

Supplementary Information for *Unpacking Bribery: Petty  
Corruption and Favor Exchanges*

October 22, 2024

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# Appendix A Appendix Tables and Figures

Figure A1: Municipalities In The Sample

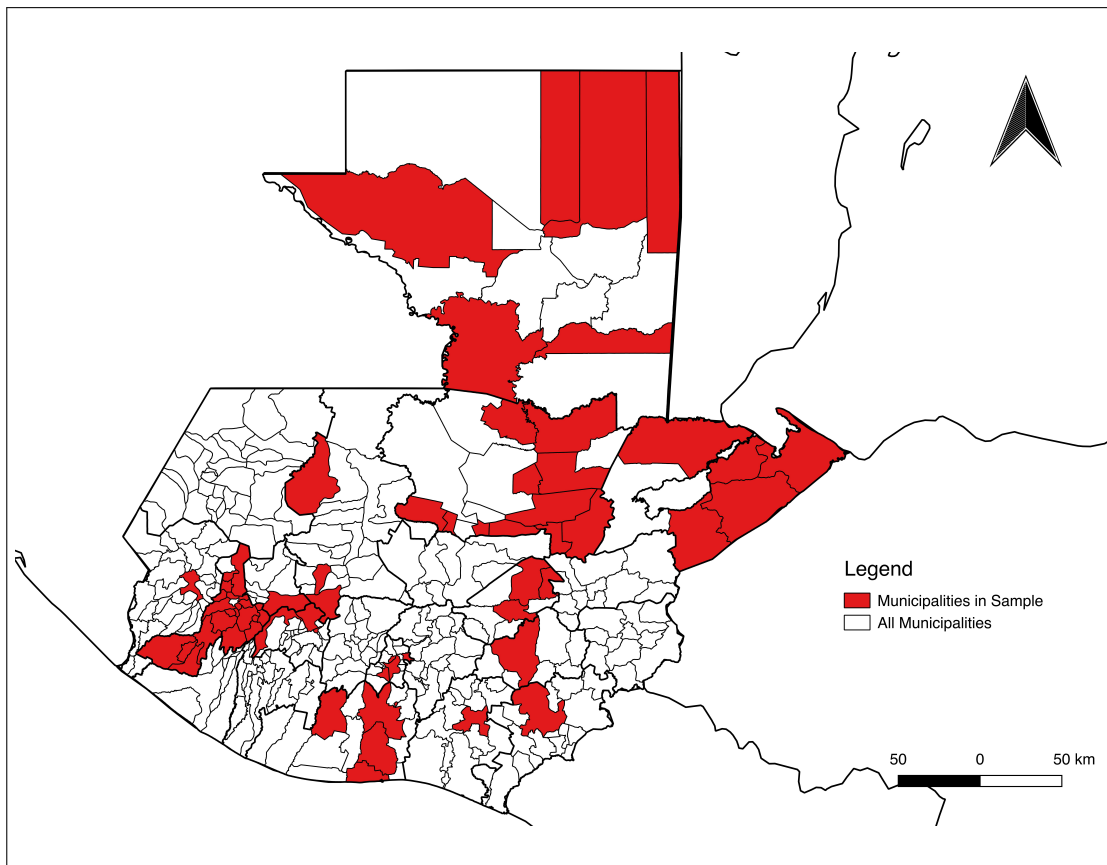
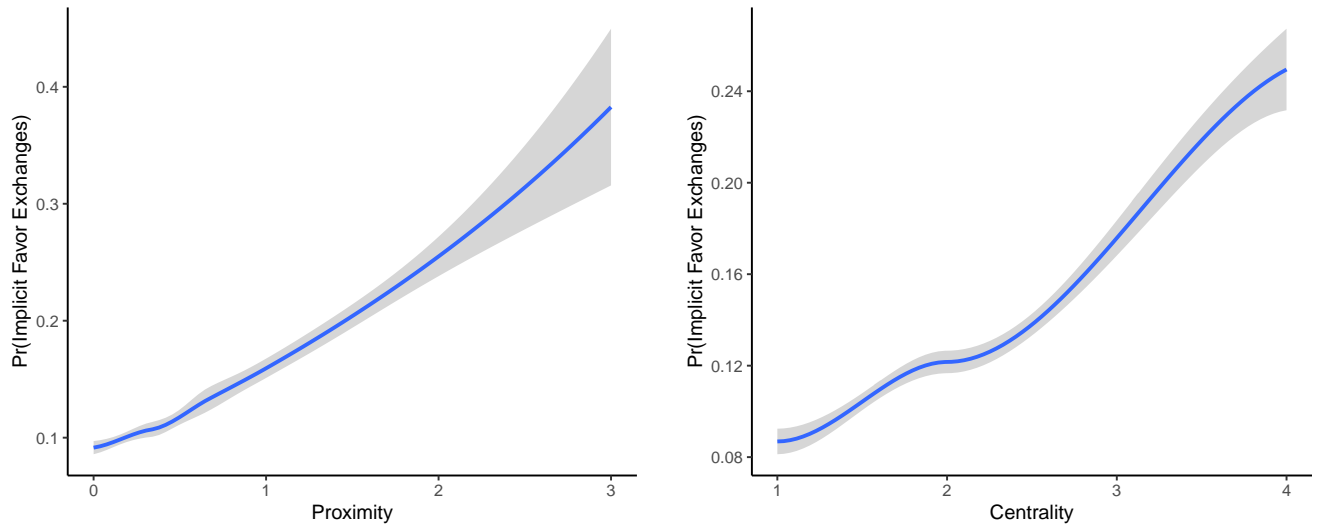


Figure A2: Proximity, Centrality and Favor Exchanges I: Predicted Probabilities

Panel A - Implicit Favor Exchanges



Panel B - Bribery

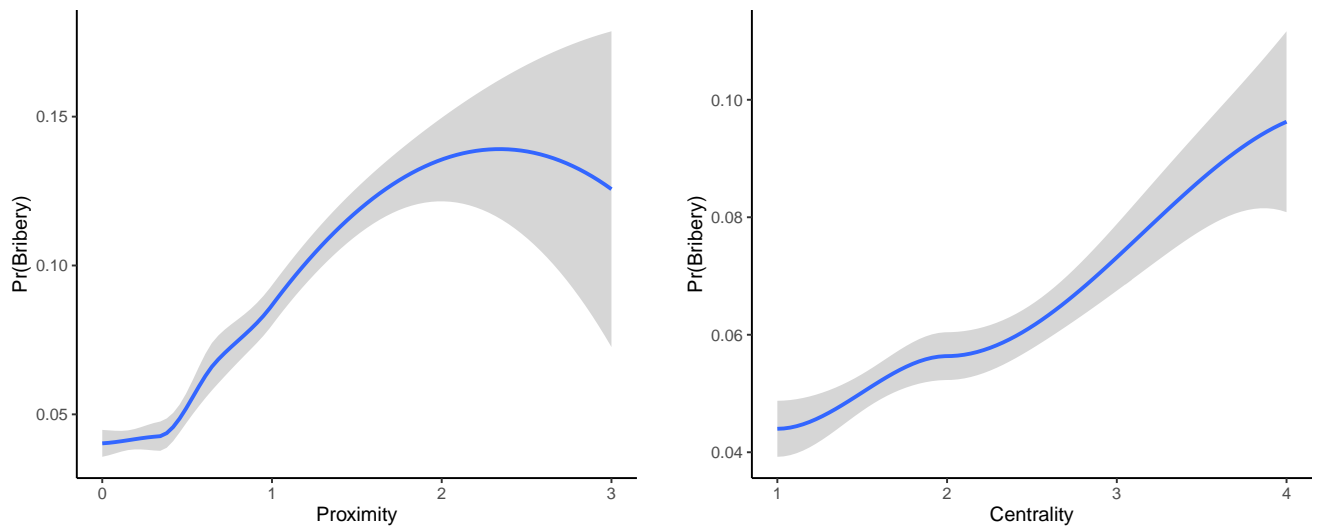
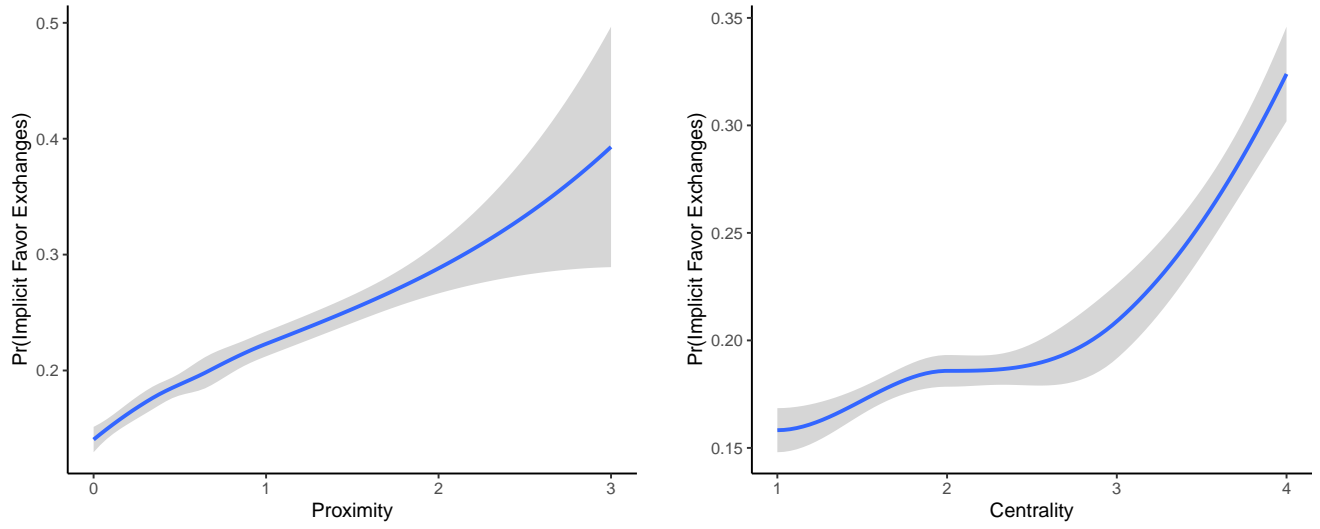


