The Contribution of Veto Players to Economic Reform: Online Appendix

Scott Gehlbach
University of Wisconsin–Madison
E-mail: gehlbach@polisci.wisc.edu

Edmund J. Malesky
University of California–San Diego
E-mail: emalesky@ucsd.edu

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Alternative Formalization

The model in the paper distinguishes between actors with the constitutional authority to block policy change ("veto players") and organized interests with the ability to influence those actors. The *expressed* policy preferences of veto players in our model are therefore endogenous to their interaction with organized interests. An alternative approach is to identify veto players with the interests that they choose to represent. Thus, for example, certain veto players in the national parliament may represent the interests of "red directors," who are themselves not be directly modeled, or the "red directors lobby" could itself be considered a distinct veto player.

To consider this alternative modeling approach, assume that the policy space is some interval X of the real number line, where x refers to any generic policy. Each veto player has Euclidean (distance-based) preferences over policies in X. We denote the ideal point of veto player j by x_j and the status quo policy by $\bar{x}$. We do not explicitly model special interests, but rather assume that the influence of organized groups is reflected in the number and preferences of veto players. Below we discuss the implications of this alternative modeling approach.

With only one veto player, the equilibrium policy is clearly that actor's ideal point. In contrast, with multiple veto players, the equilibrium policy depends on the identity of the agenda setter and the configuration of veto players' ideal points, relative to the status quo. It is common to assume that the marginal veto player is *not* the agenda setter. Under this assumption, equilibrium policy is never farther from the status quo with the addition of a veto player, and it is sometimes closer.

Figure A1 illustrates this effect. When A is the sole veto player, the equilibrium policy is A's ideal point, x_A. When there are two veto players, A and B, but A retains agenda control, A's agenda-setting power is constrained for any status quo $\bar{x} \in (x_A, 2x_B - x_A)$. In particular, when $\bar{x} \in (x_A, x_B]$ (i.e., when the status quo is in the core), then the equilibrium policy is the status quo: any move either direction leaves one of the two veto players worse

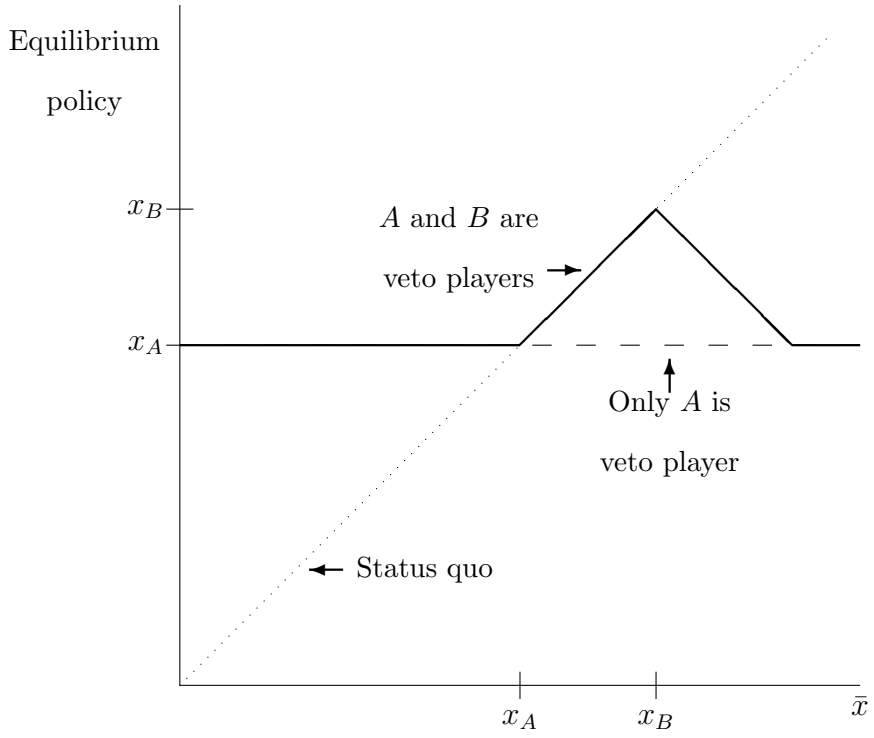

Figure A1: Equilibrium policy when A is agenda setter.

