

Inequality, institutions and cooperation

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- ▶ We examine whether the relationship between inequality and cooperation varies with institutional quality (proxied by corruption).
- ▶ Heterogeneity in groups makes it hard to determine what a 'fair' contribution is, and induces uncertainty about principles of fairness.
 - ▶ Many individuals have reciprocal preferences (Fischbacher et al. 2001; Fischbacher & Gächter 2010).
- ▶ Hypothesis: low quality institutions are associated with pessimistic beliefs about cooperation, and the effect of this pessimism is higher under inequality.

This paper

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- ▶ Introduce experimental variation in initial endowments.
- ▶ Combine experimental data with information on incidence of local corruption.

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Why Vietnam?

- ▶ Collective action issues are important in Vietnam.
- ▶ Recent increase in inequality in rural Vietnam (Benjamin et al. 2017).
- ▶ Vietnam ranks among the most corrupt and least transparent countries (Transparency International 2017; Bai et al. 2019).

Preview of results

- ▶ Aggregate contributions are lower with unequal endowments.
- ▶ Within unequal groups, 'poor' individuals contribute a higher share to the public good than 'rich' individuals.
- ▶ Corruption exacerbates the effect of inequality on cooperation.
- ▶ Own contributions are positively correlated with beliefs about others' contributions.
- ▶ Inequality and corruption have a joint adverse effect on beliefs about others' contributions.

Related literature

- ▶ Mixed evidence on links between economic inequality and collective action (Anderson et al. 2008; Baland & Platteau 1999; Buckley & Croson 2006; Cherry et al. 2005; Visser & Burns 2015).

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- ▶ Corruption is widespread in developing countries; imposes large economic costs (Mauro 1995; Olken & Pande 2012).
 - ▶ Rent extraction reduces the efficiency of public goods provision (Beekman et al. 2014; Reinikka & Svensson 2004).
 - ▶ Corruption affects motivation to contribute (Cagala et al. 2017).

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 - ▶ Corruption affects motivation to contribute (Cagala et al. 2017).
- ▶ Institutions affect individual preferences and beliefs (Gächter & Renner 2018; Bigoni et al. 2018; Di Tella et al. 2007)

Study design

The study consists of:

- ▶ 3 experiments: public goods game, trust game, honesty game
- ▶ Post-experiment questionnaire
- ▶ Commune-level questionnaire

Public goods game

Standard linear one-shot public goods game. Randomly and anonymously created groups of four.

- ▶ Each group member indicates amount to allocate to the group account, remainder accrues to their private account.
- ▶ Total amount allocated to the group account by all members doubled and then distributed equally.
- ▶ The payoff function is: $\pi_i = E_i - c_i + 0.5 \sum_{j=1}^4 c_j$

Two versions

- ▶ Equal initial endowments: VND 60,000 for each group member.
- ▶ Unequal initial endowments: 2 group members receive VND 30,000 each ('low') and the other two get VND 90,000 each ('high').
- ▶ Total initial endowment held constant at VND 240,000.

Incentivized belief elicitation

Subjects asked to estimate the average of other group members' contributions

- ▶ Presented with possible ranges of allocations to the group account and asked to indicate the range they believed the other 3 group members had on average allocated to the group account.
 - ▶ Equal endowments: VND 30,000 for accurate belief, and 0 otherwise.
 - ▶ Unequal endowments: subjects indicate how much they believe the other 'low' and 'high' group members allocated, on average, to the group account. VND 30,000 for each accurate belief, and 0 otherwise.

Study procedure

- ▶ The study was conducted in 56 rural communes in the Red River Delta and Mekong River Delta.
- ▶ Study team contacted households to advertise the study.
- ▶ Sessions conducted in spaces provided by the commune headquarters.



Experimental session



Study procedure

- ▶ 112 sessions across 56 communes. Sessions with both versions of the public goods game in each commune. Between-subjects design.
- ▶ 12 subjects per session per commune. Sample size: 1,344 subjects.
- ▶ No feedback between tasks.
- ▶ One task randomly chosen for payments at the end of the experiments.
- ▶ Average earnings: 142,000 VND, included 50,000 VND show-up fee (USD 6.5).
- ▶ Average session duration: 2-2.5 hours.

Commune-level corruption indicator

Subjects indicate how much they agree with each statement.

