is used to estimate it.

Financial education is mostly effective with few exceptions

This average effectiveness is sometimes countered by the fact that the literature includes examples of failure. Interventions can fail and have no effect, in some cases even demonstrating an undesired effect.

However, in the present dataset, most of all measured effect sizes are positive. Higher negative effects occur almost exclusively in studies with relatively few participants. In summary, it can therefore be determined from the available studies that financial education usually works, sometimes does nothing, and very rarely does any harm.

Budgeting and saving behavior react most to financial education, credit behavior the least

Close examination of the five behavioral domains financial education should ideally influence reveals significant differences in the effectiveness of educational interventions. In order of the number of effects measured, the five main domains are: saving behavior (253 effects), credit behavior¹³ (115), budgeting behavior (55), insurance behavior (18), and remittance behavior (17).

Budgeting behavior shows the highest effects (Figure 3). This domain tends to involve behavioral adjustments that are inexpensive and easy to learn, such as keeping a budget book. Thus, the strength of the effects is plausible. In comparison, insurance and remittance behaviors are poorly researched,

11 For example Carolyn J. Hill et al., "Empirical Benchmarks for Interpreting Effect Sizes in Research," *Child Development Perspectives* 2, no. 3 (2008): 172–177.

12 For example Seth M. Noar, Christina N. Benac, and Melissa S. Harris, "Does Tailoring Matter? Meta-analytic Review of Tailored Print Health Behavior Change Interventions," *Psychological Bulletin* 133, no. 4 (2007): 673–693.

13 Financial education should teach individuals how to avoid things such as overindebtedness and small businesses how to use credit for investment rather than consumption.

Box

Methodology: Weighted random effects model

The observed studies report results that are subject to measurement error as well as results on different "true effects." The challenge of a meta-analysis is to distinguish these two causes of variance and to account for them when weighting studies. It must also be accounted for that studies generally report multiple results, not one single result.

This report¹ uses a model from the literature:² A series of j RCTs is observed, which each report a number i effects (y) on financial behavior. For this purpose, a regression model is formulated to estimate the mean of the distribution of heterogeneous effects (β_0), taking into account two types of error terms (v_j, ϵ_{ij}).

$$y_{ij} = \beta_0 + v_j + \epsilon_{ij}$$

The first error term (v_j) is study-specific. The second error term is a (random) sampling error ϵ_{ij} . After determining the variance for each effect (σ_{ij}^2) and estimating the heterogeneity parameter (τ^2), the equation is estimated in a weighted regression (WLS). A combination of the observed variances and the heterogeneity parameter serves as regression weights. In the specific case involving multiple potentially correlated effects per study, the number of effects (k) per study and correlation of effects within studies induced by sampling error are also assumed (ρ). Formally, the weight (w_{ij}) of each effect is calculated as follows:

$$w_{ij} = \left\{ \left(\tau^2 + \frac{1}{k_j} \sum_{k_j=1}^{k_j} \sigma_{ij}^2 \right) [1 + (k_j - 1)\rho] \right\}^{-1}$$

Here, the standard assumption is $\rho = 0.8$, but the results are almost identical for all values between 0 and 1.³

1 Methodological details can be found in Kaiser et al., "Financial Education Affects Financial Knowledge and Downstream Behaviors," (forthcoming).
2 Larry V. Hedges, Elizabeth Tipton, and Matthew C. Johnson, "Robust Variance Estimation in Meta regression with Dependent Effect Size Estimates," *Research Synthesis Methods* 1, no. 1 (2010): 39–65.
3 This general formula also includes the alternative model, which assumes a common "true effect" ($\tau^2 = 0$). In this specific case, the weights are reduced to a combination of the number of effects per study and their variances.

