

## **SUPPLEMENTARY MATERIAL**

### **THE POLITICS OF ORDER IN INFORMAL MARKETS** Evidence from Lagos

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*World Politics*

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# Appendix for “The politics of order in informal markets: Evidence from Lagos”

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## 1 Collusion

As noted, the possibility of leader–politician collusion complicates the argument presented here. Prior research suggests that collusion exacerbates *private* predation: Marx et al. (2013) have shown that there are higher levels of private leader predation when public officials and group leaders collude in slums, and LeBas (2013) shows that private militias become more predatory when they partner with the state.

How common is collusion? Previous studies have found that two factors enable collusion: 1) the frequency of interactions between parties and 2) the ability to detect defections from collusive arrangements (Ivaldi et al., 2007). Most associations in developing countries meet the first condition, since interactions with local politicians tend to be common. However, there may be serious constraints on politicians’ ability to detect defections. In Lagos markets, defection would involve a leader under-reporting collected fees to a local politician. It would be very difficult for the politician to ascertain if this were happening. Market leaders have high levels of information about what happens in their group, which is challenging for outsiders to obtain. When firms collude, they develop sophisticated monitoring strategies to detect cheating (Marshall and Marx, 2012); I expect the hurdles to circumventing cheating to be substantial in this context. Additionally, as noted in the paper, the group leaders studied here rarely have anything to gain from colluding with politicians. Partnering with the government does not give them more rights or abilities to extort from traders.

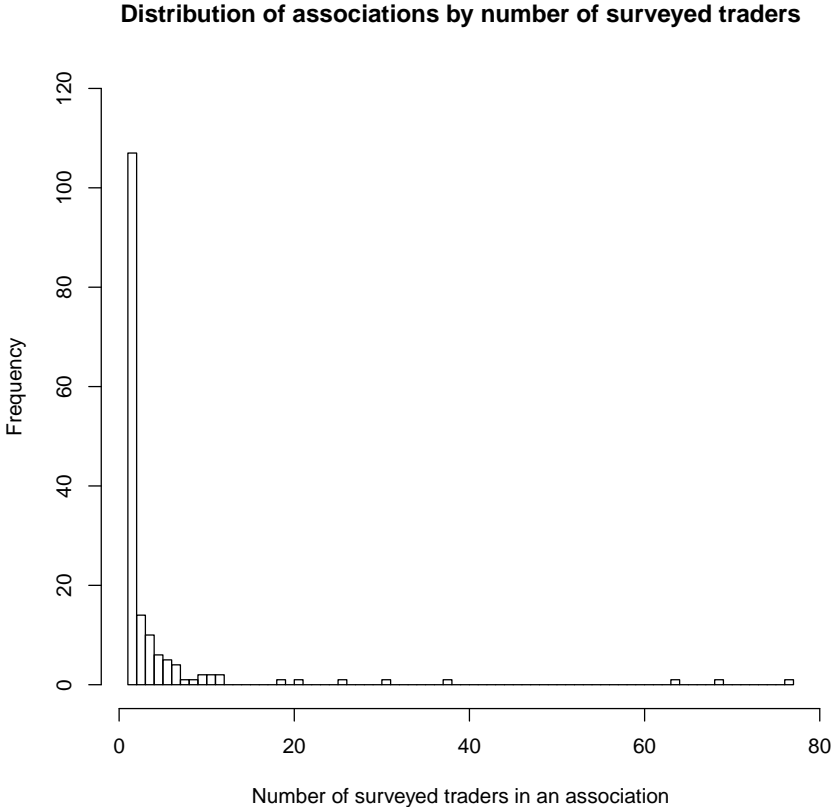
The survey discussed in the paper is now part of a panel. The second round was conducted in 2016, and I asked traders: “Have the executives of this association ever colluded with government people in a way that was bad for the traders here?” Given that traders may be reluctant to report collusion, we can assume that if just one trader reported that their market leader had ever colluded, then this is probably true – even if none of the other traders revealed this. Of the 221 associations represented in the 2016 survey, at least one trader in 31 of the associations (14%) surveyed reported that her market leader had colluded in the past.

