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The Effect of Political Regime on Civil War: Unpacking Anocracy – *The Web Appendix*

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This Web Appendix presents several tests referenced in the main article. They serve to further establish that there is little evidence of a relationship between anocracy and civil war. Previous research suggests that anocracies – as defined by the middle of the Polity index of political regime – are more susceptible to civil war than either pure democracies or pure dictatorships. Yet, certain components of the Polity index are defined with explicit reference to civil war. When these components are removed from the Polity index, the original relationship disappears. I conclude that the overall Polity index should not be used in statistical analyses of civil war. Similar problems exist for Freedom House measures of political regime, which should also be avoided. Researchers looking to test the anocracy hypothesis may wish to employ the Vanhanen measure of political participation.

Keywords: *civil war; Polity; Freedom House; Vanhanen*

Research published in the *American Political Science Review* shows that "anocracies" – as defined by the middle of the Polity index of political regime – are more susceptible to civil war than either pure democracies or pure dictatorships. In this appendix I present several tests referenced in the main article showing that the well-established relationship between anocracy and civil war is really an artifact of the way that political regime is coded. Rather than being driven by political institutions, the finding is actually driven by the fact that the Polity index is coded with direct reference to political violence and even civil war itself.

To recall, both the Hegre et al. (2001) and the Fearon and Laitin (2003) studies employ the Polity index of political regime to test for the effects of anocracy. Polity has five components. Three of them have to do with the executive, and two of them with political participation. Unfortunately, the political participation components are defined in part by civil war.

I break up the Polity index into its component parts and then recombine the components, leaving out those coded with reference to political violence. The five components are XCONST (Constraints on chief executive), XRCOMP (Competitiveness of executive recruitment), XROPEN (Openness of executive recruitment), PARCOMP (Competitiveness of political participation), and PARREG (Regulation of political participation). I call my recombined index X-POLITY, which leaves out PARCOMP and PARREG.

The appendix addresses the following extensions. Readers may prefer to skip to their sections of interest.

- **All Polity components included together** (main article pages 408, 413, 421fn11). I test the effect of all of the Polity components included together in one specification.
- **Anocracy – widely and narrowly defined** (main article pages 411, 412t3). In this section, after defining the mid-range of the anocracy indicators employed in the study, the effects of various indicator variables with narrower and wider "middles" are tested.
- **Addressing possible multicollinearity** (main article page 413). I re-analyze the Fearon and Laitin (2003) results removing some variables that may introduce multicollinearity.
- **The linear effects of each Polity component** (main article pages 413-414). I present the linear effects of each Polity component.
- **Alternatives – Freedom House, Vanhanen, and SIP** (main article pages 414-415). I present results using alternative measures of political regime – Freedom House, Vanhanen, and SIP.
- **The "instability" variable** (main article pages 403, 419, 420fn4). I revisit the effects of Fearon and Laitin's (2003) "instability" variable. Here, I re-construct the variable from the Polity index with the "political violence-contaminated" components removed. The effect of the new instability variable is virtually the same as the original, suggesting that if political regime impacts civil war, it has more to do with instability than anocracy. Strand (2007) explores this possibility in more depth using the Hegre et al. (2001) data.

All Polity components included together

(main article pages 408, 413, 421fn11)

Using the Hegre et al. (2001) data, I analyze a specification with all five separate components of Polity along with their squared terms. Nothing is significant. Even a joint significance test for all of the components indicates mere marginal significance at the ninety-percent confidence level (p=0.08). See Table W1 below.

Table W1 also presents results with the Fearon et al. data. The effects of the PARREG, XRCOMP, and XROPEN anocracy indicator variables are not statistically significant. As in the main article, the effect of PARCOMP is significant and positive. I suggest in the main article that this is because political violence is coded in the middle of this variable.

There is one new result. The effect of the XCONST anocracy indicator variable is significant at the 90 percent level. But the effect is *negative*. Anocracies, as measured by the XCONST indicator, are *less* prone to civil war. When I reanalyze the data leaving out the statistically insignificant Polity components, the negative effect of XCONST is significant at the 95 percent confidence level. Whether this finding is robust to other specifications and supports alternative hypotheses about the relationship between political regime and civil war requires much more rigorous testing than is appropriate here. For now, I take the finding as further evidence that the anocracy hypothesis is not supported by the Polity data.

