Judicial Instability and Endogenous Constitutional Change: Lessons from Latin America

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British Journal of Political Science
Supplementary Materials

1. Descriptive Statistics

Table S1 offers descriptive information for the 29 variables considered in the study. Data for this project were gathered from several sources, including the works of Lara Borges et al. (2012), Goemans et al. (2009), Mainwaring et al. (2007; 2013); the Polity IV project (Marshall 2013); the World Bank's World Development Indicators and Maddison's time series (2003), the Comparative Constitutions Project (Elkins, Ginsburg, and Melton 2009), and a novel database on Latin American justices. (See Table 1 in the article on specific sources for each item.)

Information on Latin American justices was compiled as part of a project sponsored by the National Science Foundation (Grant No. 0918886). The data file documents years of appointment and exit for Supreme Court and Constitutional Tribunal justices in Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, the Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay, and Venezuela between 1904 and 2010. Information was compiled from secondary sources and from primary research conducted in judicial archives of Bolivia, Ecuador, the Dominican Republic, El Salvador, Honduras, Nicaragua, and Venezuela. A replication file for this article, including data and ancillary code, is available at http://thedata.harvard.edu/dvn/dv/anibal.

Table S1. Descriptive Statistics

Variable	Level	Mean	Std. Dev.	Minimum	Maximum
Exit from the Court	*jcit*	0.15	0.35	0	1
Endogenous Variables					
New constitution (H1)	*it*	0.05	0.21	0	1
Amendment (H2)	*it*	0.05	0.21	0	1
Size of the court (H3)	*cit*	13.85	7.16	3	33
Political Factors					
Change of president	*it*	0.50	0.50	0	1
Change of party	*it*	0.34	0.47	0	1
Democratic Transition	*it*	0.08	0.27	0	1
Democratic Breakdown	*it*	0.05	0.22	0	1
Competitive election	*it*	0.48	0.50	0	1
Level of democracy	*it*	2.21	6.28	-9	10
Appointed by president	*jcit*	0.44	0.50	0	1
Appointed by party	*jcit*	0.59	0.49	0	1
Institutional Factors					
Age of the constitution	*it*	25.05	25.80	0	140
Age of last amendment	*it*	13.34	19.32	0	140
Judicial review	*cit*	0.76	0.43	0	1
Constitutional Tribunal	*cit*	0.06	0.24	0	1
End of judge's term	*jcit*	0.06	0.23	0	1
Controls					
Per capita GDP	*it*	2.14	1.60	0.05	9.89
Per capita GDP Growth	*it*	0.02	0.04	-0.29	0.24
Time in office	*jcit*	4.76	4.92	0	33
Excluded Instruments					
Rigid constitution	*it*	0.70	0.46	0	1
Federalism	*it*	0.26	0.44	0	1
Bicameralism	*it*	0.63	0.48	0	1
Regional replacements	*it*	0.04	0.03	0	0.17
Regional amendments	*it*	0.08	0.04	0	0.24
Years since Spanish replacement	*t*	22.21	13.22	1	54
Fixed size	*cit*	0.39	0.49	0	1
Court size at creation	*cit*	8.12	3.72	3	15
Regional court size	*cit*	13.70	4.07	7	22.41

N = 24,763 (all items). Levels of measurement: *t* Year, *it* Country-year, *cit* Country-court-year, *jcit* Country-court-justice-year.

2. Effects of Institutional Reforms, by Regime Type

In Table S2 we compare the second-stage coefficients for the full sample of judges (presented in Table 3 of the article, column 3.3) against the estimates for two sub-samples covering just years of democracy and years of dictatorship. The distinction between the two categories follows the regime classification (competitive vs. authoritarian regimes) developed by Mainwaring et al. (2007; 2013). The sum of the number of subjects for the two subsamples is greater than the number of justices in the full sample because some individuals remained in office during periods of democracy and dictatorship, and thus enter the two groups. The predictor capturing the aftermath of a democratic breakdown drops out from the democratic sub-sample because it has a constant value of zero, while the item capturing the aftermath of a transition drops out from the authoritarian sub-sample for an equivalent reason.