Figure A3: Proximity, Centrality and Favor Exchanges II: Predicted Probabilities

Panel A - Implicit Favor Exchanges



Panel B - Bribery

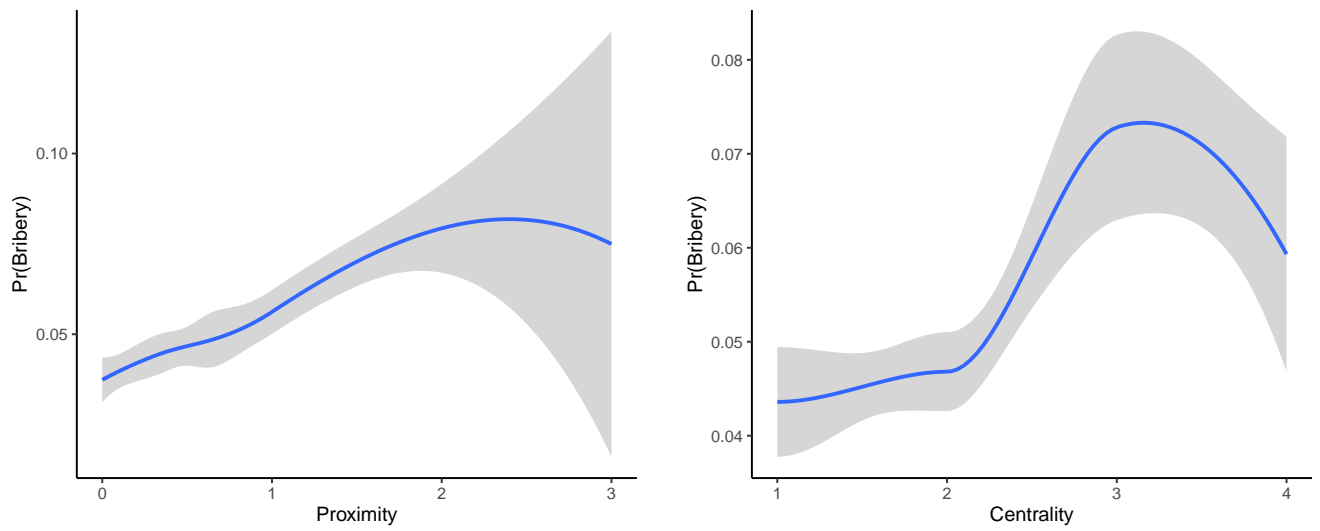
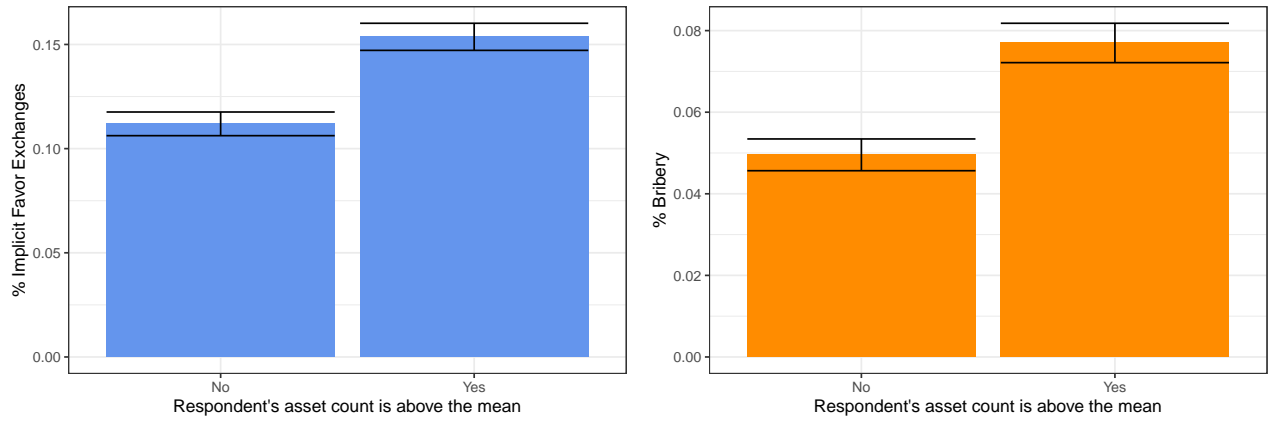


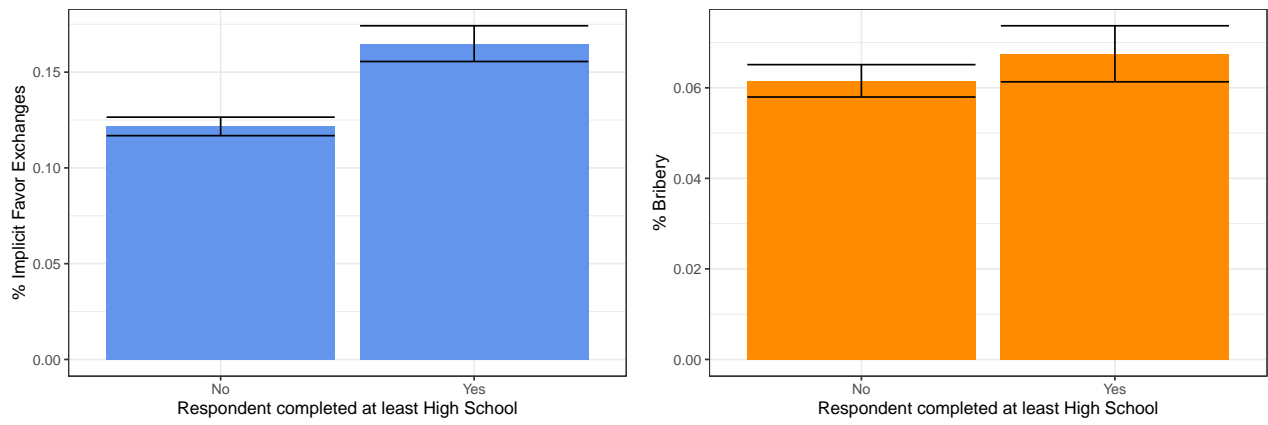


Figure A4: Who Engages in Favor Exchanges I

(a) Wealth



(b) Education



(c) Gender (Female)

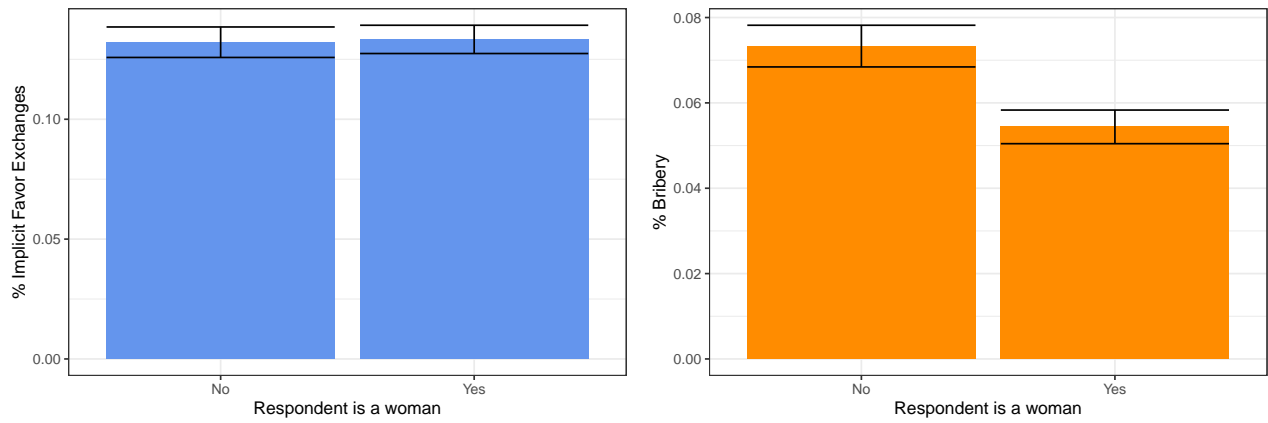
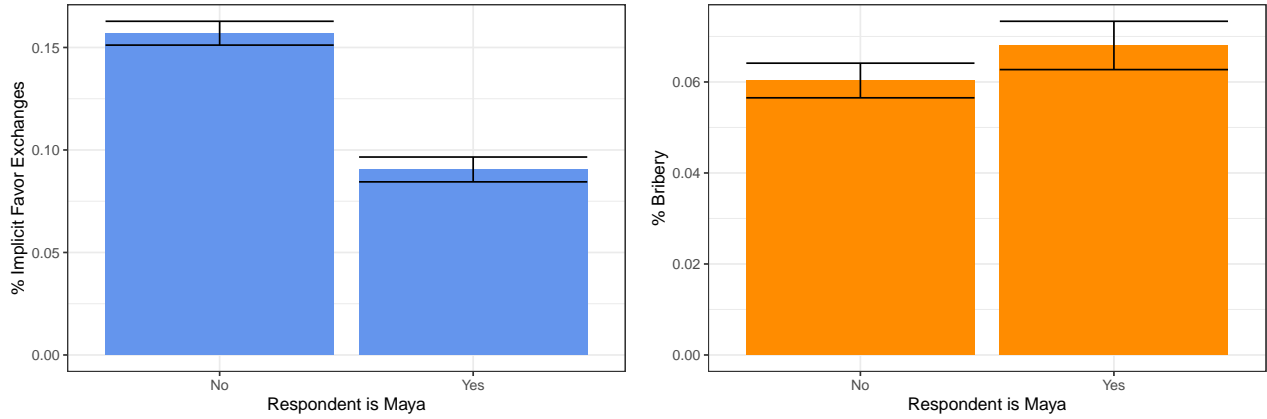
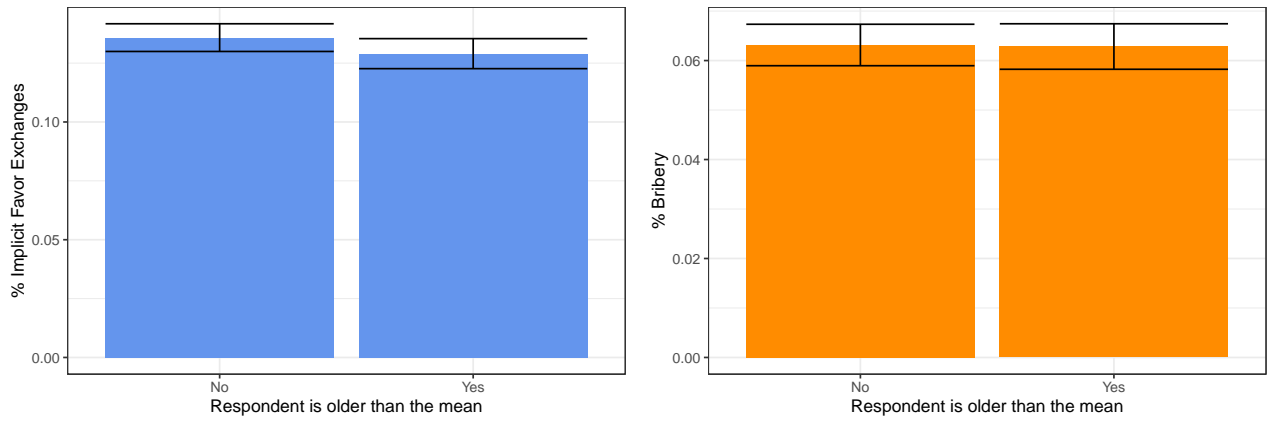


Figure A5: Who Engages in Favor Exchanges II

(d) Ethnicity (Maya)



(e) Age



(f) Distance (to city center)

