Vote Buying and Associational Life
Supplemental Material

April 26, 2015

Reverse Causality, Voters' Requests and Political Organizations

An alternative way to see if our conclusions are affected by reverse causality is to exclude from the sample individuals who are more likely to join an organization to obtain rewards from the parties. I first exclude those who participate in political organizations. If voters attend meetings with the objective to ask for bribes, it is natural that they will go to those meetings where they know for sure they will be in contact with campaign operatives. Table 1 shows that, although the magnitude of the coefficient of interest has decreased, it is still sizable and precisely estimated. Moreover, the independent effects of participating in other types of organizations are still positive and have a similar magnitude to the ones estimated with the complete sample. Columns (3) and (4) present the results of models that exclude from the sample those individuals who report asking for help or making a request to a council member or local official in the last year. Again, we see that the results are almost unchanged.

Table 1: Determinants of Vote Buying (Reverse Causality)

	Does not attend political meetings		Has not made requests	
		Attends (yes/no)		Attends (yes/no)
	(1)	(2)	(3)	(4)
Organizations	0.017***		0.032***	
	(0.006)		(0.005)	
Religious organization		-0.012		-0.016
		(0.015)		(0.014)
Political organization				0.119***
				(0.024)
Professional organization		0.027		0.017
		(0.019)		(0.021)
Community organization		0.044**		0.031*
		(0.016)		(0.016)
Parents' organization		0.009		0.017
		(0.012)		(0.012)
Women's organization		0.041*		0.054***
		(0.024)		(0.019)
Individual controls	yes	yes	yes	yes
Municipality controls	yes	yes	yes	yes
Year effects	yes	yes	yes	yes
Observations	3,561	3,561	3,899	3,899
Municipalities	81	81	81	81
R^2	0.015	0.018	0.0243	0.0363

Individual and Municipality controls are listed in Table 1 in the paper. Standard errors clustered at the municipality level are in parentheses. $***$ Significance at the 1% level. $**$ Significance at the 5% level. $*$ Significance at the 10% level.

Underreporting

Election Monitors' Vote Buying Reports

Table 2: Determinants of Vote Buying (Municipality Level Results)

Dep. Variable:	Number of vote buying reports			
	LAPOP Reports		Monitors' Reports	
	OLS	FE	OLS	FE
	(1)	(2)	(3)	(4)
Participation	6.086***	1.695	1.849***	3.047*
	(1.739)	(1.136)	(0.604)	(1.546)
Municipality controls	yes	yes	yes	yes
Year effects	yes	yes	yes	yes
Observations	158	158	98	98
Municipalities	53	53	43	43
R^2	0.545	0.1043	0.451	0.091

Municipality controls are listed in Table 1 in the paper. Standard errors clustered at the municipality level are in parentheses. *** Significance at the 1% level. ** Significance at the 5% level. * Significance at the 10% level.

Table 2 presents estimates of the participation coefficient when using municipality-level data. The table includes the results of models in which the dependent variable is the number of respondents that have been offered bribes in the LAPOP survey and models in which it is the total number of election monitors' reports of vote buying incidents. As for the explanatory variable, I use the log of the number of LAPOP respondents in a municipality that report attending at least one meeting of one type of organization in a given year while controlling for the log of the population. The results in column (1) show that an increase of 50% in the number of voters who attend at least one meeting of a group is associated with 3.04 additional voters reporting having received a bribe ($50 \times \frac{6.086}{100} \approx 3.04$), which is approximately half of one standard deviation of the dependent variable.[1] The model in column (2) includes fixed effects at the municipality level to account for unobserved heterogeneity, like

[1] A 50% percent increase in the number of people attending meetings of organizations for the average municipality in the sample corresponds to an increase of 12.58 people, which is a relatively modest increase if we consider that the standard deviation of this variable is 31.94.

historical or cultural factors that determine both social capital accumulation and levels of manipulation. Here the coefficient on participation is positive but is not precisely estimated. Columns (3) and (4) show the results for the models that use the election monitors' reports as the dependent variable. Again, the estimated coefficients are positive and significant. Unlike the models that use the respondents' answers, adding municipality effects actually increases the magnitude of the participation coefficient. While these models support the view that the main finding is not a product of social desirability bias, the results should be interpreted with caution. The explanatory variable comes from the LAPOP survey, which is representative at the regional level but not at the municipality level. Also, we only have monitors' data on a small number of municipalities. For these reasons it is important to assess the impact of social desirability bias with an alternative approach. In the next section, I show that the main results hold once we model the misreporting process while using the individual-level LAPOP data.

