Follow the leader? A field experiment on social influence

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Introduction

- How someone's choices are influenced by others is a key question in economics
  - Different influencers have been found to matter
  - Peer effects and leaders in social groups

- Particularly important when designing development programs
  - E.g.: Agricultural technology adoption and information provision

- Does the identity of the messenger matter in influence over risky decisions?
  - Artefactual field experiment in real-life farmer groups
  - Compare influence of extension agents, club chairs, and peers

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Contributions

- Study peer effects in a controlled setting that limits social learning and social image
- Directly compare peers to two types of leaders in real life environment of high policy interest
- Complement work in Ben Yishay and Mobarak (2019) who find incentivized peers to be more influential than extensionists and lead farmers. Our study:
  - Holds intensity of influence constant
  - Does not conflate influencer effort with influence
  - Examines a general risky decision
  - Careful estimate of differential influence in Malawi extension sector vs. general capacity of peers and leaders to influence decisions

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Background

- Rural smallholder farmers engaged in limited cash cropping in Central Malawi

- Farmers self-organized in farmer clubs associated with NASFAM
  - Clubs vary in size: 3 – 15, modal = 10
  - Clubs led by elected club chair
  - Club chairs coordinate input acquisition, output sales

- Sample of farmers from an RCT evaluating impacts of a series of transfer and extension treatment conditions (Ambler, de Brauw and Godlonton, 2018)

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Experimental design

- Participant type
  - First movers (FM) – elicit decisions used to provide information to SM
  - Second movers (SM) – elicit decisions before and after being provided FM decision

- First mover types
  - Peer: Randomly determined member of own farmer group
  - Formal Leader: Elected leader of own farmer group
  - External Leader: Agricultural extensionist assigned to own farmer group
  - Quasi-random control group

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Decision

- How much of an endowment (1000 MWK) to invest in risky asset (y)

$$\pi(y) = \begin{cases} 4y & if\ coin\ flip = heads\ (p = 0.5) \\ 0 & if\ coin\ flip = tails\ (p = 0.5) \end{cases}$$

- Initial Decision
  - (All) Private decision
  - (All) No information about others' decisions
- Revised Decision
  - (FM) Public decision
  - (SM) Private decision, but after information about FM revealed

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Implementation timeline

Date	Activity
1 year prior	RCT baseline survey conducted
2 months prior	Randomization (using club membership listings)
5-45 days prior	External leader choices elicited
2-11 days prior	RCT follow-up survey 1 (FU1) conducted
1-3 days prior	Schedule visit
Day of	1. Arrival to community
	2. Simultaneous interview of first movers (peer + club chair)
	3. Enumerators meet to share first mover decisions
	4. Simultaneous interview of second movers
	5. Payment of first movers
1 year after	RCT follow-up survey 2 (FU2) conducted