off, and so would be vetoed (by B) or not proposed (by A). For $\bar{x} \in (x_B, 2x_B - x_A)$, A can use its agenda-setting power to choose a point that leaves B just indifferent between vetoing and not, but B's veto power results in less movement from the status quo than if A were unconstrained.

The assumption that agenda control remains unchanged as veto players are added is strong. In particular, in the postcommunist world, the marginal veto player often acquired agenda-setting power: communists and other legislators elected in the late Soviet period retained veto power in the postcommunist Russian Duma, for example, but reformers in Boris Yeltsin's Kremlin had the power to set the agenda.

Figure A2 demonstrates that the transfer of agenda-setting power to a second veto player can result in more policy change, relative to that with a single veto player. As depicted, the marginal veto player has an ideal point to the right of that of the other veto player, i.e.,

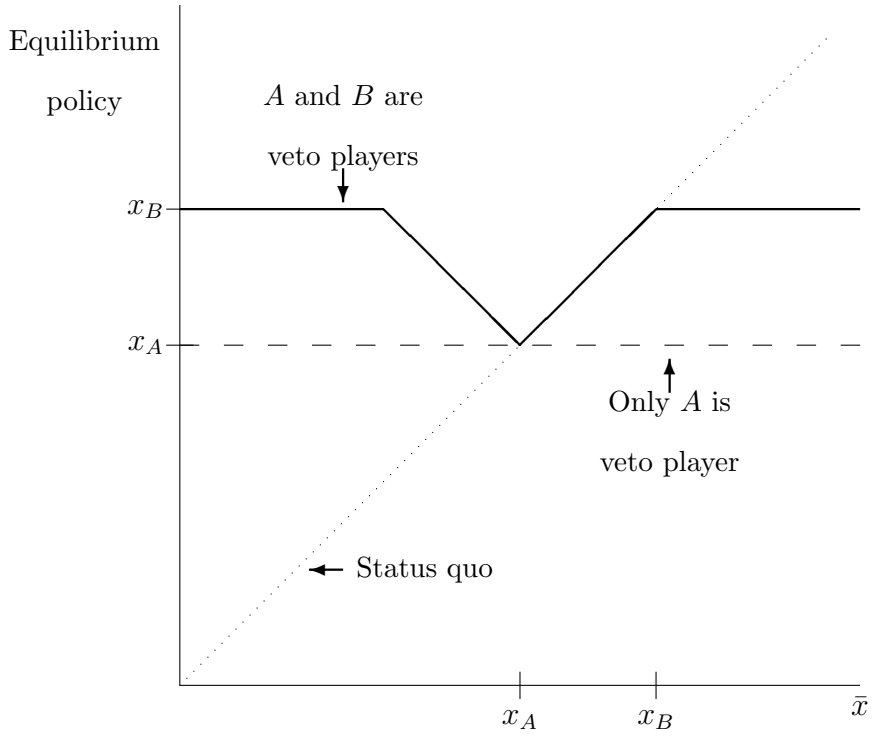

Figure A2: Equilibrium policy when B is agenda setter.

$x_B > x_A$. For values of the status quo $\bar{x} < x_A$, B can take advantage of its agenda-setting power to obtain a policy to the right of x_A. In that case, movement from the status quo is greater than would be the case if A were the sole veto player. In contrast, if $\bar{x} > x_A$, then the addition of B as a veto player results in less movement from the status quo: either the status quo is in the core, in which case there is no movement, or the status quo is to the right of x_B, in which case B prevents movement beyond x_B.

