Rent-seeking in the field: Experimental evidence from rural villages in Mozambique

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Motivation

Motivation

- Corruption and rent-seeking behavior are harmful to development and growth. [Mauro (1995), Murphy et al. (1993)]
  - Rent-seeking: diversion of productive resources towards political agents in exchange for rents.

- Difficult to measure, particularly at local levels where there may be lower oversight.

- This is especially true in contexts with high levels of corruption and low levels of transparency.

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    - Corrupt practices are endemic at all levels of Mozambican society, Tvedten and Picardo (2018).

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  - Corrupt practices are endemic at all levels of Mozambican society, Tvedten and Picardo (2018).

- Recent discovery of large reserves of natural gas and other natural resources.

Context

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- 206 villages [Avg pop. 1300] participated in our study - conducted as part of a larger RCT - Armand et al. (2019).

- Participants are the village leader and 10 representative citizens, per village.

- Who are the leaders?
  - Village leaders are official political representatives of the village.
  - They are elected by the communities, but must be in line with central government party.
  - Main authority: resolve land disputes, enforce justice and be consulted regarding rural development or aid programs.

Experiment and Measurements

The Rent-Seeking Game

- 1 leader and 10 citizens. Decisions are anonymous. One-shot game.

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- After citizens take decisions, the **leader**:
    1. Receives all gifts.
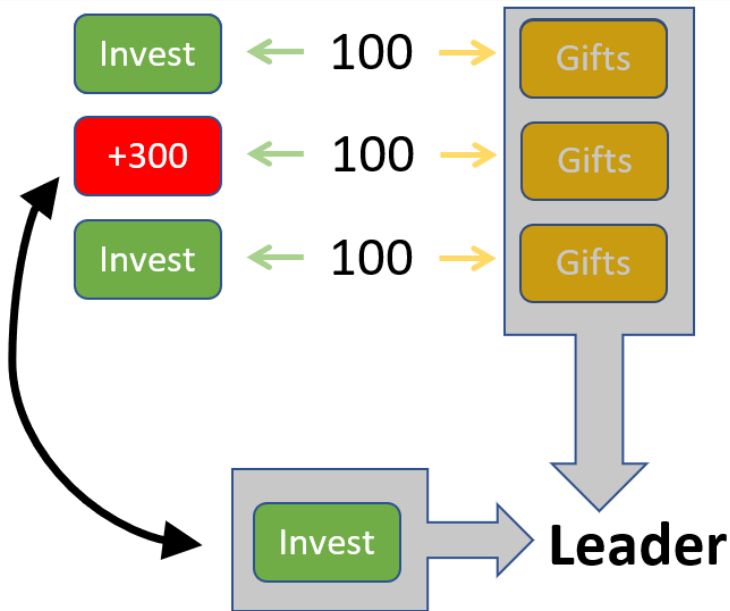   2. Chooses one citizen to receive that citizen's investment. Chosen citizen receives 300 Mts.

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- Final payoffs:
    1. Citizens:
        - If chosen citizen: 300.
        - If not chosen: Investment in self.
    2. Leaders: Total gifts + chosen citizen's investment.

- Unique SPNE: Zero gifts.

- Leader has dominant strategy to choose highest investment.

- Using backwards induction ALL citizens Invest 100 (choose 0 gifts).

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- Citizen payoffs: 120 (expected).

- Leader payoff: 100.

Theoretical Predictions II

- Note that if the game were ∞-repeated the leader can adopt a strategy to induce gift giving and receive a higher payof.

- E.g. 3 citizens give 100 gifts (payoff: 100 in expectation)
- 7 citizens give 0 gifts (payoff: 100).

- Leader payoff: 300.
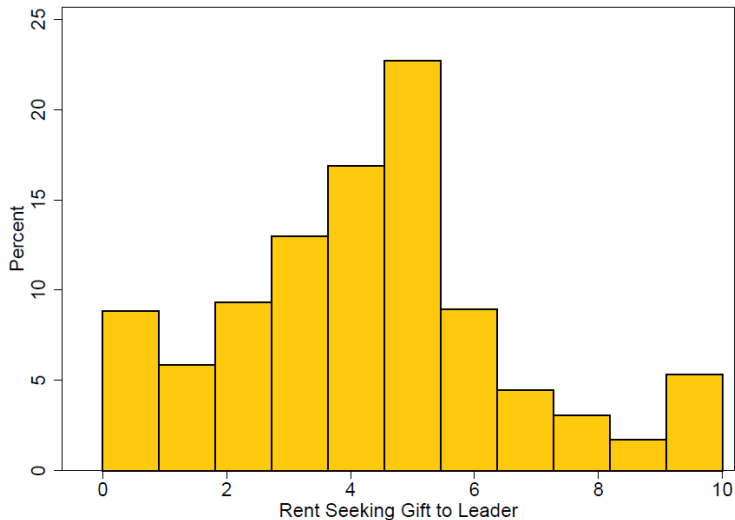
Number of tokens sent as gift to leader. $N = 2050$.