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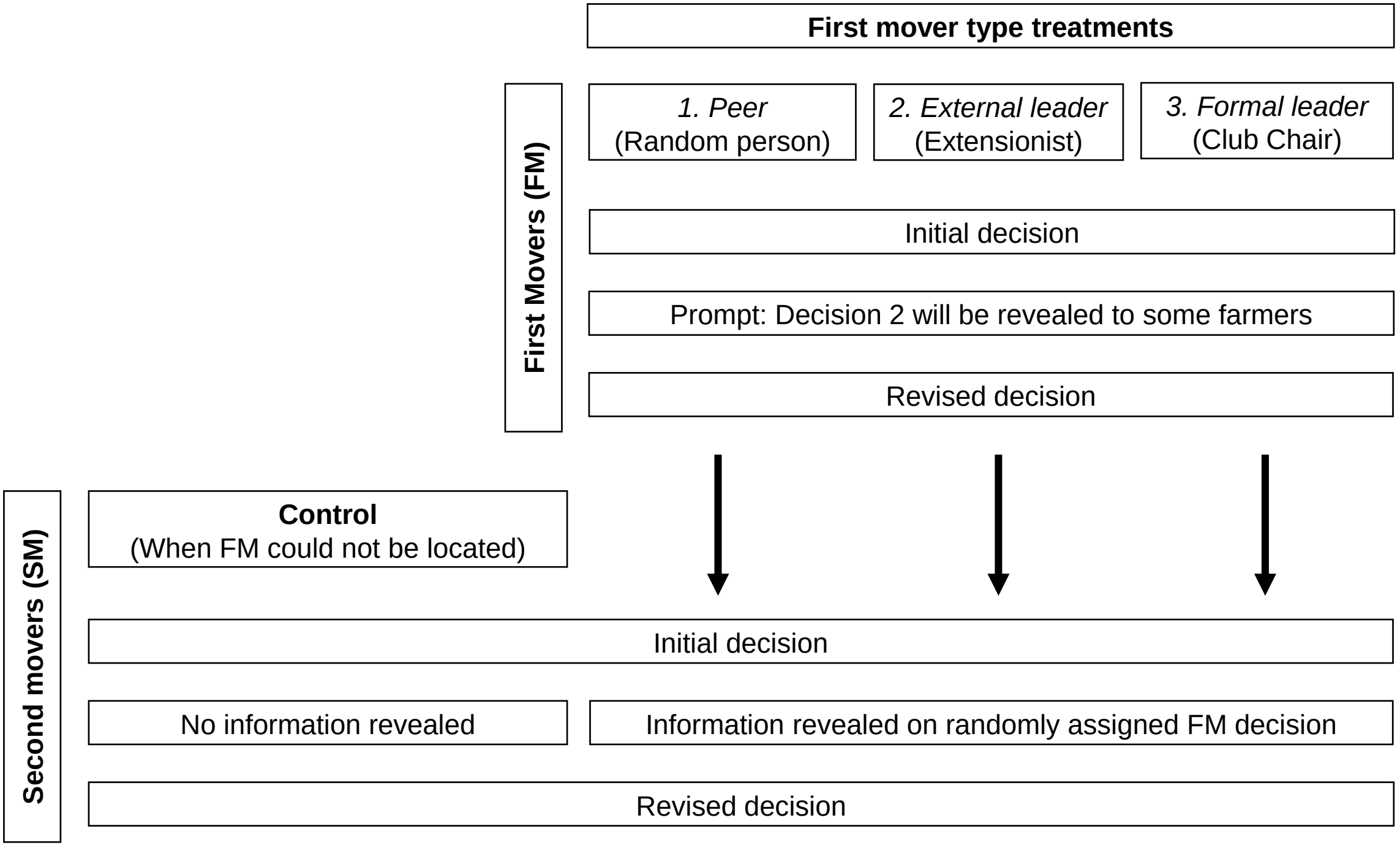
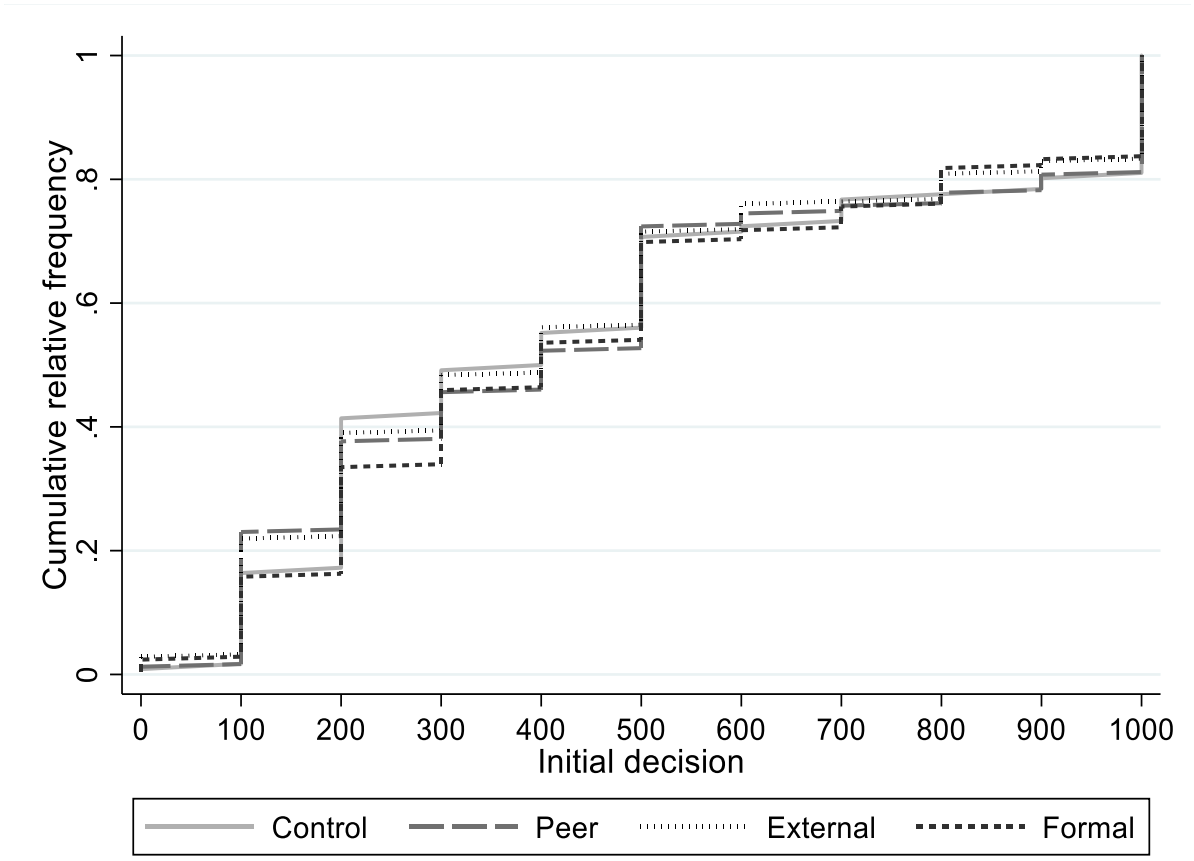

