Can Politicians Police Themselves?
Natural Experimental Evidence from Brazil's Audit Courts
Supplementary Appendix

F. Daniel Hidalgo   Júlio Canello   Renato Lima-de-Oliveira

MIT   IESP   MIT

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1 Covariate Balance

	Political Councilor			Councilor & Mayor, Same Party		
	Estimate	Std. Error	p-value	Estimate	Std. Error	p-value
GDP Per Capita (2000)	0.638	1.066	0.55	1.027	2.071	0.67
Governor Vote Share	0.156	0.170	0.37	-0.405	0.306	0.22
Governor, Mayor Co-Partisans	-0.015	0.006	0.02	0.003	0.001	0.15
Lag Accounts Rejected (1 Year)	-0.004	0.006	0.56	-0.005	0.011	0.68
Lag Accounts Rejected (2 Years)	-0.001	0.006	0.81	-0.007	0.011	0.52
Lag Councilor & Mayor, Same Party	-0.011	0.008	0.17	-0.021	0.010	0.22
Lag Political Councilor	0.006	0.006	0.36	-0.003	0.012	0.78
Log Electorate	0.010	0.015	0.49	-0.015	0.028	0.59
Mayor Vote %	-0.251	0.145	0.08	-0.214	0.278	0.47
PT Presidential Vote Pct (2002)	-0.167	0.148	0.26	-0.008	0.284	0.98

Table 1: Covariate Balance. This table shows the estimated effect of two independent variables on ten pre-treatment covariates. Coefficients are estimated using two stage least squares.

An implication of random assignment is that pre-treatment municipality characteristics should not be systematically correlated with the type of councilor assigned to adjudicate the accounts of the municipality. To check whether this is the case, we examine two contrasts: (1) whether a municipality is assigned to a political councilor (appointed without technical requirements) or a bureaucrat councilor and (2) whether the municipality is assigned to a councilor who shares a partisan tie with the mayor. We check balance on a range of covariates, including lagged values of the outcome variable, lagged values of the treatment variables, and political and socio-economic characteristics.

The results of our balance tests can be found in table 1. In total, we perform 20 hypothesis tests and overall find that treatment and control units are relatively balanced across the two treatment variables. We find no significant differences at the 5% level on lagged values of the outcome variable, whether the lag is one or two years. As one might expect given the number of hypothesis tests conducted, we do find one covariate that is significantly different (at the 5% level) between treatment conditions. The political treatment variable is statistically related to partisan alignment between the governor and mayor, but the coefficient is substantively small at a difference in proportions of -0.02. Furthermore, when we test the joint null hypothesis that all differences in table 1 are 0 using an F-test, we fail to reject the null in both cases. Below, we show our results are robust to the inclusion of the one potentially unbalanced covariate in our estimating equations, as well as other potentially prognostic covariates such as lagged values of the outcome variable, lagged values of the treatment variable, and party fixed effects.

