

Peer Effects in Financial Decision Making: A Case of the Blind Leading the Blind?

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Motivation

People often consult non-expert advice for financial decisions

(Lusardi, 2003, 2008; van Rooij et al., 2011; Lusardi and Mitchell, 2014; Bernheim, 1998)

Social interaction affects personal financial decision making

(Beshears et al., 2015; Brown et al., 2014; Bursztyn et al., 2014; Cai et al., 2015; Duflo and Saez, 2003; Hvide and Ostberg, 2014; Hong et al., 2004, 2005; Kast et al., 2016; Ivkovic and Weisbenner, 2007)

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Are the effects beneficial / harmful?

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Are the effects beneficial / harmful?

Case of the blind leading the blind? (Bernheim, 1998)

- ▶ Even carefully designed, professional communication can fail to improve decision making, so why would the average peer to succeed? (Ambuehl, Bernheim, Lusardi, 2016)

“Two heads are better than one”?

- ▶ Often decision making better in groups (Charness and Sutter, 2012)

Research Questions

Does face-to-face communication with a randomly chosen peer improve or harm decision making quality?
(as defined on next slide)

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How and why?

1. Do subjects merely mimic other's choices, or do they acquire skills they can apply to new problems?
 - ▶ Does financial education indirectly benefit others in the same way?
2. Between whom is communication most / least beneficial?
3. (How) do people re-evaluate their preferences?

Experimental choices

What amount $\pounds v^{\text{complex}}$ today is as good as receiving $\pounds 5$, invested at 1%, compounded daily, after 72 days?

Experimental choices

Each subject makes each choice twice, in two frames. Example:

- ▶ **Complex framing:** What amount $£v^{\text{complex}}$ today is as good as receiving £5, invested at 1%, compounded daily, after 72 days?
- ▶ **Simple framing:** What amount $£v^{\text{simple}}$ today is as good as receiving £10 in 72 days?

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Quality of decision making: *financial competence*

(Ambuehl, Bernheim, Lusardi, 2016)

- ▶ Correct application of compound interest $\rightarrow v^{\text{simple}} = v^{\text{complex}}$
- ▶ The larger the distance, the worse the decision quality

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Virtues

- ▶ Non-paternalistic. Own preferences taken as benchmark.
- ▶ Formal interpretation within behavioral welfare economics:
 $|v^{\text{simple}} - v^{\text{complex}}|$ is maximal possible loss from deviation

Elicitation of $v^{complex}$

You will get the specified amount today

We will invest £5 in an account with 1% interest per day. Interest is compounded daily. We will pay you the proceeds in 72 days.

£20	<input type="checkbox"/>	<input type="checkbox"/>
£18	<input type="checkbox"/>	<input type="checkbox"/>
£16	<input type="checkbox"/>	<input type="checkbox"/>
⋮	⋮	⋮
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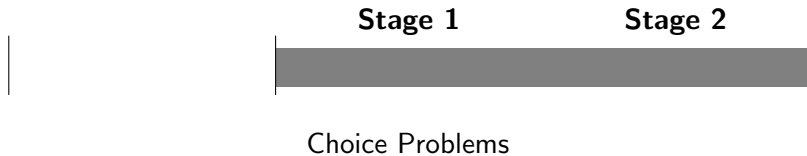
Elicitation of v ^{simple}

You will get the
specified amount
today

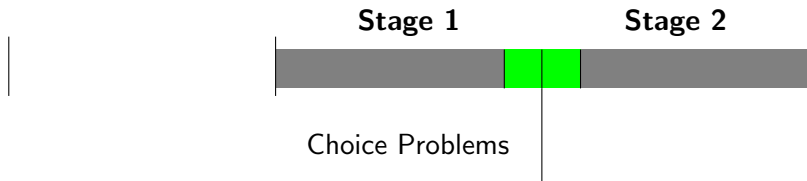
We will pay you
£10 in 72 days.