First mover type treatments
First Movers (FM)
1. Peer
(Random person)
2. External leader
(Extensionist)
3. Formal leader
(Club Chair)
Initial decision
Prompt: Decision 2 will be revealed to some farmers
Revised decision
Second movers (SM)
Control
(When FM could not be located)
Initial decision
No information revealed
Information revealed on randomly assigned FM decision
Revised decision

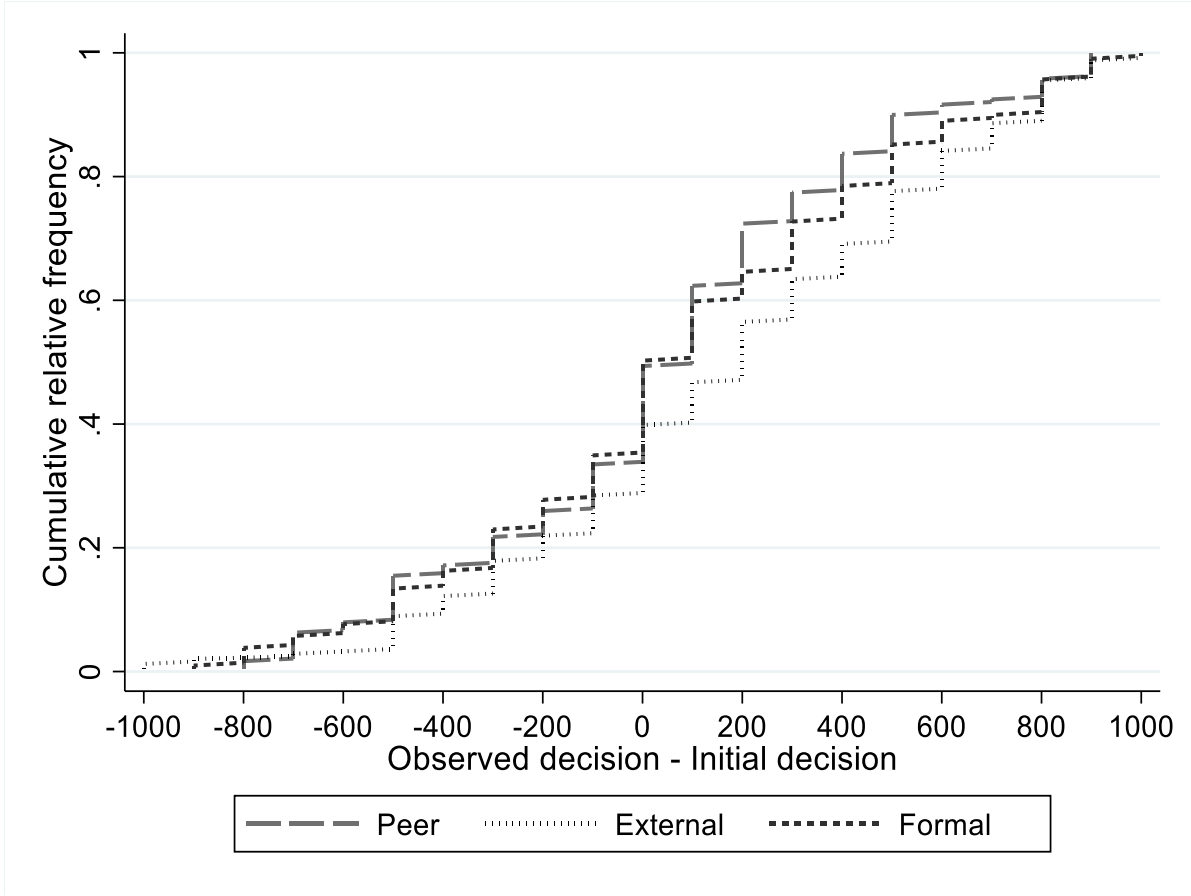
Participant characteristics

	Second movers N=810 (1)	*First movers* Peer N=110 (2)	External leader N=14 (3)	Formal leader N=94 (4)	t-test p-value: (1)=(2) (5)
Female	0.663	0.591	0.429	0.516	0.120
Age	42.019	40.818	26.429	44.077	0.391
No schooling	0.189	0.173	0.000	0.099	0.667
Some primary schooling	0.563	0.509	0.000	0.495	0.309
Completed at least primary schooling	0.248	0.318	1.000	0.407	0.142
Household size	5.630	5.427	1.692	6.000	0.322
Land owned	3.781	3.724	1.104	4.200	0.812
GVAO (in USD)	576.480	526.619		624.909	0.481
Value of assets (in USD)	118.389	118.098		187.171	0.991