2 Treatment Effect Heterogeneity
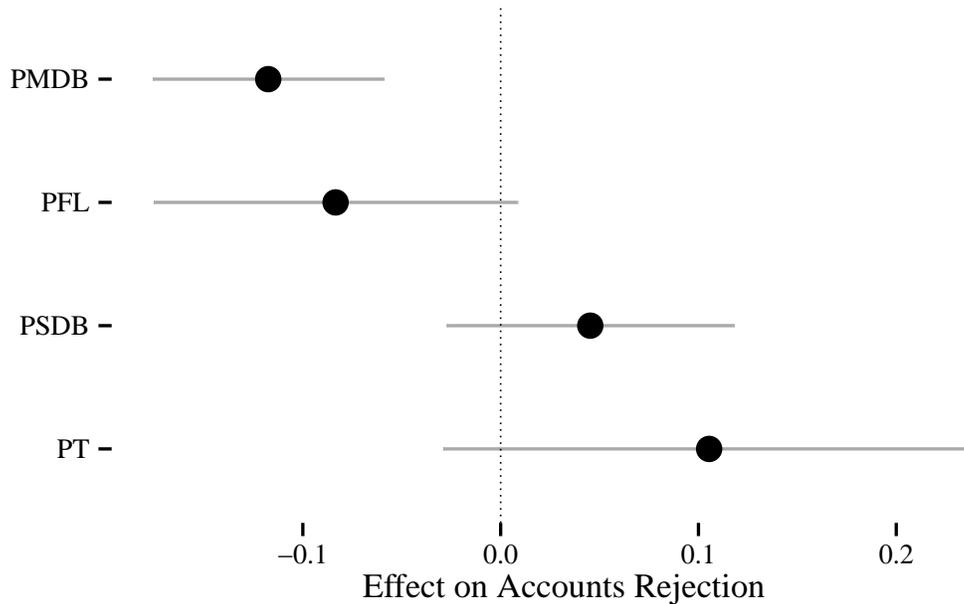
2.1 Heterogeneity by Party

Figure 1: **Heterogeneity by Party.** Effect of assignment to a councilor with the same party affiliation as the mayor vs assignment to a councilor with a different party affiliation, by party. Point estimates and 95% confidence intervals are from a regression with block by party fixed effects.

In Figure 1, we report estimates of partisan bias by party. We report estimates for the three parties with the most mayors in our sample (PMDB, PFL, PSDB), as well as the PT, which controlled the presidency during most of this period. In our analysis plan, we had specified that we would also show results for the PTB. Unfortunately, we cannot show this estimate as no councilor in our sample was appointed by the PTB and thus there is no PTB mayor who shares a partisan tie with a councilor.

2.2 Heterogeneity by State

In Figure 2, we plot state-specific estimates of politician-bureaucrat differences (right plot), as well as partisan bias (left plot).
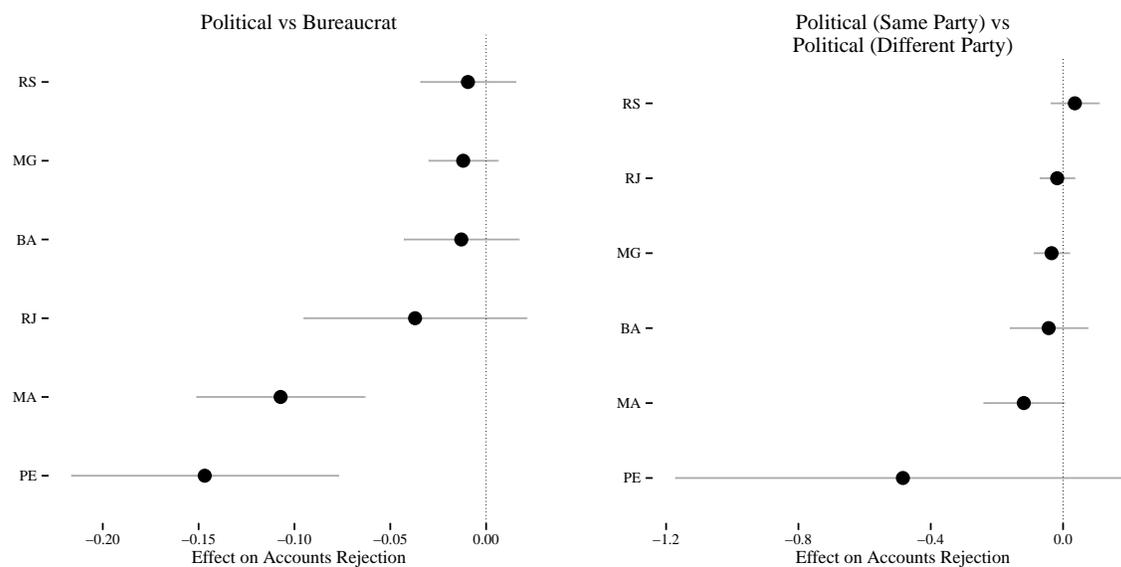
Figure 2: **Heterogeneity by State** . The plot on the right shows estimates of the effect of assignment to a political councilor versus a bureaucrat councilor. The plot on the left shows the estimates of the effect of assignment to a councilor with the same party affiliation as the mayor vs assignment to a councilor with a different party affiliation. Point estimates and 95% confidence intervals are from a regression with block fixed effects (right plot) or block by party fixed effects (left plot).