£20	<input checked="" type="checkbox"/>	<input type="checkbox"/>
£18	<input checked="" type="checkbox"/>	<input type="checkbox"/>
£16	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Timeline



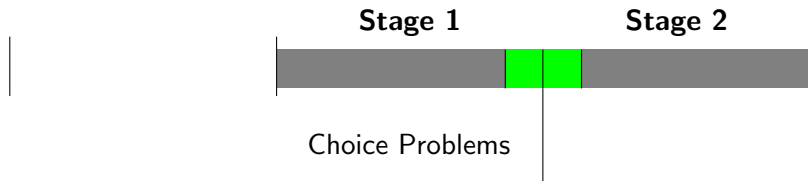
Timeline



Communication:

Discussion

Timeline



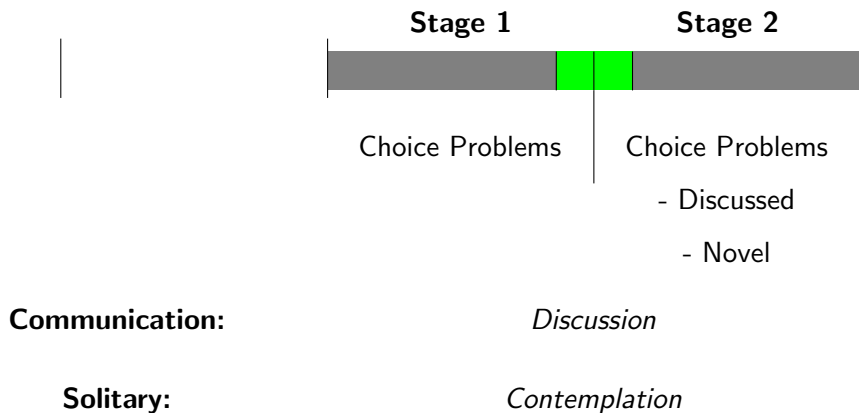
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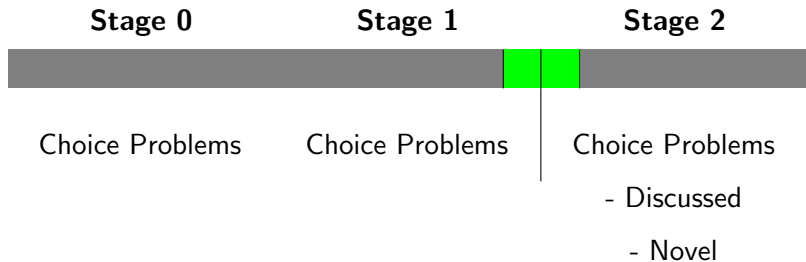
Solitary:

Contemplation

Timeline



Timeline



Communication:

Discussion

Solitary:

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Timeline

Stage 0

Stage 1

Stage 2



Choice Problems

Choice Problems

Choice Problems

- Discussed

- Novel

Communication:

Discussion

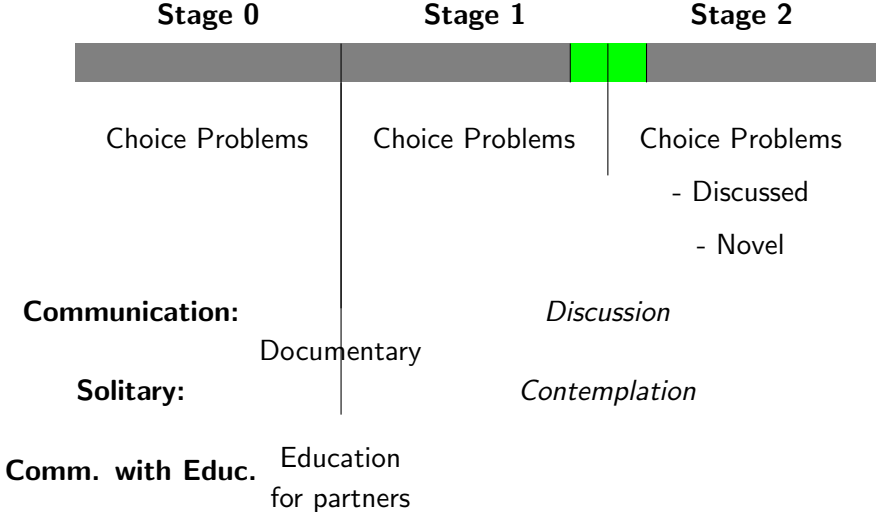
Solitary:

Contemplation

Comm. with Educ.

