Risky Choices and Solidarity:
Why experimental design matters

Conny Wunsch and Renate Strobl

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University of Basel

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Outline

Motivation

Informal risk sharing in developing countries:

- Informal exchanges of gifts or loans between family/community members
- Motivated by social preferences and reciprocity

Research question:

- Does informal monetary support depend on whether individuals (donors and beneficiaries) can control their risk exposure?

Motivation:

- Sources of income shocks:

    - risky choices (e.g. investments)
    - completely random events (e.g. accidents which affect work capacity)

- Distinction is relevant for solidarity:

    - beneficiaries who take risk and fail might be held responsible
    - donors might feel less obliged to share profits from investments

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Literature:

- Risk taking *(opting into risk)*:
    - ▶ lab experiments with European/US students
      (e.g. Cappelen et al. 2013, Cettolin/Tausch 2015, Trhal/Radermacher 2009)
    - ▶ lower mutual support when neediness is self-inflicted

- Insurance *(opting out risk)*:
    - ▶ field-/lab experiments in developing countries
      (e.g. Landmann et al. 2012, Lenel/Steiner 2017, Lin et al. 2014)
    - ▶ availability of insurance reduces informal support

Our contributions:

- First evidence for effect of risk taking on solidarity for developing countries

- Test three competing explanations for effect

- Show that randomization is not sufficient to identify effect and offer a solution

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The experiment
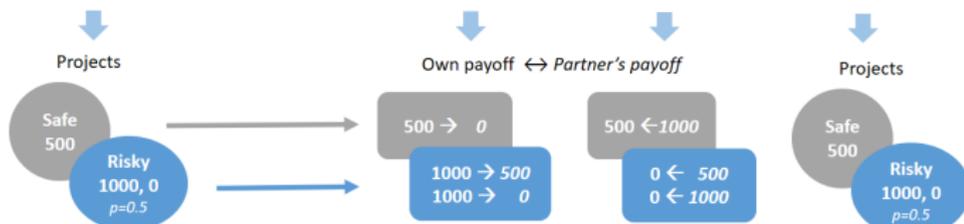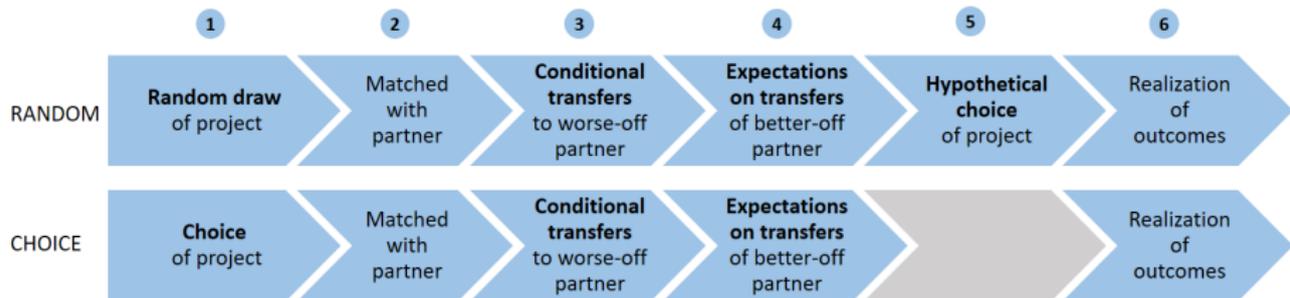## Experimental setting

Location:

- *Busara Center for Behavioral Economics* in Nairobi/Kenya
- 25 networked PCs with touchscreens, ztree, research assistants
- large subject pool with residents of Nairobi informal settlements (extreme poverty and uncertainty, solidarity deeply rooted in culture)

Main experiment:

- 13 sessions in December 2017
- 238 participants: residents of the Kibera slum, completed at least primary school
- between-subject design
- structure: risk preference game - risk solidarity game - questionnaire

The experiment
Risk solidarity game

The experiment
Implications of design

- Becoming needy (i.e. having payoff of 0):
  - ▶ just bad luck in RANDOM
  - ▶ involves a voluntary decision for lottery in CHOICE

- Risky project is mean-preserving spread of safe project:
  - ▶ risk can be avoided at no cost
  - ▶ simple benchmark: upper/lower bound for situations where risk is desirable/undesirable

- Anonymous one-shot game:
  - ▶ excludes social pressure or reciprocity considerations
  - ▶ isolates effect of risk taking on giving motivated by social preferences
  - ▶ we estimate an upper bound on the effect expected outside the lab

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Hypotheses

Table 1: Expected treatment effects (CHOICE vs. RANDOM) on transfers to worse-off partners