Generalizing from this example, we see that the addition of a veto player results in greater policy change if and only if a) the marginal veto player's ideal point is farther from the status quo than is the ideal point of any other veto player, b) the marginal veto player is the agenda setter, and c) the ideal points of all veto players but the marginal veto player are in the interior of the winset of the status quo (i.e., the marginal veto player has scope to take advantage of its agenda-setting power). If any of these conditions is not

satisfied, then the "conventional" relationship holds: policy change is no greater, and possibly smaller, when veto players are added. In particular, condition (c) implies an interaction between the status quo policy and the number of veto players: the number of veto players is positively associated with policy change only if all veto players prefer movement in the same direction (i.e., "reform"), as may have been the case in many countries at the beginning of the postcommunist transition. This prediction is supported by the empirical work in the paper.

At the same time, it is important to stress that this alternative formalization provides the greatest support for an association between the number of veto players and economic reform when the number of veto players increases from one to two, as in the examples above. Consider, for example, the addition of a third veto player C, with ideal point $x_C > x_B > x_A$, and assume that C acquires agenda-setting power. Even if the status quo $\bar{x} < x_A$, so that there is consensus about the desired direction of change, the addition of C as a veto player results in greater policy change only if there are points $x > x_B$ that A prefers to the status quo. More generally, conditions (a) and (c) in the previous paragraph are less likely to hold for a randomly chosen veto player (i.e., for an ideal point randomly chosen from the policy space X), the larger is the existing number of veto players.

The alternative formalization here is therefore only partially consistent with the empirical pattern in postcommunist states documented in this paper. As illustrated by the first plot in Figure 1, the marginal veto player is associated with more reform even when the number of veto players is large. The model in the main text is more consistent with the data, as it predicts a positive relationship between the number of veto players and economic reform even when veto players are numerous. The difference rests in the model's treatment of expressed policy preferences as endogenous: the more numerous are veto players, the less likely it is that any particular veto player will choose to identify itself with the interests of organized groups.

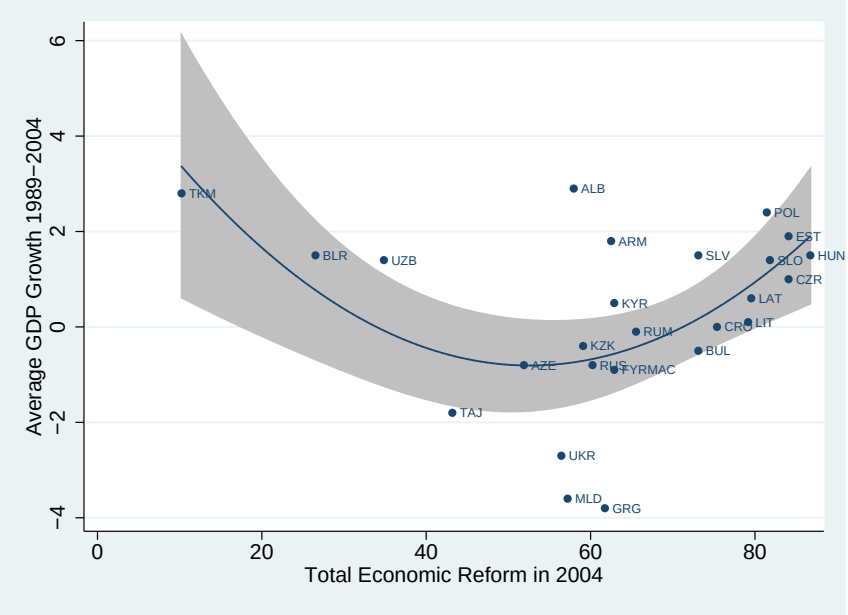

Figure A3: Bivariate relationship between EBRD Average Transition Indicator in 2004 and average annual GDP growth rate, 1989 to 2004. The figure depicts observed values together with fitted values and 95-percent confidence intervals from a quadratic prediction, illustrating that the lowest growth rates are associated with partial reform.