Education
for partners

Timeline



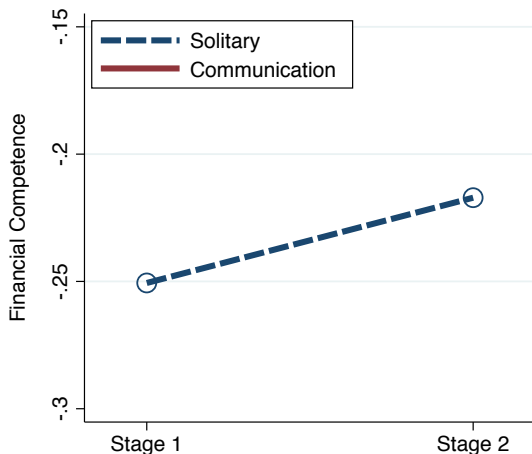
Data

- ▶ 263 subjects
- ▶ University of Birmingham, UK, Fall 2015-Spring 2016
- ▶ Mean completion time 123.75 min, mean payment £26.55

Dependent Variable

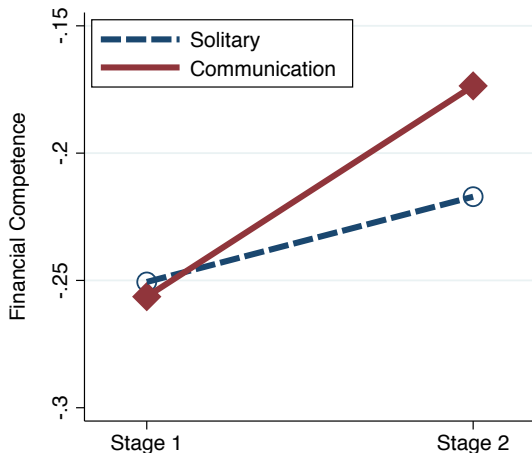
- ▶ Financial competence $-|v^{complex} - v^{simple}|$
- ▶ Normalized as if each future value was £1

Does communication help or hurt decision making quality?



Averaged across discussed and novel tasks. Slopes: Solitary: 0.016 (s.e. 0.018). Communication: 0.088*** (s.e. 0.017). Diff-in-diff: 0.072*** (s.e. 0.027). OLS, s.e. clustered by subject.

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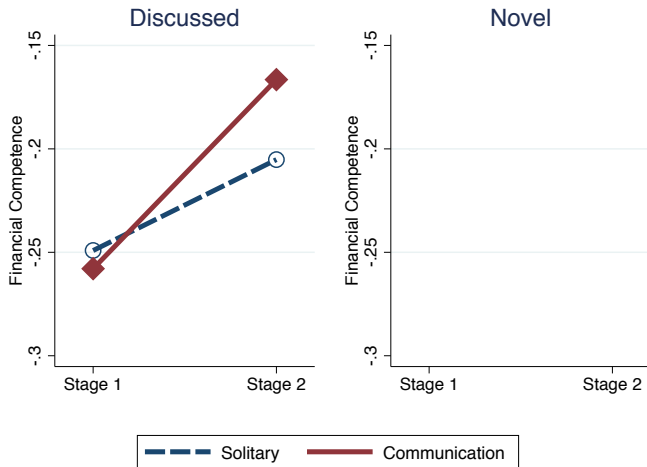
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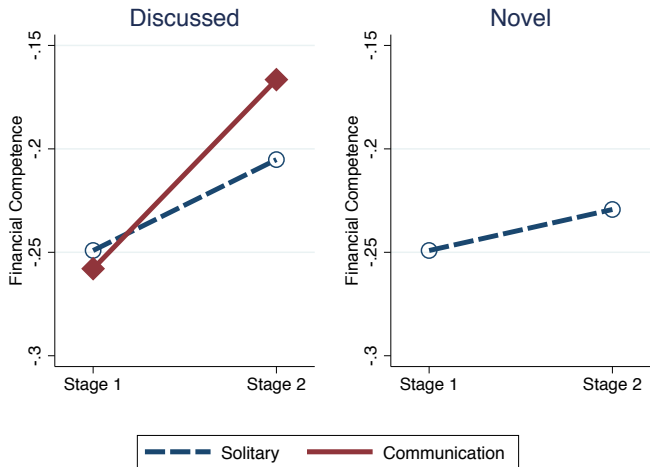
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Conceptual learning or choice mimicry?