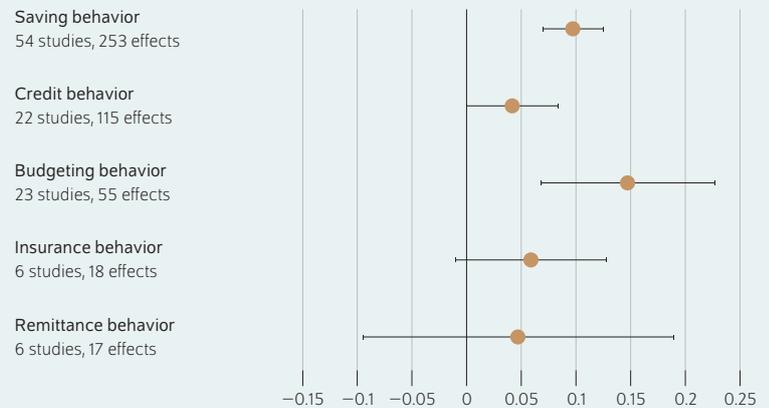
as the large confidence bands and the low number of available studies show.

The difference between the high effect size on saving behavior (0.1) and the low (narrowly insignificant) effect size on credit behavior (0.04) is interesting, as it shows that influencing credit behavior through financial education is evidently

Figure 3

Effects of financial education in different financial behavior domains

In standard deviations with 95 percent confidence intervals



Notes: The random effects model assumes that the 76 original studies are so different that they cover multiple true effects; studies with less variance are weighted more strongly. The 95 percent confidence interval means that in 95 percent of cases, the unknown actual value is in this interval. The error probability is thus five percent. The smaller the interval, the more exact the estimated effect.

Source: Authors' own calculations based on a meta-analysis.

© DIW Berlin 2021

Saving and budgeting behavior react most strongly to financial education.

especially difficult. Some studies even show that excess financial education leads to more (consumptive) borrowing and poorer repayment.¹⁴ One reason for this could be that individuals overestimate their own abilities. Based on the currently available studies, however, it is unclear if that is the deciding issue and, if so, how it could be combated. Regarding the case of inconsistent findings on credit behavior, they are the exception.

Effectiveness of financial education confirmed despite publication bias

In general, it should be noted that the published results considered here may be positively biased. Such a systematic bias is called publication bias: statistically significant results are more likely to be published than those that are not. This bias is also well documented in the economics literature.¹⁵ Presumably, the bias is due to the fact that insignificant results have lower chances of publication and are thus reported less often.

14 Miriam Bruhn et al., "The Impact of High School Financial Education: Evidence from a Large-scale Evaluation in Brazil," *American Economic Journal: Applied Economics* 8, no. 4 (2016): 256–295; Tim Kaiser and Lukas Menkhoff, "Active Learning Improves Financial Education: Short- and Long-term Experimental Evidence," mimeo, 2021, DIW Berlin.
15 John P. A. Ioannidis, Tom D. Stanley, and Hristos Doucouliagos, "The Power of Bias in Economics Research," *Economic Journal* 127, no. 605 (2017): F236–F265.

Table

Effects of financial education in subgroups

Effects in standard deviations and 95 percent confidence intervals

Subgroup	Effect	95 percent confidence interval		Number of studies	Number of effects
Panel A: Effects on financial behavior					
<i>(a) Intensity of measure</i>					
< 5 hours	0.0817	0.0407	0.1227	22	124
≥ 5 and < 20 hours	0.0992	0.0533	0.1450	29	251
≥ 20 hours	0.2319	0.0745	0.3893	8	54
<i>(b) Time between measure and assessment</i>					
< 6 months	0.0991	0.0645	0.1337	34	180
≥ 6 and < 18 months	0.0901	0.0520	0.1283	23	211
≥ 18 months	0.0653	0.0209	0.1098	10	49
<i>(c) Country groups</i>					
High-income economies	0.1127	0.0478	0.1777	32	129
Developing economies	0.0928	0.0660	0.1195	32	329
<i>(d) Type of measure</i>					
Classroom instruction	0.1064	0.0699	0.1428	50	331
Online education	0.0796	-0.0194	0.1786	5	55
Personal counseling	0.1595	-0.1887	0.5077	2	48
Educational "nudge"	0.0597	0.0055	0.1138	8	24
Panel B: Effects on financial knowledge					
<i>(a) Intensity of measure</i>					
< 5 hours	0.2192	0.1638	0.2746	24	86
≥ 5 and < 20 hours	0.1975	0.0968	0.2981	21	80
≥ 20 hours	0.1925	-0.0307	0.4157	6	9
<i>(b) Time between measure and assessment</i>					
< 6 months	0.2305	0.1654	0.2956	36	142
≥ 6 and < 18 months	0.1425	0.0787	0.2064	15	56
≥ 18 months	0.1400	-0.0518	0.2282	1	1
<i>(c) Country groups</i>					
High-income economies	0.2591	0.1738	0.3443	29	135
Developing economies	0.1392	0.0934	0.1851	21	80
<i>(d) Type of measure</i>					
Classroom instruction	0.1927	0.1306	0.2549	38	117
Online education	0.2618	0.1694	0.3542	10	96
Personal counseling	0.3460	0.0636	0.6284	1	1
Educational "nudge"	-0.0238	-0.1504	0.1028	1	1