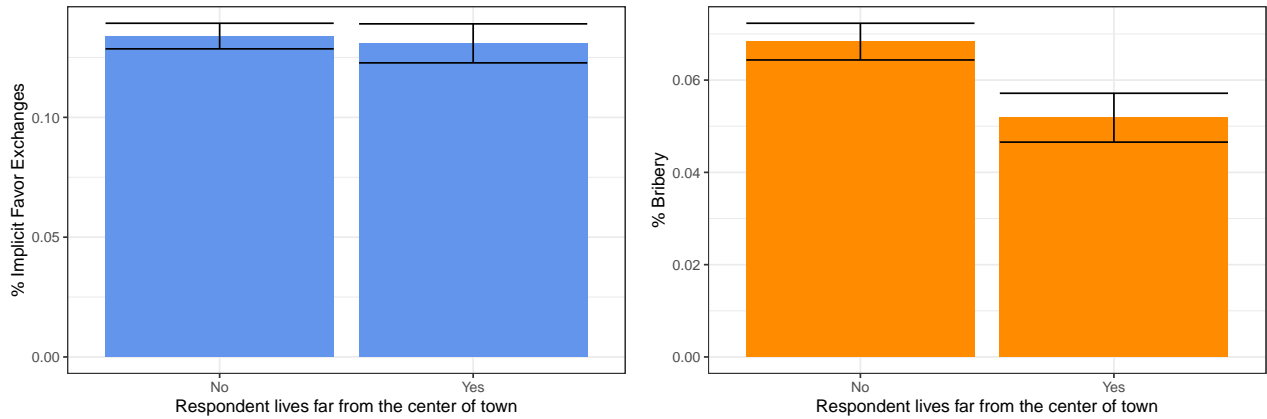


Table A1: Descriptive Statistics of the Municipalities in the Sample

VARIABLES	Mean		Mean Diff. (Sampled - Excluded)	P-value
	All Munis.	Mean Sampled Munis.		
Log of Population	10.40 (0.91)	10.79 (0.85)	0.38	0.0001
% of Maya Population	0.41 (0.38)	0.49 (0.39)	0.09	0.07266
Log of Municipal GDP	8.28 (0.35)	8.30 (0.34)	0.03	0.5927
Index of Citizen Participation	0.57 (0.23)	0.57 (0.22)	0.00	0.8787
Index of Transparency	0.58 (0.20)	0.61 (0.19)	0.03	0.2904
Quality of Roads	0.33 (0.24)	0.38 (0.26)	0.06	0.0610
Rate of Electrification	0.91 (0.16)	0.86 (0.24)	-0.06	0.0049
Rate of Urbanization	0.43 (0.25)	0.48 (0.26)	0.06	0.0979
Rate of Sanitation	0.57 (0.16)	0.58 (0.18)	0.01	0.7166
Internet Access	0.08 (0.26)	0.11 (0.18)	0.04	0.3233
Poverty Rate	0.65 (0.19)	0.61 (0.24)	-0.04	0.0989
GINI Coefficient	0.50 (0.15)	0.52 (0.21)	0.03	0.1120
Rate of Deported Migrants Received	661.60 (702.59)	589.18 (671.80)	-89.64	0.3597
Extortion Rate	34.39 (36.70)	34.63 (37.45)	0.29	0.9541
Homicide Rate	17.09 (19.70)	18.95 (21.80)	2.29	0.4033

Notes. Standard deviation in parenthesis. Population sizes, % of Maya population, and the urbanization rate are estimates for 2018 calculated by the National Statistics Institute (INE). The Index of Citizen Participation and the Index of Transparency are measured by the Secretariat of Planning of the Presidency (SEGPLAN) as tools to assess the quality of municipal governments. Municipal GDP estimates were generated by the pro-business Guatemalan think tank FUNDESA. Data on extortion and homicides comes from the National Civil Police (PNC). Data on the quality of roads (% of paved roads), the rate of electrification, sanitation, internet access, poverty, and the GINI coefficient, come from INE, the Ministry of Energy and Mines (MEM), the Ministry of Communications (CIV), and the Superintendence of Telecommunications (SIT). Finally, the rate of deported migrants comes from the Guatemalan Migration Institute (IGM).

Table A2: Summary Statistics

VARIABLES	Obs.	Mean	SD	Min.	Max.
Asset Count	18,715	3.6872	2.7009	0	9
Enough Income	18,539	2.5389	1.3063	1	5
Spanish	18,715	0.6355	0.4813	0	1
Male	18,715	0.4590	0.4983	0	1
Age	18,715	40.7781	40.7781	18	95
Household Size	18,707	5.4464	2.5081	1	20
Distance	17,517	6.3781	9.8153	0.0066	104.5561
Education	18,715	2.5382	1.2036	1	5
Employed	18,715	0.5766	0.4941	0	1
Attend Meetings	18,578	4.0241	1.1203	1	5
Volunteer	18,468	3.5653	1.3177	1	5
Protest	18,420	2.7192	1.4828	1	5
Affiliate	18,527	2.6037	1.5797	1	5
ln(Difference), Community	6,782	4.3340	1.2818	-0.6932	8.8247
ln(Difference), Municipality	7,177	4.4119	1.2310	0	8.8246
<i>Key Independent Variables</i>					
Proximity	9,337	0.411	0.481	0	3
Centrality	18,570	1.7726	0.7492	1	4
Centrality2	18,715	0	0.4876	-0.7315	1.5468
Leadership	9,308	0.2253	0.4178	0	1
<i>Dependent Variables</i>					
Bribery (Direct Question 1)	6,161	0.0631	0.2432	0	1
Bribery (Direct Question 2)	2,448	0.0503	0.2185	0	1
Favors (Direct Question 1)	6,161	0.1328	0.3393	0	1
Favors (Direct Question 2)	2,451	0.1873	0.3902	0	1
Extortion (Direct Question 1)	6,124	0.0941	0.2919	0	1
Extortion (Direct Question 2)	2,449	0.0813	0.2733	0	1

Table A3: Correlations: Centrality, Proximity, Wealth and Income

	Proximity	Centrality	Leadership	Centrality 2	Asset Count	Enough Income
Proximity	1.0000					
Centrality	0.1234	1.0000				
Leadership	0.1381	0.2074	1.0000			
Centrality 2	0.1645	0.5508	0.7821	1.0000		
Asset Count	0.1599	0.1132	-0.0833	-0.0651	1.0000	
Enough Income	0.0493	0.0091	-0.0237	-0.0189	0.1696	1.0000

Table A4: Summary Statistics (Sample: Direct Questions 1, Bribery)

VARIABLES	Obs.	Mean	SD	Min.	Max.
Asset Count	6,249	3.6990	2.7204	0	9
Enough Income	6,198	2.5382	1.3153	1	5
Spanish	6,249	0.6310	0.4826	0	1
Male	6,249	0.4609	0.4985	0	1
Age	6,246	40.8678	14.8072	18	92
Household Size	6,244	5.4680	2.4976	1	20
Distance	5,861	6.4247	9.9975	0.0070	104.3427
Education	6,249	2.5489	1.2137	1	5
Employed	6,249	0.5817	0.4933	0	1
Attend Meetings	6,221	4.0029	1.1424	1	5
Volunteer	6,178	3.5384	1.3224	1	5
Protest	6,152	2.6998	1.4698	1	5
Affiliate	6,192	2.6068	1.5721	1	5
ln(Difference), Community	2,248	4.2984	1.2203	-0.6932	7.4816
ln(Difference), Municipality	2,370	4.3878	1.1977	0	7.5093
<i>Key Independent Variables</i>					
Proximity	3,114	0.4030	0.4727	0	3
Centrality	6,207	1.7756	0.7450	1	4
<i>Dependent Variables</i>					
Bribery (Direct Question 1)	6,161	0.0631	0.2432	0	1

Notes: Summary statistics for sample of Direct Questions 1 which saw questions about bribery.

Table A5: Summary Statistics (Sample: Direct Questions 1, Implicit Favor Exchanges)

VARIABLES	Obs.	Mean	SD	Min.	Max.
Asset Count	6,239	3.6666	2.6837	0	9
Enough Income	6,179	2.5388	1.3003	1	5
Spanish	6,239	0.6331	0.4820	0	1
Male	6,239	0.4591	0.4984	0	1
Age	6,239	41.0287	15.0976	18	95
Household Size	6,237	5.4398	2.5458	1	20
Distance	5,861	6.1499	9.3177	0.0067	104.4676
Education	6,239	2.5225	1.1916	1	5
Employed	6,239	0.5712	0.4950	0	1
Attend Meetings	6,194	4.0373	1.1056	1	5
Volunteer	6,166	3.5920	1.3051	1	5
Protest	6,137	2.7119	1.4874	1	5
Affiliate	6,182	2.5853	1.5854	1	5
ln(Difference), Community	2,215	4.2564	1.2105	-0.6932	7.4384
ln(Difference), Municipality	2,335	4.3469	1.1921	0	7.5229
<i>Key Independent Variables</i>					
Proximity	3,077	0.4072	0.4783	0	3
Centrality	6,194	1.7612	0.7539	1	4
<i>Dependent Variables</i>					
Favors (Direct Question 1)	6,161	0.1328	0.3393	0	1

Notes: Summary statistics for sample of Direct Questions 1 which saw questions about implicit favor exchanges.

Table A6: Summary Statistics (Sample: Direct Questions 2)

VARIABLES	Obs.	Mean	SD	Min.	Max.
Asset Count	2,462	4.4976	2.7825	0	9
Enough Income	2,442	2.6839	1.3098	1	5
Spanish	2,462	0.6905	0.4624	0	1
Male	2,462	0.5252	0.4995	0	1
Age	2,461	41.3970	14.6033	18	89
Household Size	2,461	5.3568	2.4359	1	19
Distance	2,289	5.3261	8.9849	0.0070	104.4079
Education	2,462	2.8745	1.2762	1	5
Employed	2,462	0.6458	0.4784	0	1
Attend Meetings	2,455	4.0534	1.0867	1	5
Volunteer	2,441	3.7542	1.2378	1	5
Protest	2,435	2.8513	1.4793	1	5
Affiliate	2,443	2.6296	1.5641	1	5
ln(Difference), Community	839	4.3528	1.2967	-0.6932	7.4384
ln(Difference), Municipality	901	4.4070	1.2710	0	7.5093
<i>Key Independent Variables</i>					
Proximity	2,462	0.5716	0.5401	0	3
Centrality	2,446	1.9334	0.7895	1	4
<i>Dependent Variables</i>					
Bribery (Direct Question 2)	2,448	0.0503	0.2185	0	1
Favors (Direct Question 2)	2,451	0.1873	0.3902	0	1

Notes: Summary statistics for sample of Direct Questions 2.