Even if collusion is rare, when will it be observed? I have conducted a case study of a market that colluded with a local government in a related project (citation not included to anonymize this document). By closely examining this instance of collusion, I inductively identify the conditions that make collusion more likely. This case generates the proposition that collusion will be most likely when a market leader’s power is threatened, for example in rare instances when trader mutiny appears on the horizon. In these circumstances, the leader could benefit from colluding with a politician, who might be able to help her retain her position. In the absence of a threat to their power, it is not obvious how a market leader would benefit from collusion.

## 2 Distribution of traders by association

I was not able to *ex ante* identify the universe of market associations in Lagos, as to the best of my knowledge neither the Lagos state government nor any other entity collects this information. As such, I sampled at the individual level, and then determined which traders belonged to the same association. Figure 1 shows the distribution of traders per association.

**Figure A1:** Histogram of the number of traders surveyed in each association represented in the sample. For example, for one of the associations represented in the sample, 77 surveyed traders belong to that association. For 83 associations represented in the sample, I have data from one trader in those associations.



### 3 Survey questions

Variable	Survey question
<b>Explanatory variables</b>	
Land	Is this plaza/market on private land or local government land, or some other type of land?  Variable construction: I use the modal response to this question among traders in a given association.
Product diversification	What type of products does this business sell?  Variable construction: From a list 13 product options, I group these into five broader categories. I then create an index that sums the squares of the proportion of traders selling in these product categories, and subtract that value from one.
<b>Outcome variables</b>	
Representativeness	Do the association executives represent your interests?
Private extortion	Do the association executives account properly for the fees they collect?
Free to complain	Do traders here feel free to complain to the executives?
Help resolve disputes	Have the association executives helped you resolve any dispute with other traders here in the past 1 year?
<b>Controls, mechanisms, and alternative explanatory factors</b>	
Trader education	What is the highest level of education that you have completed?  Variable construction: This variable takes one if the trader has any post-secondary education, and zero otherwise.
Number of employees	How many paid employees does this business currently have? Do not include yourself, or any apprentices, unpaid or casual workers.
Annual rent	How much do you pay to use your shop and any stores or warehouse space?
Product sold	What type of products does this business sell?  Variable construction: From a list 13 product options, I group these into five broader categories.
Leader tenure	Does the leader hold their position for life?
Market leader political power	Do the association executives here provide information about politicians prior to elections?  Has someone ever asked traders in this association to sleep in their shops before voting day?
Length of time in market	What year did you begin trading in this particular plaza?
Ethnic diversity	To which ethnic group do you belong?  Variable construction: I create an index that sums the squares of the proportion of traders in each ethnic group, and subtract that value from one.
Local government of residence	What local government do you reside in currently?
Reason for choosing market	What attracted you to this plaza? (pilot only)  Variable construction: This was an open response question that was then coded.
Total stock value	What is the approximate value in total of all products you currently have in stock? Please remember that we will keep your personal information strictly confidential.
Market association size	Please, can you estimate, how many traders belong to [assocname]? (This question was asked in the second round of this panel survey in 2016.)  Variable construction: I take the average response to this question among traders in a given association.

Figure A2: Survey questions used in the paper.

## 4 Social desirability bias

A potential concern might be that traders are reluctant to speak openly about potentially predatory leaders, especially if other individuals could hear their responses. I asked enumerators to report who else was present during the interview, and 33% said no one else was present. To assess whether I should be concerned about social desirability bias, I conducted a t-test comparing how traders respond when asked about their market association leader based on whether or not others were present during the interview. As shown in Figure 3, there does not appear to be cause for concern; there is no evidence traders are less critical when others are present, and indeed the opposite might even be the case.

	No one present	Others present	p-value
Represent	0.70	0.59	0.000
Honest accounting	0.77	0.76	0.895
Free to complain	0.95	0.90	0.022
Help resolve disputes	0.40	0.36	0.287

**Figure A3:** Average responses to questions about market leadership based on whether anyone else was present during the interview.

