Does financial education impact financial behavior, and if so, when?

Tim Kaiser and Lukas Menkhoff

- Striking "<u>mistakes</u>" in financial behavior (FB):

    - too much and too expensive debt

    - too little (retirement) savings

    - under-diversification of assets / savings, etc.

- Level: Loss of individual <u>welfare</u>

- Distribution: Mistakes are not <u>distributed</u> randomly but concentrated at poorer and less educated segments

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MAP 1: GLOBAL VARIATIONS IN FINANCIAL LITERACY
(% OF ADULTS WHO ARE FINANCIALLY LITERATE)

55-75
45-54
35-44
25-34
0-24
No data
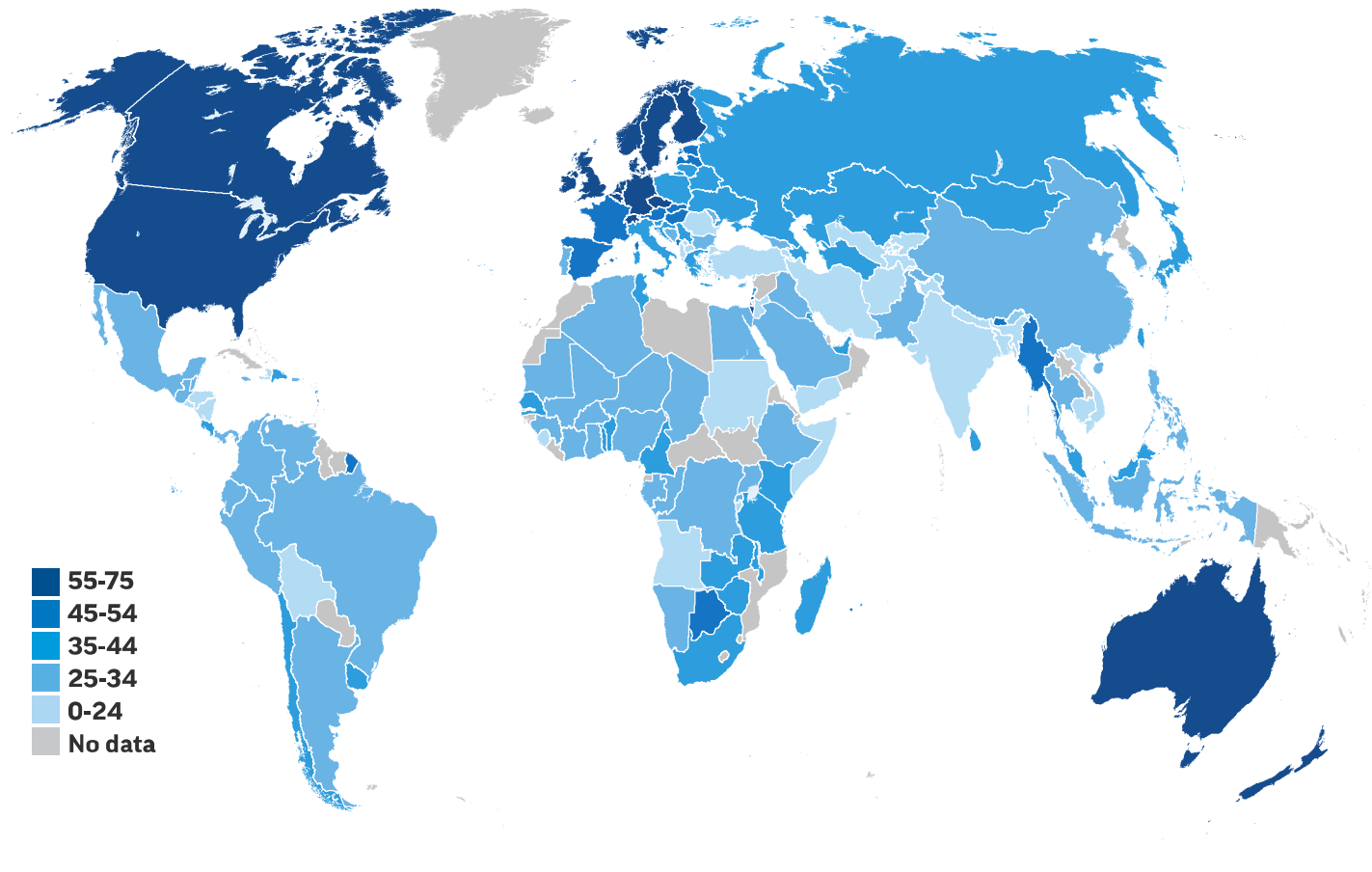
Source: S&P Global FinLit Survey.

