Partners in Advocacy:
Lobbyists and Government Officials in Washington

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On-Line Appendix

The core of our analysis presented in Table 2 is a ZINB model with clustered standard errors. Here we present the justification for this choice and explain how our results are highly robust across a range of particular statistical estimators.

We selected the ZINB model with clustered standard errors as our primary model for several reasons related to the structure of our data and our theoretical assumptions about the processes that produced them. First, the "events," that is, the number of allies each group has in a given time period, are not independent from the events in subsequent periods. The Poisson process presumes the probability of an event occurring is constant and independent of all previous events (see Long 1997, chapter 8). Yet a key theoretical assumption developed herein is that the more aggregate resources at the disposal of a side (including allies), the more allies that side will attract. So, allies beget more allies—thereby violating the assumption of independence. Furthermore, the data are overdispersed (as indicated by a statistically significant alpha in the regression output shown in Table SI.1). The Poisson process presumes the conditional mean of the distribution is equal to the conditional variance of that distribution (see

Long 1997, chapter 8). A violation of this assumption results in estimates that are consistent but inefficient (Gourieroux, Monfort and Trognon 1984), and in standard errors that are biased downward (Cameron and Trivedi, 1986).

Given these known attributes of the Poisson process and the incompatibility of our dependent variable with the assumptions that underlie it, we selected a negative binomial model as opposed to a Poisson model. Unlike the Poisson distribution, the negative binomial distribution is characterized by a variance that is greater than the mean and can be derived from a process of contagion (that is, that the odds of an event in one time period are increased if the event occurred in the previous period, rather than being equal at all time periods as in the Poisson process; see Long 1997, chapter 8).

We further selected the zero-inflated variant of the NB model due to the high number of zeros observed in our data (zero is the modal category of the dependent variable). Both Poisson models and negative binomial models can underestimate zeros under such conditions. To test whether a zero-inflated model was warranted, we used a Vuong test for nonnested models to compare the fit of a ZINB model with that of a NB model. The results ($z=9.5$, prob. $< .000$) indicate that the zero-inflated model fits the data best. Conceptually as well as statistically, it is possible that a different process is at play in considering who is unable to recruit any government allies at all, as compared to who can recruit a fifth to their team when they already count four. So the zero-inflated version of the model is warranted by theoretical expectations as well as statistical characteristics of the data.

Finally, we clustered the standard errors by side due to the structure of our data. As stated in the body of the paper, groups are nested within particular issues, and within issues by side (or intent). As we cannot support an assumption that those drawn to work on the same side of an issue are statistically unrelated, we cluster by side.

We present three statistical models below. First (in Table SI.1) is a replication of Table 2 showing coefficients rather than IRRs, for readers who might want to see the coefficients themselves, and with clustered as well as non-clustered standard errors. Table SI.2 presents a Negative Binomial Model (again, clustering the standard errors by side).

Table SI.1. Alternative Presentations of Table 2.

	Model A, No Clustering		*Model B, With Clustering*	
Variable	Coefficient	Standard Error	Coefficient	Standard Error
Logit Stage				
Government Actor	-1.63*	0.43	-1.63*	0.53
In-House Lobbyist	-1.63*	0.65	-1.63	1.14
Hired Lobbyist	0.82	0.52	0.82	0.72
Lobbying Exp. (millions)	0.72*	0.20	0.72	0.49
Covered Officials+	0.44*	0.21	0.44	0.34
PAC Spending (millions)	-0.26	0.24	-.26	0.30
Aggregate Resource Index	-6.98*	1.10	-6.98*	3.15
Total Opposition	-1.02*	0.28	-1.02	1.05
Change Status Quo	-2.86*	0.41	-2.86*	0.95
News (x 100)	-0.84*	0.28	-0.84	0.49
Partisan	0.14	0.31	0.14	0.71
Constant	-3.68*	0.83	-3.68	2.40
Outcome Stage				
In-House Lobbyist	0.97	0.04	0.97	0.04
Hired Lobbyist	0.90*	0.04	0.90*	0.05
Lobbying Exp. (millions)	0.98	0.01	0.98	0.02
Covered Officials+	0.99	0.02	0.99	0.02
PAC Spending (millions)	0.98	0.01	0.98	0.02
Aggregate Resource Index	1.30*	0.02	1.30*	0.10
Total Opposition	1.01*	0.00	1.01	0.01
Change Status Quo	1.16*	0.04	1.16	0.16
White House Support	1.77*	0.09	1.77*	0.34
Executive Support	1.17*	0.04	1.16	0.16
Republican Leadership	1.25*	0.05	1.25	0.19
Democratic Leadership	1.71*	0.07	1.71*	0.23
News (x 100)	0.88*	0.01	0.88*	0.04
Partisan	1.03	0.03	1.03	0.15
N	2221		2221	

* Indicates $p<0.05$

+ Covered officials indicates the number of recently employed government officials listed in the Lobby Disclosure Reports as lobbying on behalf of the client.

The standard errors in Model B are clustered by side.

Vuong test of zero inflated versus standard negative binomial (from Model A): $z = 9.52$, $Pr>z = 0.00$

Table SI.2 Negative Binomial Model for Count of Allies.

Variable	IRR	Standard Error
In-House Lobbyist	1.02	.04
Hired Lobbyist	0.88*	.05
Lobbying Exp. (millions)	0.97	.02
Covered Officials+	0.99	.02
PAC Contributions (millions)	0.98	.02
Aggregate Resource Index	1.34*	.11
Total Opposition	1.03	.01
Change Status Quo	1.33*	.19
White House Support	1.92*	.38
Executive Support	1.13	.15
Republican Leadership	1.35	.23
Democratic Leadership	1.80*	.25
News (x 100)	0.87*	.04
Partisan	1.04	.15
Constant		
N	2221	

* Indicates p<0.05

+ Covered officials indicates the number of recently employed government officials listed in the Lobby Disclosure Reports as lobbying on behalf of the client.

Standard errors are clustered by side.

We explained above why we chose the particular estimator used in the text and in Table 2; the tables above show that our main findings are highly robust. In all models, the coefficient on the aggregate resources variable is positive and statistically significant at a level of 95 percent confidence. The size of the coefficient varies little between models (always in the area of 1.30). Model selection also has little impact on the size and significance of the coefficients for the respective individual-level resource measures included in the models. In both of the ZINB models and in the NB model the coefficient on the “hired lobbyists” variable is negative and statistically significant. All of the coefficients for the other individual level resource measures fail the significance test in all models. Therefore, regardless of which model we chose, our primary hypotheses received support—aggregate resources are a key determinant of government allies while individual level resources play a negligible role in attracting allies. The coefficients on the variables measuring White House support and Democratic leadership are also positive and statistically significant in all models.

References

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