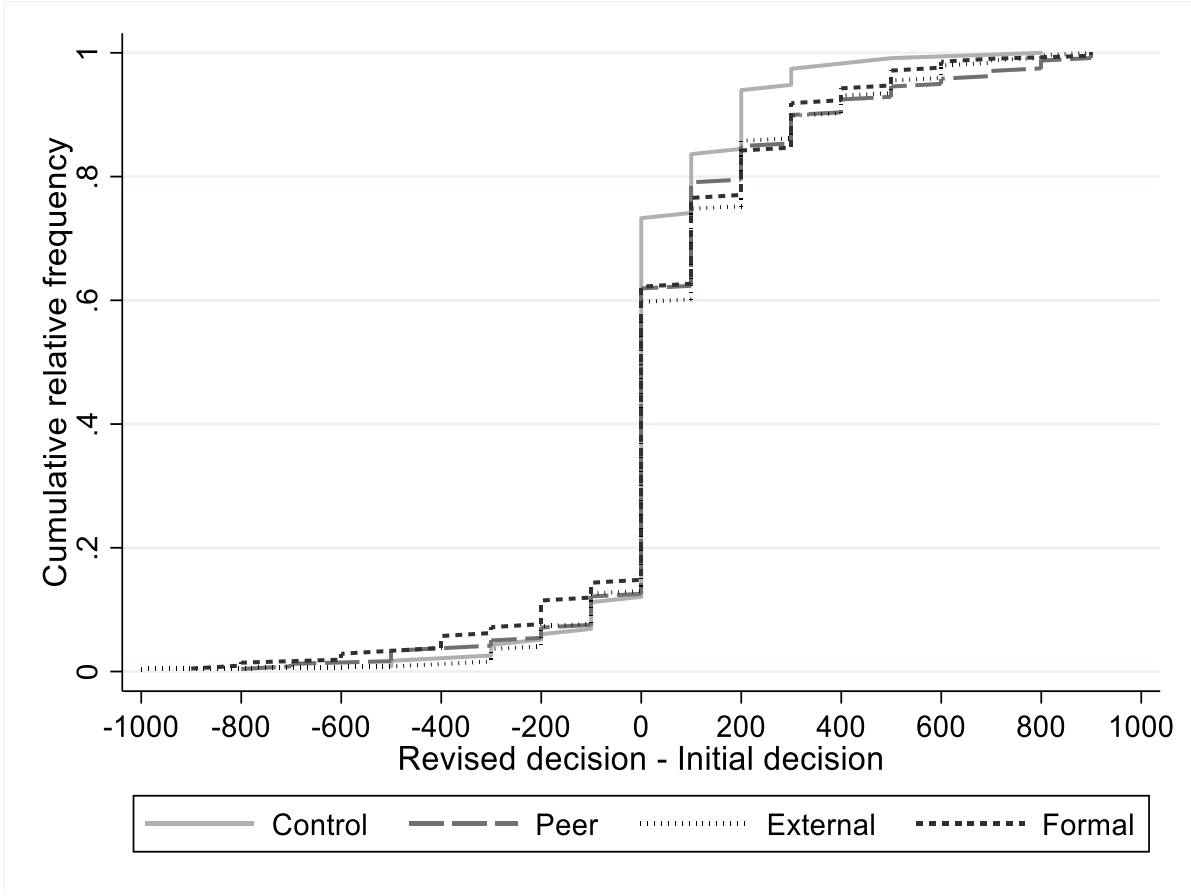
Second mover initial decision



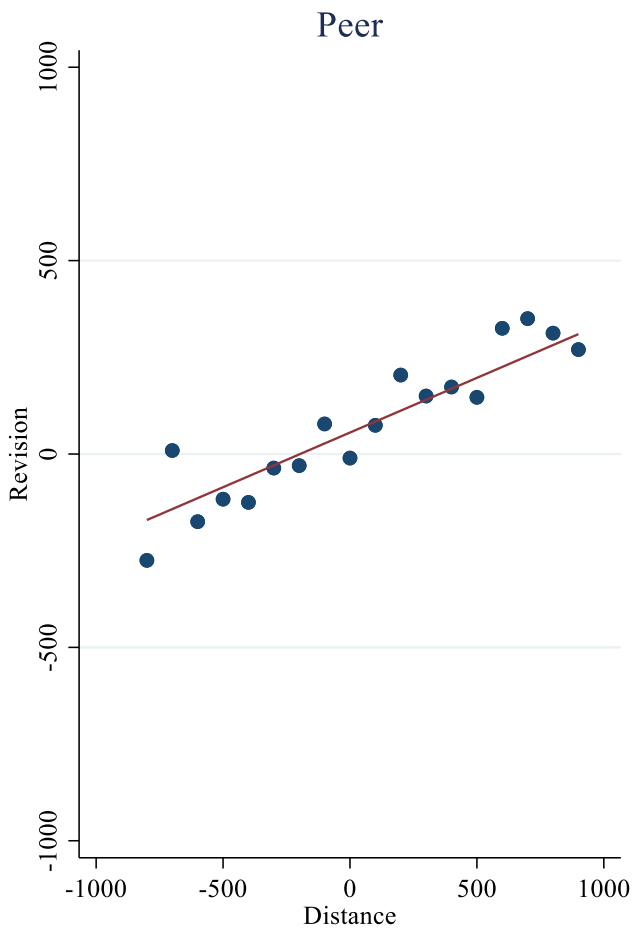
Distance (observed - initial)