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- Large gaps in <u>financial literacy (FL)</u>

- People with higher FL show "better" FB

➔ Motivation for policy: **FE -> (FL ->) FB**

- In Germany: Economic edu. at school; private initiatives

- E.g. in dev. world: FL masterplan in Uganda

- However: <u>Lack of convincing evidence</u> that financial education is really effective (= has impact)

➔ Lots of recent research:

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Researchers invest: Citations to the term „financial literacy" (SSCI)

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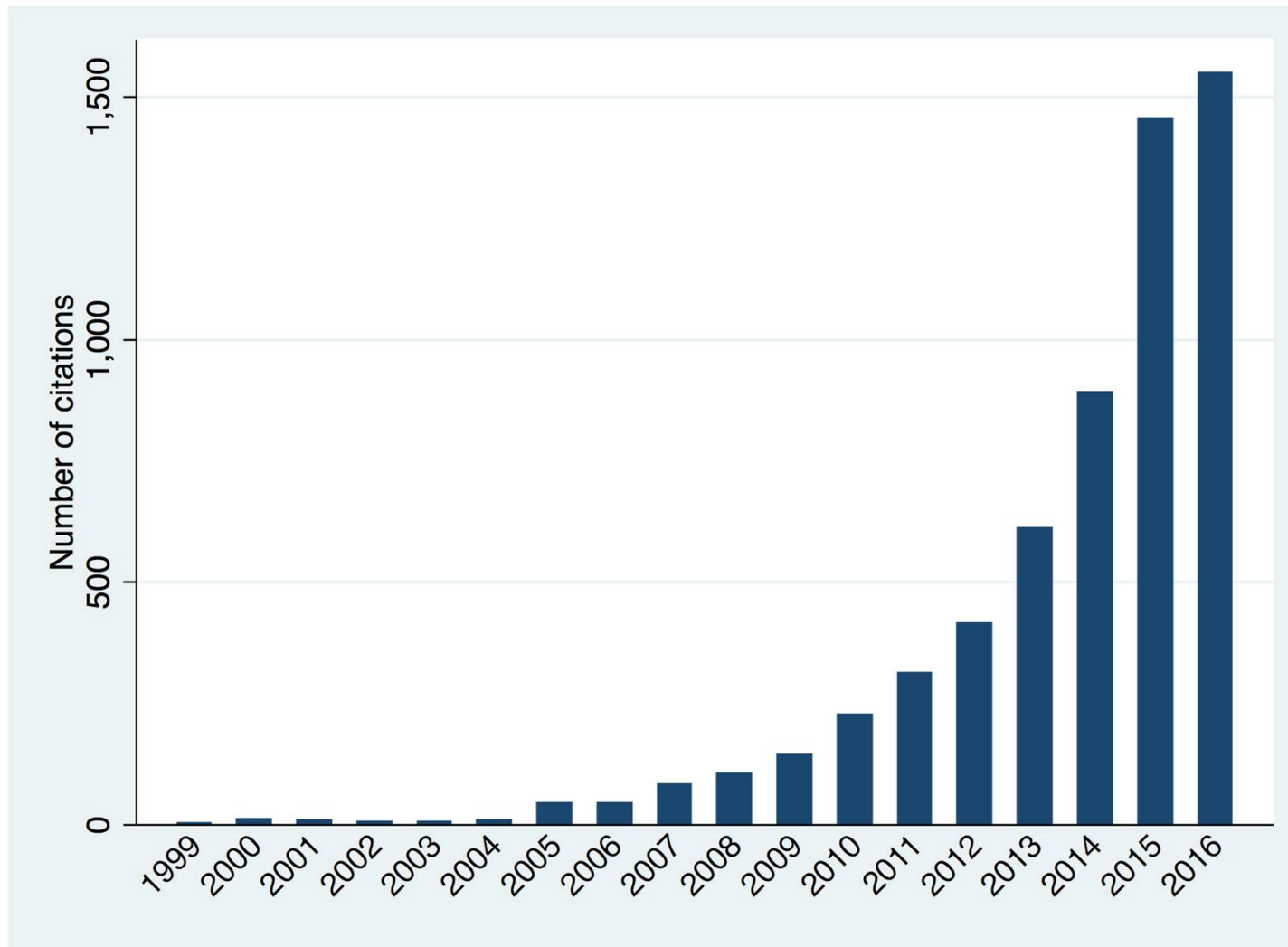
Outline