## 5 Additional robustness checks

**Table A1:** This table shows the relationship between land and private good governance, conceptualizing private land and federal land as both being less vulnerable to government intrusion. The markets on federal land are all in one commercial area that was leased precisely because a group of traders believed the federal government would be an absentee landlord. Standard errors are clustered at the market association level.

<i>Dependent variable:</i>								
	Represent		Honest accounting		Free to complain		Resolve dispute	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Not local government land	-0.09*	-0.09*	-0.13***	-0.13***	-0.01	-0.01	-0.07	-0.06
	(0.05)	(0.05)	(0.04)	(0.04)	(0.03)	(0.03)	(0.05)	(0.05)
Leader for life		0.12		-0.03		0.005		-0.20
		(0.10)		(0.08)		(0.09)		(0.14)
Constant	0.71***	0.71***	0.88***	0.88***	0.92***	0.92***	0.42***	0.42***
	(0.05)	(0.05)	(0.03)	(0.03)	(0.03)	(0.03)	(0.05)	(0.05)
Observations	912	884	702	683	921	891	954	921
Controls	No	No	No	No	No	No	No	No
LGA fixed effects	No	No	No	No	No	No	No	No

*Note:*

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

**Table A2:** This table shows the relationship between what traders report as the total value of stock in their shop and market good governance indicators, and land. Standard errors are clustered at the market association level.

<i>Dependent variable:</i>					
	Represent	Honest accounting	Free to complain	Resolve dispute	Stock value (log)
	(1)	(2)	(3)	(4)	(5)
Stock value (log)	-0.01	-0.0004	-0.01	-0.04**	
	(0.02)	(0.02)	(0.01)	(0.02)	
Local government land					-0.17
					(0.21)
Constant	0.76***	0.79***	1.00***	0.94***	14.12***
	(0.26)	(0.27)	(0.16)	(0.25)	(0.08)
Observations	438	344	442	455	467
Controls	No	No	No	No	No
LGA fixed effects	No	No	No	No	No

*Note:*

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

**Table A3:** This table shows the relationship between land and private governance indicators, without controls. It excludes observations for which there is any missingness in control variables. Standard errors are clustered at the market association level.

<i>Dependent variable:</i>				
	Represent	Honest accounting	Free to complain	Resolve dispute
	(1)	(2)	(3)	(4)
Local government land	0.13** (0.06)	0.14** (0.05)	0.02 (0.04)	0.07 (0.05)
Constant	0.60*** (0.04)	0.75*** (0.04)	0.90*** (0.02)	0.37*** (0.02)
Observations	423	333	426	439
Controls	No	No	No	No
LGA fixed effects	No	No	No	No

*Note:* \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

**Table A4:** This table shows the relationship between land and private good governance when the data is subsetting to market associations where there is data from at least two traders. Controls include whether the market leader holds her position for life, whether the trader has any post-secondary education, the number of employees the trader has, and the value of stock in a trader's shop. Standard errors are clustered at the market association level

<i>Dependent variable:</i>								
	Represent		Honest accounting		Free to complain		Resolve dispute	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Local government land	0.11* (0.06)	0.14** (0.07)	0.15*** (0.05)	0.14** (0.06)	0.0002 (0.04)	0.02 (0.05)	0.03 (0.05)	0.03 (0.05)
Constant	0.60*** (0.03)	0.75** (0.33)	0.72*** (0.03)	0.70** (0.34)	0.92*** (0.02)	1.10*** (0.16)	0.37*** (0.02)	0.97*** (0.28)
Observations	595	384	458	297	594	383	619	397
Controls	No	Yes	No	Yes	No	Yes	No	Yes
LGA fixed effects	No	Yes	No	Yes	No	Yes	No	Yes

*Note:* \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

**Table A5:** This table shows the relationship between land and private good governance when the data is subsetting to market associations where there is data from at least five traders. Controls include whether the market leader holds her position for life, whether the trader has any post-secondary education, the number of employees the trader has, and the value of stock in a trader's shop. Standard errors are clustered at the market association level