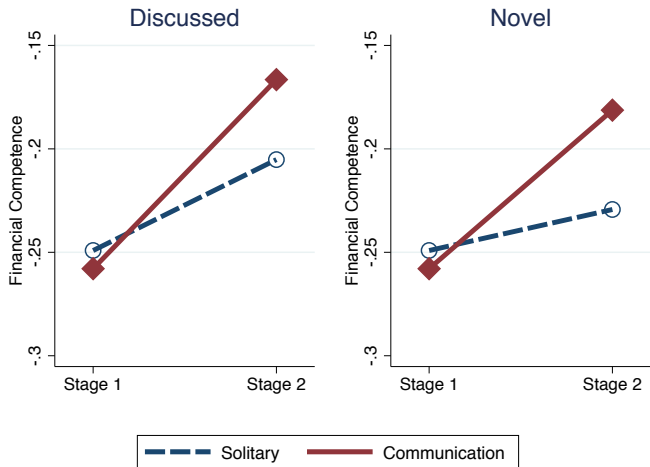
Slopes: solitary-discussed: 0.022 (s.e. 0.022), solitary-novel: 0.009 (s.e. 0.022), communication-discussed: 0.096*** (s.e. 0.019), communication-novel 0.081*** (s.e. 0.018). *Diff-in-diff:* discussed: 0.073** (s.e. 0.030), novel 0.071** (s.e. 0.029). OLS, s.e. clustered by subject.

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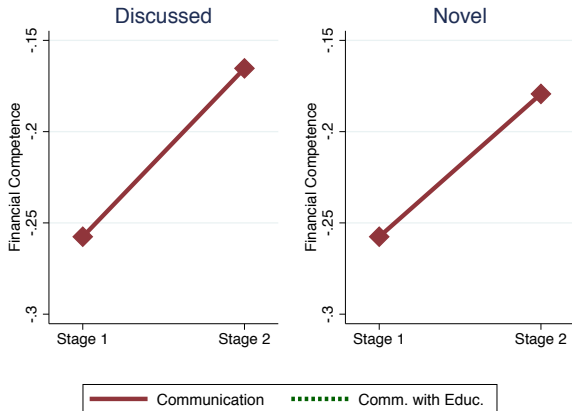
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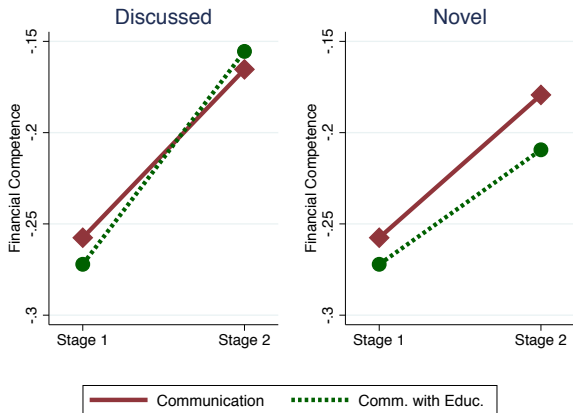
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Indirect Effect of Education?