3 Robustness Tests

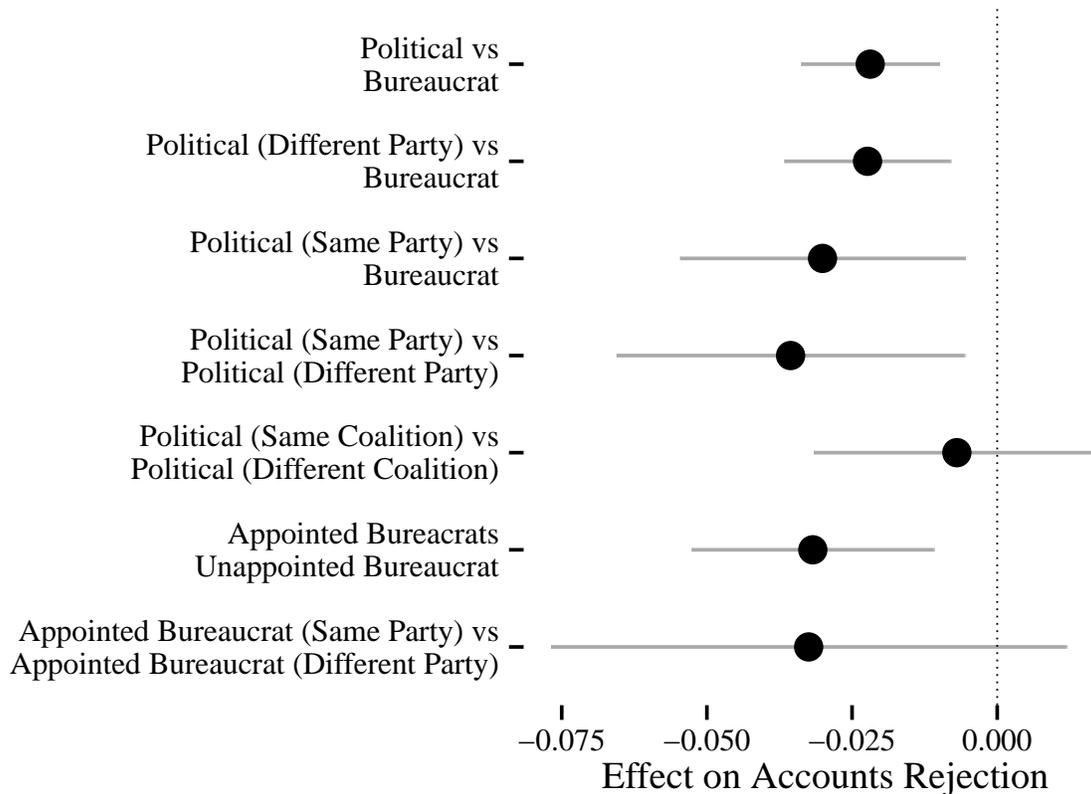## 3.1 Intent to Treat Estimates

Figure 3: **Intent to Treat Estimates.** This figure shows the results reported in the main text, but without accounting for non-compliance via two stage least squares.

In Figure 3, we report intent-to-treat estimates, i.e. estimates that do not adjust for non-compliance via two-stage least squares regression.