<i>Dependent variable:</i>								
	Represent		Honest accounting		Free to complain		Resolve dispute	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Local government land	0.12 (0.08)	0.18** (0.08)	0.14** (0.06)	0.14* (0.08)	0.01 (0.05)	0.04 (0.06)	0.04 (0.05)	0.07* (0.04)
Constant	0.60*** (0.04)	0.75* (0.39)	0.71*** (0.04)	0.93*** (0.36)	0.90*** (0.03)	1.20*** (0.16)	0.36*** (0.02)	0.84*** (0.32)
Observations	477	307	359	233	472	305	494	316
Controls	No	Yes	No	Yes	No	Yes	No	Yes
LGA fixed effects	No	Yes	No	Yes	No	Yes	No	Yes

*Note:*

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

**Table A6:** This table shows the relationship between product diversification and market good governance indicators. (This table subsets the data to markets with data from five or more traders.) Standard errors are clustered at the market association level.

<i>Dependent variable:</i>				
	Represent	Honest accounting	Free to complain	Resolve dispute
	(1)	(2)	(3)	(4)
Product diversification	0.33*** (0.07)	0.27*** (0.10)	0.08 (0.06)	0.09 (0.06)
Constant	0.51*** (0.03)	0.65*** (0.04)	0.88*** (0.02)	0.34*** (0.03)
Observations	477	359	472	494
Controls	No	No	No	No
LGA fixed effects	No	No	No	No

*Note:*

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01



**Table A7:** This table shows the relationship between land interacted with a measure that captures the dispersion of traders' places of residence. The dispersion index is higher when traders live in many different local governments, and lower when they live in the same local government. (This table subsets the data to markets with data from five or more traders.) Standard errors are clustered at the market association level.

	<i>Dependent variable:</i>			
	Represent	Honest accounting	Free to complain	Resolve dispute
	(1)	(2)	(3)	(4)
Local govt. land	0.31*** (0.09)	2.85*** (0.90)	-0.93 (1.80)	-0.49 (0.48)
Dispersion of home local govt.	-0.41*** (0.07)	-2.15*** (0.69)	-5.38*** (1.74)	-0.25 (0.16)
Local govt. land*Dispersion of home local govt.	-0.48*** (0.12)	-3.83*** (1.19)	-0.02 (2.54)	1.11 (0.74)
Constant	0.90*** (0.05)	2.53*** (0.57)	6.57*** (1.44)	-0.40*** (0.10)
Observations	477	359	472	494
Controls	No	No	No	No
LGA fixed effects	No	No	No	No

Note:

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

**Table A8:** This table shows the relationship between land and private governance indicators, controlling for the size of the market association. Market association size comes from the second round of the Lagos Trader Survey in 2016. Standard errors are clustered at the market association level.

	<i>Dependent variable:</i>							
	Represent		Honest accounting		Free to complain		Resolve dispute	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Local government land	0.12** (0.06)	0.13** (0.06)	0.16*** (0.05)	0.17*** (0.05)	0.001 (0.05)	0.001 (0.05)	0.05 (0.06)	0.06 (0.06)
No. of traders in assoc.	0.0000 (0.0000)		0.0000 (0.0000)		-0.0000 (0.0000)		0.0000 (0.0000)	
No. of traders in assoc. (log)		0.004 (0.02)		-0.002 (0.02)		-0.01 (0.01)		0.01 (0.02)
Constant	0.57*** (0.03)	0.58*** (0.11)	0.70*** (0.05)	0.74*** (0.12)	0.92*** (0.02)	0.99*** (0.07)	0.34*** (0.04)	0.26** (0.12)
Observations	580	580	448	448	585	585	608	608
Controls	No	No	No	No	No	No	No	No
LGA fixed effects	No	No	No	No	No	No	No	No

Note:

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

**Table A9:** This table shows the relationship between land and private governance indicators when I control for market association ethnic fractiaonlization. (This table subsets the data to markets with data from five or more traders.) Standard errors are clustered at the market association level.