Table A7: Proximity (Count), Centrality and Interaction with Public Officials

	(1)	(2)	(3)
	interact	interact	interact
Proximity (Count)	0.484*** (0.0472)	0.396*** (0.0518)	0.384*** (0.0507)
Centrality	0.308*** (0.0435)	0.242*** (0.0412)	0.284*** (0.0424)
<i>Demographics</i>			
Asset Count		0.0705*** (0.0201)	0.0718*** (0.0204)
Enough Income		0.0664 (0.0969)	0.119 (0.104)
Spanish		0.0912 (0.153)	0.0274 (0.142)
Male		0.0525 (0.0717)	0.0682 (0.0741)
Age		0.0114*** (0.00216)	0.0112*** (0.00223)
Household Size		0.00998 (0.0136)	0.0112 (0.0130)
Education		0.212*** (0.0367)	0.204*** (0.0321)
Employed		0.191* (0.0964)	0.181 (0.0957)
Distance		-0.00719 (0.00628)	-0.0151*** (0.00404)
<i>Civic Engagement</i>			
Attend Meetings		0.00804 (0.0377)	0.00614 (0.0397)
Volunteer		0.0934** (0.0361)	0.0710 (0.0391)
Protest		0.0373 (0.0253)	0.0133 (0.0252)
Affiliate		0.0277 (0.0300)	0.0432 (0.0269)
Constant	-2.088*** (0.134)	-3.955*** (0.264)	-3.585*** (0.236)
Municipality FE			Y
Observations	9271	8370	8370
Pseudo $R^2$	0.047	0.081	0.132
AIC	10199.8	8921.7	8427.9

Note: Standard errors clustered at the Municipality level. Coefficients are log-odds.

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$



Table A8: Proximity (Count), Centrality and Interaction with Public Officials

	(1)	(2)	(3)	(4)	(5)	(6)
	interact	interact	interact	interact	interact	interact
Proximity	0.579*** (0.0776)	0.561*** (0.0773)	0.575*** (0.0761)			
Proximity (Count)				0.367*** (0.0493)	0.358*** (0.0493)	0.364*** (0.0488)
Leadership	0.714*** (0.0914)			0.691*** (0.0894)		
Leadership 2		0.531*** (0.0614)			0.516*** (0.0600)	
Centrality 2			0.512*** (0.0797)			0.494*** (0.0779)
<i>Demographics</i>						
Asset Count	0.0806*** (0.0202)	0.0766*** (0.0202)	0.0769*** (0.0201)	0.0804*** (0.0206)	0.0765*** (0.0205)	0.0770*** (0.0204)
Enough Income	0.109 (0.103)	0.119 (0.103)	0.117 (0.101)	0.103 (0.104)	0.113 (0.104)	0.111 (0.102)
Spanish	0.106 (0.142)	0.0767 (0.138)	0.0851 (0.139)	0.102 (0.141)	0.0734 (0.138)	0.0814 (0.139)
Male	0.0245 (0.0746)	0.0431 (0.0748)	0.0514 (0.0751)	0.0194 (0.0740)	0.0376 (0.0743)	0.0466 (0.0746)
Age	0.0112*** (0.00237)	0.0105*** (0.00238)	0.0110*** (0.00235)	0.0108*** (0.00238)	0.0100*** (0.00238)	0.0105*** (0.00234)
Household Size	0.00558 (0.0132)	0.00655 (0.0132)	0.00633 (0.0129)	0.00555 (0.0133)	0.00647 (0.0134)	0.00625 (0.0131)
Education	0.223*** (0.0334)	0.215*** (0.0327)	0.221*** (0.0328)	0.213*** (0.0327)	0.206*** (0.0320)	0.211*** (0.0320)
Employed	0.176 (0.0940)	0.181 (0.0950)	0.179 (0.0960)	0.168 (0.0944)	0.172 (0.0954)	0.170 (0.0964)
Distance	-0.0170*** (0.00416)	-0.0178*** (0.00420)	-0.0180*** (0.00407)	-0.0160*** (0.00410)	-0.0167*** (0.00414)	-0.0169*** (0.00402)
<i>Civic Engagement</i>						
Attend Meetings	-0.00808 (0.0414)	-0.00692 (0.0409)		-0.0113 (0.0416)	-0.0103 (0.0410)	
Volunteer	0.0702 (0.0386)	0.0678 (0.0390)	0.0402 (0.0371)	0.0682 (0.0385)	0.0660 (0.0388)	0.0384 (0.0370)
Protest	0.0122 (0.0255)	0.0133 (0.0255)	0.00697 (0.0252)	0.0120 (0.0251)	0.0132 (0.0251)	0.00668 (0.0247)
Affiliate	0.0432 (0.0282)	0.0415 (0.0277)	0.0397 (0.0277)	0.0406 (0.0281)	0.0389 (0.0276)	0.0372 (0.0275)
Constant	-3.042*** (0.228)	-3.003*** (0.229)	-2.823*** (0.212)	-3.095*** (0.235)	-3.055*** (0.235)	-2.894*** (0.212)
Municipality FE	Y	Y	Y	Y	Y	Y
Observations	8400	8422	8453	8400	8422	8453
Pseudo $R^2$	0.133	0.133	0.131	0.137	0.137	0.134
AIC	8452.6	8470.2	8514.4	8418.0	8435.3	8480.3

Note: Standard errors clustered at the Municipality level. Coefficients are log-odds.

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table A9: Proximity (Count), Centrality and Favor Exchanges I

	Implicit Favors (Direct 1)			Bribes (Direct 1)		
	(1)	(2)	(3)	(4)	(5)	(6)
Proximity (Count)	0.300*** (0.0641)	0.215** (0.0687)	0.228** (0.0765)	0.414*** (0.107)	0.356** (0.118)	0.323** (0.120)
Centrality	0.397*** (0.0774)	0.394*** (0.0829)	0.396*** (0.0873)	0.267* (0.106)	0.263* (0.109)	0.239* (0.116)
<i>Demographics</i>						
Asset Count		-0.0242 (0.0265)	-0.0190 (0.0284)		0.0435 (0.0600)	0.0524 (0.0495)
Enough Income		0.293* (0.126)	0.385** (0.128)		0.0526 (0.216)	0.245 (0.214)
Spanish		0.639*** (0.185)	0.602* (0.253)		-0.241 (0.288)	-0.0187 (0.417)
Male		-0.0436 (0.132)	0.0262 (0.137)		0.345 (0.185)	0.379 (0.212)
Age		-0.00605 (0.00456)	-0.00666 (0.00473)		-0.00377 (0.00657)	-0.00560 (0.00768)
Household Size		0.00757 (0.0243)	0.0168 (0.0257)		0.0187 (0.0413)	-0.00444 (0.0384)
Education		0.0347 (0.0743)	0.0292 (0.0739)		-0.0977 (0.103)	-0.0539 (0.126)
Employed		0.107 (0.162)	0.130 (0.169)		-0.268 (0.193)	-0.178 (0.235)
Distance		-0.0100 (0.00865)	-0.00981 (0.0111)		-0.0130 (0.0174)	-0.0152 (0.0169)
<i>Civic Engagement</i>						
Attend Meetings		-0.0939 (0.0696)	-0.0929 (0.0631)		-0.150* (0.0689)	-0.0915 (0.0914)
Volunteer		0.0876 (0.0638)	0.0868 (0.0642)		-0.0292 (0.0644)	0.00180 (0.0774)
Protest		-0.000938 (0.0429)	-0.00347 (0.0473)		0.182** (0.0669)	0.159* (0.0626)
Affiliate		0.111* (0.0536)	0.117* (0.0558)		0.00540 (0.0572)	-0.0138 (0.0642)
Constant	-3.050*** (0.176)	-3.481*** (0.513)	-2.769*** (0.514)	-3.769*** (0.250)	-3.208*** (0.651)	-2.300** (0.786)
Municipality FE			Y			Y
Observations	3013	2728	2616	3052	2768	2167
Pseudo $R^2$	0.029	0.045	0.112	0.027	0.040	0.138
AIC	2138.6	1915.4	1755.2	1293.5	1179.4	992.5

Note: Standard errors clustered at the Municipality level. Coefficients are log-odds.

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table A10: Proximity (Count), Centrality and Favor Exchanges II

	Implicit Favors (Direct 2)			Bribes (Direct 2)		
	(1)	(2)	(3)	(4)	(5)	(6)
Proximity (Count)	0.180** (0.0564)	0.153** (0.0563)	0.183** (0.0650)	0.221* (0.102)	0.215* (0.103)	0.158 (0.0965)
Centrality	0.241*** (0.0695)	0.218** (0.0741)	0.196* (0.0796)	0.120 (0.130)	0.105 (0.112)	0.0295 (0.121)
<i>Demographics</i>						
Asset Count		0.0321 (0.0336)	-0.0000726 (0.0322)		0.0152 (0.0802)	0.0469 (0.0534)
Enough Income		0.0927 (0.144)	0.0298 (0.148)		-0.204 (0.294)	-0.0412 (0.292)
Spanish		0.397* (0.185)	0.543* (0.213)		-0.108 (0.495)	0.0227 (0.470)
Male		-0.0257 (0.125)	0.0903 (0.138)		-0.0153 (0.210)	0.134 (0.208)
Age		-0.0119* (0.00536)	-0.0124* (0.00567)		0.00322 (0.00663)	0.00254 (0.00794)
Household Size		0.0200 (0.0300)	0.0220 (0.0298)		0.00829 (0.0459)	0.00300 (0.0341)
Education		-0.0894 (0.0634)	-0.111 (0.0723)		-0.159 (0.114)	-0.0476 (0.132)
Employed		0.0275 (0.123)	0.0365 (0.131)		-0.0914 (0.365)	-0.0404 (0.361)
Distance		0.0194* (0.00838)	0.00597 (0.00732)		-0.00215 (0.0200)	-0.0116 (0.0260)
<i>Civic Engagement</i>						
Attend Meetings		0.0212 (0.0768)	0.00672 (0.0809)		-0.110 (0.105)	-0.0121 (0.102)
Volunteer		0.0790 (0.0592)	0.0729 (0.0579)		-0.0563 (0.109)	0.00552 (0.117)
Protest		-0.0470 (0.0429)	-0.00547 (0.0470)		0.263** (0.0874)	0.214* (0.0846)
Affiliate		0.0358 (0.0413)	0.0367 (0.0387)		0.0837 (0.0698)	0.0105 (0.0806)
Constant	-2.184*** (0.186)	-2.383*** (0.591)	-1.582* (0.638)	-3.499*** (0.300)	-3.443*** (0.729)	-3.645*** (0.648)
Municipality FE			Y			Y
Observations	2436	2208	2195	2433	2205	1495
Pseudo $R^2$	0.013	0.029	0.122	0.008	0.034	0.151
$AIC$	2328.0	2109.1	1904.0	954.8	876.0	697.3

Note: Standard errors clustered at the Municipality level. Coefficients are log-odds.