DONOR'S PROJECT	ALL	SAFE	RISKY		
Partner's project	*all*	*risky*	*safe*	*risky*	*risky vs. safe*
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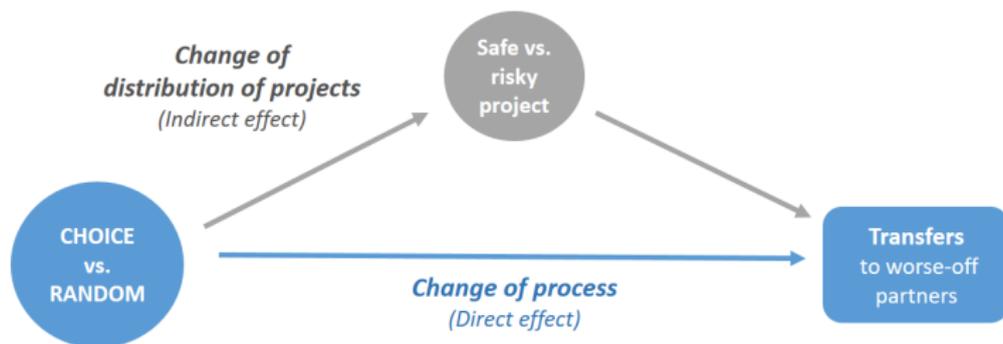| DONOR'S PROJECT	ALL	SAFE	RISKY		
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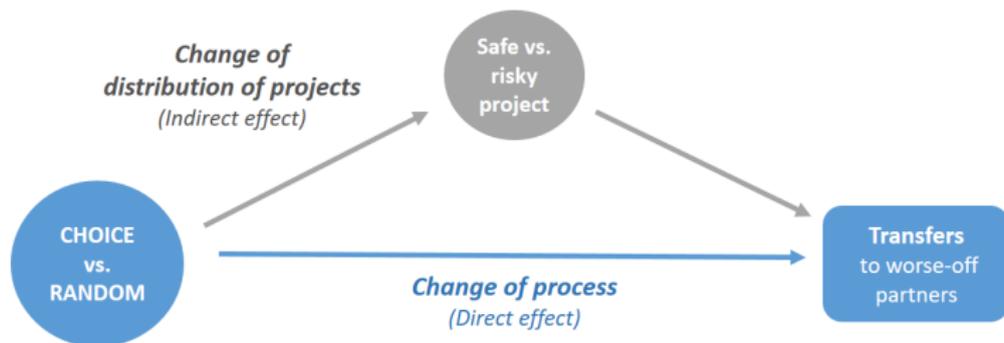
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Higher willingness to support subjects making the same choice of project.					
H4. Less sharing of income from risk taking (D'Exelle/Verschoor 2015)		= 0	< 0	< 0	= 0
Donors feel less obliged to share income from risk taking compared to income received by pure luck.					

Identification strategy

- Distribution of projects differs across treatments
  - ▶ CHOICE: all subjects receive their preferred project ($R_i = R_i^*$ for all subjects)
  - ▶ RANDOM: some subjects get unwanted projects ($R_i \neq R_i^*$ for some subjects)

- Average transfers in RANDOM yield biased counterfactual of interest:
  - ▶ being in a non-preferred project may negatively affect transfers
  - ▶ risk preferences may correlate with other-regarding preferences
  - ▶ share of subjects in the risky project differs across treatments

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- Elicit preferred project for all subjects in RANDOM by hypothetical question
- Compare transfers of subjects with $R_i = R_i^*$ across treatments

RANDOM	CHOICE
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Preferred projects must be correctly measured in RANDOM:

- Extensive tests confirm this: ▸ Tests

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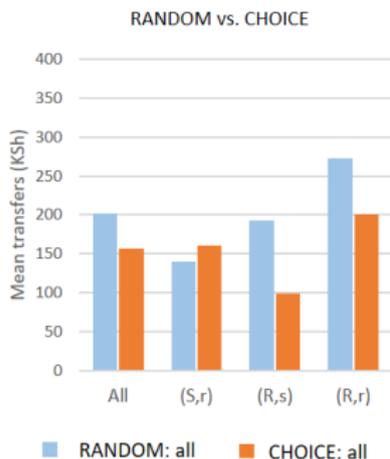| RANDOM	CHOICE
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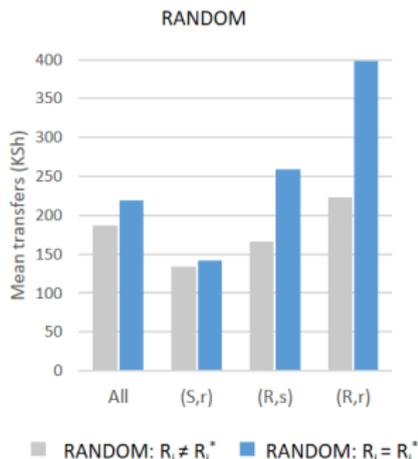- Extensive tests confirm this: ▶ Tests

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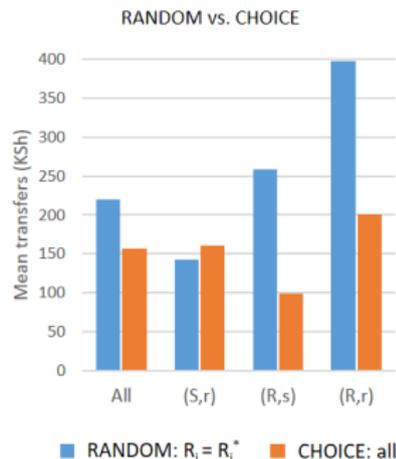
Transfers to worse-off partners