3.2 Effects on Adjudication Length

For all our primary tests, we report estimates where the dependent variable is a function of duration of the adjudication process. Specifically, we compute a binary variable that takes a value of "1" if the accounts process is concluded after the median time taken for cases in that state. Results from these specifications are presented in Figure 4.
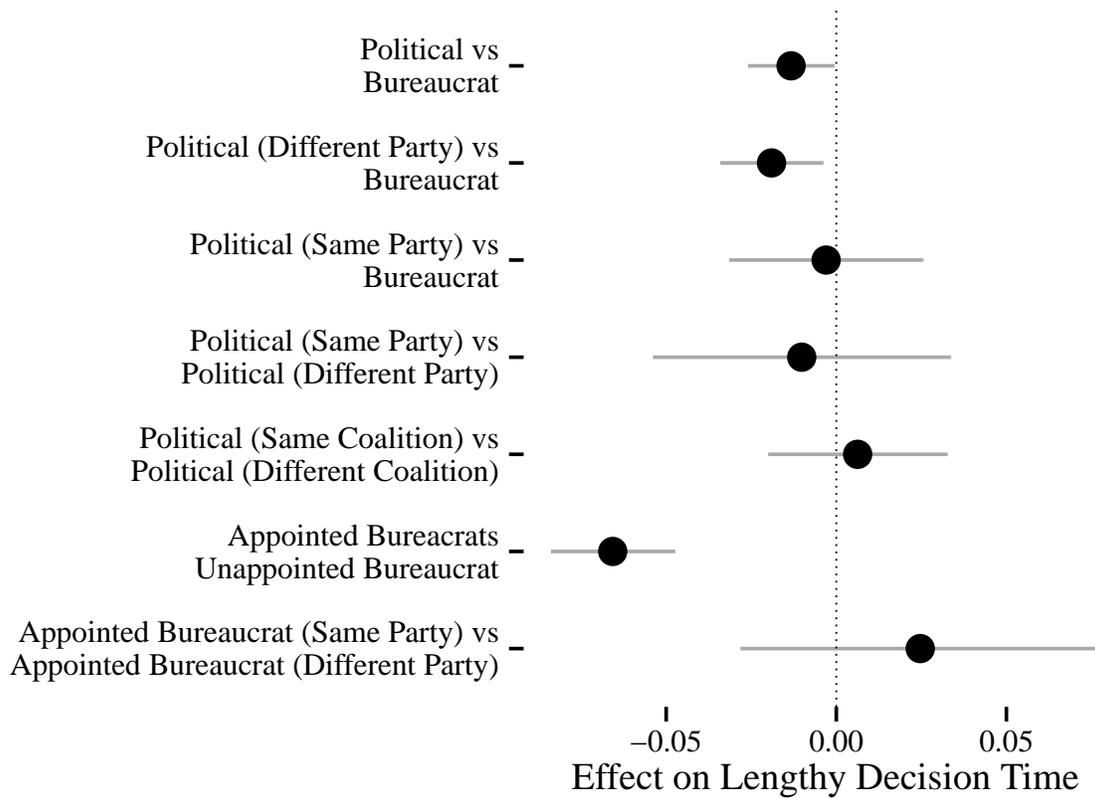
Figure 4: **Effect on Long Decisions.** This figure tests our main hypotheses on the length of time taken to issue a decision. Dependent variable is an indicator variable for whether or not the court issued a decision in more or less time than the state median.

3.3 Covariate Adjusted Results

Figure 5 shows estimates for our main results from regressions that include the following pre-treatment covariates:

- Mayor party fixed effects
- Dummy variable for whether governor and mayor belong to the same party.
- Dummy variable for whether the municipality's accounts were rejected in the previous year.
- Dummy variable for whether the municipality's accounts in the previous year were adjudicated by a bureaucrat rapporteur.
- Dummy variable for whether the municipality's accounts in the previous year were adjudicated by an unappointed bureaucrat rapporteur.
- Dummy variable for whether the municipality's accounts in the previous year were adjudicated by a councilor appointed by a governor or legislative majority associated with the same party as the mayor.
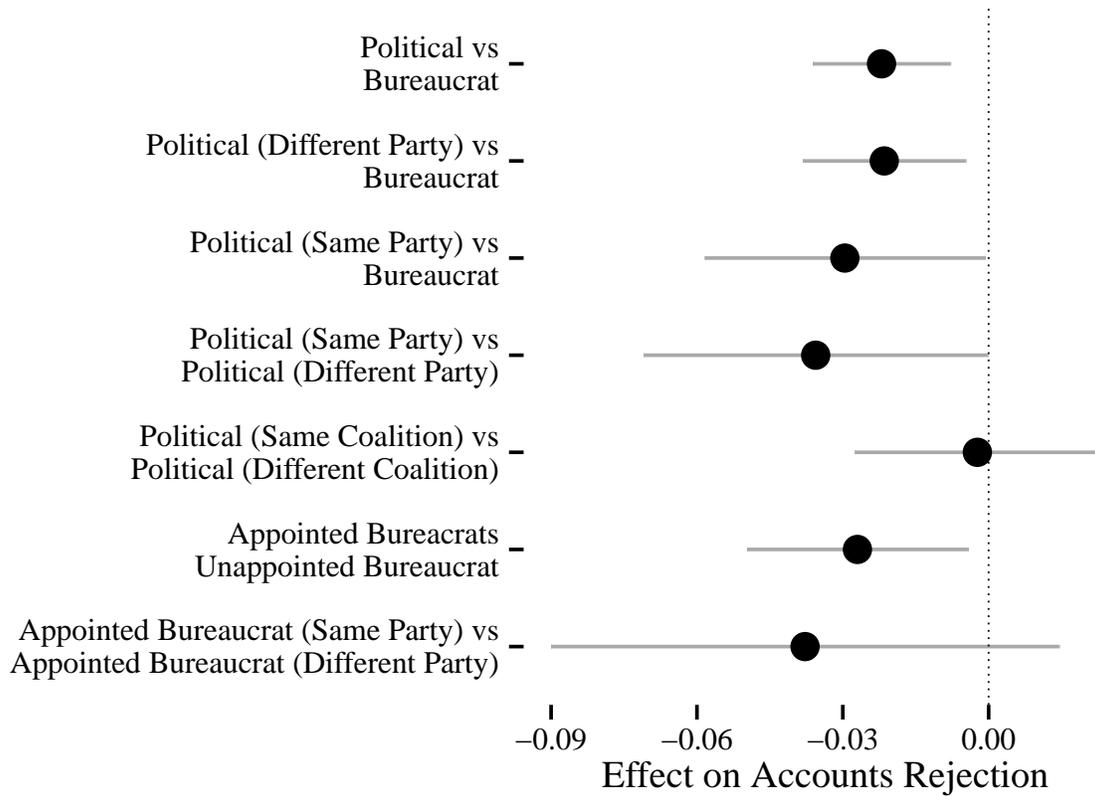
Figure 5: **Results with covariate adjustment.** This figure shows our main results with covariate adjustment.

For specifications with party x block fixed effects, covariates that are functions of the mayor's party are dropped because they are perfectly collinear with the fixed effects.

3.4 Alternative Standard Errors

In the main text, we cluster our standard errors on the unit of randomization. In Figure 6, we present our results with 95% confidence intervals based on standard errors clustered on municipality.