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table A11: Proximity, Alternative Measures of Centrality and Favor Exchanges I

	Implicit Favors (Direct 1)			Bribes (Direct 1)		
	(1)	(2)	(3)	(4)	(5)	(6)
Proximity	0.441*** (0.130)	0.410** (0.132)	0.462*** (0.132)	0.652** (0.213)	0.656** (0.215)	0.682** (0.212)
Leadership	0.437* (0.196)			0.556** (0.183)		
Leadership 2		0.359** (0.123)			0.394** (0.126)	
Centrality 2			0.274* (0.134)			0.277 (0.176)
<i>Demographics</i>						
Asset Count	-0.00247 (0.0294)	-0.00804 (0.0289)	-0.0132 (0.0303)	0.0582 (0.0486)	0.0562 (0.0493)	0.0556 (0.0498)
Enough Income	0.336** (0.120)	0.352** (0.122)	0.346** (0.115)	0.205 (0.209)	0.224 (0.207)	0.220 (0.212)
Spanish	0.641** (0.248)	0.647** (0.250)	0.690** (0.241)	0.0337 (0.400)	-0.0109 (0.395)	0.0227 (0.400)
Male	0.00371 (0.135)	-0.00598 (0.135)	0.0165 (0.134)	0.302 (0.219)	0.334 (0.213)	0.348 (0.216)
Age	-0.00525 (0.00504)	-0.00590 (0.00497)	-0.00642 (0.00495)	-0.00584 (0.00719)	-0.00639 (0.00724)	-0.00532 (0.00708)
Household Size	0.0118 (0.0262)	0.0131 (0.0262)	0.0119 (0.0262)	-0.00640 (0.0403)	-0.00761 (0.0393)	-0.00462 (0.0391)
Education	0.0396 (0.0756)	0.0359 (0.0744)	0.0316 (0.0731)	-0.0492 (0.128)	-0.0540 (0.128)	-0.0496 (0.127)
Employed	0.118 (0.174)	0.145 (0.171)	0.166 (0.171)	-0.159 (0.245)	-0.173 (0.237)	-0.173 (0.238)
Distance	-0.00894 (0.0111)	-0.0103 (0.0112)	-0.0113 (0.0112)	-0.0176 (0.0158)	-0.0180 (0.0160)	-0.0168 (0.0160)
<i>Civic Engagement</i>						
Attend Meetings	-0.104 (0.0674)	-0.103 (0.0644)		-0.0925 (0.0888)	-0.0932 (0.0888)	
Volunteer	0.108 (0.0646)	0.107 (0.0642)	0.0678 (0.0593)	-0.000578 (0.0714)	0.00166 (0.0721)	-0.0332 (0.0636)
Protest	-0.00200 (0.0474)	-0.00696 (0.0473)	-0.0106 (0.0481)	0.141* (0.0609)	0.143* (0.0607)	0.134* (0.0620)
Affiliate	0.111 (0.0581)	0.116* (0.0574)	0.113* (0.0571)	-0.00461 (0.0650)	-0.0115 (0.0649)	-0.0123 (0.0642)
Constant	-2.342*** (0.545)	-2.312*** (0.530)	-2.508*** (0.518)	-1.778* (0.738)	-1.775* (0.721)	-1.967*** (0.592)
Municipality FE	Y	Y	Y	Y	Y	Y
Observations	2625	2632	2643	2172	2180	2183
Pseudo $R^2$	0.105	0.106	0.106	0.144	0.144	0.140
AIC	1764.9	1771.3	1786.6	985.8	987.2	990.1

Note: Standard errors clustered at the Municipality level. Coefficients are log-odds.

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table A12: Proximity, Alternative Measures of Centrality and Favor Exchanges II

	Implicit Favors (Direct 2)			Bribes (Direct 2)		
	(1)	(2)	(3)	(4)	(5)	(6)
Proximity	0.420*** (0.117)	0.380** (0.119)	0.393*** (0.119)	0.363 (0.199)	0.364 (0.189)	0.340 (0.177)
Leadership	0.262 (0.172)			0.598* (0.277)		
Leadership 2		0.299** (0.114)			0.328 (0.186)	
Centrality 2			0.350** (0.126)			0.257 (0.205)
<i>Demographics</i>						
Asset Count	-0.00118 (0.0329)	0.00122 (0.0328)	0.000399 (0.0325)	0.0480 (0.0533)	0.0424 (0.0520)	0.0425 (0.0511)
Enough Income	-0.00460 (0.153)	0.0102 (0.149)	0.0229 (0.150)	-0.0403 (0.282)	-0.0285 (0.279)	-0.0285 (0.274)
Spanish	0.584** (0.211)	0.570** (0.205)	0.559** (0.207)	-0.117 (0.426)	-0.105 (0.427)	-0.0761 (0.439)
Male	0.0707 (0.131)	0.0745 (0.132)	0.0824 (0.131)	0.119 (0.226)	0.136 (0.215)	0.130 (0.211)
Age	-0.0117* (0.00539)	-0.0131* (0.00546)	-0.0140* (0.00557)	-0.00301 (0.00813)	-0.00195 (0.00754)	-0.000572 (0.00746)
Household Size	0.0200 (0.0295)	0.0193 (0.0293)	0.0152 (0.0298)	-0.00771 (0.0326)	-0.00139 (0.0335)	-0.00257 (0.0335)
Education	-0.0971 (0.0726)	-0.115 (0.0728)	-0.118 (0.0729)	-0.0690 (0.140)	-0.0522 (0.134)	-0.0397 (0.129)
Employed	0.0339 (0.130)	0.0357 (0.130)	0.0397 (0.130)	-0.0998 (0.375)	-0.131 (0.365)	-0.130 (0.359)
Distance	0.00464 (0.00728)	0.00379 (0.00754)	0.00366 (0.00758)	-0.0158 (0.0238)	-0.0153 (0.0229)	-0.0141 (0.0231)
<i>Civic Engagement</i>						
Attend Meetings	0.0190 (0.0838)	0.00519 (0.0833)		-0.0976 (0.107)	-0.0866 (0.104)	
Volunteer	0.0745 (0.0569)	0.0687 (0.0574)	0.0463 (0.0534)	-0.0192 (0.116)	-0.0105 (0.114)	-0.0493 (0.108)
Protest	-0.00513 (0.0475)	-0.00719 (0.0472)	-0.0176 (0.0462)	0.204* (0.0872)	0.210* (0.0850)	0.212* (0.0857)
Affiliate	0.0348 (0.0392)	0.0312 (0.0389)	0.0286 (0.0382)	-0.00948 (0.0799)	-0.00955 (0.0809)	-0.0115 (0.0796)
Constant	-1.406* (0.640)	-1.234* (0.628)	-0.956 (0.571)	-2.748*** (0.653)	-2.930*** (0.587)	-3.146*** (0.587)
Municipality FE	Y	Y	Y	Y	Y	Y
Observations	2191	2209	2212	1500	1503	1505
Pseudo $R^2$	0.122	0.125	0.124	0.163	0.158	0.154
AIC	1901.8	1908.9	1914.1	700.9	705.8	707.3

Standard errors clustered at the Municipality level. Coefficients are log-odds.

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table A13: Proximity, Centrality and Favor Exchanges (Adding controls for time in neighborhood/municipality)

	Direct Questions 1			Direct Questions 2				
	Implicit Favors	Bribes	Bribes	Implicit Favors	Direct Favors	Bribes		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Proximity	0.409** (0.128)	0.409** (0.128)	0.688** (0.212)	0.691** (0.211)	0.402*** (0.117)	0.401*** (0.117)	0.424* (0.178)	0.430* (0.179)
Centrality	0.394*** (0.0899)	0.395*** (0.0885)	0.230* (0.116)	0.230* (0.117)	0.192* (0.0796)	0.191* (0.0801)	0.0119 (0.120)	0.0165 (0.118)
Time in Neighborhood	-0.00141 (0.00605)		0.00493 (0.00746)		-0.00311 (0.00533)		0.00729 (0.00720)	
Time in Municipality		-0.00283 (0.00694)		0.0277* (0.0120)		-0.00293 (0.00587)		0.0163 (0.0147)
Constant	-2.725*** (0.519)	-2.716*** (0.523)	-2.198** (0.791)	-2.331** (0.766)	-1.567* (0.643)	-1.563* (0.645)	-3.617*** (0.632)	-3.600*** (0.620)
Demographic Controls	Y	Y	Y	Y	Y	Y	Y	Y
Civic Engagement Controls	Y	Y	Y	Y	Y	Y	Y	Y
Municipality FE	Y	Y	Y	Y	Y	Y	Y	Y
Observations	2616	2616	2167	2167	2195	2195	1495	1495
Pseudo $R^2$	0.113	0.113	0.143	0.148	0.124	0.124	0.155	0.156
$AIC$	1757.0	1756.9	989.1	982.6	1901.3	1901.5	696.0	694.9

Standard errors clustered at the Municipality level. Coefficients are log-odds.

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table A14: Proximity, Centrality and Extortion

	Extortion (Direct 1)			Extortion (Direct 2)		
	(1)	(2)	(3)	(4)	(5)	(6)
Proximity	0.475** (0.149)	0.367* (0.147)	0.281 (0.150)	0.252 (0.198)	0.216 (0.230)	0.173 (0.199)
Centrality	0.141 (0.0878)	0.101 (0.0975)	0.109 (0.106)	0.151 (0.0966)	0.225* (0.0961)	0.140 (0.110)
<i>Demographics</i>						
Asset Count		0.0567 (0.0440)	0.0925* (0.0457)		0.000312 (0.0515)	0.0503 (0.0415)
Enough Income		0.116 (0.173)	0.132 (0.188)		0.0717 (0.209)	0.304 (0.200)
Spanish		0.0575 (0.224)	0.0885 (0.285)		-0.345 (0.312)	-0.267 (0.382)
Male		0.176 (0.171)	0.191 (0.175)		0.0900 (0.163)	0.133 (0.172)
Age		-0.00917 (0.00667)	-0.00715 (0.00674)		-0.0103 (0.00859)	-0.0101 (0.00882)
Household Size		0.0393 (0.0288)	0.0332 (0.0310)		0.0491 (0.0333)	0.0501 (0.0274)
Education		0.0366 (0.0896)	0.0543 (0.0926)		-0.114 (0.0832)	-0.0667 (0.0903)
Employed		0.296 (0.182)	0.410* (0.196)		0.0997 (0.214)	0.198 (0.228)
Distance		-0.00453 (0.00784)	-0.00290 (0.0101)		0.00676 (0.0101)	-0.00136 (0.0131)
<i>Civic Engagement</i>						
Attend Meetings		-0.0724 (0.0693)	-0.0286 (0.0765)		-0.249*** (0.0683)	-0.235** (0.0861)
Volunteer		-0.0495 (0.0612)	-0.0759 (0.0610)		-0.0829 (0.0748)	-0.0695 (0.0858)
Protest		0.0940 (0.0506)	0.0825 (0.0533)		0.178* (0.0758)	0.197* (0.0788)
Affiliate		-0.0581 (0.0473)	-0.0889 (0.0551)		-0.0185 (0.0607)	-0.0709 (0.0623)
Constant	-2.985*** (0.198)	-2.979*** (0.514)	-2.522*** (0.497)	-2.882*** (0.242)	-1.656** (0.632)	-2.858*** (0.736)
Municipality FE			Y			Y
Observations	3076	2767	2474	2434	2206	2007
Pseudo $R^2$	0.012	0.032	0.104	0.005	0.030	0.124
$AIC$	1641.9	1499.9	1345.3	1366.8	1232.0	1083.5

Standard errors clustered at the Municipality level. Coefficients are log-odds.