	Statement	Mean (1)	SD (2)
1	In my commune/ward, officials divert funds from the state budget for their personal benefit.	0.16	0.37
2	People have to pay bribes in order to obtain a land title.	0.28	0.45
3	People like me have to bribe to receive medical treatment in the district's hospitals.	0.33	0.47
4	Parents have to pay bribes to teachers for their children to be better attended at the primary school nearest to my house.	0.26	0.44
5	In my commune/ward, officials receive kickbacks in exchange for approval of construction permits.	0.20	0.40
6	In order to get a job in the government, people have to pay a bribe.	0.37	0.48

Notes: This table reports participants' experiences of corruption as reported in the post-experiment survey.

- ▶ Commune-level index is average of the individual responses.
- ▶ 'High corruption' communes are those with the commune-level index above the sample median.

Validating corruption measure

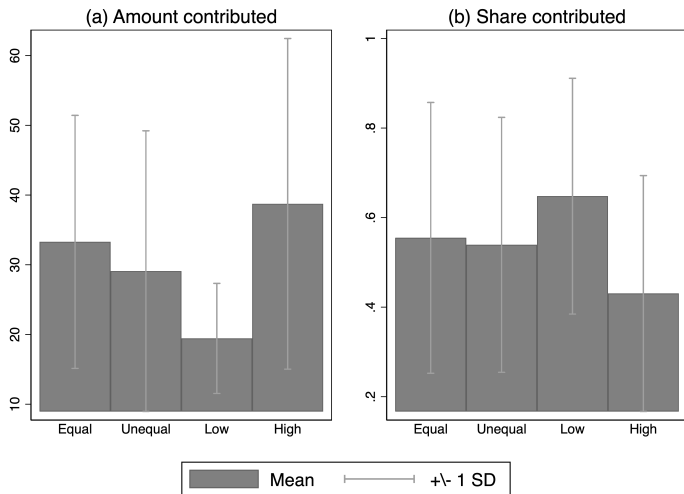
- ▶ Corruption statements taken from a survey 'Vietnam Provincial Governance and Public Administration Performance Index' (PAPI).
 - ▶ Average responses from our survey fairly strongly correlated with the PAPI 'control of corruption' province-level index for 2017 (Spearman's rank correlation = 0.5; $p = 0.019$).
- ▶ No significant differences in reported corruption based on exposure to the inequality treatment ($p = 0.64$)

Summary statistics

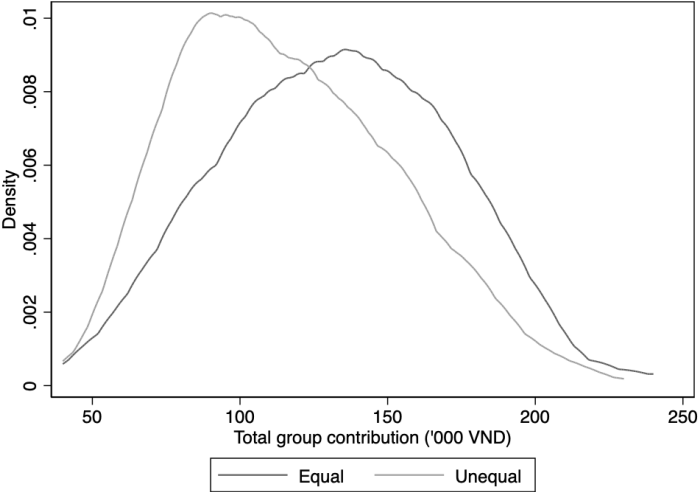
Variable	Full sample (1)	Equal Endowments (2)	Unequal Endowments (3)	Difference (4)
Female	0.52 (0.50)	0.51 (0.50)	0.53 (0.50)	0.02
Age	38.76 (10.58)	39.13 (10.57)	38.39 (10.58)	-0.74
High school education	0.54 (0.50)	0.53 (0.50)	0.56 (0.50)	0.03
Married	0.81 (0.39)	0.83 (0.38)	0.79 (0.41)	-0.04*
Kinh	0.93 (0.26)	0.92 (0.27)	0.93 (0.25)	0.01
Assets	9.04 (2.59)	9.11 (2.59)	8.97 (2.58)	-0.14
Poor household	0.08 (0.27)	0.08 (0.27)	0.08 (0.27)	0.00
F-test joint significance				0.93
F-test p-value				0.48
Number of sessions	112	56	56	
Observations	1344	672	672	1344

Our study subjects are generally comparable to the rural population of these provinces [▶ Comparison with VHLSS](#)

Public good contributions and endowment heterogeneity



Inequality lowers aggregate contributions



Matched differences in public good contributions

	Equal Endowments (1)	Unequal Endowments (2)	Wilcoxon paired signed-rank test (p-value) (3)
Panel A: Full sample			
Amt. contributed	33.284	29.089	0.001
Share contributed	0.555	0.539	0.374
Beliefs: av. share contributed	0.544	0.470	0.000
Panel B: High corruption communes			
Amt. contributed	35.565	28.007	0.000
Share contributed	0.593	0.526	0.035
Beliefs: av. share contributed	0.561	0.458	0.001
Panel C: Low corruption communes			
Amt. contributed	31.003	30.169	0.362
Share contributed	0.517	0.552	0.387
Beliefs: av. share contributed	0.528	0.482	0.142

Notes: Amount contributed reported in '000 VND.