3.5 Complier Average Treatment Effects

For all our main results, we also estimate treatment effects using an estimation method that is consistent for the complier average treatment effect. Specifically, following Gerber and Green (2012, Ch. 4), we weight our data by the inverse probability of treatment assignment in each block or block by party. Probability of treatment is estimated by the empirical distribution of the treatment assignment indicator in each strata. This inverse probability weighting "undoes" the
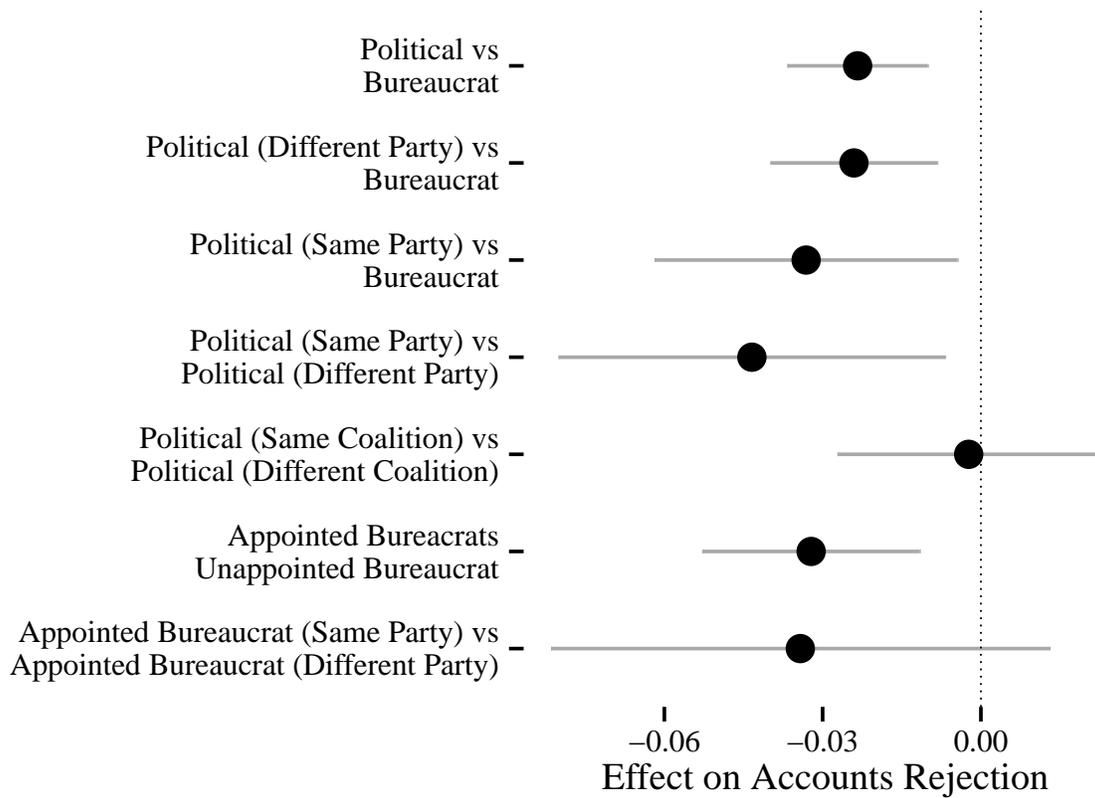
Figure 6: **Results with standard errors clustered on municipality.** This figure shows our main results with 95% confidence intervals based on clustered standard errors.

precision weighting of the OLS or standard instrumental variables estimator, following Angrist (1998). These results are presented in Figure 7.