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table A15: Alternative Explanation: Kin Altruism

	Direct 1		Direct 2	
	Implicit Favor (1)	Bribe (2)	Implicit Favor (3)	Bribe (4)
Family ties only	0.239 (0.336)	0.554 (0.498)	0.215 (0.419)	0.0710 (0.922)
Friendship ties only	0.109 (0.233)	0.900** (0.287)	0.185 (0.198)	0.615* (0.297)
Acquaintance only	-0.108 (0.140)	0.161 (0.190)	-0.0295 (0.143)	-0.163 (0.273)
Centrality	0.424*** (0.0872)	0.241* (0.118)	0.218** (0.0793)	0.0371 (0.125)
Constant	-2.838*** (0.516)	-2.250** (0.799)	-1.644** (0.637)	-3.682*** (0.648)
Controls	Y	Y	Y	Y
Municipality FE	Y	Y	Y	Y
Observations	2616	2167	2195	1495
Pseudo $R^2$	0.108	0.137	0.119	0.155
$AIC$	1767.6	997.7	1914.2	697.9

Standard errors clustered at the Municipality level. Coefficients are log-odds.

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table A16: Alternative Explanation: Kin Altruism (Exchanges that included gift-giving)

	Favor-Gift Exchange		
	(1)	(2)	(3)
Proximity	0.981*** (0.169)	0.789*** (0.192)	0.905*** (0.254)
Centrality	0.315** (0.120)	0.387** (0.127)	0.442** (0.170)
Constant	-2.675*** (0.199)	-2.308* (0.952)	-1.703 (1.106)
Controls			Y
Populated Place FE			Y
Observations	954	824	728
Pseudo $R^2$	0.067	0.115	0.177
$AIC$	758.0	662.0	586.9

Standard errors clustered at the Municipality level. Coefficients are log-odds.

The dependent variable is based on the question: “Have you ever given a present (e.g., food or some other little detail) to a public official (such as a teacher, a municipal worker, a RENAP worker, or a health worker) in exchange for a favor?”

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$



Table A17: Inverted U Shape relation between bribery and proximity

	Bribes	
	(Direct 1)	(Direct 2)
Proximity	0.538 (0.477)	0.626 (0.485)
Proximity <sup>2</sup>	0.0847 (0.230)	-0.105 (0.253)
Centrality	0.235* (0.115)	0.0153 (0.120)
Constant	-2.209** (0.785)	-3.602*** (0.604)
Controls	Y	Y
Municipality FE	Y	Y
Observations	2167	1495
Pseudo $R^2$	0.142	0.154
$AIC$	989.4	696.6

Standard errors clustered at the Municipality level.

Coefficients are log-odds.

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table A18: Bribe Price Accuracy, Proximity and Centrality

	Log Deviation from Median Bribe	
	(1)	(2)
	Municipal Level	Community Level
Proximity	0.0597 (0.0438)	0.0806 (0.0546)
Centrality	0.000355 (0.0208)	0.0387 (0.0256)
Constant	4.595*** (0.111)	4.629*** (0.127)
Controls	Y	Y
Municipality FE	Y	Y
Observations	3164	2987
$R^2$	0.4328	0.3401
$AIC$	8043.7	8208.2

Standard errors clustered at the Municipality level.

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table A19: Proximity, Centrality and Favors Exchanges (Excluding Friendship from Proximity)

	Implicit Favors (Direct 1)			Bribes (Direct 1)		
	(1)	(2)	(3)	(4)	(5)	(6)
Proximity (Mod)	0.531** (0.193)	0.382+ (0.207)	0.484* (0.235)	0.863** (0.291)	0.865** (0.313)	0.904* (0.354)
Centrality	0.485*** (0.0815)	0.481*** (0.0876)	0.504*** (0.0909)	0.123 (0.124)	0.150 (0.136)	0.147 (0.150)
Constant	-3.216*** (0.181)	-3.538*** (0.585)	-2.365*** (0.571)	-3.517*** (0.276)	-2.709** (0.827)	-1.807 (0.976)
<i>Demographics</i>		Y	Y		Y	Y
<i>Civic Engagement</i>		Y	Y		Y	Y
Muni. FE			Y			Y
Observations	2561	2326	2186	2544	2307	1694
Pseudo $R^2$	0.027	0.046	0.118	0.013	0.039	0.114
<i>AIC</i>	1663.8	1505.6	1364.3	954.6	882.1	751.1

Standard errors clustered at the Municipality level. Coefficients are in log-odds.

+  $p < 0.10$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

## Appendix B List Experiment Measures of Implicit Favor Exchanges and Bribery

The survey instrument included 3 separate lists experiments, designed to measure implicit favor exchanges, favor exchanges that require a monetary payment (bribes) and extortion. Individuals were randomly assigned to receive any of these three experiments, so no respondents saw more than one of them. This section only describes the first two. Additionally, individuals also received a direct question, adhering to the wording of the experiment, to determine whether in fact there was underreporting of the sensitive behaviors when asking directly. Let us first present estimates of implicit favor exchanges and bribes based on these experiments, and compare them with estimates obtained with direct questions, prior to presenting the wording of each experiment and important diagnostics.

### B.1 Implicit Favor Exchanges

A third of respondents in the sample were randomly assigned to a “control” and a “treatment” group in order to conduct the list experiment to measure the incidence of implicit favor exchanges between citizens and public officials. Those who were assigned to the former group received the following question:

I will read you a list of things people commonly do when interacting with a public official (such as a municipal employee or a police officer). After

Table A20: Proximity, Centrality and Favors Exchanges, Experimental Measures

	Implicit Favors		Bribery	
	Control Item (1)	Sensitive Item (2)	Control Item (3)	Sensitive Item (4)
Proximity	0.0357 (0.0436)	0.0494 (0.0504)	0.132** (0.0429)	-0.0809 (0.0462)
Centrality	0.0940 (0.0269)	-0.0371 (0.0398)	0.0749 (0.0267)	-0.0222 (0.0304)
Asset Count	0.0269 (0.0085)	0.0124 (0.0118)	0.0308 (0.0095)	-0.0118 (0.0126)
Enough Income	-0.0936 (0.0450)	0.0583 (0.0693)	-0.075 (0.0492)	0.0648 (0.0538)
Spanish	-0.0804 (0.0532)	0.0381 (0.0648)	-0.104 (0.0517)	0.0927 (0.0639)
Male	0.0587 (0.0508)	0.0213 (0.0527)	0.0361 (0.0429)	-0.0374 (0.0507)
Age	-0.00148 (0.0015)	-0.0006 (0.0016)	0.000878 (0.0014)	-0.0020 (0.0018)
Household Size	0.0140 (0.0067)	-0.0065 (0.0089)	0.00185 (0.0080)	0.0032 (0.0088)
Education	0.0254 (0.0171)	-0.0033 (0.0271)	0.035 (0.0201)	-0.0512 (0.0267)
Employed	-0.0213 (0.0120)	0.0145 (0.0136)	-0.0151 (0.0114)	-0.0072 (0.0129)
Distance	-0.00109 (0.0025)	0.0005 (0.0028)	-0.00249 (0.0015)	0.0034 (0.0028)
Attend Meetings	0.0375 (0.0188)	-0.0441 (0.0230)	0.0168 (0.0202)	-0.0314 (0.0238)
Volunteer	-0.00213 (0.0158)	0.0418 (0.0193)	-0.000396 (0.0154)	0.0181 (0.0173)
Protest	0.0319 (0.0162)	-0.0102 (0.0214)	0.00112 (0.0134)	0.0129 (0.0193)
Affiliate	0.00454 (0.0135)	-0.0021 (0.0170)	0.0405 (0.0117)	-0.0264 (0.0173)
Constant	-0.406 (0.1840)	0.1086 (0.1782)	-0.401 (0.1630)	0.3963 (0.1848)
Observations	1209	1226	1237	1240
Pseudo $R^2$	0.015		0.015	
$AIC$	2864.6	2892.7	2947.4	2796.9
RMSE		0.7822		0.7426

*Note:* Columns 2 and 4 present estimates of the second stage of the Nonlinear Least Squares estimator, developed by Imai (2011). The first stage estimates, obtained via Poisson regression are in columns 1 and 3. All standard errors are clustered at the Municipality level, and those in models 2 and 4 were calculated by bootstrapping (1,000 repetitions).

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table A21: Proximity, Centrality, Bribery and Favor Exchanges (Mixed Effects Models)

	Direct Questions 1			Direct Questions 2				
	Implicit Favors	Bribes	Bribes	Implicit Favors	Bribes	Bribes		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Proximity	0.519*** (0.116)	0.409*** (0.120)	0.687*** (0.162)	0.710*** (0.164)	0.412*** (0.107)	0.375*** (0.110)	0.450* (0.185)	0.451* (0.193)
Centrality	0.403*** (0.078)	0.389*** (0.080)	0.226* (0.113)	0.220 (0.116)	0.219** (0.070)	0.190** (0.073)	0.070 (0.128)	0.041 (0.134)
Log. of Population	0.145 (0.125)	0.193 (0.126)	0.162 (0.194)	0.149 (0.191)	0.217 (0.131)	0.223 (0.133)	0.156 (0.220)	0.145 (0.229)
Demographic Controls	Y	Y	Y	Y	Y	Y	Y	Y
Civic Engagement Controls		Y		Y		Y		Y
Observations	2,824	2,728	2,855	2,769	2,261	2,208	2,258	2,205
Log Likelihood	-958.984	-923.712	-560.452	-545.642	-1,026.143	-1,000.181	-409.840	-391.498
AIC	1,945.969	1,883.424	1,148.905	1,127.284	2,080.286	2,036.361	847.680	818.997

Standard errors clustered at the Municipality level. Coefficients are log-odds.

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table B1: Estimates of Favor Exchanges and Extortion

	Favors	Bribery
<i>Full Sample</i>		
Direct Question 1	0.1328 (0.0043)	0.0631 (0.0031)
Observations	6,161	6,161
List Experiments	0.1361	0.0679
Difference in means	(0.0202)	(0.0197)
Observations	5,496	5,527

Standard errors in parenthesis.

I read all of them, tell me HOW MANY of these you have done when interacting with a public official in the last year.

- Address the public official respectfully.
- Chat with the public official about sports.
- Interrupt the public official when he/she is explaining a procedure.

Respondents assigned to the “treatment” group received an identical prompt, the same three innocuous items, and an extra, sensitive, item:

Received a favor from the public official.