Underreporting of Bribe Attempts

The second approach to address measurement error in the dependent variable is to model the misreporting process and incorporate this model into the estimation of the parameters of interest. This approach extends standard binomial outcome models by allowing for a positive probability of observing no offer in the data given that the respondent did receive one. For this application, I opt for the convenience of the cumulative logistic distribution to model such probability. I also allow a set of covariates to affect the probability of misreporting. Estimation is carried out using maximum likelihood.[2]

Table 3 presents the results of these models. Panel A shows the estimated coefficients on group participation while panel B presents the results of the underreporting equation. The first column shows the result of a standard Logit when the explanatory variable is

[2]For more details see Hausman, Abrevaya and Scott-Morton 1998 and Hug 2010.

Table 3: Determinants of Vote Buying (Accounting for Underreporting)

Dep. Variable:	1 if respondent has been offered a bribe and 0 otherwise			
			Attends (yes/no)	Frequency
	(1)	(2)	(3)	(4)
Panel A	Vote Buying Equation			
Organizations	0.256***	0.281***		
	(0.041)	(0.068)		
Religious organization			-0.011	-0.131
			(0.08)	(0.091)
Political organization			0.909***	4.596**
			(0.1)	(1.91)
Professional organization			0.23	0.05
			(0.144)	(0.076)
Community organization			0.287	0.251
			(0.242)	(0.221)
Parents' organization			0.108***	-0.002
			(0.037)	(0.089)
Women's organization			0.396***	0.261**
			(0.074)	(0.109)
Panel B	Underreporting Equation			
Organizations		0.037	0.092	-0.082***
		(0.14)	(0.073)	(0.03)
Trusts community		0.499***	0.445*	0.199***
		(0.121)	(0.23)	(0.046)
Corruption perception		-0.234	-0.228	-0.127*
		(0.183)	(0.172)	(0.07)
Rural		-0.754	-0.41	0.319***
		(1.11)	(1.628)	(0.049)
Crime victim		-1.704*	-1.162	-0.382***
		(1.004)	(0.847)	(0.117)
Household income		-0.363**	-0.329	-0.007
		(0.16)	(0.309)	(0.017)
Non-state armed actor		-0.103	-0.199	0.159***
		(0.5)	(0.614)	(0.035)
Individual controls	yes	yes	yes	yes
Municipality controls	yes	yes	yes	yes
Year effects	yes	yes	yes	yes
Observations	4,162	4,162	4,162	4,162
Municipalities	81	81	81	81

This table reports Logit coefficients in column (1) and Logit coefficients that account for underreporting in columns (2) through (4). Individual and Municipality controls are listed in Table 1 of the paper. Standard errors clustered at the municipality level are in parentheses. $***$ Significance at the 1% level. $**$ Significance at the 5% level. $*$ Significance at the 10% level.

the number of organizations whose meetings are attended by the respondent. The second presents the results of the extended Logit that accounts for underreporting with the same controls. The coefficient on participation is positive and significant for both models. The results in column (3) are also consistent with those of the OLS models. Political, parents', and women's organizations have a significant independent effect on the probability of the respondent being offered a bribe. When we include participation variables that reflect the frequency of attendance at the meetings in column (4), we find that more frequent attendance at meetings of political and women's organizations increases the probability of the respondent being offered bribes.

One interesting finding is that the measure of group participation in the underreporting equation only seems to reduce underreporting for the model that includes measures of frequency of participation in the main equation. This could explain why these results do not change substantively from the OLS estimates reported in the paper. Group participation and its potential effects on the accumulation of social capital do not seem to be strongly correlated with truthful reporting of illicit activities. Moreover, people who are more trusting of others in their community tend to be more likely to underreport vote buying attempts. Although higher income is associated in all models with less underreporting, that relationship is only significant for the model in column (2). We also see in column (4) that voters who live in rural areas and in municipalities where there is a presence of non-state armed groups are more likely to underreport bribing attempts. However, this result does not appear to be robust to alternative model specifications as the table shows.

International evidence

Table 4 presents the results of models that explore differences across types of organizations using the Brazilian data. Here we see that, unlike the Colombian results, participation in religious organizations is positively associated with the likelihood of being offered a bribe. The model that uses the panel study data shows large effects of participation in community and parents organizations. However, it is worth noting that the panel study does not have information on all the types of organizations that the LAPOP survey inquires about.

Table 4: Determinants of Vote Buying in Brazil

	First wave		First differences	
	(1)	(2)	(3)	(4)
Organizations	0.036***		0.087***	
	(0.009)		(0.023)	
Religious organization		0.044*		
		(0.026)		
Political organization		0.048		0.007
		(0.045)		(0.041)
Professional organization		0.167**		
		(0.070)		
Community organization		-0.027		0.100**
		(0.038)		(0.045)
Parents organization		0.038		0.132***
		(0.024)		(0.038)
Women's organization		0.023		
		(0.041)		
Individual controls	yes	yes	no	no
Observations	2,263	2,263	566	566
R^2	0.036	0.052	0.046	0.053

This table reports estimates of linear probability models in columns (1) and (2), and estimates of the linear first differences probability model in columns (3) and (4). Additional controls for models in columns (2) and (3) are an indicator for unemployment and income levels. First-difference models exclude from the sample individuals who report never having participated in meetings of a given group in August after reporting in April or March that they had. Standard errors clustered at the municipality level are in parentheses. $***$ Significance at the 1% level. $**$ Significance at the 5% level. $*$ Significance at the 10% level.