Notes: The estimate was performed using a random effects model, which assumes that the original studies are so different that they cover multiple true effects; studies with less variance are weighted more strongly. The 95 percent confidence interval means that in 95 percent of cases, the unknown actual value is in this interval. The error probability is thus five percent. The smaller the interval, the more exact the estimated effect.

Source: Authors' own calculations based on a meta-analysis.

© DIW Berlin 2021

Methodologically, such a publication bias can be documented in several ways. In the field of financial literacy, for example, this bias has been demonstrated in a graphical analysis; however, the effectiveness remains.¹⁶ Publication bias thus plays a role and tends to gloss over the extent to which financial education is effective.

To estimate how large the possible bias is in the present case, a statistical test¹⁷ is performed. This test shows how much more likely published studies are to just reach the important

significance level of five percent instead of missing it. If all results were published, significance values should be as likely to be above five percent as below it. In the present case, however, there are clear clusters of effects at the thresholds for statistical significance. Compared to studies with significant results, studies with statistically insignificant results are only published with 30 percent (financial behavior) or 15 percent (financial knowledge) probability.

When correcting for publication bias in the present meta-analysis, there is a corrected average effect size of 0.057 on financial behavior and of 0.15 on financial knowledge, both significant at the five percent level. This corrected result shows that while the effectiveness of financial education

¹⁶ Cf. The online appendix of Tim Kaiser and Lukas Menkhoff, "Does Financial Education Impact Financial Literacy and Financial Behavior?" *World Bank Economic Review* 31, no. 3 (2017): 611–630.

¹⁷ Isaiah Andrews and Maximilian Kasy, "Identification of and Correction for Publication Bias," *American Economic Review* 109, no. 8 (2019): 2766–2794.

measures when correcting for possible publication bias is somewhat smaller, it is still positive and significant.

Results largely consistent with other meta-analyses on financial education

The results of the present meta-analysis strengthen the findings of other meta-analyses that find financial education is effective.¹⁸ In total, the results are of comparable magnitude.¹⁹ Over time, there may be a slight upward trend in effect sizes, indicating either improved study designs or increasing publication bias. The quantitative method of the meta-analysis, in contrast to a purely qualitative literature review, makes the causes of divergent assessments comprehensible. In summary, the effectiveness of financial education measures is well established.

Suggestions for economic policy implementation

No concrete economic policy recommendations can yet be derived from the fact that financial education is effective. Although 76 RCTs are available, they are so heterogeneous that it is difficult to compare in detail why the effectiveness is higher or lower in individual cases. Nevertheless, statements can be made about four characteristics of these studies that should be taken into account when implementing a financial education policy.

Intense financial education improves financial behavior more

More intense educational interventions help financial behavior but not necessarily financial literacy. The average of the effect sizes (financial behavior) in the three different intensity groups clearly increases the longer the intervention lasts (Table, Panel A). However, the averages are not always significantly different from one another. It should be noted that more intense interventions generally also pursue more objectives, so that the available time per objective does not increase as much as the time per study measured here.

Effect of financial education is long-lasting

The interventions have a long-lasting effect. To investigate this long-lasting effect, studies are differentiated by how long after the intervention the effect is measured. The results show

¹⁸ Because of comparability, only meta-analyses involving effects on financial behavior are included. Using only 15 RCTs, Fernandes et al. (2014) had a small, positive—but insignificant—effect of 0.02 effect sizes. Miller et al. (2015) record 20 RCTs with an average effect size of 0.04. Using 40 RCTs, Kaiser and Menkhoff (2017) calculate an effect size of 0.06. For comparison, the study here results in an (uncorrected) effect size of 0.10 for 64 RCTs. Cf. Fernandes et al., "Financial Literacy, Financial Education, and Downstream Financial Behaviors"; Margret Miller, J Reichelstein, C Salas, and Bilal Zia, "Can You Help Someone Become Financially Capable? A Meta-analysis of the Literature," *World Bank Research Observer* 30, no. 2 (2014): 220–246; Kaiser and Menkhoff, "Does Financial Education Impact Financial Literacy and Financial Behavior?"