Table B2: Balance Across Treatment Assignment

Variable	(1) Control		(2) Treatment		T-test Difference (1)-(2)
	N	Mean	N	Mean	
Asset Count	3142	3.685 (0.194)	3097	3.648 (0.182)	0.038
Enough Income	3142	0.214 (0.015)	3097	0.223 (0.016)	-0.009
Spanish	3142	0.629 (0.049)	3097	0.638 (0.048)	-0.009
Male	3142	0.461 (0.012)	3097	0.457 (0.012)	0.004
Age	3142	41.024 (0.420)	3097	41.034 (0.438)	-0.010
Household Size	3141	5.492 (0.094)	3096	5.387 (0.082)	0.105
Distance	2960	6.454 (1.031)	2901	5.840 (0.715)	0.614
Education	3142	2.532 (0.061)	3097	2.513 (0.058)	0.019
Employed	3142	0.570 (0.016)	3097	0.572 (0.018)	-0.003
Attend Meetings	3123	4.049 (0.049)	3071	4.026 (0.045)	0.023
Volunteer	3107	3.620 (0.053)	3059	3.563 (0.049)	0.057
Protest	3099	2.714 (0.067)	3038	2.709 (0.069)	0.005
Affiliate	3117	2.585 (0.084)	3065	2.586 (0.080)	-0.001
Proximity	1525	0.410 (0.020)	1552	0.405 (0.020)	0.005
Centrality	3116	1.749 (0.024)	3078	1.774 (0.024)	-0.025

Standard errors clustered at the Municipality level in parenthesis.

### B.1.1 List Experiment Diagnostics

Figure B1: Tests of Floor and Ceiling Effects

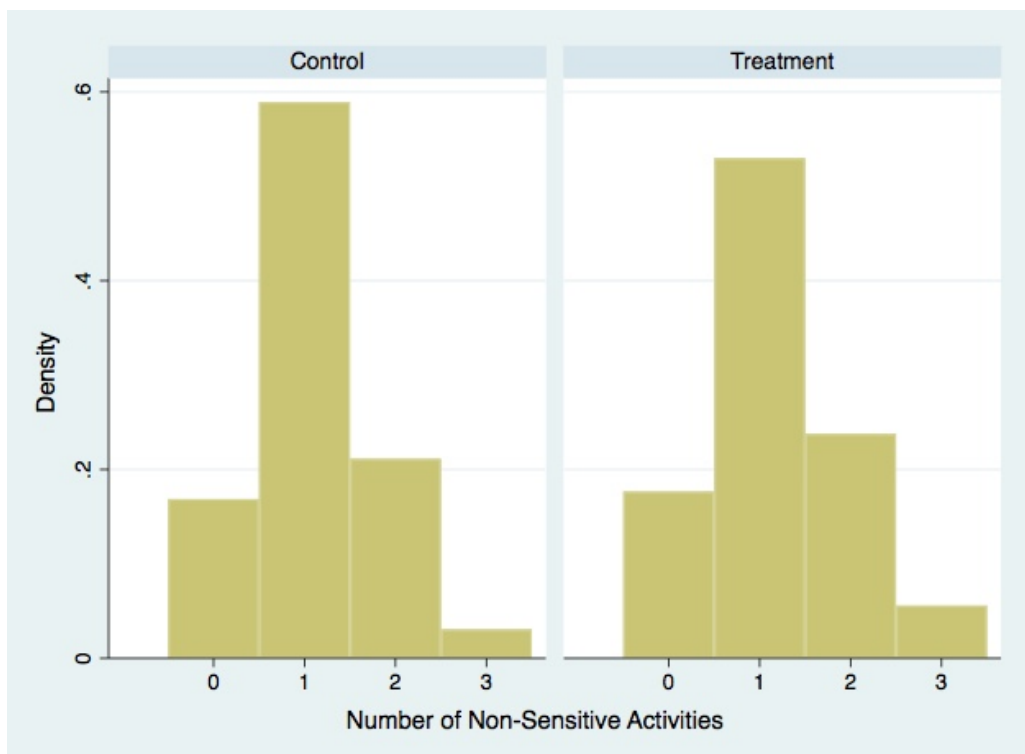


Table B3: Test for *No Design Effect*: Estimated Respondents Types for the List Experiment

Response	(Estimates)			
	Proportion in Treatment	SE	Proportion in Control	SE
0	0.0191	0.0100	0.1559	0.0070
1	0.0739	0.0120	0.5161	0.0114
2	0.0376	0.0056	0.1701	0.0093
3	0.0055	0.0014	0.0218	0.0034

To test whether the “no design effect assumption is violated, I employ the test proposed by Blair and Imai (2012), which is based on comparing the proportions of treated and untreated individuals who select each possible answer. Given that all proportions are positive in Table B3, we can conclude that there is no statistical evidence for a design effect.

## B.2 Bribery

A third of respondents in the sample were randomly assigned to a “control” and a “treatment” group in order to conduct the list experiment to measure the incidence of favor exchanges that require a monetary payment (bribes) between citizens and public officials. Those who were assigned to the former group received the following question:

I will read you a list of things people commonly do when interacting with a public official (such as a municipal employee or a police officer). After I read all of them, tell me HOW MANY of these you have done when interacting with a public official in the last year.

- Address the public official respectfully.
- Chat with the public official about sports.
- Interrupt the public official when he/she is explaining a procedure.

Respondents assigned to the “treatment” group received an identical prompt, the same three innocuous items, and an extra, sensitive, item:

Paid the public official to obtain a favor.

### B.2.1 List Experiment Diagnostics

Figure B2: Tests of Floor and Ceiling Effects

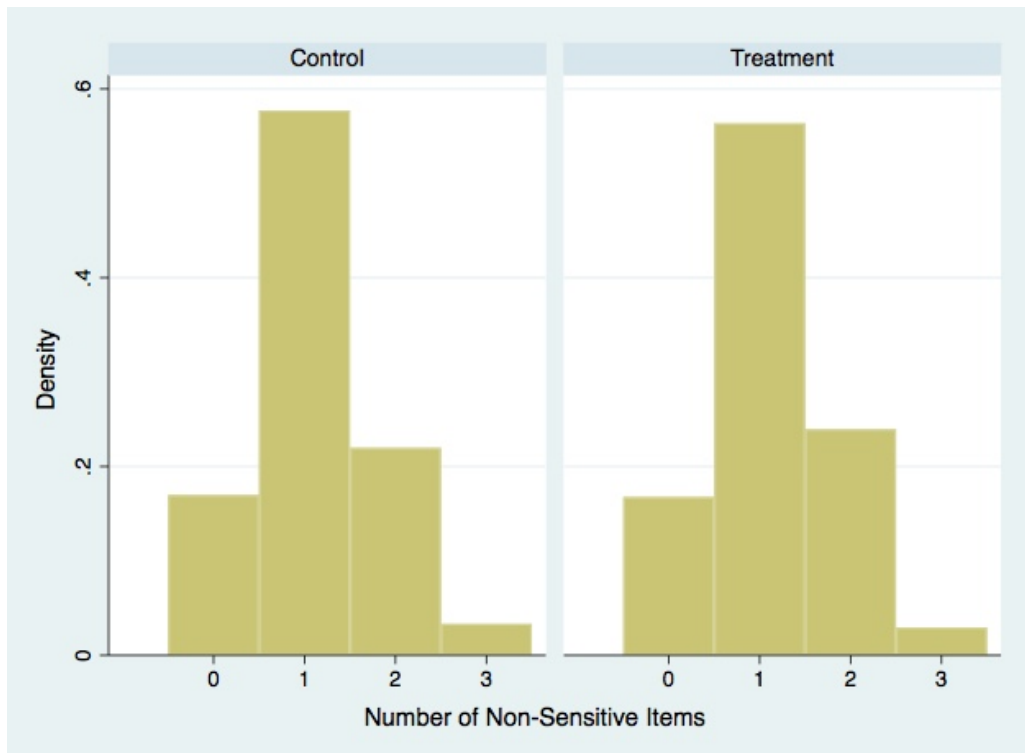




Table B4: Balance Across Treatment Assignment

Variable	(1) Control		(2) Treatment		T-test Difference (1)-(2)
	N	Mean	N	Mean	
Asset Count	3094	3.707 (0.191)	3156	3.691 (0.187)	0.016
Enough Income	3094	0.225 (0.014)	3156	0.220 (0.016)	0.005
Spanish	3094	0.633 (0.048)	3156	0.629 (0.050)	0.004
Male	3094	0.458 (0.012)	3156	0.463 (0.012)	-0.005
Age	3092	40.744 (0.378)	3155	40.990 (0.374)	-0.246
Household Size	3090	5.445 (0.084)	3155	5.492 (0.082)	-0.047
Distance	2908	6.298 (1.007)	2954	6.548 (1.017)	-0.250
Education	3094	2.554 (0.061)	3156	2.543 (0.059)	0.011
Employed	3094	0.587 (0.017)	3156	0.576 (0.017)	0.011
Attend Meetings	3078	3.989 (0.050)	3144	4.017 (0.049)	-0.028
Volunteer	3058	3.517 (0.051)	3121	3.559 (0.051)	-0.042
Protest	3042	2.698 (0.061)	3111	2.701 (0.059)	-0.003
Affiliate	3061	2.574 (0.086)	3132	2.638 (0.082)	-0.064
Proximity	1551	0.394 (0.019)	1564	0.412 (0.024)	-0.017
Centrality	3072	1.762 (0.024)	3136	1.789 (0.024)	-0.027

Standard errors clustered at the Municipality level in parenthesis.

Table B5: Test for *No Design Effect*: Estimated Respondents Types for the List Experiment

Response	(Estimates)			
	Proportion in Treatment	SE	Proportion in Control	SE
0	0.0111	0.0100	0.1584	0.0069
1	0.0418	0.0119	0.5426	0.0112
2	0.0089	0.0051	0.2039	0.0091
3	0.0061	0.0015	0.0272	0.0037

To test whether the “no design effect assumption is violated, I employ the test proposed by Blair and Imai (2012), which is based on comparing the proportions of treated and untreated individuals who select each possible answer. Given that all proportions are positive in Table B5, we can conclude that there is no statistical evidence for a design effect.

## Appendix C Survey Details

The target population of the survey was Guatemalan male and female heads of a nuclear family aged 18 years and above. All adults living in urban and rural areas of the selected municipalities, depicted in Appendix Figure A1, were taken as the universe to elaborate the sample. The choice of respondents was made in two stages. First, populated places were chosen with a probability that is proportional to the number of adults living within them.<sup>1</sup> Specifically, the number of adults in the populated place divided by the municipality’s adult population gives the probability that a primary sampling unit will be assigned to that populated place. Estimates of the number of adults in each populated place are based on the latest published projections elaborated by the National Statistics Institute (INE), which in turn are based on the 2002 census. The secondary sampling units are the dwellings chosen by means of a systematic walk with a randomly chosen starting point located within the selected populated place. The final unit of sampling is the adult person, who is the head of the nuclear family that inhabits the dwelling. The sample of municipalities is not random because inclusion in the sample is predicated on participation in the MPP program. However, our sample of respondents does resemble the Guatemalan population as a whole.