Anocracy – widely and narrowly defined

(main article pages 411, 412t3)

The full Polity index ranges from –10 to +10. Fearon and Laitin (2003) construct an anocracy indicator variable coded 1 for the middle of the index (−5 or greater and +5 or less) and 0 otherwise. Yet, coding the "middle" is not obvious. Table W2 presents the coding rules followed for the variables used in the main article, as well as the wider and narrower formulations used below. The table also presents the coding rules for the Freedom House, Vanhanen, and SIP measures of political regime, employed below.

Table W3 introduces the wide- and narrow-range anocracy indicator variables into the Fearon and Laitin (2003) specification. The table can be read as follows. Each column represents a different specification of the statistical model. The row labeled "polity measure" presents the effect of the Polity component in question. The column headings indicate the Polity component being tested in each specification.

Table W1: All Polity components included together

Hegre et al. (2001) model		Fearon and Laitin (2003) model		
Variable	Coefficient	Variable	Coefficient	Coefficient
XCONST	-0.078	XCONST (Anocracy indicator)	-0.45*	-0.46**
	(0.15)		(0.24)	(0.23)
XCONST_SQ	0.020	XRCOMP (Anocracy indicator)	0.34	
	(0.03)		(0.25)	
XRCOMP	0.175	XROPEN (Anocracy indicator)	0.03	
	(0.27)		(0.26)	
XRCOMP_SQ	-0.012	PARCOMP (Anocracy indicator)	0.73**	0.72**
	(0.14)		(0.31)	(0.24)
XROPEN	0.301	PARREG (Anocracy indicator)	-0.01	
	(0.60)		(0.32)	
XROPEN_SQ	-0.677	Prior war	-0.94**	-0.96**
	(0.61)		(0.34)	(0.35)
PARCOMP	-0.128	Per capita income	-0.28**	-0.28**
	(0.19)		(0.07)	(0.07)
PARCOMP_SQ	-0.119	Log(population)	0.26**	0.25**
	(0.08)		(0.08)	(0.08)
PARREG	-0.611	Log(% mountainous)	0.19**	0.19**
	(0.83)		(0.09)	(0.09)
PARREG_SQ	-0.416	Noncontiguous state	0.47	0.46
	(0.37)		(0.29)	(0.29)
Proximity of regime change	1.193**	Oil exporter	0.72**	0.69**
	(0.46)		(0.31)	(0.29)
Proximity of civil war	1.062**	New state	1.86**	1.80**
	(0.38)		(0.42)	(0.41)
Proximity of independence	1.715*	Instability	0.36	0.42
	(0.98)		(0.28)	(0.27)
International war in country	0.868	Ethnic fractionalization	0.20	0.25
	(0.64)		(0.41)	(0.40)
Neighboring civil war	0.137	Religious fractionalization	0.22	0.21
	(0.33)		(0.55)	(0.55)
Ln(energy consumption)	-0.407**	Constant	-6.86**	-6.71**
	(0.16)		(0.82)	(0.79)
Energy consumption squared	-0.055		0.03	0.01
	(0.04)	Number of observations	6034	6034
Ethnic heterogeneity	0.779*	Log likelihood	-424.09	-425.00
	(0.44)			
Joint test for all components	0.08*			
Number of countries	152			
Number of events	63			
Number of observations	8262			
Log pseudolikelihood	-251.60			

Note: Standard errors in parentheses. ANOC=Full Polity index; XCONST=Constraints on chief executive; XRCOMP=Competitiveness of executive recruitment; XROPEN=Openness of executive recruitment; X-POLITY=Polity index without PARCOMP or PARREG; PARCOMP=Competitiveness of political participation; PARREG=Regulation of political participation. The notation "_SQ" indicates the variable squared. The "Anocracy indicator" variables are coded 1 for the middle of each variable and 0 otherwise. The definition for the middle range of each variable is reported in Table W2.