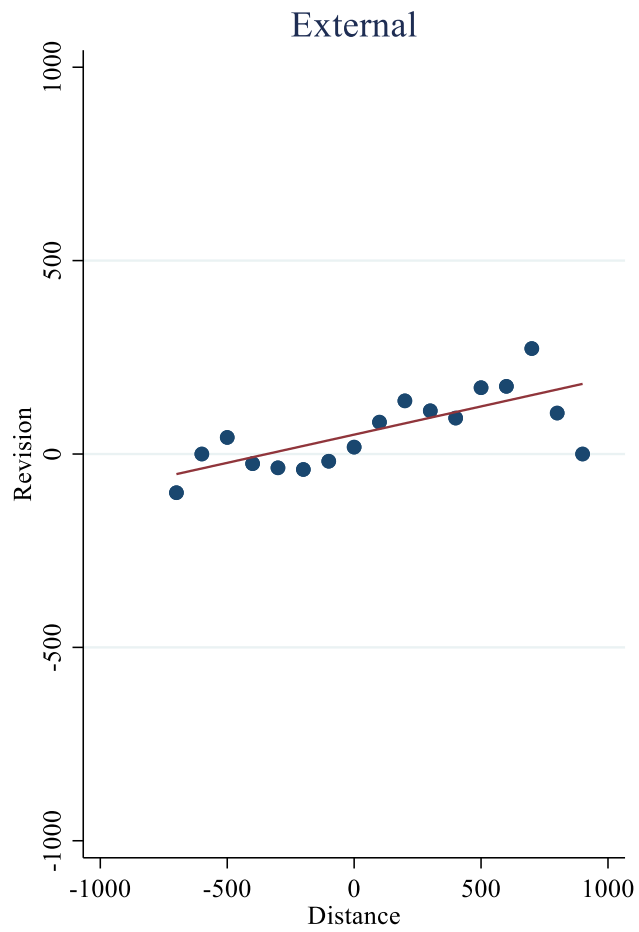


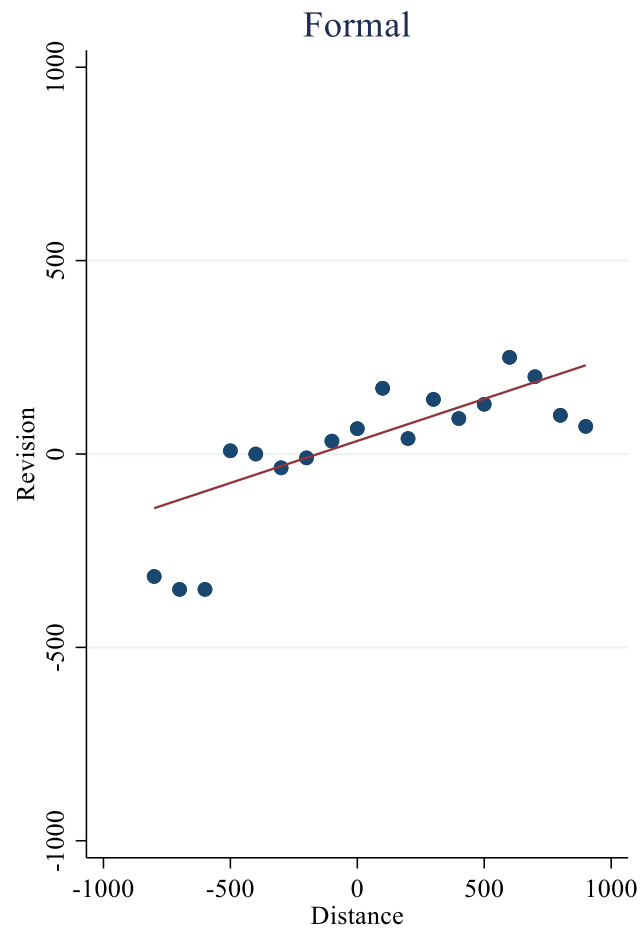
Second mover revision



Revision as function of distance







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Empirical strategy

Compare second mover choices by treatment to control group

$$revision_{ic} = \beta_0 + \beta_1 Peer_{ic} + \beta_2\, External_{ic} + \beta_3 Formal_{ic} + \beta_4 d_{ic} + \gamma_e + \delta_c + X'\theta_{ic} + \epsilon_{ic}$$

- Control for initial decision, enumerator fixed effects, RCT fixed effects, second mover characteristics.
- Standard errors clustered by club

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Does the size of the revision vary by first mover?

	Dependent variable =			
	Revised		*Revision*	
	(1)	(2)	(3)	(4)
Peer	0.125**	0.115**	41.510*	40.332*
	(0.049)	(0.05)	(24.359)	(23.174)
External	0.148***	0.148***	44.431*	46.121**
	(0.053)	(0.053)	(23.208)	(22.306)
Formal	0.138**	0.133**	17.965	19.096
	(0.05)	(0.057)	(26.202)	(25.145)
Decision 1	-0.000***	-0.000***	-0.261***	-0.263***
	(0.000)	(0.000)	(0.026)	(0.026)
P-values from the following tests:				
Peer=External	0.609	0.462	0.888	0.782
Peer=Formal	0.735	0.66	0.351	0.401
External=Formal	0.849	0.762	0.264	0.252
Mean control	0.379	0.379	31.034	31.034
N	810	810	810	810
Includes:				
Enumerator dummies	Yes	Yes	Yes	Yes
Controls		Yes		Yes

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Enumerator dummies	Yes	Yes	Yes	Yes
Controls		Yes		Yes

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Does the size of the revision vary by first mover?

- Second movers respond to the information about first mover choices
- Peers and external leaders appear to be most influential when considering the size of the revision
- But these comparisons do not hold constant the information provided to second movers
  - Distributions of first mover choices vary, distance larger for external leaders

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Does the response to distance vary by first mover?