The results in Table S2 indicate that constitutional change has consistent effects across regime types. Reforms provide an opportunity to recast the judiciary under different forms of government, although this effect appears to be moderated in democratic contexts. Leaders in democratic regimes have stronger incentives to control the courts, since they are effectively subject to their jurisdiction, but they have less leverage to induce judicial retirements. By contrast, authoritarian leaders have more leverage but they have fewer incentives to reshuffle the courts, since they can limit their jurisdiction (Barros 2002; Larkins 1998; Toharia 1975).

Somewhat in line with this argument, periods of steady economic growth appear to empower democratic leaders to reshuffle the courts, but make it less necessary for authoritarian leaders to do so. In turn, wealthier democratic countries seem to host more stable courts, while the opposite may be true for wealthier authoritarian regimes.

Table S2. Survival of Justices under Democracy and Dictatorship, 1904-2010

	3.3 All cases		S2.1 Democracies		S2.2 Dictatorships	
	Hazard	s.e.	Hazard	s.e.	Hazard	s.e.
Endogenous (Instrumented)						
New constitution	1.27**	(0.02)	1.09**	(0.02)	1.41**	(0.03)
Targeted amendment	1.28**	(0.01)	1.24**	(0.02)	1.45**	(0.03)
Size of the court	0.95**	(0.00)	0.98**	(0.00)	0.92**	(0.00)
Political Factors						
Change of president	1.33**	(0.04)	1.45**	(0.05)	1.25**	(0.05)
Change of ruling party	1.03	(0.03)	1.00	(0.04)	1.03	(0.04)
Democratic transition	1.31**	(0.02)	1.55**	(0.03)		
Democratic breakdown	1.44**	(0.03)			1.38**	(0.02)
Free and fair election	0.78**	(0.02)	0.85**	(0.02)	0.69*	(0.13)
Level of democracy	0.99**	(0.00)	0.98**	(0.00)	1.01**	(0.00)
Appointed under same president	0.57**	(0.01)	0.56**	(0.02)	0.59**	(0.02)
Appointed under same party	0.79**	(0.02)	0.85**	(0.02)	0.71**	(0.02)
Institutional Factors						
Age of the constitution	1.00*	(0.00)	1.00**	(0.00)	1.00**	(0.00)
Time since last amendment	1.00	(0.00)	1.01**	(0.00)	1.00**	(0.00)
Judicial review	0.87**	(0.01)	0.89**	(0.01)	0.77**	(0.02)
Constitutional tribunal	1.52**	(0.03)	1.59**	(0.04)	1.86**	(0.06)
End of judge's term	3.73**	(0.15)	3.46**	(0.11)	4.11**	(0.27)
Other Controls						
Per capita GDP, t-1	1.03**	(0.00)	0.99**	(0.00)	1.09**	(0.01)
Growth per capita GDP, t-1	0.74	(0.13)	2.56**	(0.61)	0.27**	(0.07)
Years in office	1.11**	(0.01)	1.09**	(0.01)	1.17**	(0.02)
Years^2	0.99**	(0.00)	0.99**	(0.00)	0.98**	(0.00)
Years^3	1.00**	(0.00)	1.00**	(0.00)	1.00**	(0.00)
Constant	1.50**	(0.11)	0.51**	(0.05)	5.82**	(0.70)
Number of observations	24,763		14,779		9,984	
Number of subjects	3,494		2,384		1,902	

Note: entries are odds ratios (standard errors bootstrapped for 100 replications).
* $p < .05$ ** $p < .01$

3. The Content of Legal Reforms

We have argued that the politics of constitutional change—the formation of constituent assemblies above judicial review, the creation of broad partisan coalitions to negotiate amendments and court seat allocations, and the mobilization of popular support for major institutional transformations—underpin the causal mechanisms linking legal reform and judicial turnover, irrespective of the substance of those constitutional revisions. Thus it is possible that reforms formally intended to "modernize" the judiciary will nevertheless open a window of opportunity to dismiss incumbent justices and appoint new ones.

In order to test this empirical implication of our argument, Table S3 presents the results of two models that control for the direction of legal reforms. Their specification is otherwise equivalent to Model 3.3, although we omit the coefficients for all control variables from the table to simplify its presentation. Our analysis employs two sets of dummies: the first one (S3.1) captures legal reforms that formally undermine the powers and the autonomy of the judiciary, while the second one (S3.2) captures reforms that formally strengthen the judiciary. We code constitutional changes that remove (acknowledge) the courts' powers of judicial review, allow the legislature to alter the size of the court (fix its size), remove (grant) guaranteed life tenure, shorten (extend) the duration of judges' terms, and concentrate (multi-lateralize) the appointment procedure in a smaller (larger) number of powerful actors.