Empirical specification

$$C_{isj} = \alpha_0 + \alpha_1 \text{Unequal}_{sj} + \sum_{l=2}^K \alpha_l X_{isj} + v_j + \epsilon_{isj}$$

$$C_{isj} = \beta_0 + \beta_1 \text{LowEndw}_{isj} + \beta_2 \text{HighEndw}_{isj} + \sum_{l=3}^K \beta_l X_{isj} + v_j + \epsilon_{isj}$$

$$C_{isj} = \gamma_0 + \gamma_1 \text{LowEndw}_{isj} + \gamma_2 \text{HighEndw}_{isj} + \gamma_3 \text{LowEndw}_{isj} * \text{HighCorruption}_j \\ + \gamma_4 \text{HighEndw}_{isj} * \text{HighCorruption}_j + \sum_{l=5}^K \gamma_l X_{isj} + v_j + \epsilon_{isj}$$

Where:

- ▶ X_{isj} : gender, age, education, marital status, ethnicity, asset ownership and poverty status
- ▶ v_j : commune fixed effects
- ▶ Standard errors are clustered at session level

Amount & share contributed to public good

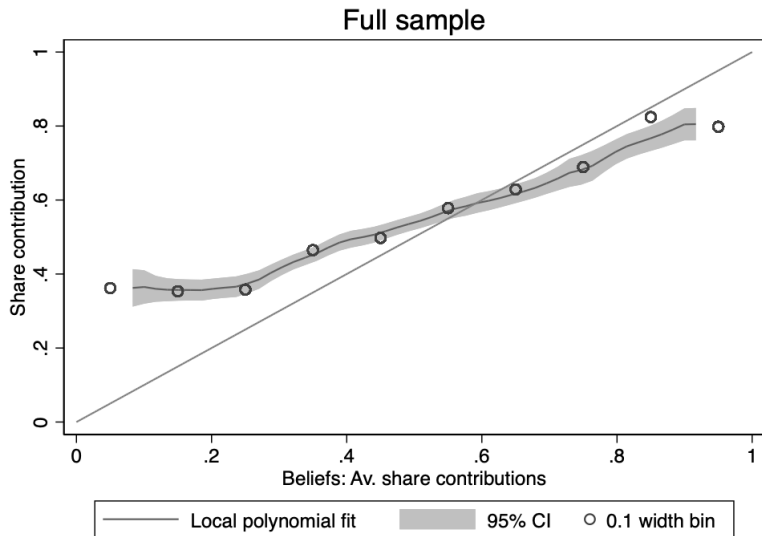
	Amount contributed				Share contributed			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Unequal endowment	-4.196*** (0.886)	-3.937*** (0.886)			-0.016 (0.014)	-0.012 (0.014)		
Low endowment			-13.850*** (0.878)	-13.559*** (0.882)			0.093*** (0.017)	0.098*** (0.017)
High endowment			5.458*** (1.299)	5.638*** (1.296)			-0.124*** (0.017)	-0.121*** (0.017)
Female		-2.110* (1.144)		-1.962* (1.048)		-0.027 (0.017)		-0.029* (0.016)
Age		0.238*** (0.071)		0.226*** (0.067)		0.004*** (0.001)		0.004*** (0.001)
High school education		-0.556 (1.314)		-0.371 (1.169)		-0.005 (0.019)		-0.007 (0.019)
Married		-1.307 (1.803)		-0.756 (1.588)		0.007 (0.025)		0.001 (0.025)
Kinh		-1.201 (2.471)		-0.146 (2.265)		0.006 (0.037)		-0.006 (0.036)
Assets		0.328 (0.272)		0.288 (0.255)		0.002 (0.004)		0.003 (0.004)
Poor household		1.540 (2.115)		0.859 (2.095)		-0.002 (0.035)		0.006 (0.033)
Constant	33.284*** (0.627)	24.429*** (4.033)	33.284*** (0.627)	23.710*** (3.701)	0.555*** (0.010)	0.399*** (0.063)	0.555*** (0.010)	0.407*** (0.060)
Wald test p-value:								
$\beta(Low) = \beta(High)$			0.00	0.00			0.00	0.00
Commune FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	1344	1343	1344	1343	1344	1343	1344	1343
R-squared	0.067	0.084	0.19	0.21	0.068	0.085	0.14	0.15