* Significant at the 90% confidence level. ** Significant at the 95% confidence level.

Table W2: Construction of anocracy indicator variables

Variable	Full range of the variable	Range that the anocracy indicator is coded 1 (variable used in the main article)	Wider range version (for Polity)	Narrower range version (for Polity)
ANOC	[–10, 10]	[–5, 5]	[–6, 6]	[–4, 4]
XCONST	[–3, 4]	[–1, 2]	[–2, 3]	[0, 1]
XRCOMP	[–2, 2]	[–1, 1]	–	0
XROPEN	[–1, 1]	[0]	–	–
X-POLITY	[–6, 7]	[–2, 3]	[–3, 4]	[–1, 2]
PARCOMP	[–2, 3]	[0, 1]	[–1, 2]	–
PARREG	[–2, 0]	[–1]	–	–
Vanhanen index	[0, 49)	(12.5, 37.5)		
Vanhanen competition	[0, 70]	(17.5, 52.5)		
Vanhanen participation	[0, 75)	(18.75, 56.25)		
Freedom House index	[1, 3]	[2]		
Political rights	[1,7]	[3, 5]		
Civil liberties	[1,7]	[3, 5]		
SIP	[0,1)	(0.25, 0.75)		

Note: ANOC=Full Polity index; XCONST=Constraints on chief executive; XRCOMP=Competitiveness of executive recruitment; XROPEN=Openness of executive recruitment; X-POLITY=Polity index without PARCOMP or PARREG; PARCOMP=Competitiveness of political participation; PARREG=Regulation of political participation; SIP=Scalar Index of Polities.

Table W3: Testing the effects of Polity components on civil war with Fearon and Latin's (2003) data – wider and narrower definitions of anocracy

	Wide-range variables				Narrow-range variables			
Variable	ANOC	XCONST	X-POLITY	PARCOMP	ANOC	XCONST	XRCOMP	X-POLITY
Polity measure	0.38*	-0.24	-0.03	0.37	0.23	0.78	0.39	-0.02
	(0.22)	(0.22)	(0.24)	(0.23)	(0.25)	(0.54)	(0.29)	(0.35)
Prior war	-0.92**	-0.85**	-0.87**	-0.90**	-0.92**	-0.86**	-0.89**	-0.87**
	(0.31)	(0.34)	(0.34)	(0.35)	(0.31)	(0.34)	(0.34)	(0.34)
Per capita income	-0.31**	-0.29**	-0.29**	-0.27**	-0.31**	-0.30**	-0.29**	-0.29**
	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)
Log(population)	0.27**	0.25**	0.25**	0.26**	0.26**	0.25**	0.25**	0.25**
	(0.07)	(0.08)	(0.08)	(0.08)	(0.07)	(0.08)	(0.08)	(0.08)
Log(% mountainous)	0.21**	0.21**	0.20**	0.18**	0.21**	0.19**	0.21**	0.20**
	(0.08)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)
Noncontiguous state	0.48*	0.53*	0.54*	0.51*	0.50*	0.54**	0.56*	0.54*
	(0.27)	(0.29)	(0.29)	(0.29)	(0.27)	(0.29)	(0.29)	(0.29)
Oil exporter	0.75**	0.67**	0.67**	0.63**	0.76**	0.68**	0.69**	0.68**
	(0.28)	(0.30)	(0.30)	(0.30)	(0.28)	(0.30)	(0.30)	(0.30)
New state	1.70**	2.06**	2.05**	1.97**	1.73**	2.04**	2.11**	2.05**
	(0.34)	(0.40)	(0.40)	(0.40)	(0.34)	(0.40)	(0.40)	(0.40)
Instability	0.55**	0.54**	0.53**	0.45*	0.60**	0.49*	0.49*	0.53*
	(0.24)	(0.27)	(0.27)	(0.27)	(0.24)	(0.27)	(0.27)	(0.27)
Democracy	0.03	-0.18	-0.11	-0.18	-0.04	-0.06	-0.02	-0.10
	(0.29)	(0.30)	(0.33)	(0.29)	(0.29)	(0.29)	(0.30)	(0.30)
Ethnic fractionalization	0.18	0.23	0.24	0.20	0.16	0.22	0.21	0.24
	(0.37)	(0.40)	(0.40)	(0.40)	(0.37)	(0.40)	(0.40)	(0.40)
Religious fractionalization	0.28	0.08	0.08	0.21	0.26	0.06	0.09	0.08
	(0.51)	(0.55)	(0.55)	(0.55)	(0.51)	(0.55)	(0.54)	(0.55)
Constant	-7.02**	-6.55**	-6.62**	-6.88**	-6.84**	-6.63**	-6.79**	-6.63**
	(0.76)	(0.78)	(0.78)	(0.80)	(0.74)	(0.77)	(0.79)	(0.77)
Number of observations	6327	6034	6034	6034	6327	6034	6034	6034
Log likelihood	-479.59	-429.46	-430.01	-428.73	-480.63	-429.17	-429.16	-430.02

