

Peer Advice on Financial Decisions: 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; Ivkovic and Weisbenner, 2007; Kast et al., 2016; Ko, Pirinsky, 2017; Ouimet, Tate, 2017; Haliassos, Jansson and Karabulut , 2017)

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Are the effects beneficial / harmful?

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Are the effects beneficial / harmful?

- ▶ People may mimic the choices of others without understanding reasons. Can be detrimental if preferences sufficiently distinct.
- ▶ In truth-wins situations: decision making often better in groups (review by Charness and Sutter, 2012)

Questions

Does peer communication help or harm decision quality when the best choice depends on idiosyncratic preferences?

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Setting

- ▶ Decisions about investments accruing compound interest
- ▶ Laboratory experiment with face-to-face communication

Why a laboratory experiment?

Relevant subject pool

Undergraduate students at the University of Birmingham, UK

- ▶ just beginning to make important personal financial decisions
- ▶ 45% of our sample correctly answer three standard financial literacy questions (Lusardi 2008)
- ▶ target demographic financial education interventions

Exogenous pairing of subjects

Avoid Reflection Problem (Manski, 1993)

More accurate measurement of quality of decision making

Field data:

- ▶ dominant alternatives
- ▶ directional changes in behavior
- ▶ performance on knowledge tests

Defining Decision Quality when Preferences Matter

Based on Ambuehl, Bernheim, Lusardi, "Measuring Financial Competence", NBER WP, 2017

What amount $\pounds v^{\text{complex}}$ today is as good as receiving $\pounds 10$, invested at 1%, compounded daily, after 72 days?

Elicitation of $v^{complex}$

You will get the
specified amount
today

We will invest £10 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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Each subject makes each choice twice, in two frames. Example:

- ▶ **Complex framing:** What amount $\pounds v^{\text{complex}}$ today is as good as receiving $\pounds 10$, invested at 1%, compounded daily, after 72 days?
- ▶ **Simple framing:** What amount $\pounds v^{\text{simple}}$ today is as good as receiving $\pounds 20$ in 72 days?

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Quality of decision making

$$\text{Financial competence} = -|v^{\text{simple}} - v^{\text{complex}}|$$

Welfare interpretation: Special case

IF choices in simple frame reveal true preferences, then

$|v^{simple} - v^{complex}| =$
maximal possible welfare loss from misunderstanding.

Example

- ▶ For the *same* instrument: $v^{simple} = \$15$, $v^{complex} = \$10$.
- ▶ Offered instrument in complex framing at present price \$10.01.
- ▶ Hence, refuse at \$10.01 although $v^{simple} = \$15$. Lose \$4.99
- ▶ Similar: If $v^{simple} = \$15$, $v^{complex} = \$20$, then accept at present price \$19.99, hence lose \$4.99

Issue

- ▶ Consumer might have other biases, unobserved / unknown
- ▶ Then, even simple frame does *not* reveal true preferences

How to measure welfare effect of intervention θ ?

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How to measure welfare effect of intervention θ ?

Intuition

We should observe $x_{complex} = x_{simple}$ for anyone who understands the complex frame, regardless of other biases.

Assumptions

- ▶ Subject receives delayed stochastic payoff with CDF F .
- ▶ Financial instrument z is framing of F that leads subject to misperceive distribution as G
- ▶ $v_{simple}^V, v_{complex}^V$ valuations according to utility function V
(observed, but biased)
- ▶ $v_{simple}^U, v_{complex}^U$ valuations according to utility function U
(unbiased, but unobserved)

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Theorem

If U and V are continuously differentiable and the consumer has α shares of the financial instrument z , then,

$$\lim_{\alpha \rightarrow 0} \left[\frac{v_{complex}^U(z, \theta, \alpha) - v_{simple}^U(z, \alpha)}{v_{complex}^V(z, \theta, \alpha) - v_{simple}^V(z, \alpha)} \right] = K.$$

Observed welfare loss is proportional to true welfare loss, up to first-order approximation.