Share contributed and corruption

	(1)	(2)	(3)	(4)
Unequal endowment	0.035 (0.027)	0.038 (0.028)		
Unequal*High Corruption	-0.102*** (0.038)	-0.099** (0.038)		
Low endowment			0.134*** (0.028)	0.139*** (0.027)
High endowment			-0.063* (0.033)	-0.064* (0.034)
Low Endw*High Corruption			-0.082* (0.043)	-0.082* (0.042)
High Endw*High Corruption			-0.122*** (0.041)	-0.114*** (0.043)
Constant	0.555*** (0.009)	0.396*** (0.063)	0.555*** (0.009)	0.406*** (0.058)
Wald test p-value:				
$\gamma(Low) + \gamma(Low * HighCorr) = \gamma(High) + \gamma(High * HighCorr)$			0.00	0.00
Controls	No	Yes	No	Yes
Commune FE	Yes	Yes	Yes	Yes
N	1344	1343	1344	1343
R-squared	0.075	0.092	0.14	0.16

Notes: Controls include age, gender, education, ethnicity, marital status, household assets, and household poverty status. Standard errors clustered at the commune level are reported in parentheses. * significant at 10%,** significant at 5%,*** significant at 1%.

Share contributed and beliefs



Share contributed and beliefs

	Full sample	Equal	Unequal	Unequal	
	(1)	(2)	(3)	Low (4)	High (5)
Beliefs: av. share contributed	0.592*** (0.039)				
Beliefs: share contributed		0.590*** (0.056)			
Beliefs: share contributed by Low			0.217*** (0.071)	0.359*** (0.076)	0.061 (0.075)
Beliefs: share contributed by High			0.413*** (0.052)	0.276*** (0.069)	0.556*** (0.077)
Constant	0.148** (0.057)	0.144* (0.084)	0.158* (0.084)	0.269** (0.110)	0.069 (0.104)
Wald test p-value:					
$\beta(\text{BeliefLow}) = \beta(\text{BeliefHigh})$			0.084	0.521	0.000
Controls	Yes	Yes	Yes	Yes	Yes
Commune FE	Yes	Yes	Yes	Yes	Yes
N	1343	672	671	335	336
R-squared	0.27	0.37	0.29	0.42	0.39

Notes: Controls include age, gender, education, ethnicity, marital status, household assets, and household poverty status. Standard errors clustered at the session level are reported in parentheses. * significant at 10%, ** significant at 5%, *** significant at 1%.

Beliefs, inequality and corruption

	Beliefs: av. share contributed	
	(1)	(2)
Unequal endowment	-0.044*	
	(0.024)	
Unequal*High Corruption	-0.057	
	(0.034)	
Low endowment		-0.031
		(0.024)
High endowment		-0.058*
		(0.029)
Low Endw*High Corruption		-0.067*
		(0.035)
High Endw*High Corruption		-0.047
		(0.039)
Constant	0.452***	0.452***
	(0.048)	(0.048)
Wald test p-value:		
$\gamma(Low) + \gamma(Low * HighCorr) = \gamma(High) + \gamma(High * HighCorr)$		0.67
Controls	Yes	Yes
Commune FE	Yes	Yes
N	1343	1343
R-squared	0.12	0.12

Notes: Controls include age, gender, education, ethnicity, marital status, household assets, and household poverty status. Standard errors clustered at the commune level are reported in parentheses. * significant at 10%, ** significant at 5%, *** significant at 1%.

Conclusion

- ▶ Inequality potentially harms collective action in rural areas of developing countries.
- ▶ This effect is intensified by poor governance.
- ▶ Supports the case for policies that keep inequality in check and strengthen institutions and accountability of local governments.

Thank you!

Comparison with VHLSS

Variable	Sample (1)	VHLSS 2016 (2)
Female	0.52	0.52
Age	38.76	42.43
High School Education	0.54	0.27
Married	0.81	0.78
Kinh	0.93	0.95
Poor Household	0.08	0.08
Observations	1344	6438

Notes: This table compares the experiment sample to those in the 2016 Vietnam Household and Living Standards Survey (VHLSS 2016). The VHLSS 2016 figures are based on data on respondents of rural communes in the same 22 provinces as the experiment sample. The VHLSS did not collect information on the same assets reported in Table 1. Poor Household is an indicator variable for respondent's household being classified as poor by the government.