1. Motivation

2. Research questions and main findings

3. Empirical strategy: meta-analysis

4. Sample description

5. Results

6. Conclusions

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- There are thousand studies about FL etc. Which of these measure reliably the possible impact of FE on FL and FB? How to carve out a consistent message to be learned?

- <u>Narrative literature review</u> is written by experts who provide guidance by selecting and assessing studies.

- <u>Meta-study</u> is a transparent and quantitative approach:
  - Cover all studies that fulfill search criteria
  - Make impacts comparable by using standardized units
  - Inform about size of average effect, significance and distribution

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- Narrative literature reviews are inconclusive (e.g. Fox et al. 2005; Collins and O'Rourke 2010; Willis 2011; Hastings et al. 2013; Lusardi and Mitchell 2014)

- Benchmark meta-analysis indicates <u>no convincing overall effect of FE-treatment on FB</u> (Fernandes et al. 2014).

- Worldbank-meta-study shows <u>some positive effects of FE</u>, but on a very selective sample (Miller et al. 2015).

➔ Does FE really help? What should be done?

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Finding 1: Does FE have impact on FB?

Yes, significantly, although the effect is small.

Finding 2: What is the role of FL?

FE has larger impact on FL; FL seems good for FB.

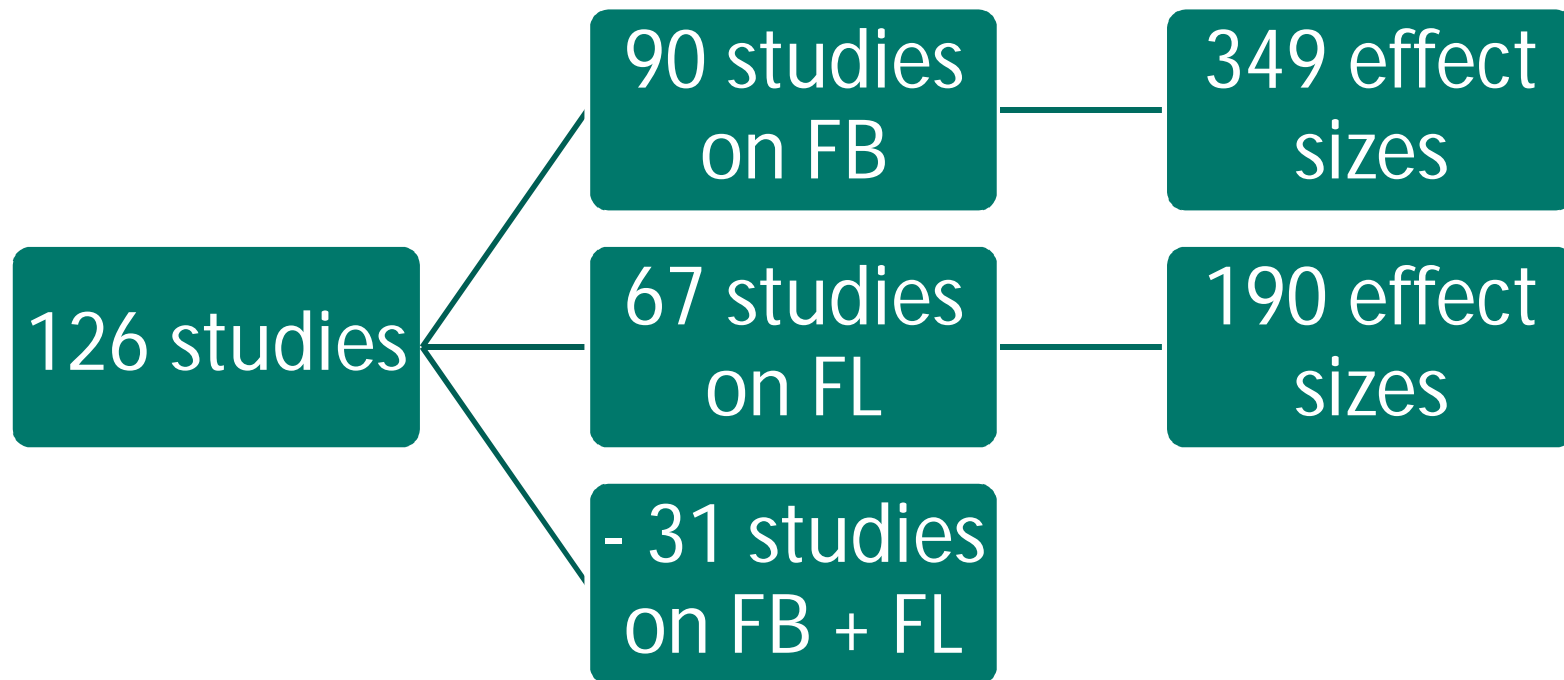**Finding 3**: Do determinants explain the degree of impact?