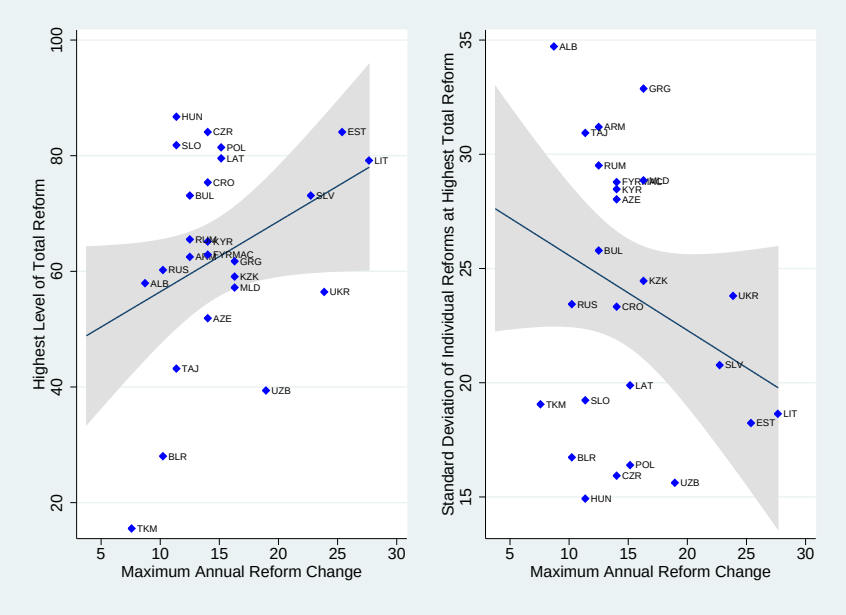

Figure A4: The figure justifies our operationalization of movement toward full reform in Table 1, showing that the level and coherence (standard deviation of eight individual EBRD reform indexes) of reform at its peak level is greatest in countries with large single-year reform movements. Observed values, fitted values, and 95-percent confidence intervals are depicted.

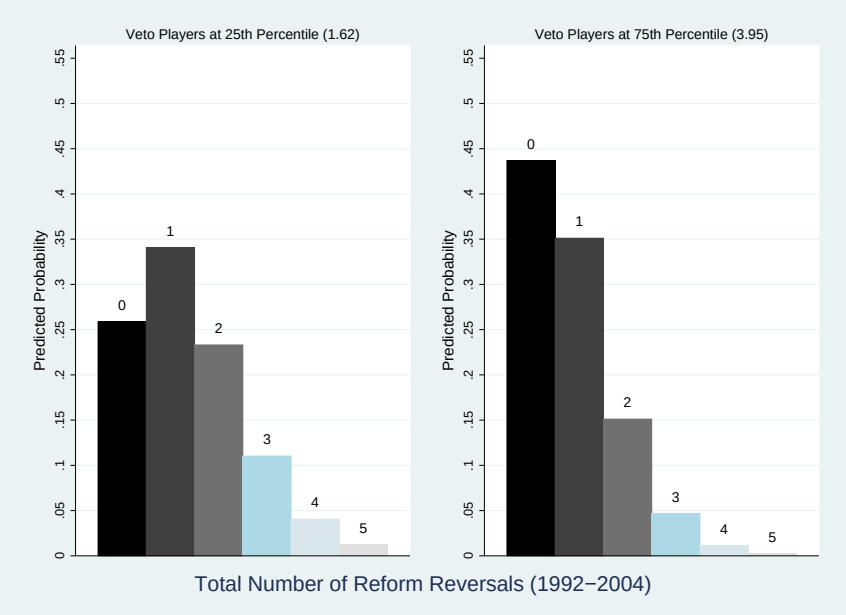

Figure A5: The figure illustrates predicted probabilities of reform reversals in Model 3 of Table 2, holding covariates at mean values.