Note: Standard errors in parentheses. ANOC=Full Polity index; XCONST=Constraints on chief executive; XRCOMP=Competitiveness of executive recruitment; XROPEN=Openness of executive recruitment; X-POLITY=Polity index without PARCOMP or PARREG; PARCOMP=Competitiveness of political participation; PARREG=Regulation of political participation. The Polity measures are dummy variables coded 1 for the middle of each variable and 0 otherwise. The definition for the middle range of each variable is reported in Table W2. Some variables, with small ranges, do not have wide and narrow ranges. The coefficients and standard errors for the X-POLITY column match almost perfectly with those presented in the main article (page 412t3).

* Significant at the 90% confidence level. ** Significant at the 95% confidence level.

The results are consistent with what is presented in the main article (page 412t3). If anything, they are even more disappointing. The wide range of PARCOMP does not have a statistically significant effect on civil war even though the variable is in part defined by civil war. This is easy to understand. The wide range of PARCOMP codes more than just the "factional" observations in the middle. This suggests that it is really just the factional observations that drive the original correlation.

What is even more disappointing is that the wide-range version of the original Fearon and Laitin (2003) variable is only significant at the 90 percent level. The narrow-range version of the Fearon and Laitin (2003) variable is not significant at all. This helps to explain why removing PARREG and PARCOMP has such an impact on the robustness of the original relationship. Slight deviations matter a lot for the original fragile finding. Indeed, note the drop in significance of the original anocracy effect when the range is changes from [–5,5] to [–6,6] or [–4,4].

Addressing possible multicollinearity

(main article page 413)

Perhaps the anocracy finding does not emerge because of multicollinearity. The Fearon and Laitin (2003) specification includes variables that may be correlated with the components of the Polity index. The democracy dummy variable and the instability variable are both generated from the Polity index. Considering that PARCOMP and PARREG are coded with reference to civil war, the prior civil war dummy variable may also introduce (ironic) multicollinearity for these variables. In fact, however, the correlations are quite low. The highest is between the democracy dummy variable and the anocracy dummy generated from XROPEN ($\rho = -0.70$). Otherwise the correlations are weak with absolute values of less than 0.40; most are less than 0.20.

Nevertheless, I re-analyze all of the results presented in the main article (page 412t3), dropping out the democracy dummy and the instability variables. I also re-analyze the PARCOMP and PARREG specifications leaving out the lagged dependent variable (prior war). Table W4 presents the results. The "polity measure" row presents the effect of the Polity component in question. The top of each column presents the name of the component being tested.

There is really only one finding here of note. XRCOMP is marginally statistically significant (at the 90 percent level). This turns out to be the result of dropping the instability measure. While not a strong finding, it may indicate that countries where the executive is recruited through a forceful seizure of power are more likely to suffer from civil war. This finding is only marginally

Table W4: Testing the effects of Polity components on civil war with Fearon and Latin's (2003) data – dropping the democracy dummy, the instability dummy, and prior civil war