Summary Statistics: Leader Behavior
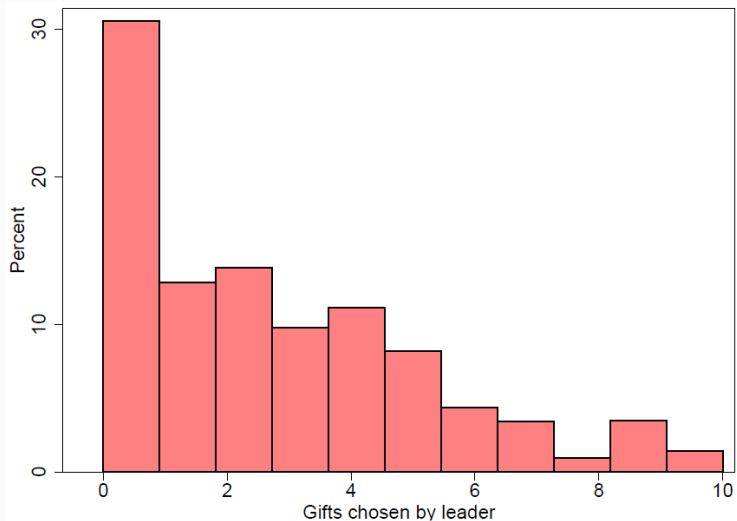
Number of gift tokens given by individual chosen by leader. $N = 205$.

1. Citizens earn on average 80 (SPNE prediction: 120).

2. Leaders earn on average 500 (SPNE prediction: 100).

Payoffs

1. Citizens earn on average 80 (SPNE prediction: 120).

2. Leaders earn on average 500 (SPNE prediction: 100).

- Appears that individuals sent + gifts because they believed leader would choose them.
- Average belief about gift leader chooses: 46.
- Leaders are on average wealthier than citizens.
- Gifts to leader increase inequality.

Other Measurements

- Detailed survey data on leaders, citizens, and their communities.
- Other lab in the field games: (Trust/PGG/Dictator).
- SCAs/Passive observation:
    1. Survey Q: "The best way to overcome problems is to pay bribes" (Agree or Disagree) [Favorable bribe attitude - L & C].
    2. Passive O: Leaders were given 400 Mts to buy refreshments for community. We (passively) observe how much they kept for themselves. [Amount Appropriated - L only].

Hypotheses

1. Citizens who express favorable bribe attitudes send more gifts.

2. Citizens send more gifts to more corrupt leaders.

3. More corrupt leaders select those citizens who send more gifts.

- We treat leader appropriation of funds and leader bribe attitudes as proxies for corruption.

Main Results

Citizen Behavior (Own attitudes)

Table 1: Determinants of Citizen Rent-Seeking

Dependent Variable: Gifts to Leader				
Regressor	(1)	(2)	(3)	(4)
Attitudes towards bribes	−2.880**	−1.140	−0.685	−0.810
	(1.420)	(1.353)	(1.413)	(1.336)
Sent in Trust Game		3.600***	3.490***	3.250***
		(0.331)	(0.320)	(0.325)
Female respondent			3.534**	2.735*
			(1.446)	(1.407)
Age in years			−0.001	−0.032
			(0.186)	(0.187)
Age (squared)			0.000	0.000
			(0.002)	(0.002)
Primary education			0.910	0.635
			(1.385)	(1.326)
Secondary or higher education			−0.250	−2.432
			(2.378)	(2.204)
Ravens Score			0.345	0.297
			(0.273)	(0.265)
Individual Controls	NO	NO	YES	YES
Village Controls	NO	NO	NO	YES
R^2	0.00	0.11	0.12	0.14
Observations	1990	1990	1966	1966

Analysis uses OLS regression. Difference significant from zero at * 0.1; ** 0.05; *** 0.01. Robust standard errors clustered at village level.

Citizen Behavior (Leader's attitudes)

Table 2: Determinants of Citizen Rent-Seeking

	Dependent Variable: Gifts to Leader			
Regressor	(1)	(2)	(3)	(4)
Leader's attitude towards bribes	8.909***	6.333***	5.685***	5.606***
	(2.392)	(1.918)	(1.822)	(1.861)
Sent in Trust Game		0.344***	0.336***	0.315***
		(0.033)	(0.032)	(0.032)
Female respondent			3.719***	2.801**
			(1.443)	(1.385)
Age in years			−0.040	−0.078
			(0.183)	(0.184)
Age (squared)			0.001	0.001
			(0.002)	(0.002)
Primary education			1.466	1.176
			(1.364)	(1.315)
Secondary or higher education			0.592	−1.851
			(2.353)	(2.209)
Ravens Score			0.173	0.123
			(0.264)	(0.258)
Individual Controls	NO	NO	YES	YES
Village Controls	NO	NO	NO	YES
R^2	0.02	0.11	0.12	0.14
Observations	2032	2032	2007	2007

Analysis uses OLS regression. Difference significant from zero at * 0.1; ** 0.05; *** 0.01. Robust standard errors clustered at village level.