Table A1: Veto Players and Economic Reform

Dependent Variable: Total Economic Reform in 2004	(1)	(2)	(3)
Average Veto Players	8.520***	4.227**	4.302*
	(2.122)	(1.998)	(2.422)
Average Communists in Legislature		−46.206***	−40.601***
		(11.839)	(12.623)
Natural Resources			−5.474
			(5.720)
1989 GNP per Capita			1.444
			(1.427)
Distance from West			2.653
			(2.943)
Industrial Structure			3.246
			(2.425)
Constant	37.221***	58.904***	39.179**
	(7.042)	(7.842)	(17.269)
Observations	25	25	25
R-squared	0.412	0.653	0.725
Root mean squared error	14.83	11.65	11.45

Notes: The results in the table show that the empirical relationship depicted in the top panel of Figure 1 is robust to inclusion of controls. Ordinary least-squares regressions. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table A2: Descriptive Statistics and Data Sources

PANEL VARIABLES	Mean	SD	Min	Max	Source and Notes
Movement Toward Full Reform	52.58	20.25	0.00	86.74	European Bank for Reconstruction and Development (EBRD). 1994–2004. *Transition Report*. London:
Lagged Economic Reform	48.86	21.60	0.00	86.74	EBRD. The average EBRD Transition Indicator ranges from 1 to 4.3. Authors rescaled this to 0–100 to ease
Log GDP per Capita	7.29	1.20	4.11	9.71	interpretation. Movement toward full reform defined as $\max[EBRD_{it}, EBRD_{it-1}]$; see text for details.
Veto Players	3.04	1.69	0.92	8.00	Beck et al. (2001); Keefer and Stasavage (2003). See text
Veto Players × Lagged Economic Reform	164.51	123.37	0.00	511.74	on imputation of missing values.
Communists in Legislature	0.18	0.28	0.00	1.00	Armingeon and Careja (2004); Darden and Grzymala-Busse (2006). Proportion communist seats in legislature.
War	0.13	0.33	0.00	1.00	Horowitz (2003).
Political Competition	3.36	1.18	1.00	5.00	Marshall and Jaggers (2006).
Political Competition × Lagged Economic Reform	184.48	111.08	0.00	433.71	

CROSS-SECTION VARIABLES	Mean	SD	Min	Max	Source and Notes
Total Reform Reversals (1992–2004)	1.24	1.20	0.00	5.00	EBRD (1992–2004); see above. Defined as number of years in which a country recorded a negative change in any of eight individual EBRD Transition Indicators.
Average Veto Players (1992–2004)	3.01	1.43	0.00	6.08	Beck et al. (2001); Keefer and Stasavage (2003). See text
Initial Veto Players (1992)	2.65	1.37	1.00	5.00	on imputation of missing values.
Average Communists in Legislature (1992–2004)	0.19	0.24	0.00	0.97	Armingeon and Careja (2004); Darden and
Initial Communists in Legislature (1992)	0.30	0.38	0.00	1.00	Grzymala-Busse (2006). Proportion communist seats in legislature.
Natural Resources	0.36	0.49	0.00	1.00	de Melo et al. (2001).
1989 GNP per Capita (at PPP)	5.59	2.11	1.40	9.20	
Distance from West	1.63	1.50	0.06	4.61	Kopstein and Reilly (2000).
Industrial Structure (GDP/kg oil equivalent)	2.46	1.42	0.74	5.28	World Bank. 2005. World Development Indicators Database. `www.worldbank.org/data/`.
Reversal Magnitude	27.15	33.85	0	127.27	See footnote 12.