- Second analysis: How do individuals respond to distance between their initial decision and the observed choice of the first mover?
  - Relative influence of first mover type for same investment decision

- Estimate the following model separately for each first mover type

$$revision_{ic} = \beta_0 + \beta_1(obs_{FM} - d)_{ic} + \beta_7 d_{ic} + \gamma_e + \delta_c + X'\theta_{ic} + \epsilon_{ic}$$

- β_1 is a measure of how the second mover's decision changes with the distance from the observed decision

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Does the response to distance vary by first mover?

	Dependent variable = Revision		
	Peer	External	Formal
	(1)	(2)	(3)
Distance from observed decision	0.246***	0.054	0.160***
	(0.063)	(0.047)	(0.055)
Decision 1	-0.106	-0.195***	-0.138**
	(0.065)	(0.057)	(0.06)
P-values from the following tests:			
Peer X dist. = Ext X dist.		0.015	
Peer X dist. = Formal X dist.			0.267
Ext X dist. = Formal X dist.			0.174
N	239	246	209
Includes:			
Enumerator dummies	Yes	Yes	Yes
Controls	Yes	Yes	Yes

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Does the response to distance vary by first mover?

	Dependent variable = Revision		
	Peer	External	Formal
	(1)	(2)	(3)
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	(0.063)	(0.047)	(0.055)
Decision 1	-0.106	-0.195***	-0.138**
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P-values from the following tests:			
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Ext X dist. = Formal X dist.			0.174
N	239	246	209
Includes:			
Enumerator dummies	Yes	Yes	Yes
Controls	Yes	Yes	Yes

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Does the response to distance vary by first mover?

- Peer first movers are the most influential
  - For every increase in 100 MWK in the distance, farmers in the peer group increase their investment by 24 MWK
- Formal leaders are the next most influential
- In this specification external leaders do not have a statistically significant influence on second mover behavior
- Differences are not driven by differences in observable characteristics of the first movers (age, gender, education, social status, etc.)

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Channels of influence

- Controlled experiment limits social learning and social image considerations

- Two different channels may be driving peer effects
  - Information: People observe actions of others and condition their behavior on that information
  - Social utility: Preferences over joint decisions, risk, and payoffs. Includes both risk sharing and social comparison incentives

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Channels of influence

- Each first mover randomized into one treatment to identify channels

- Treatments
  - Pure Information: FM choice is elicited but not carried out. SMs receive information, but social utility is ruled out
  - Idiosyncratic risk: FM choice carried out, different coin flips determine FM and SM outcomes. SMs derive utility by sharing risk/outcomes with first movers
  - Perfectly correlated risk: FM choice carried out, same coin flips determine FM and SM outcomes. Social comparison may drive positive response to information but SMs may respond negatively to FM choice if they share risks

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Channels of influence

	Dependent variable = Revision		
	(1)	(2)	(3)
Panel A - Peer	Pure Information	IID	PCR
Distance from observed decision	0.292**	0.326***	0.058
	(0.129)	(0.091)	(0.083)
N	82	68	89

- Similar positive response for information and idiosyncratic risk, suggest information channel important
- Null effect in correlated risk suggests risk sharing is driving choices

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Channels of influence

	Dependent variable = Revision		
	(1)	(2)	(3)
Panel B - External leader	Pure Information	IID	PCR
Distance from observed decision	-0.009	0.044	0.168**
	(0.053)	(0.103)	(0.072)
N	85	85	76

- Participants do not respond to information for external leaders
- May be driven by social comparison motives

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Channels of influence

	Dependent variable = Revision		
	(1)	(2)	(3)
Panel C - Formal leader	Pure Information	IID	PCR
Distance from observed decision	0.075	0.133*	0.268**
	(0.102)	(0.077)	(0.112)
N	71	62	76

- Social comparison appears to be primary channel for formal leaders
- Power is limited, some evidence for smaller role of information

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Conclusion

- Peers (and formal leaders) may be the most trusted opinion agents in communities

- But our results on channels suggest different actors might be most influential in different circumstances
  - Leaders in environments where risk taking involves common risk scenarios such as insurance products for extreme weather events
  - Peers for other types of information and technologies that deal with idiosyncratic risks.

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