Not surprisingly, hostile reforms (S3.1) consistently promote the departure of justices. But against a narrowly institutional interpretation of this effect, we find that favorable reforms *also* promote judicial turnover (S3.2). Moreover, the effect of the instrumented reform variables remains unaltered across models, proving that the substantive content of legal reforms is less relevant than the political process leading to their adoption.

Table S3. Effects after Controlling for the Content of Reforms, 1904-2010

	S3.1		S3.2	
	Hazard	s.e.	Hazard	s.e.
Endogenous (Instrumented)				
New constitution	1.23**	(0.02)	1.27**	(0.02)
Targeted amendment	1.27**	(0.02)	1.27**	(0.02)
Size of the court	0.95**	(0.00)	0.95**	(0.00)
Judicial Review				
Removes judicial review	1.30**	(0.07)		
Creates judicial review			1.52**	(0.09)
Size of the Court				
Removes fixed number	2.03**	(0.08)		
Establishes fixed number			1.82**	(0.13)
Life Tenure				
Removes life tenure	1.51**	(0.15)		
Grants life tenure			2.76**	(0.24)
Term Length				
Shortens terms	2.52**	(0.11)		
Lengthens terms			1.63**	(0.06)
Appointment Procedures				
Concentrates appointment	3.09**	(0.27)		
Multilateralizes appointment			1.46**	(0.09)
Number of observations	24,763		24,763	
Number of subjects	3,494		3,494	

Note: entries are odds ratios (standard errors bootstrapped for 100 replications). Estimates for all other predictors are omitted to save space.
* $p < .05$ ** $p < .01$

4. Alternative Estimators

Table S4 presents the results when we use three alternative approaches to estimate our system of equations (composed by models 2.1, 2.2, 2.3, and 3.3 in the article). For simplicity we report the odds ratios for the endogenous variables and omit all other parameters. (Complete information can be obtained through the replication file for this article.)

In Model S4.1 we modify the second-stage estimator, adding a frailty parameter under the assumption that the baseline hazard (parameter α in Equation 1) varies randomly across justices. This assumption reflects, for instance, the fact that different judges may enter the court with different health conditions or career goals (Box-Steffensmeier and Jones 2004, chapter 9). In Model S4.2 we instrument the size of the high courts (model 2.3) using a negative-binomial count model instead of ordinary least squares. The results in both cases remain similar to the ones reported in Table 3 (column 3.3).

In Model S4.3 we modify the overall approach to deal with endogeneity. The epidemiological literature has identified potential bias in the estimation of treatment effects using two-stage prediction substitution models, and has advocated instead the use of a two-stage residual inclusion (2SRI) approach (Terza, Basu, and Rathouz 2008). Under 2SRI, first-stage models are estimated in the same way, but second-stage models include the observed values for the endogenous predictors plus the residuals of first-stage equations, which are incorporated as a control function (Hausman 1978; Wooldridge 2010, chapter 6). Although the size of the odds ratios is not directly comparable, the results are consistent with our previous findings: the adoption of new constitutions and amendments significantly increases the risk of judicial turnover, while an expansion in the size of the court reduces such risk.

Table S4. Alternative Estimates for Endogenous Predictors

Predictor	S4.1 Frailty		S4.2 Count		S4.3 2SRI	
New constitution					5.48**	(0.14)
Instrumented	1.31**	(0.03)	1.26**	(0.02)		
Control function					0.90**	(0.00)
Targeted amendment					3.80**	(0.18)
Instrumented	1.27**	(0.02)	1.21**	(0.02)		
Control function					0.92**	(0.01)
Size of the court					0.97**	(0.00)
Instrumented	0.94**	(0.00)	0.97**	(0.00)		
Control function					1.05**	(0.00)
N (observations)	24,763		24,763		24,763	
Number of subjects	3,494		3,494		3,494	

Note: entries are odds ratios (standard errors bootstrapped for 100 replications). Estimates for all other predictors are omitted to save space.
* $p < .05$ ** $p < .01$

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