Variable	XCONST	XRCOMP	XROPEN	X-POLITY	PARCOMP	PARREG	PARCOMP	PARREG
Polity measure	-0.27	0.45*	-0.25	0.14	0.65**	0.33	0.63**	0.34
	(0.22)	(0.24)	(0.23)	(0.32)	(0.23)	(0.26)	(0.23)	(0.26)
Prior war	-0.92**	-0.86**	-0.89**	-0.87**	-0.89**	-0.87**		
	(0.35)	(0.34)	(0.35)	(0.34)	(0.34)	(0.34)		
Per capita income	-0.31**	-0.30**	-0.33**	-0.30**	-0.29**	-0.30**	-0.26**	-0.27**
	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)
Log(population)	0.25**	0.25**	0.26**	0.25**	0.25**	0.26**	0.20**	0.21**
	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)
Log(% mountainous)	0.20**	0.20**	0.19**	0.20**	0.18**	0.19**	0.17*	0.18*
	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)
Noncontiguous state	0.54*	0.55*	0.50*	0.53*	0.45	0.49*	0.30	0.33
	(0.29)	(0.29)	(0.29)	(0.29)	(0.29)	(0.29)	(0.29)	(0.29)
Oil exporter	0.73**	0.75**	0.78**	0.71**	0.69**	0.67**	0.68**	0.64**
	(0.29)	(0.29)	(0.30)	(0.29)	(0.29)	(0.30)	(0.29)	(0.29)
New state	1.94**	2.03**	1.90**	1.92**	1.74**	1.93**	1.79**	1.97**
	(0.40)	(0.40)	(0.40)	(0.40)	(0.40)	(0.39)	(0.40)	(0.39)
Ethnic fractionalization	0.26	0.20	0.22	0.25	0.26	0.25	0.15	0.15
	(0.40)	(0.40)	(0.40)	(0.40)	(0.40)	(0.40)	(0.40)	(0.40)
Religious fractionalization	0.06	0.05	0.11	0.05	0.15	0.03	0.26	0.13
	(0.55)	(0.54)	(0.55)	(0.55)	(0.55)	(0.54)	(0.55)	(0.54)
Constant	-6.43**	-6.72**	-6.40**	-6.54**	-6.76**	-6.67**	-6.43**	-6.37**
	(0.76)	(0.78)	(0.77)	(0.76)	(0.78)	(0.78)	(0.77)	(0.77)
Number of observations	6034	6034	6034	6034	6034	6034	6034	6034
Log likelihood	-431.07	-430.19	-431.22	-431.72	-428.03	-431.03	-431.95	-434.79

Note: Standard errors in parentheses. ANOC=Full Polity index; XCONST=Constraints on chief executive; XRCOMP=Competitiveness of executive recruitment; XROPEN=Openness of executive recruitment; X-POLITY=Polity index without PARCOMP or PARREG; PARCOMP=Competitiveness of political participation; PARREG=Regulation of political participation. The Polity measures are dummy variables coded 1 for the middle of each variable and 0 otherwise. The definition for the middle range of each variable is reported in Table W2.

* Significant at the 90% confidence level. ** Significant at the 95% confidence level.

significant and not robust, but it is noteworthy. Perhaps a more refined measure of the competitiveness of executive recruitment is worthy of pursuing.

The linear effects of each Polity component

(main article page 413)

Tables W5 and W6 present the results of testing for linear effects of each of the Polity components. The tables can be read as like the others. Rows labeled "polity measure" present the effect of the measure of political regime in question. The top of each column is labeled with the name of the measure of political regime tested.

Consider the results using the Hegre et al. (2001) data, presented in Table W5. I introduce the linear versions of the component variables as they enter into the Polity index (see the main article, page 405t1). None of the variables has a significant effect. Civil war breaks out under all sorts of political regimes, and there appears to be no systematic relationship.

Table W6 presents the linear effects of the components of Polity with the Fearon and Laitin (2003) data. Note that in these specifications, I drop the democracy dummy variable from Fearon and Laitin's (2003) original specification because it is based on the linear Polity variable. Instead, I include the linear component variables as they are coded in the main article (page 405t1). I also include the complete Polity scale (in the column labeled POLITY). The effect of the complete Polity scale is not significant, nor is the effect of X-POLITY. The effects of the following Polity components are similarly not significant: XCONST, XROPEN, and PARCOMP.