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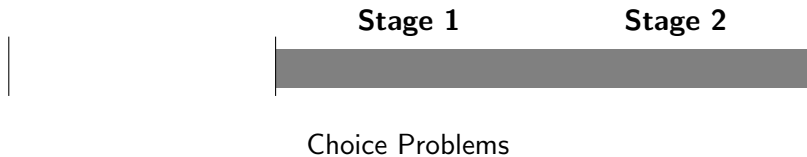
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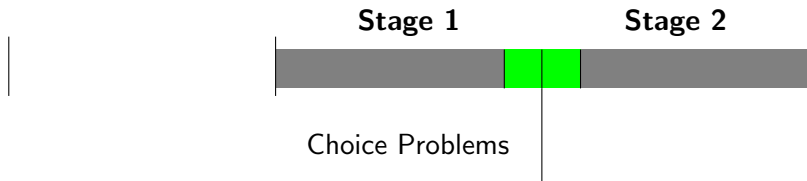
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Timeline



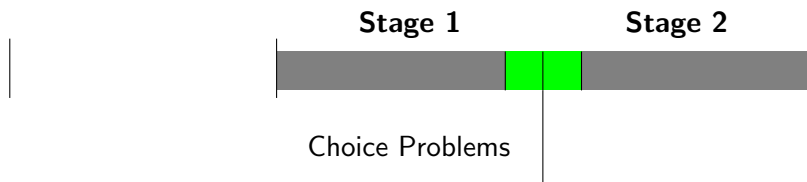
Timeline



Communication:

Discussion

Timeline



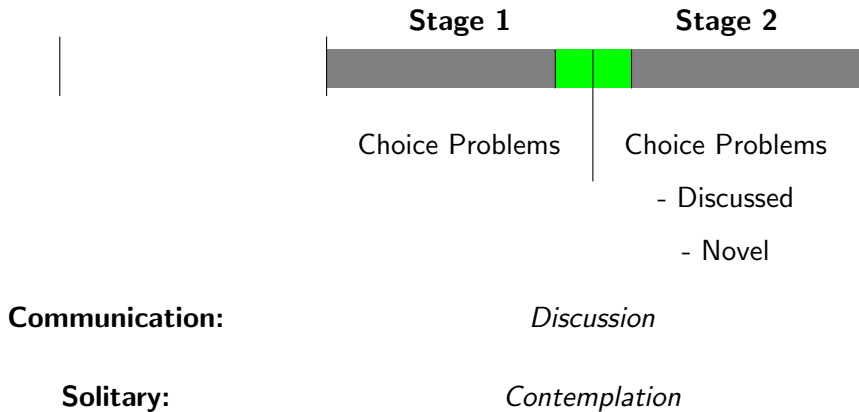
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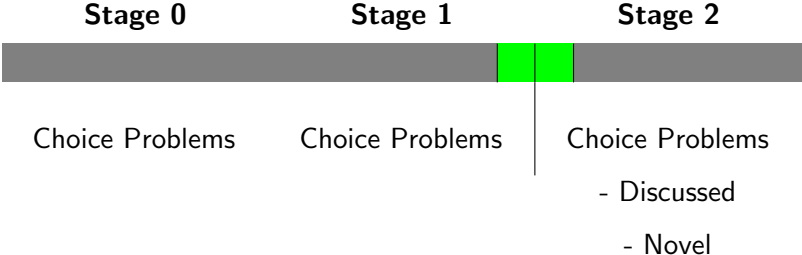
Solitary:

Contemplation

Timeline



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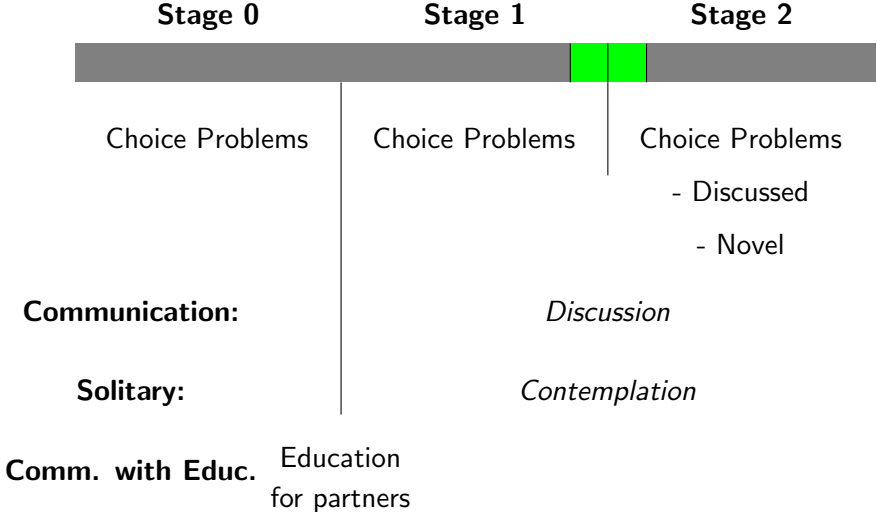
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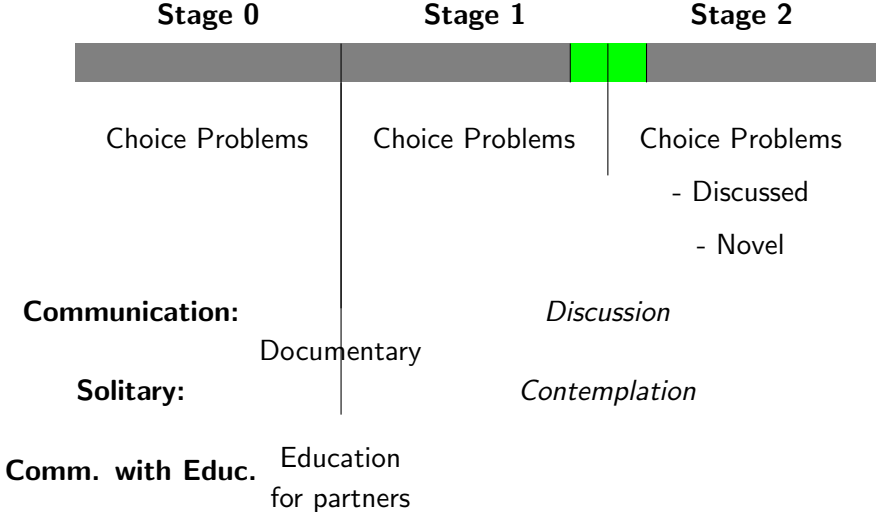
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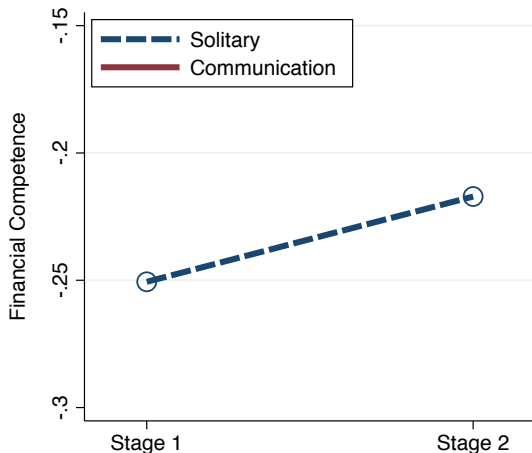
Data

- ▶ 263 subjects at University of Birmingham, UK
- ▶ Mean payment £26.55

Dependent Variable

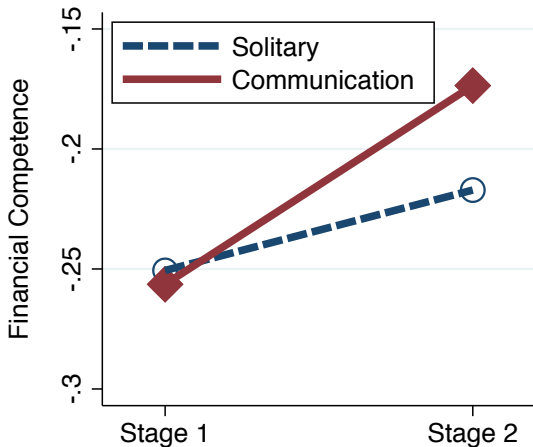
- ▶ Financial competence $-|v^{complex} - v^{simple}|$
- ▶ Normalized as if future value of each investment was £1

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. On average, subjects value £1 at £0.87 and at £0.84 if it is paid with a delay of 48 and 72 days, respectively.