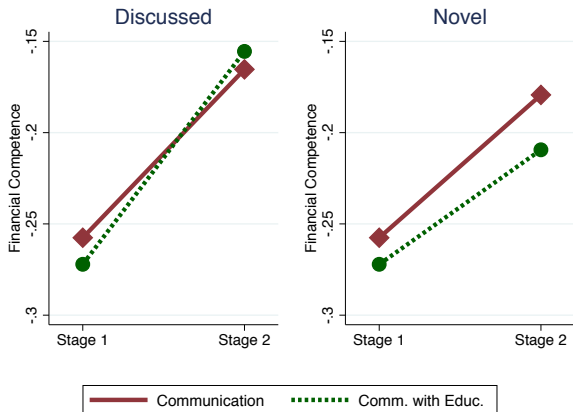


Indirect Effect of Education?



Slopes: Diff-in-diff communication with educated / not educated: 0.042, $p = 0.016$.

Indirect Effect of Education?



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Discussion in % of pairs	<i>Communication</i>	<i>Com. with Educ.</i>
Rule of 72	2%	73.2%
Compound interest formula	63%	42%

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Who benefits most from communication?

Hypothesis 1

Information flows from those who have it to those who do not (e.g. Jackson, Bruegman (2009) with elementary school teachers)

- ▶ Improve more the better the partner

Hypothesis 2

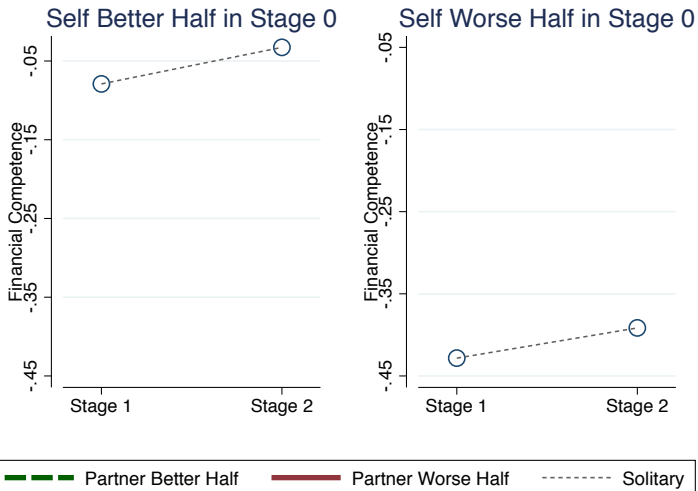
Skill transmission more effective between people of similar skills who can address concerns at appropriate level and pace (e.g. Booij, et al. 2016 and Feld, Zolitz, 2016 with univ. students)

- ▶ Improve more if partner more similar

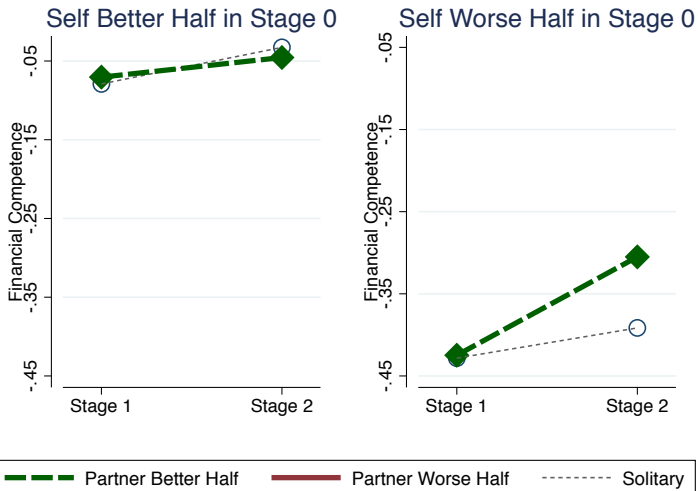
4 kinds of pairs

Classify using stage 0 decisions (to avoid regression to the mean)