¹⁹ The deciding exception is Fernandes et al., "Financial Literacy, Financial Education, and Downstream Financial Behaviors." During replication, small errors in the coding of the studies can be detected. Simply correcting them, using another empirical model, or taking more recent studies into account is sufficient in each case to get a positively significant result rather than an insignificant one. Cf. Kaiser et al., "Financial Education Affects Financial Knowledge and Downstream Behaviors," Appendix D (forthcoming).

that knowledge decreases significantly after six months, but is not completely forgotten afterward (Table, Panel B). In contrast, the decline in financial behavior over time is clearly smaller. In this respect, effects weaken over time but do not seem to disappear completely in the present studies.

Smaller effects observed in emerging economies

There are different difficult conditions for introducing educational measures. Since the studies do not always describe the conditions of the intervention and its respective target groups in detail and, above all, are not easily comparable, a proxy for the difficulty of the circumstances is chosen here: It can be assumed that the conditions of financial education in emerging economies are generally more difficult than in high-income economies. The data tends to confirm this, as the achieved effect sizes in emerging economies are lower (Table, Panel C), although the educational interventions are adjusted to the respective circumstances.

Personal financial counseling most effective

In addition, there is a presumption that innovative forms of teaching are superior to traditional forms of teaching. Among the four distinguished forms of teaching, personal financial counseling is the most successful, although it is also the most expensive (Table, Panel D). Online courses also perform well in terms of knowledge transfer. In contrast, conventional classroom instruction tends to more successfully affect behavioral change.

Conclusion: Time to develop a scientifically monitored financial education strategy for Germany

The development of a financial education strategy depends on, next to its effectiveness, many other considerations:²⁰ In the German context, financial education is generally viewed as part of a comprehensive economic education and not, as is common in the US, as its own course. Moreover, when it comes to education in Germany, the focus is always on critical reflection and not practical knowledge transfer.²¹ Finally, financial education should be viewed as a complement to, not a substitute for, consumer protection.

With this in mind, this Weekly Report shows that financial education can reliably achieve its objectives. This does not mean every past intervention functioned well. Due to the limited data situation, it is also not certain how best to implement financial education measures in each case. However, there are already many well documented and evaluated

²⁰ Cf. Lukas Menkhoff and Doris Neuberger, "Editorial zu Finanzielle Bildung: Was soll die Politik tun?" *Vierteljahrshefte zur Wirtschaftsforschung* 90, no. 1 (2021): 9–20 (in German).

²¹ Cf. Günther Seeber, "Finanzbildung in einem eigenen Schulfach?" *Vierteljahrshefte zur Wirtschaftsforschung* 90, no. 1 (2021): 61–73 (in German); Christian Fridrich, "Finanzerziehung versus Finanzbildung im Rahmen sozioökonomischer Bildung – oder: Zur Bedeutsamkeit sozialwissenschaftlicher Kontextualisierung," *Vierteljahrshefte zur Wirtschaftsforschung* 90, no. 1 (2021): 5–9 (in German).

FINANCIAL EDUCATION

interventions to guide policymakers to help them avoid mistakes and ensure appropriate effectiveness.

In this respect, there is no reason to generally question the effectiveness of financial education. It is time—if politically

desired—to develop and implement a strategy for financial education in Germany. This process should be monitored scientifically to learn which interventions under which conditions work especially well, and thus make the best use of resources.

Tim Kaiser is a junior professor in the Economics Department at the University of Koblenz-Landau | kaiser@uni-landau.de

Lukas Menkhoff is Head of the International Economics Department at DIW Berlin | Imenkhoff@diw.de

JEL: G 53; I 21

Keywords: financial education; financial literacy; financial behavior; meta-analysis