(a) Naïve treatment effects

(b) Unwanted projects matter

(c) Causal treatment effects

Results

Transfers to worse-off partners

Table 3: Expected and estimated causal treatment effects (CHOICE vs. RANDOM)

Donor's project	ALL	SAFE	RISKY		
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Estimated causal treatment effects:					
Given transfers (KSh)	-62.2^{+}	18.7	-159.9**	-198.2*	-38.3
Observations	*223*	*143*	*40*	*40*	*80*

Note: ***/**/*/+: significance on the 1/5/10/15% level based on wild bootstrap (999 rep.).

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Given and expected transfers

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Expected transfers (KSh)	-71.3[**]	-13.5	-101.8[*]	-244.8[**]	-143.0
Observations	*223*	*143*	*40*	*40*	*80*

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Conclusion

Free choice of risk exposure reduces transfers to worse-off partners:

- Reduction of transfers in CHOICE is
    - ▶ limited to donors who prefer the risky project
    - ▶ independent of parner's choice of project

- Explanation for reduced transfers:
    - ▶ rejection of attributions of responsibility or choice egalitarianism
    - ▶ risk takers seem to feel less obliged to share payoff from risky option but also expect less support if project fails (in line with D'Exelle/Verschoor 2015)

Policy implications:

- Anticipating interactions of formal policies with informal insurance:
    - ▶ Promotion of entrepreneurship/risky, profitable investments: negative effects on overall solidarity depend on share of individuals who take up these risky opportunities

Thank you very much for your attention!

Identification

Characteristics of participants

Table 1: Basic characteristics of participants by treatment and project

	All			Random			Choice		
	Random	Choice	Difference	Safe	Risky	Difference	Safe	Risky	Difference
	(1)	(2)	(2)-(1)	(3)	(4)	(4)-(3)	(5)	(6)	(6)-(5)
Age	30.5	31.4	0.90	30.1	30.8	0.70	31.2	32.1	0.90
Male	0.33	0.35	0.02	0.30	0.35	0.05	0.32	0.48	0.16
Schooling	11.5	11.2	-0.30	11.2	11.9	0.70	11.3	11.2	-0.10
Married	0.45	0.48	0.03	0.43	0.47	0.03	0.46	0.57	0.10
Occupational status									
Employed	0.13	0.14	0.01	0.15	0.10	-0.05	0.13	0.17	0.05
Self-employed	0.19	0.27	0.08	0.15	0.23	0.08	0.25	0.35	0.10
Unemployed	0.50	0.45	-0.05	0.50	0.50	0.00	0.46	0.39	-0.07
Other	0.18	0.14	-0.04	0.20	0.17	-0.03	0.16	0.09	-0.07
Social preferences									
Inequality aversion 1 (disadv.)	0.18	0.20	0.03	0.23	0.12	-0.12*	0.19	0.26	0.07
Inequality aversion 2 (adv.)	0.24	0.32	0.08	0.30	0.18	-0.12	0.31	0.39	0.09
Fairness	0.32	0.34	0.02	0.32	0.32	0.00	0.35	0.30	-0.04
Trust	0.13	0.19	0.07	0.15	0.10	-0.05	0.21	0.13	-0.08
Risk preference	3.42	3.59	0.18	3.47	3.37	-0.10	2.99	6.09	3.10***
Observations	*120*	*118*		*60*	*60*		*95*	*23*	

Note: */**/*** indicates significance on the 10/5/1% level.

- randomization of treatments: 2/50 variables significant on the 10% level
- randomization of projects in RANDOM: 3/50 variables significant on the 10% level

Did we measure preferred projects correctly?
Tests

- Correlation between actual and preferred projects in RANDOM

	Assigned	Preferred
RISKY Project	.500	.242
(1) Difference	T-test	P-value
	.258	(.000)
(2) Correlation	Pearson	P-value
	.097	(.290)

- Comparison of characteristics of individuals who prefer the same project across treatments
  - Individuals preferring the SAFE project: 3/50 variables significant (10%)
  - Individuals preferring the RISKY project: 2/50 variables significant (5%)

Did we measure preferred projects correctly?
Tests

- Auxiliary experiment: incentivized choice of project with third subject pool
  - Comparison of characteristics (RANDOM vs. Auxiliary) of individuals with same preferred project: 2/50 variables significant (10%)
- Distribution of projects by treatment:

	RANDOM				CHOICE		Auxiliary		Diff.	
	Assigned		Preferred							
	(1)		(2)		(3)		(4)		(3)-(2)	(4)-(2)
	N	%	N	%	N	%	N	%		
SAFE	60	50.0	91	75.8	95	80.5	86	77.5	4.7	1.6
RISKY	60	50.0	29	24.2	23	19.5	25	22.5	(.38)	(.77)
N	120		120		118		111			