Yes, we learn how to increase impact of FE on FB.

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- There is always an (exogenous) event, such as newly introduced or changed fin education.

- There is an observed counterfactual: we do not include purely observational studies or pre-post (single group) designs: 126 studies.

- The design is thus either a (quasi, natural-) experiment or a (cluster-) RCT and reported outcomes allow coding an effect size and its standard error.

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- A meta study requires to make effects comparable across studies: some kind of <u>standardization</u>.

- Coding of effect sizes: **Hedges' *g***

$$g = \frac{M_T - M_C}{SD_p} \quad \text{with} \quad SD_p = \sqrt{\frac{(n_T - 1)\, SD_T{}^2 + (n_C - 1)\, SD_C{}^2}{n_T{}^2 + n_C{}^2 - 2}}.$$

- Similar to Cohen's *d* and Glass' Δ , however SD_p calculates SD separately for T- and C-groups which is seen as more robust in case sample sizes are very different between treatment and control group.

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126 studies	90 studies on FB	349 effect sizes
	67 studies on FL	190 effect sizes
	- 31 studies on FB + FL	

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Summary effect (OLS) of FE on FL much larger than on FB

Kernel density estimate

g=0.086, p=0.000, n=349

g=0.263, p=0.000, n=190

kernel = epanechnikov, bandwidth = 0.0331

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Positive relationship between effects on FL and effects on FB

