Appendix—Supplemental Information

Construction of the Dependent Variable

Within each month, the percentage of legislative activity sum to one (or 100%) which creates a compositional dependent variable. Compositional data presents a number of complications because the theoretical values of the dependent variable are constrained, requiring a linear transformation of the data and greatly increasing the difficulty of interpretation (Aitchison 2003, Katz & King 1999). Tomz, Tucker & Wittenberg (2002) point out that seemingly unrelated regressions, a form of OLS, is a solution to the complex estimation and difficult interpretation problems posed by the Katz and King estimator. However, this requires estimating $j-1$ regressions, which has two problems in the context of this paper. First, it requires the estimation and interpretation of 19 different equations, and second, the data can no longer be treated as time-series cross-sectional which reduces the n substantially and does not allow for the inclusion of fixed effects. By dividing the dependent variable by all bills passed within the Congress rather than all bills within a particular month during the Congress, the compositional data problem is avoided but the amount of policy activity is still measured relative to the general level of legislative activity within a Congress.

Estimation Considerations and Alternative Specifications

A number of alternative specifications and tests were conducted to ensure the robustness of the error-correction models. Error-correction models may be used whether or not the data is cointegrated (De Boef & Keele 2008), and its use protects against spurious results driven by non-stationarity (Kelly & Enns 2010). However, to determine whether the data are non-stationary, Dickey-fuller tests were run on individual policy areas and there was no evidence of non-stationarity. Unit root tests on legislative success and policy area activity also found no evidence of integration. The primary concern with OLS in time-series analysis is the possibility of autocorrelated errors. Traditional test of autocorrelation (e.g. Breusch-Godfrey, white-noise test) cannot be conducted with panel data so I attempted to detect autocorrelation by examining scatterplots of the residuals and correlating the residuals and lagged residuals. There is some evidence of a small amount of negative autocorrelation (the correlation coefficient for the residuals and lagged residuals is about -.323) but this is not particularly concerning for two reasons. First, error correction models typically remove most autocorrelation because the dependent variable and the independent variables are differenced, and second, negative autocorrelation increases the size of the standard errors and biases the t-statistics downward.

Fixed effects for policy area are not appropriate because of the construction of the dependent variable. Recall that the dependent variable is a proportion of legislative activity in that policy area for a given Congress. The percentage of legislation adds to 100 across the entire Congress so including policy fixed effects controls for unexplained variance within each policy area but nearly perfectly predicts the dependent variable. Time fixed effects for Congress are included, though their exclusion does not significantly change the results. Additionally, panel-corrected standard errors are used to correct for any residual autocorrelation and panel heteroskedasticity (Beck & Katz 1995). There is some controversy about whether panel-corrected standard errors are appropriate when a lagged dependent variable is included in the specification (Kristensen & Wawro 2003), but using them here is a more conservative approach—they increase the standard errors of the coefficients.

Error-correction models generate a coefficient and a standard error, but because the standard error for a lagged independent variable may be insignificant in one time period but significant over the long-term, using the Bewley Transformation to calculate long-term standard errors is standard procedure in error-correction models. Because the long-run multiplier is found by taking the estimated coefficient over the estimated intercept, the variance of the long-run multiplier can be found using the formula for the approximation of the variance of a ratio of coefficients with known variances (De Boef & Keele 2008):

$$Var(a/b) = 1/b^2)Var(a) + (a^2/b^4)Var(b) - 2(a/b^3)Cov(a,b) \tag{1}$$

where $b = 1 - \hat{\phi}$ where $\hat{\phi}$ is the estimated coefficient for Y_{t-1}. The Bewley transformation allows for direct computation of the standard error of the long-run multiplier using the form:

$$Y_t = \alpha + \delta_0 \Delta Y_t + \delta_1 X_t - \delta_2 \Delta X_t + \mu_t \tag{2}$$

ΔY_t is on the right-hand side of the equation, but instrumental variables regression can be used to estimate it. $\Delta \hat{Y_t}$ can now be included in the model, allowing for estimation of the long-run multiplier and its variance.

Note that the standard errors found using the Bewley transformation are not panel-corrected standard errors. As a result, the standard errors tend to be smaller so in each results table I report the significance of both the coefficient using panel-corrected standard errors and the long-term effect found using the Bewley transformation.

Table A.1 shows stationarity tests of the residuals from each of the models in the paper. Column 2 are t-statistics from a Levin-Lin-Chu unit root test, while column 2 are the p-statistics. The null hypothesis is that the residuals for each model are non-stationary (have a unit root), while the alternative is that they are stationary. As the table shows, there is evidence each of the residuals is stationary.

Table A.1: Stationarity Tests of Residuals from ECM in Paper

Model	***Test Statistic***	***p-value***	
1	-54.6824	0.0000	Stationary
2	-49.4349	0.0000	Stationary
3	-55.4075	0.0000	Stationary
4	-55.2661	0.0000	Stationary
5	-50.4296	0.0000	Stationary
6	-50.4296	0.0000	Stationary
7	-50.4591	0.0000	Stationary

Results are Levin-Lin-Chu stationarity tests of residuals from models shown in paper. The null hypothesis is that the time-series contains a unit-root, while the alternative hypothesis is the time-series is stationary.