<i>Dependent variable:</i>				
	Represent	Honest accounting	Free to complain	Resolve dispute
	(1)	(2)	(3)	(4)
Local government land	0.10** (0.05)	0.14*** (0.05)	-0.003 (0.04)	0.04 (0.05)
Ethnic fractionalization	-0.44*** (0.11)	-0.32** (0.16)	-0.24*** (0.08)	0.02 (0.10)
Constant	0.70*** (0.04)	0.78*** (0.05)	0.96*** (0.02)	0.35*** (0.03)
Observations	477	359	472	494
Controls	No	No	No	No
LGA fixed effects	No	No	No	No

*Note:*

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

**Table A10:** This table shows the relationship between land and private good governance, controlling for the proportion of traders selling across product categories. Home goods is ommited to allow for a comparison group. (This table subsets the data to markets with data from five or more traders.) Standard errors are clustered at the market association level.

<i>Dependent variable:</i>				
	Represent	Honest accounting	Free to complain	Resolve dispute
	(1)	(2)	(3)	(4)
Local government land	0.11 (0.07)	0.15** (0.07)	0.04 (0.08)	-0.002 (0.06)
Proportion apparel	-0.32* (0.19)	-0.20 (0.21)	0.04 (0.18)	-0.16 (0.18)
Proportion electronics	-0.25 (0.19)	-0.04 (0.19)	0.04 (0.18)	-0.16 (0.17)
Proportion beauty	-0.33* (0.19)	-0.09 (0.19)	-0.05 (0.16)	0.04 (0.22)
Proportion hardware	0.03 (0.27)	0.17 (0.25)	0.28 (0.25)	-0.15 (0.24)
Constant	0.83*** (0.18)	0.82*** (0.19)	0.84*** (0.17)	0.50*** (0.17)
Observations	477	359	472	494
Controls	No	No	No	No
LGA fixed effects	No	No	No	No

*Note:*

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

**Table A11:** This table shows the results of t-tests that compare the proportion of traders selling in various product categories across market land type. (This table subsets the data to markets with data from five or more traders.)

	Local government land	Private land	p-value
Proportion apparel	0.540	0.645	0.481
Proportion electronics	0.027	0.163	0.074
Proportion beauty	0.298	0.035	0.112
Proportion hardware	0.016	0.053	0.17
Proportion home	0.120	0.105	0.856

**Table A12:** This table shows the relationship between the proportion of a product sold in a market, and market good governance indicators. (This table subsets the data to markets with data from five or more traders.) Standard errors are clustered at the market association level.

	<i>Dependent variable:</i>									
	Rep (1)	Honest (2)	Rep (3)	Honest (4)	Rep (5)	Honest (6)	Rep (7)	Honest (8)	Rep (9)	Honest (10)
Prop apparel	-0.17*	-0.23***								
Prop elec			-0.01 (0.10)	0.09 (0.07)						
Prop beauty					-0.08 (0.15)	0.08 (0.18)				
Prop hard							0.38*** (0.09)	0.33*** (0.08)		
Prop home									0.49*** (0.16)	0.37** (0.18)
Constant	0.72*** (0.07)	0.88*** (0.05)	0.62*** (0.04)	0.73*** (0.04)	0.62*** (0.04)	0.74*** (0.04)	0.58*** (0.03)	0.71*** (0.04)	0.55*** (0.03)	0.69*** (0.04)
Observations	477	359	477	359	477	359	477	359	477	359
Controls	No	No	No	No	No	No	No	No	No	No
LGA fixed effects	No	No	No	No	No	No	No	No	No	No

Note:

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

**Table A13:** This table shows the relationship between land and private governance indicators, controlling for how far the market is from the local government secretariat. Standard errors are clustered at the market association level.

	<i>Dependent variable:</i>			
	Represent (1)	Honest accounting (2)	Free to complain (3)	Resolve dispute (4)
Local government land	0.10* (0.05)	0.17*** (0.05)	0.01 (0.04)	0.05 (0.05)
Distance from local government secretariat	0.08** (0.03)	-1.05 (1.09)	0.01 (0.03)	-0.08 (0.07)
Constant	0.60*** (0.03)	0.74*** (0.04)	0.91*** (0.02)	0.36*** (0.02)
Observations	641	495	643	668
Controls	No	No	No	No
LGA fixed effects	No	No	No	No

Note:

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

**Table A14:** This table shows the relationship between how long a trader has been trading in their plaza (in years) and private good governance. Controls include whether the market leader holds her position for life, whether the trader has any post-secondary education, the number of employees the trader has, and the value of stock in a trader’s shop. LGA fixed effects indicate the inclusion of local government fixed effects. Standard errors are clustered at the market association level.