$$g(FB)_{ij} = 0.058 + 0.233\, g(FL)_{ij} + \epsilon_{ji}$$

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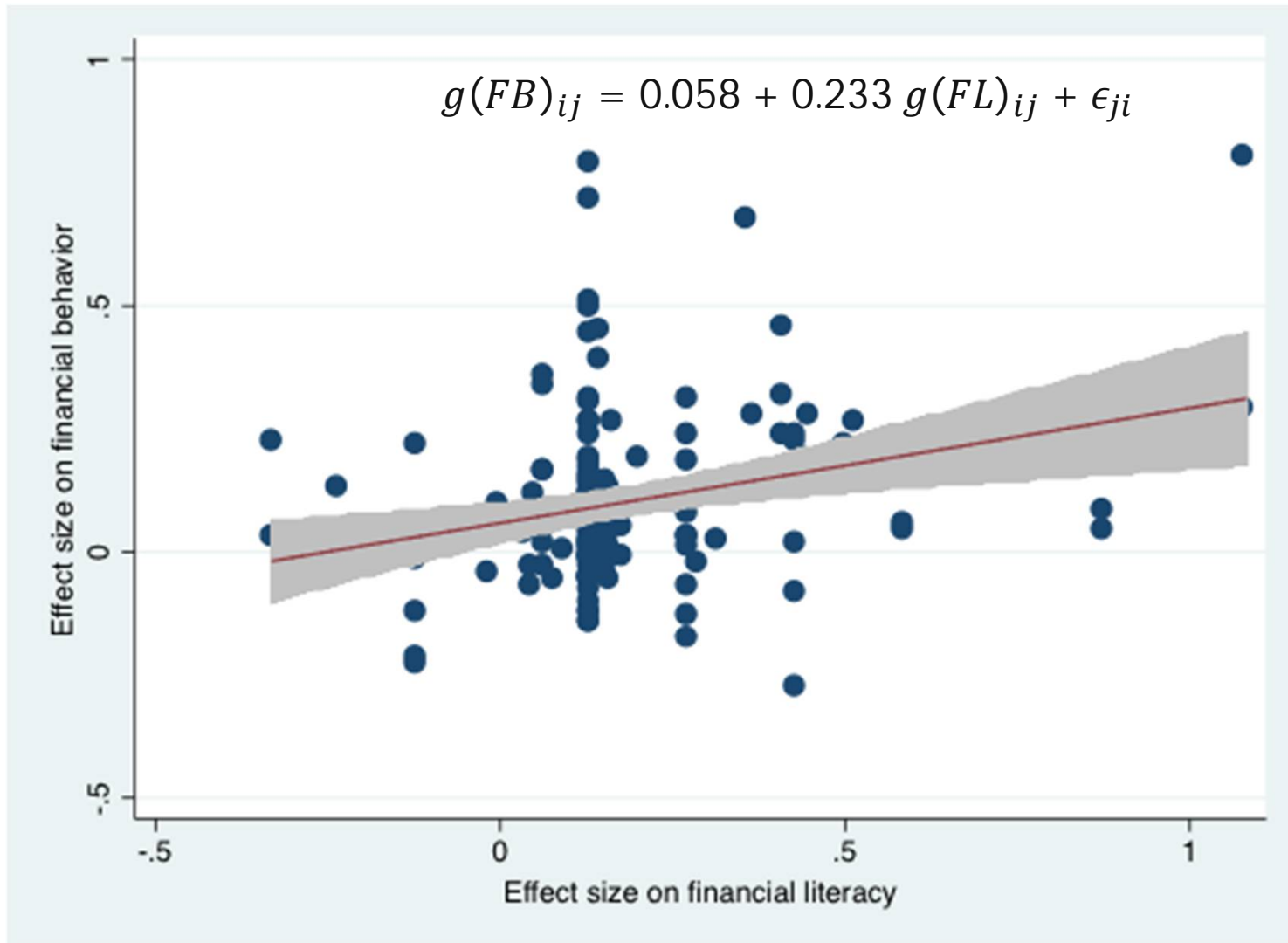
Heterogeneous outcomes: effects highest on budgeting and saving
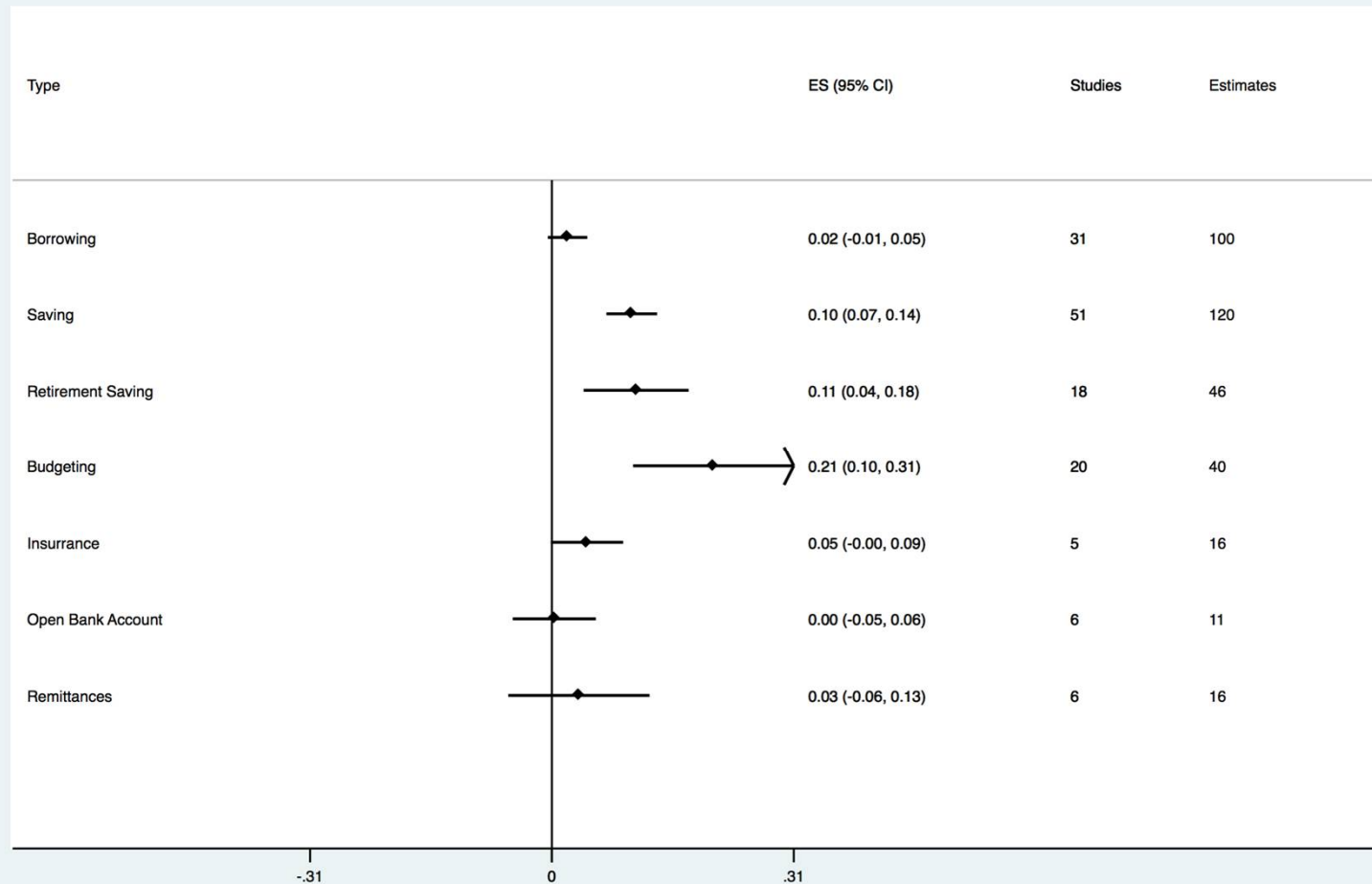
Type	ES (95% CI)	Studies	Estimates
Borrowing	0.02 (-0.01, 0.05)	31	100
Saving	0.10 (0.07, 0.14)	51	120
Retirement Saving	0.11 (0.04, 0.18)	18	46
Budgeting	0.21 (0.10, 0.31)	20	40
Insurrance	0.05 (-0.00, 0.09)	5	16
Open Bank Account	0.00 (-0.05, 0.06)	6	11
Remittances	0.03 (-0.06, 0.13)	6	16