3.6 "Leave One Out" Sensitivity Analysis

To assess the degree to which our estimates are sensitive to the behavior of individual councilors, we perform a "leave-one-out" sensitivity analyses. Specifically, we iteratively drop units assigned to a given councilor and estimate our main tests on the remaining data. The distribution of estimates after performing this exercise 93 times (once for each councilor), are presented in the histograms in Figure 8.
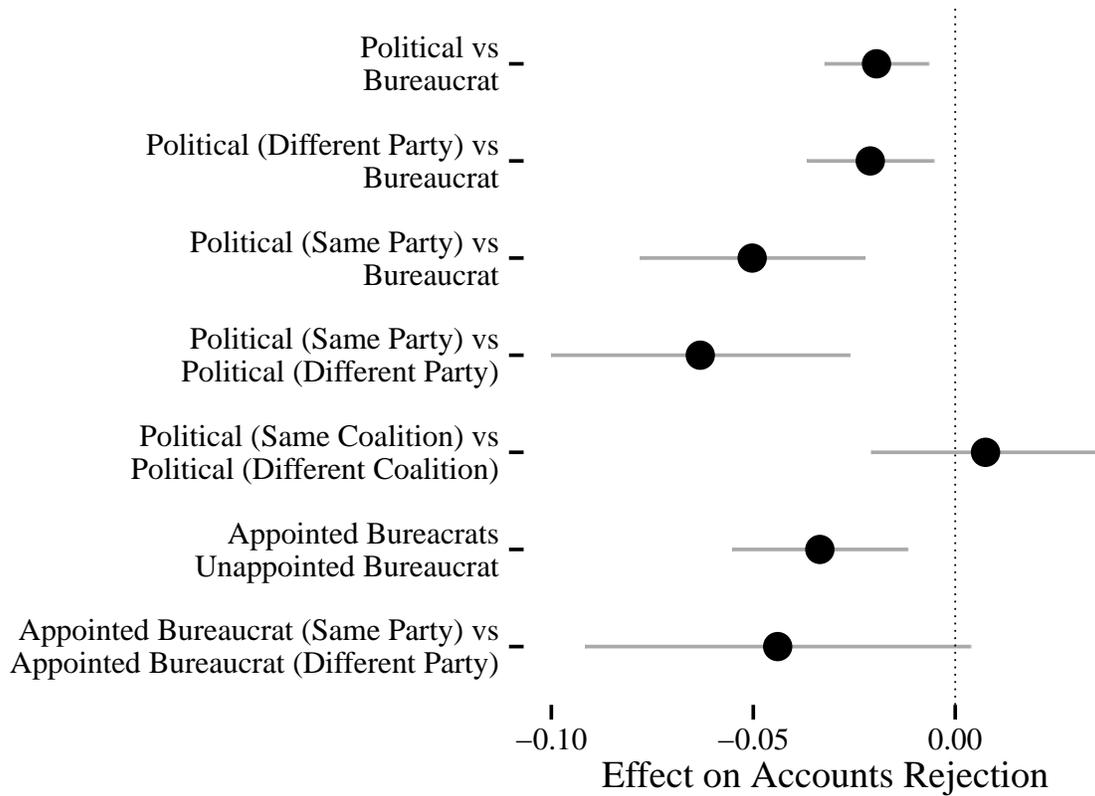
Figure 7: **Results using estimator consistent for the complier average treatment effect.** This figure shows our main results estimated with regressions that weight data by the inverse probability of treatment assignment in each block.

4 Additional Results Pre-Specified in Pre-Analysis Plan

In our posted pre-analysis plan on the EGAP website (http://egap.org/registration/709), we specified additional tests not reported in the paper. The hypotheses underlying these tests were removed as part of the peer review process. The results of these tests are found in Table 2. In the first two columns, we test for partisan bias separately for councilors appointed by the governor as compared to councilors appointed by the legislature. In the third column, we test for heterogeneity in the Political vs Bureaucrat contrast by whether or not the councilor has served longer than the median councilor. In the fourth column, we test for heterogeneity in party bias by whether or not the party of the governor who appointed the councilor is in power.

	Dependent variable:			
	Accounts Rejected			
	Governor Appt.	Legislature Appt.	Tenure Length	Party in Power
	(1)	(2)	(3)	(4)
Political (Same Party)	−0.132**	−0.025		−0.200**
	(0.054)	(0.023)		(0.087)
Political			−0.009	
			(0.012)	
Political x Tenure			0.009	
			(0.017)	
Political (Same Party) x Party in Power				0.164
				(0.128)
Block Fixed Effects			X	
Party x Block Fixed Effects	X	X		X
Observations	3,924	8,998	12,423	3,924

Note: $^{*}p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$

Table 2: **Heterogeneity by branch, tenure, and party in power.** In specifications with the "Political (Same Party)" variable, sample is restricted to accounts assigned to political councilors. "Tenure" is a dummy variable indicating that the councilor has been appointed longer than the median councilor. "Party in Power" is a dummy variable indicating that the party of the governor that appointed the councilor is in power when the case is adjudicated. Main effects are omitted or perfectly collinear with block fixed effects.