Table A3: Bivariate Correlations

PANEL VARIABLES		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
1	Movement Toward Full Reform	1.0000									
2	Veto Players	0.4722*	1.0000								
3	Communists in Legislature	−0.5228*	−0.3812*	1.0000							
4	Lagged Economic Reform	0.9778*	0.4383*	−0.4905*	1.0000						
5	Veto Players × Lagged Economic Reform	0.7794*	0.8564*	−0.4092*	0.7788*	1.0000					
6	War	−0.2454*	−0.0866	−0.0541	−0.2456*	−0.2270*	1.0000				
7	Log GDP per Capita	0.6414*	0.4553*	−0.4234*	0.6345*	0.6594*	−0.2496*	1.0000			
8	Political Competition	0.6434*	0.6169*	−0.4074*	0.5969*	0.6743*	0.0092	0.4700*	1.0000		
9	Political Competition × Lagged Economic Reform	0.8972*	0.5486*	−0.4196*	0.9021*	0.8292*	−0.1861*	0.6638*	0.8321*	1.0000	

CROSS-SECTION VARIABLES		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	Total Reform Reversals	1.0000									
2	Average Veto Players	−0.4078*	1.0000								
3	Average Communists in Legislature	0.4991*	−0.5054*	1.0000							
4	Natural Resources	0.3618	−0.0506	0.2865	1.0000						
5	1989 GNP per Capita	−0.3370	0.4823*	−0.4244*	−0.2419	1.0000					
6	Distance from West	0.3643	−0.6642*	0.5825*	0.3841	−0.5082*	1.0000				
7	Industrial Structure	−0.3440	0.3426	−0.3428	−0.4554*	0.1151	−0.6493*	1.0000			
8	Initial Veto Players	−0.6322*	0.5921*	−0.5106*	−0.1547	0.2163	−0.5687*	0.3502	1.0000		
9	Initial Communists in Legislature	0.5360*	−0.6063*	0.7839*	0.1197	−0.4655*	0.7648*	−0.4456*	−0.5716*	1.0000	
10	Reversal Magnitude	−0.7402*	0.3404	−0.4104*	−0.3009	0.0741	−0.2985	0.3868	0.6119*	−0.4792*	1.0000

Note: * $p < 0.05$.

Table A4: Multinomial Logit Analysis of Reform Choice

Dependent Variable: 1 = reform, 0 = no change, -1 = reversal	**Baseline**				**Year FEs**		**Two-Way FEs**	
	Reform	Reversal	Reform	Reversal	Reform	Reversal	Reform	Reversal
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Veto Players	1.242***	1.430***	1.631***	1.305***	1.986**	1.311***	32.056*	0.758
	(0.405)	(0.354)	(0.379)	(0.261)	(0.884)	(0.340)	(17.835)	(0.571)
Veto Players × Lagged	−0.018**	−0.019***	−0.024***	−0.017***	−0.032*	−0.019***	−0.530	−0.014
Economic Reform	(0.008)	(0.006)	(0.009)	(0.004)	(0.017)	(0.005)	(0.324)	(0.011)
Lagged Economic Reform	0.000	0.013	0.014	−0.006	0.012	0.022	2.682**	−0.117*
	(0.018)	(0.018)	(0.020)	(0.013)	(0.028)	(0.015)	(1.358)	(0.064)
Communists in Legislature			0.712	−1.707**	0.640	−1.780***	139.745*	−0.043
			(0.861)	(0.686)	(0.861)	(0.659)	(84.622)	(0.846)
War			−35.046***	−1.045**	−41.626***	−1.500***	−37.611***	−2.241***
			(0.636)	(0.411)	(0.895)	(0.439)	(3.388)	(0.869)
Log GDP per Capita			−0.090	−0.058	0.109	−0.041	−1.740	0.916
			(0.234)	(0.187)	(0.327)	(0.143)	(2.892)	(1.283)
Country fixed effects	No		No		No		Yes	
Year fixed effects	No		No		Yes		Yes	
Observations	300		300		300		300	
Pseudo R-Squared	0.065		0.115		0.281		0.496	
Log likelihood	-207.1		-196.0		-159.2		-111.6	

Notes: The table presents results from the multinomial logit models discussed in Footnote 9. In parentheses, heteroskedasticity-robust standard errors corrected to allow for clustering at country level. Dependent variable defined as follows: 1 = positive change in EBRD index, 0 = no change, -1 = negative change. All models implemented in *Stata*. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

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