Citizen Behavior (Leader's appropriation)

Table 3: Determinants of Citizen Rent-Seeking

		Dependent Variable: Gifts to Leader		
Regressor	(1)	(2)	(3)	(4)
Amount leader appropriated	12.781***	9.911***	9.031***	7.734***
	(2.915)	(2.586)	(2.599)	(2.809)
Sent in Trust Game		0.339***	0.333***	0.312***
		(0.032)	(0.031)	(0.032)
Female respondent			3.487**	2.702**
			(1.397)	(1.368)
Age in years			−0.065	−0.078
			(0.183)	(0.182)
Age (squared)			0.001	0.001
			(0.002)	(0.002)
Primary education			1.798	1.384
			(1.338)	(1.288)
Secondary or higher education			0.557	−1.670
			(2.221)	(2.185)
Ravens Score			0.182	0.142
			(0.263)	(0.257)
Individual Controls	NO	NO	YES	YES
Village Controls	NO	NO	NO	YES
R^2	0.02	0.12	0.13	0.14
Observations	2042	2042	2017	2017

Analysis uses OLS regression. Difference significant from zero at * 0.1; ** 0.05; *** 0.01. Robust standard errors clustered at village level.

Leader Behavior (Leader's attitudes)

Table 4: Determinants of Leader Rent-Seeking

Dependent Variable: Gifts chosen by Leader

Regressor	(1)	(2)	(3)	(4)
Leader's attitude towards bribes	9.169*	10.059**	7.694	8.544*
	(5.118)	(4.759)	(4.700)	(4.804)
Amount returned in trust game		0.162**	0.151**	0.152**
		(0.070)	(0.072)	(0.073)
Leader's age			−2.668*	−2.762*
			(1.479)	(1.476)
Age (squared)			0.022	0.023*
			(0.013)	(0.013)
Primary education			−15.576	−16.391
			(10.568)	(11.475)
Secondary or higher education			−19.670*	−18.309
			(10.720)	(11.959)
Dictator Giving			3.975*	3.531
			(2.264)	(2.324)
Leader Controls	NO	NO	YES	YES
Village Controls	NO	NO	NO	YES
R^2	0.02	0.05	0.16	0.21
Observations	202	202	202	202

Analysis uses OLS regression. Difference significant from zero at * 0.1; ** 0.05; *** 0.01. Robust standard errors clustered at village level. Dependent variable ranges from 0 (no gift chosen) to a maximum of 10. The Nash profit maximizing action is for the leader to choose the smallest gift available.

Leader Behavior (Leader's appropriation)

Table 5: Determinants of Leader Rent-Seeking

		Dependent Variable: Gifts chosen by Leader		
Regressor	(1)	(2)	(3)	(4)
Amount leader appropriated	11.328**	12.126**	9.263*	12.913**
	(4.915)	(4.881)	(4.967)	(5.694)
Amount returned in trust game		0.178**	0.158**	0.154**
		(0.070)	(0.070)	(0.071)
Leader's age			−2.396	−2.533*
			(1.518)	(1.499)
Age (squared)			0.020	0.021
			(0.014)	(0.014)
Primary education			−16.606	−17.271
			(10.188)	(10.995)
Secondary or higher education			−20.520**	−18.682
			(10.354)	(11.534)
Dictator Giving			4.244*	3.946*
			(2.249)	(2.313)
Leader Controls	NO	NO	YES	YES
Village Controls	NO	NO	NO	YES
R^2	0.02	0.05	0.16	0.21
Observations	203	203	203	203

Analysis uses OLS regression. Difference significant from zero at * 0.1; ** 0.05; *** 0.01. Robust standard errors clustered at village level. Dependent variable ranges from 0 (no gift chosen) to a maximum of 10. The Nash profit maximizing action is for the leader to choose the smallest gift available.

Conclusion

- Rent-seeking and corruption are harmful to growth and development, at all levels.

- Difficult to measure. We created a new lab in the field rent-seeking game to measure corruption.
  - We tested in the game using actual village leaders and their citizens in a setting with high levels of endemic corruption.
  - We find that behavior in the game is highly correlated with survey and observed measures of corruption.

- Presents a key way forward in the measurement of local corruption, which is otherwise difficult to observe using traditional survey methods.

Thank you!

Summary Statistics: Leader Behavior