As described in the paper, the models that explore potential mechanisms behind the strong correlation between participation and vote buying in Latin America and the Caribbean show similar patterns as those seen for Colombia. Table 5 presents these results.

The last two columns of the table present models that restricts the sample for respondents with different levels of exposure to the news. We see that, consistent with the signalling hypothesis, the coefficient on the interaction between participation and group vote buying in the model that includes only people who follow the news daily is smaller than the one estimated when using a sample of respondents who rarely or never follow the news.

Table 5: Determinants of Vote Buying in the Caribbean, Central and South America (Mechanisms)

Dep. Variable:	1 if respondent has been offered a bribe and 0 otherwise							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Organizations	0.035***	0.035***	0.031***	0.030***	0.032***	0.027***	0.011***	0.010***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Trust community		-0.009***						
		(0.003)						
Helps community			0.020***					
			(0.003)					
Works in political campaign				0.109***				
				(0.008)				
Uninterested in politics					-0.021***			
					(0.002)			
Political persuasion						0.063***		
						(0.004)		
Organizations × Group VB							0.104***	0.121***
							(0.017)	(0.034)
Individual controls	yes	yes	yes	yes	yes	yes	yes	yes
Country effects	yes	yes	yes	yes	yes	yes	yes	yes
Sample	all	all	all	all	all	all	informed	uninformed
Observations	35,150	34,306	34,753	34,671	34,917	34,836	18,903	2,856
R^2	0.046	0.047	0.049	0.056	0.050	0.075	0.086	0.081

Standard errors clustered at the municipality level are in parentheses. Models in columns (7) and (8) also include as a control Group VB by itself. All models include country fixed effects. $***$ Significance at the 1% level. $**$ Significance at the 5% level. $*$ Significance at the 10% level.

Complementary Tables

Table 6: Variable Definitions and Sources

Variable	Description	Source
Non-State armed actor	Dummy variable that takes the value of 1 if there was combat where either guerrillas or paramilitary forces were involved	CERAC
Local revenues	Share of revenues of the local government in the municipality as a share if its total revenues (that include transfers from the central government).	National Planning Department.
Average margin of victory	Average of all margins of victory in the previous most recent elections weighted by valid votes of each race in the municipality. Margins for plurality elections (mayor, governor and president) are calculated as the gap between the winner's and the runner-up's votes. For presidential elections, results of the first round are used. For proportional representation races (municipal councils, department assemblies, lower house and senate) after 2003, margins are the gap between the electoral quotient of the party winning the final seat and the electoral quotient of the closest loser as in Selb 2009.	Registraduría Nacional del Estado Civil and author's calculations
Total Population	Total population	DANE

Variable	Description	Source
Age	Respondent's age	LAPOP
Uninterested politics	The variable is built with answers to the following question: "How much interest do you have in politics: a lot, some, little or none?" The variable is increasing in lack of interest in politics	LAPOP
Education	Number of years of education	LAPOP
Female	Gender variable. It takes the value of 1 if respondent is a female and 0 otherwise	LAPOP
Household income	The 2011 and 2010 LAPOP surveys ask respondents to choose an income range out of ten in which their monthly income falls into. For the year 2012, LAPOP increased the number of income ranges. For the year 2012 answers were modified to make them compatible with the ones from previous years. The variable is increasing in reported income	LAPOP and author's calculations
Helps community	Frequency which the respondent helped to solve a problem in her community in the last year. The answers are originally grouped in four categories (Once a week, once or twice a month, once or twice a year, never) and the values assigned to each category are modified to make the variable increasing in community affairs involvement	LAPOP and author's calculations
Informed	Attention given to the news. The variable is built with the answers to the question "About how often do you pay attention to the news, whether on TV, the radio, newspapers or the internet?" The answers are grouped in five categories (daily, a few times a week, a few times a month, rarely, never) and the values of each category are modified to make the variable increasing in attention to the news	LAPOP and author's calculations
Leader	It takes the value of 1 if the person reports being a leader in an organization where he or she is an active member	LAPOP
Political persuasion	Frequency at which the respondent attempts to influence others' voting choices (never, rarely, sometimes, frequently)	LAPOP
Trust community	Trust in the community. The variable is built with answers to the question "Would you say that people in this community are very trustworthy, somewhat trustworthy, not very trustworthy or untrustworthy?" Original values assigned to the answers are modified to make the variable increasing in trust	LAPOP and author's calculations
Works in political campaign	It takes the value of 1 if respondent worked for a campaign in the most recent presidential election	LAPOP

References

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