- ▶ Self in better / worse half
- ▶ Partner in better / worse half



Difference in slope Communication to Solitary: Self worse, partner worse: 16.4%*** (s.e. 2.2), Self worse, partner better: 8.29%*** (s.e. 2.13), Self better, partner worse: 0.48% (s.e. 2.47), Self better, partner better: -2.15% (s.e. 2.5). *Difference in better vs. worse partner:* Self worse: -8.06%*** (s.e. 2.18), Self better: -2.6% (s.e. 2.12). OLS, s.e. clustered by subject.



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What do people discuss?

	Highlight similarity	Minutes discussed	# small talk topics (of 3)	# problems (of 6)
Similar (TT/BB)	80% (8%)	10.1 (0.8)	0.4 (0.1)	4.07 (0.29)
Different (TB/BT)	39.5% (8%)	8.3 (0.8)	0.66 (0.1)	4.17 (0.28)

Variables

- ▶ Highlight similarities e.g. “I’m bad at this too, let’s see whether we can help each other out”
- ▶ Small talk topics: Country of origin, college major, years of study

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Does communication cause assimilation of discount rates?

- ▶ Estimate

$$\delta_2^{self} = \alpha + \beta \delta_1^{other} + (1 - \beta) \delta_1^{self} + \epsilon$$

- ▶ Attenuation bias: Instrument $(\delta_1^{self}, \delta_1^{other})$ with $(\delta_0^{self}, \delta_0^{other})$

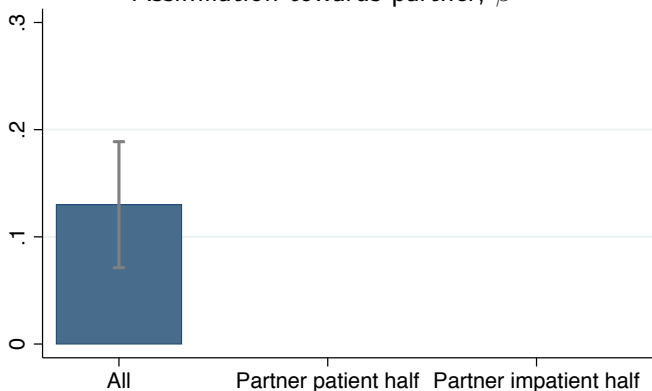
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Assimilation towards partner, β



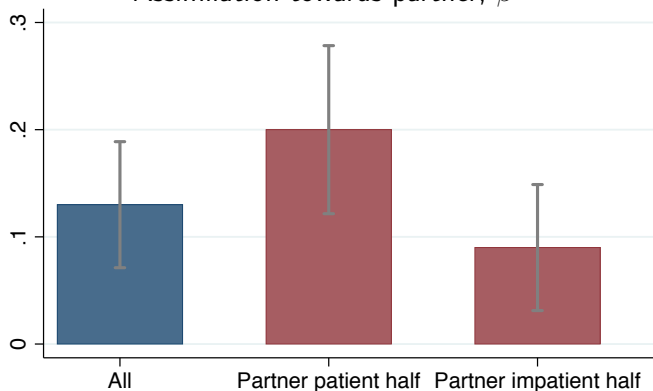
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Subjects assimilate to peer. More so if peer more patient.

Policy implications

Financial decision making may be improved by encouraging communication

- ▶ Will be most effective if (e.g. in financial education interventions) people of similar skill level are paired
 - ▶ Related results in field experiments by Booij et al., 2016, and Feld & Zolitz, 2016
- ▶ By contrast, educating part of population and relying on diffusion may be ineffective

Further questions

- ▶ Role of confidence?
 - ▶ Our experiment: Ability and confidence highly correlated
 - ▶ Maybe less so in other contexts (e.g. Linnainmaa et al., 2016)
- ▶ Would effects be similar in less / more educated subject pools?