		<i>Dependent variable:</i>							
		Years in plaza							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
Represent	-0.02 (0.74)	0.04 (0.90)							
Honest accounting			0.20 (0.60)	0.02 (0.81)					
Free to complain					0.32 (0.54)	-0.15 (0.67)			
Resolve dispute							0.83*** (0.32)	0.42 (0.35)	
Constant	7.61*** (0.74)	-1.83 (3.32)	7.30*** (0.60)	-1.93 (3.16)	7.25*** (0.67)	-4.33 (3.25)	7.17*** (0.39)	-4.26 (3.29)	
Observations	670	640	519	498	674	642	699	664	
Controls	No	Yes	No	Yes	No	Yes	No	Yes	
LGA fixed effects	No	Yes	No	Yes	No	Yes	No	Yes	

*Note:* \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

**Table A15:** This table shows the relationship between land type and private good governance, aggregating responses at the market association level. The sample size changes across models due to missing data. Controls include whether the market leader holds her position for life, whether the trader has any post-secondary education, the number of employees the trader has, and the value of stock in a trader’s shop. LGA fixed effects indicate the inclusion of local government fixed effects. Robust standard errors are used.

		<i>Dependent variable:</i>							
	Represent		Honest accounting		Free to complain		Resolve dispute		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
Local government land	0.05 (0.05)	0.15** (0.06)	0.16*** (0.05)	0.18** (0.08)	-0.01 (0.04)	0.07 (0.07)	0.16** (0.08)	0.23** (0.10)	
Constant	0.64*** (0.03)	0.75 (0.49)	0.75*** (0.04)	0.74 (0.57)	0.94*** (0.02)	0.72** (0.31)	0.34*** (0.04)	0.32 (0.51)	
Observations	153	124	136	115	159	130	159	129	
Controls	No	Yes	No	Yes	No	Yes	No	Yes	
LGA fixed effects	No	Yes	No	Yes	No	Yes	No	Yes	

*Note:* \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

**Table A16:** This table shows the interaction of land type and a market’s product diversification index, aggregating responses at the market association level. A higher diversification index indicates that the market has traders selling a wider variety of products. The data for this table is subsetting to markets where there are five or more traders surveyed in the association. Robust standard errors are used.

	<i>Dependent variable:</i>			
	Represent	Honest accounting	Free to complain	Resolve dispute
	(1)	(2)	(3)	(4)
Local government land	-0.09 (0.07)	-0.02 (0.11)	-0.10 (0.12)	0.13** (0.06)
Product diversification	0.24** (0.12)	0.13 (0.22)	-0.03 (0.08)	0.20 (0.13)
Local government land*product diversification	0.17 (0.20)	0.44* (0.26)	0.20 (0.24)	-0.23 (0.19)
Constant	0.55*** (0.05)	0.63*** (0.09)	0.93*** (0.02)	0.32*** (0.04)
Observations	31	31	31	31
Controls	No	No	No	No
LGA fixed effects	No	No	No	No

Note:

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

**Table A17:** This table shows the relationship between different measures of political engagement and market leader good governance, aggregating responses at the market association level. Robust standard errors are used.

	<i>Dependent variable:</i>							
	Represent		Honest accounting		Free to complain		Resolve dispute	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Election info	0.09* (0.06)		0.05 (0.07)		0.01 (0.04)		0.26*** (0.09)	
Sleep		-0.03 (0.10)		-0.07 (0.17)		-0.02 (0.08)		0.30 (0.19)
Constant	0.63*** (0.03)	0.67*** (0.02)	0.77*** (0.05)	0.81*** (0.03)	0.94*** (0.02)	0.95*** (0.01)	0.28*** (0.05)	0.38*** (0.04)
Observations	147	141	132	128	153	144	152	143
Controls	No	No	No	No	No	No	No	No
LGA fixed effects	No	No	No	No	No	No	No	No

Note:

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

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