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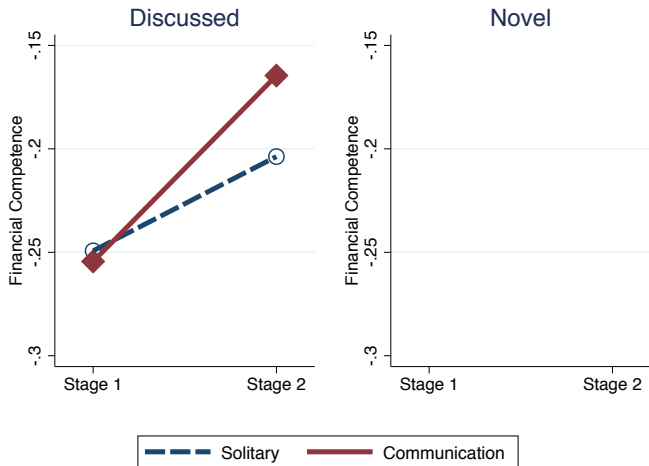
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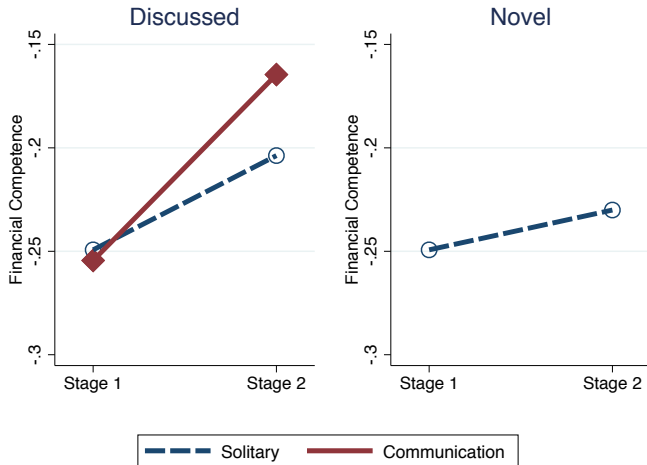
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Conceptual learning or choice mimicry?



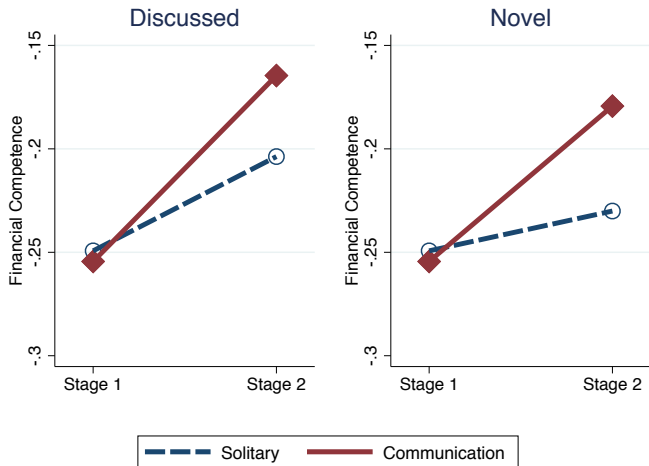
Slopes: solitary-discussed: 0.022 (s.e. 0.022), solitary-novel: 0.009 (s.e. 0.022), communication-discussed: 0.096*** (s.e. 0.019), communication-novel 0.081*** (s.e. 0.018). *Diff-in-diff:* discussed: 0.073** (s.e. 0.030), novel 0.071** (s.e. 0.029). OLS, s.e. clustered by subject.