-.31   0   .31

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RCT	-0.068**
	(0.028)
TOT	0.068**
	(0.027)
Delay	0.000
	(0.000)
1/SE	-0.000
	(0.000)
Intensity per week	0.004***
	(0.001)
Duration	-0.000
	(0.000)
Low income clients	-0.055***
	(0.017)
Mean years of schooling	-0.019***
	(0.006)
Country group	
Low/lower-mid.inc.econ	-0.093**
	(0.036)
Mandatory	-0.051**
	(0.023)
Teachable moment	0.064**
	(0.026)
Constant	0.332***
	(0.079)
R^2	0.183
n (Studies)	90
n (Effect sizes)	349

Main results:

RCT (-)**
TOT (+)**

Intensity (+)***

Low-income clients (-)***
Mean years of schooling(-)***

Develop. country (-)**
Mandatory FE (-) **
Teachable moment (+)**

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First:

- FE has a positive and significant impact on FB, also for <u>RCTs</u>.

Second:

- FE has stronger <u>impact on FL</u> and FL supports FB (plus one SD in FL increases FB by 0.37 SD):

➔ <u>FE can be effective</u>; hardly established standards, i.e. careful <u>attention needed</u> due to heterogeneity across program types and individual studies.

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Third (determinants of effectiveness):

GENERAL LESSONS

- <u>Intensity</u> matters
- Timing matters: <u>Teachable moment</u> (beyond school, not mandatory)

SAMPLE-SPECIFIC LESSONS

- Smaller effects in <u>low and lower middle-income countries</u>: due to institutions; marginal returns due to low educ. level
- Smaller effects for <u>low-income clients</u>: attention / timing
- Outcomes: <u>savings better</u>, loans difficult

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- Strengthen <u>math</u> at school (related to FL and has further desirable effects).

- It may be more effective to <u>nudge people;</u> or to alter the choice architecture when designing financial products (soft regulation).

- Cheaper than financial education is a strict <u>regulation</u> to simplify financial decisions.

➔ Does not rule out effective financial education.

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