Each set of residuals is stationary, supporting the choice of an error-correction model.

Alternative Specifications

Nearly 39% of all bills in the data are from two policy areas: government operations and public lands and water management (policy areas 20 and 21). Both these policy areas also have relatively high rates of legislative success as well, and as a result, the findings may be driven largely by these two policy areas. To test whether the results hold when these two policy areas are excluded, the following models re-run the models without these two policy areas. The results are nearly identical to the previous ones.

Table A.2: Model of ΔHouse and ΔSenate Bill Activity Excluding Policy Areas 20 and 21, 93rd-109th Congresses

	House		***Senate***	
	ΔHouse Policy Activity	Long-Term Effect	ΔSenate Policy Activity	Long-Term Effect
Chamber Activity$_{t-1}$	-.979* (.017)		-.991* (.021)	
ΔSuccessful Resolution	8.89* (.366)		13.77* (.405)	
Successful Resolution$_{t-1}$	8.56* (.544)	8.57* (.437)	13.45* (.672)	13.34* (.512)
ΔPassage in Other Chamber	-.015 (.195)		-.911* (.208)	
Passage in Other Chamber$_{t-1}$	.347 (.279)	.377# (.236)	.029 (.298)	.054 (.258)
ΔCQ Lines (Logged)	3.99* (.153)		1.68* (.152)	
CQ Lines (Logged)$_{t-1}$	3.55* (.223)	.3.42* (.210)	1.50* (.220)	1.33* (.194)
ΔReauthorizations	1.00* (.494)		.617 (..624)	
Reauthorization$_{t-1}$	.667* (.097)	.422* (.076)	.235# (.141)	.008 (.09)
ΔAppropriations	10.23* (.596)		25.65* (.664)	
Appropriations$_{t-1}$	9.7* (.860)	10.17* (.754)	24.99* (.938)	25.00* (.606)
ΔOmnibus	7.05* (1.44)		5.58* (2.02)	
Omnibus$_{t-1}$	5.97* (2.01)	7.25* (1.94)	6.18* (2.88)	8.80* (2.88)
Δ Vetoed	10.83* (1.34)		7.20* (1.58)	
Vetoed$_{t-1}$	9.12* (1.92)	8.5* (1.91)	6.98* (2.21)	6.74* (2.11)
ΔPercent Most Important Problem	2.93 (24.05)		-.1.68 (23.77)	
Percent Most Important Problem$_{t-12}$	.641 (1.76)	2.02 (2.13)	-.310 (1.68)	-3.56 (2.37)
ΔState of the Union Comments (Logged)	.673 (.870)		.931 (.820)	
State of the Union Comments (Logged)$_{t-24}$	-.433* (.185)	-.002 (.160)	-.231 (.203)	.323# (.179)
ΔNY Times Articles	11.38* (4.54)		3.61 (4.83)	
NY Times Articles$_{t-1}$	22.57* (3.00)	24.03* (2.70)	9.65* (3.09)	11.10* (3.03)
Δ CQ Lines (Logged) x Success	.224* (.113)		-.697* (.107)	
CQ Lines (Logged) x Success $_{t-1}$	.164 (.16)	.14 (.139)	-.769* (.151)	-.734* (.125)
Constant	-2.02 (.89)		-5.27* (1.19)	
Adj. R^2	.764		.831	
Wald χ^2	10644.32*		13902.41*	
N	6358		6358	

*p<.05, $^{\#}p$ <.1. OLS with panel corrected standard errors in parentheses. Units are policy-area months from 1973-2005 and 19 policy areas per month. Fixed effects for Congress are included. Fixed effects for Congress are not included when calculating the Bewley Transformation.

The sample was also split by date such that the models were re-run on policy area-months prior to the 104th Congress, and policy area months during and after the 104th Congress. The modern legislative process, since the 104th Congress, has been characterized by highly polarized members, especially in the House (Theriault 2008, Theriault & Rohde 2011), and an increase in the use of the filibuster and holds (Koger 2010). The result has been a much more difficult legislative environment, one in which achieving legislative success requires a much more costly investment of time and resources.

The results between the two time periods are nearly identical (results not shown). In both periods, the successful resolution of legislation increases future legislative activity within both chambers. Additionally, more significant legislation also increases future attention for both the House and the Senate. In the post 104th Congress era, the Senate is less of a guide for the House. Pre-104th, the passage of a bill in the Senate increases future activity in the House, while in the post-104th, there is no effect of Senate passage on House activity. (In the Senate, action in the House is never a predictor of Senate activity, consistent with the theory.) Finally, policy area activity in the House prior to the 104th Congress is negatively affected by the passage of salient and successful bills, similar to the pooled results. In later Congresses, there is no relationship between salient, successful legislation and future activity, indicating that as costs increase in later Congresses, successful legislation is not likely to be as large a deterrent in future lawmaking, at least for the House.

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