References

Angrist, Joshua D. 1998. "Estimating the Labor Market Impact of Voluntary Military Service Using Social Security Data on Military Applicants." *Econometrica* 66 (2).
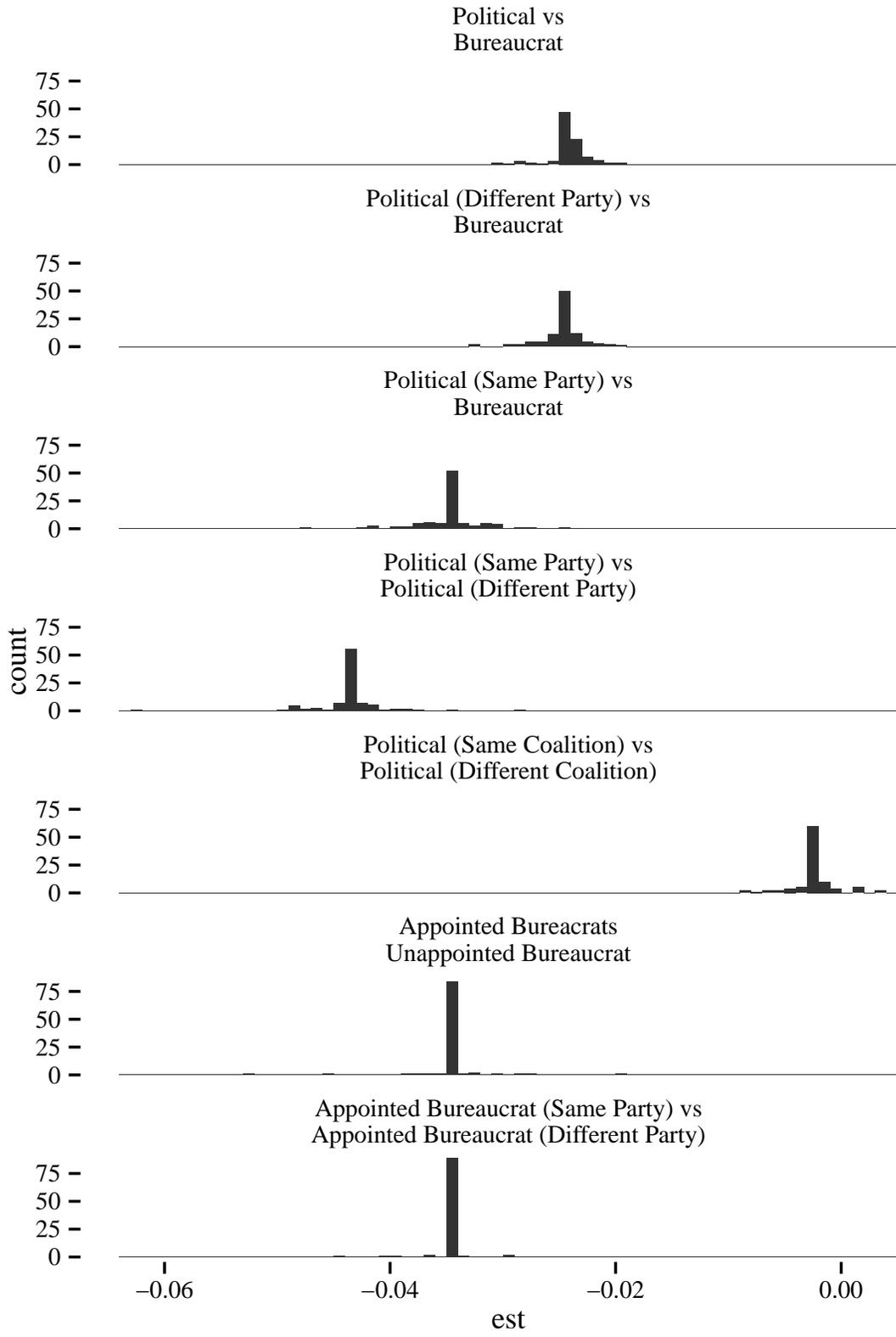
Figure 8: **Sensitivity of Results to Dropping Individual Councilors.** This figure plots histograms of estimates for main results after iteratively dropping each councilor from the estimation dataset.