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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

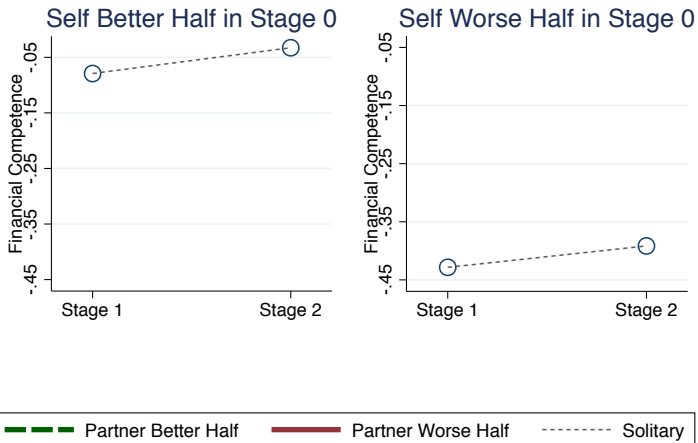
Skill transmission more effective between people of similar skills who can address concerns at appropriate level and pace (e.g. Booij, et al. 2016 and Feld, Zolitz, 2016 with univ. students)

- ▶ 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?

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	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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Between people with similar skill levels, as transmission requires 'common language'

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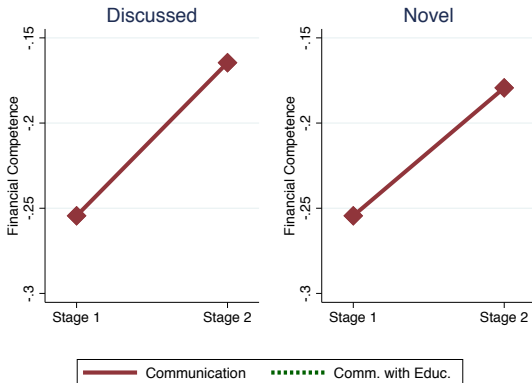
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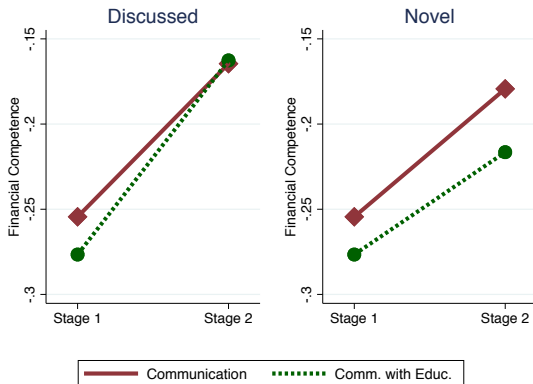
Indirect Effect of Education?

(Direct effect: Competence -0.192 with education, -0.274 without, $p < 0.1$)



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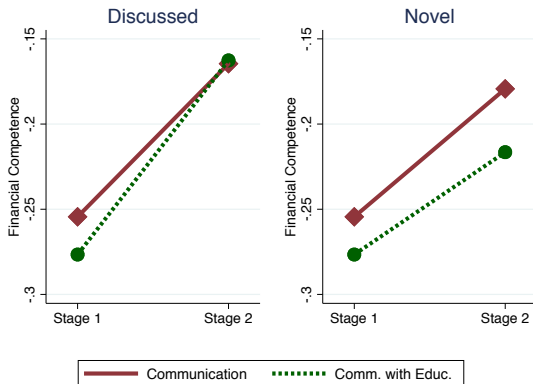
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Slopes: Diff-in-diff communication with educated / not educated: 0.042 , $p = 0.016$.

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(Direct effect: Competence -0.192 with education, -0.274 without, $p < 0.1$)



Discussion in % of pairs	<i>No educ.</i>	<i>One educ.</i>
Highlight similarities	59%	43%
Compound interest formula	63%	42%
Rule of 72	2%	73.2%

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

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A: "The pie is good example?" B: "Yeah, that was much easier."

(Later in the conversation:)

B: "You've just taught me more maths than I've ever learned, ever."

Implicit Assumptions of the Financial Competence measure

1. Financial instrument does not change V_1 or V_2 , it matters only through (perceived) payoff-consequences.
2. Policy θ does not change preferences V_1 or V_2