According to the 2018 Census, the average age of the adult Guatemalan population is around 37 years, 52 percent of the population is female, and 41.7 percent identify as Maya and speak a Maya language. These results are available online at <https://www.censopoblacion.gt>. In comparison, the average age of a survey respondent is 41, 54 percent of respondents are women, and for 36 percent of respondents said Spanish is not their mother tongue. Moreover, the *municipalities* included in the survey are similar those excluded in measures such as levels of poverty, inequality and insecurity, and but also internet access (very low across the board) and the average size of the municipal economy (see Appendix Table A1).

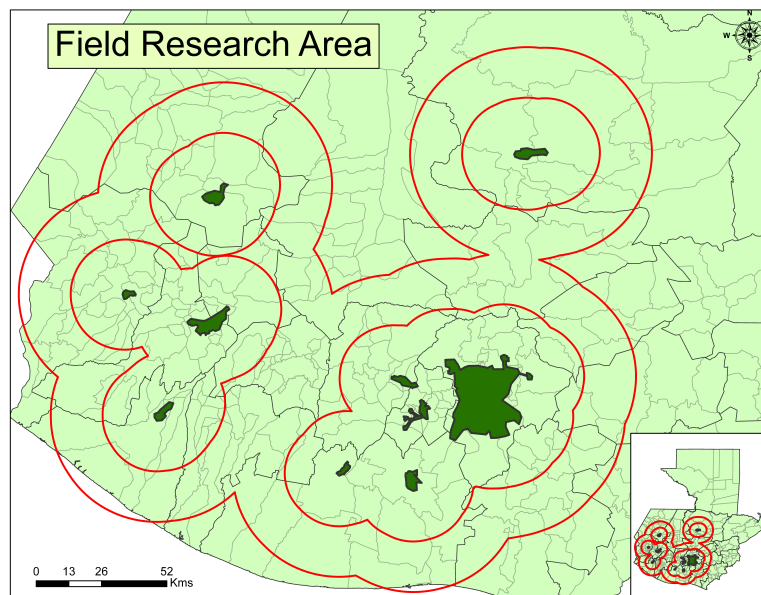
<sup>1</sup>“Populated Places” are defined by the Guatemalan National Statistics Institute (INE), and correspond to villages in rural areas and to neighborhoods or zones in urban areas.

## Appendix D Exploratory Study

This exploratory study consisted of a household survey ( $n=970$ ), conducted in 65 populated places located in 56 municipalities of 16 of the 22 departments of Guatemala, in the summer of 2018. The target population of our survey was Guatemalan male and female heads of a nuclear family older than 20 years old. The sample was stratified by distance to a top-10 urban area (i.e. distance to a city of more than 70,000 inhabitants) in order to ensure enough geographical variation. We randomly sampled 27 populated places within the first stratum, made up of 9 of the 10 largest urban centers of the country,<sup>2</sup> identified by SEGEPLAN, the country's planning secretariat:<sup>3</sup> the metropolitan area of Guatemala City, Quetzaltenango and its vicinity, Antigua Guatemala and its vicinity, Chimaltenango-El Tejar, Huehuetenango-Chiantla, Coban-San Pedro Carcha, San Marcos-San Pedro, Santa Lucia Cotzumalguapa, and Retalhuleu-San Sebastian.

The second stratum was made up of populated places within 20 kilometers of the borders of those urban areas, creating a concentric circle around each city. The last stratum contains populated places 20 kilometers away from the geographical border of the preceding stratum. From each of these 2 strata we randomly sampled 19 populated places. Finally, systematic sampling with random start was employed to identify the households to be interviewed in each populated area, sampling equally from each one. Figure D1 depicts the field research area.

Figure D1: Sampling populated places



Note: The 10 urban areas are shaded in dark green. Each of the concentric circles are drawn in red. Escuintla, the southernmost urban area, was dropped due to safety concerns.

<sup>2</sup>Safety concerns forced us to drop one of the 10 largest urban centers, Escuintla.

<sup>3</sup>The Guatemalan National Urban System, developed by SEGEPLAN in 2014, classifies the 2,235 urban centers of the country according to their total population, using the National Statistics Institute's (INE) population projections for 2013, into metropolitan areas (1), intermediate cities (10), emergent intermediate cities (7), mayor cities (8), minor cities (29), emergent minor cities (35), and mayor and minor populated centers (2,145). Our choice of cities of more than 70,000 inhabitants entails that the first stratum contains the metropolitan area of Guatemala City as well as 8 urban areas classified as intermediate cities.

## D.1 Measuring Bribery

The standard way of measuring the incidence of bribery employs direct questions of the type “did you pay a bribe to a public official in the last 12 months?” However attempting to measure “bribery” in this way is problematic since it fails to account for the fact that bribery, regardless of how common or accepted the researcher may consider it to be, is illegal and as such, constitutes a sensitive topic. In order to avoid the prevalence of underreporting inherent in the standard survey-based measures of corruption, I decided deployed the following list experiment, in addition to direct questions regarding bribery and implicit favor exchanges:

I will read you a list of things people commonly do when interacting with a public official (such as a municipal employee, a RENAP worker, or a police officer). After I read all of them, tell me HOW MANY of these you have done when interacting with a public official in the last year.

- Address the public official respectfully.
- Chat with the public official about sports.
- Interrupt the public official when he/she is explaining a procedure.

Respondents assigned to the “treatment” group received an identical prompt, the same three innocuous items, and an extra, sensitive, item:

To have to pay a bribe to the public official.

### D.1.1 List Experiment Diagnostics

This section contains a balance table (Table D1) and diagnostics for potential design effects (Table D2), employing the test designed by Blair and Imai (2012). These results allow us to conclude that there is no statistical evidence for a design effect.<sup>4</sup>

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<sup>4</sup>The test is based on comparing the proportions of treated and untreated individuals who selected each possible answer. A negative treatment-control difference in proportion signals that the *no design effect* assumption might be violated. However, given that all estimated treatment-control differences in proportions are positive in our case, we can conclude that there is no statistical evidence for a design effect.

Table D1: Balance Across Treatment Assignment

VARIABLES	Treatment	Control	p-value
<i>Individual Characteristics</i>			
Age	42.01	42.87	0.37
Female	0.50	0.55	0.19
Education	3.62	3.60	0.89
Maya	0.40	0.42	0.64
Catholic	0.57	0.52	0.13
Asset Count	6.56	6.39	0.27
Household Size	4.64	4.91	0.07
Household Income	1.68	1.51	0.05
Spanish mother tongue	0.83	0.80	0.21
Employed	0.62	0.63	0.87
<i>Key Independent Variables</i>			
Centrality	0.34	0.37	0.34
Centrality 2	-0.01	0.01	0.54
Proximity	0.81	0.81	0.88

Table D2: Test for *No Design Effect*: Estimated Respondents Types for the List Experiment

Response	(Estimates)			
	Proportion in Treatment	SE	Proportion in Control	SE
0	0.0348	0.0320	0.3648	0.0223
1	0.0914	0.0271	0.3343	0.0307
2	0.0252	0.0136	0.1167	0.0208
3	0.0129	0.0052	0.0199	0.0098

Table C3 shows the distribution of answers given to the list experiment question.

Table D3: Observed Responses from the List Experiment

Response	(Control)		(Treatment)	
	Frequency	%	Frequency	%
0	183	39.96%	170	36.48%
1	195	42.58%	172	36.91%
2	65	14.19%	97	20.82%
3	15	3.28%	21	4.51%
4	–	–	6	1.29%
Total	458	100%	466	100%

## D.2 Results

### D.2.1 Prevalence of Bribery

Overall, 7.2% of respondents reported, through direct questioning, paying a bribe at least once in their dealings with public officials. Table D4, Column 2, shows the breakdown of bribes paid by service/office, with the police being the largest recipient of bribes, and public schools, the smallest. 19.05% of the people who had an exchange with a police officer reported having to pay a bribe, versus only 1.04% of those who reported an exchange with a RENAP clerk.

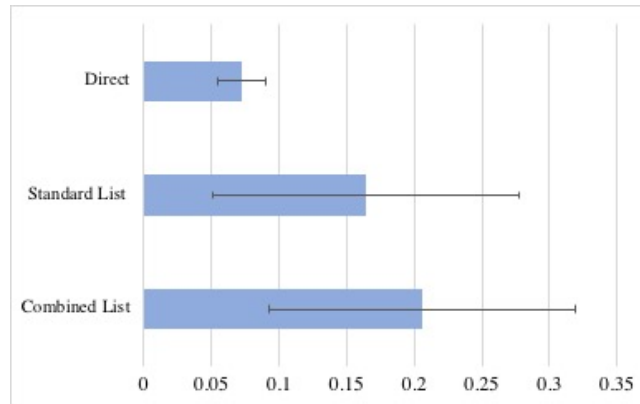
Table D4: Number of Reported Bribes per Public Service

	(1) Total Exchanges	(2) Number of Reported Bribes
<i>Public Official</i>		
Municipal clerk	455	19
Public school teacher or principal	299	4
Public health care worker	441	6
RENAP clerk	483	5
Police officer	168	32
<i>Total</i>	1,846	66

Since bribery is a sensitive issue, insofar as it is illegal, these estimates are bound to suffer from underreporting. We turn now to analyzing our list experiment.

In order to obtain estimates of the prevalence of bribery from our list experiment we employ a difference in means estimator, as well as the combined estimator proposed by Aronow et al. (2015), which uses data from the list experiment and from direct questions. As Figure D2 shows, experimental evidence suggest that the true prevalence of bribery in the sample is higher than the 7.2% obtained through direct questioning: 16.4% (SE 0.0578) and 20.6% (0.0576) using the difference in means and combined estimators, respectively.

Figure D2: Estimated Prevalence of Bribery



Note: 95% confidence intervals based on non-parametric bootstrap standard errors. The difference between these results, and those obtained when clustering at the populated place level, is small: 16.4% (SE 0.0548) and 20.6% (0.0605) using the difference in means and combined estimators, respectively.

Finally, Table D5 shows the prevalence of favor exchanges that do not require a monetary payment, in the context of policing, public education and health care, municipal services and RENAP. Note that the prevalence of these favor exchanges is higher than the prevalence of bribery –measured through direct questioning–, in the sample: 15.7% (SE 0.0129).

Table D5: Number of Reported Favor Exchanges (no monetary payment) per Public Service

	(1) Total Exchanges	(2) Number of Reported Favors
<i>Public Official</i>		
Municipal clerk	455	50
Public school teacher or principal	299	16
Public health care worker	441	55
RENAP clerk	483	34
Police officer	168	10
<i>Total</i>	1,846	165