There are, however, two significant results worth highlighting. The effect of PARREG is positive and marginally significant at the 90 percent level. Following the Polity codebook, this indicates that civil war is more likely in countries where regular and enduring groups compete, no groups are excluded, and force/coercion is rare. The effect of XRCOMP is also positive and statistically significant at the 95 percent level. This indicates that countries with regular elections are more prone to civil war than other polities.

Putting it mildly, these findings stand in contrast to the anocracy hypothesis. Whether these linear results are robust to other specifications and support alternative hypotheses would require further investigation and much more rigorous testing than is appropriate here. As they stand, the results are not robust to the Hegre et al. (2001) model presented above. So, I take these linear findings simply as further evidence that the anocracy hypothesis is not supported by the Polity data.

Table W5: Testing Polity components with Hegre et al. (2001) data – linear relationships

Variable	POLITY	XCONST	XRCOMP	XROPEN	X-POLITY	PARCOMP	PARREG
Polity measure	-0.002	-0.04	0.06	0.15	-0.001	-0.03	0.02
	(0.02)	(0.06)	(0.07)	(0.20)	(0.03)	(0.07)	(0.15)
Proximity of regime change	1.44**	1.46**	1.40**	1.42**	1.44**	1.45**	1.44**
	(0.45)	(0.45)	(0.45)	(0.45)	(0.45)	(0.45)	(0.45)
Proximity of civil war	1.28**	1.27**	1.28**	1.28**	1.28**	1.28**	1.28**
	(0.33)	(0.33)	(0.33)	(0.33)	(0.33)	(0.33)	(0.33)
Proximity of independence	1.46	1.55	1.40	1.40	1.45	1.48	1.44
	(0.99)	(0.98)	(0.98)	(0.99)	(0.99)	(0.97)	(0.98)
International war in country	0.97*	0.95*	1.00*	0.99*	0.97*	0.97*	0.98*
	(0.52)	(0.52)	(0.53)	(0.53)	(0.52)	(0.52)	(0.53)
Neighboring civil war	0.12	0.13	0.14	0.12	0.13	0.12	0.13
	(0.32)	(0.32)	(0.32)	(0.32)	(0.32)	(0.32)	(0.32)
Ln(energy consumption)	-0.53**	-0.51**	-0.56**	-0.55**	-0.54**	-0.52**	-0.54**
	(0.15)	(0.15)	(0.15)	(0.15)	(0.15)	(0.15)	(0.16)
Energy consumption squared	-0.08**	-0.08**	-0.08**	-0.08**	-0.08**	-0.08**	-0.08**
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Ethnic heterogeneity	0.92**	0.94**	0.92**	0.90**	0.92**	0.92**	0.91**
	(0.40)	(0.40)	(0.41)	(0.41)	(0.40)	(0.40)	(0.40)
Log pseudo-likelihood	-257.75	-257.45	-257.43	-257.56	-257.76	-257.69	-257.75
Number of countries=152							
Number of events=63							
Number of observations=8262							

Note: Standard errors in parentheses. POLITY=Full Polity index; XCONST=Constraints on chief executive; XRCOMP=Competitiveness of executive recruitment; XROPEN=Openness of executive recruitment; X-POLITY=Polity index without PARCOMP or PARREG; PARCOMP=Competitiveness of political participation; PARREG=Regulation of political participation.

* Significant at the 90% confidence level. ** Significant at the 95% confidence level.

Table W6: Testing Polity Components with Fearon and Latin (2003) data – linear relationships

Variable	POLITY	POLITY – NO TRANSITS	XCONST	XRCOMP	XROPEN	X-POLITY	PARCOMP	PARREG
Polity measure	0.02	-0.005	-0.02	0.14**	0.31	0.02	0.10	0.23*
	(0.02)	(0.00)	(0.05)	(0.07)	(0.20)	(0.03)	(0.07)	(0.13)
Prior war	-0.95**	-0.94**	-0.87**	-0.94**	-0.92**	-0.90**	-0.91**	-0.92**
	(0.31)	(0.31)	(0.34)	(0.34)	(0.34)	(0.34)	(0.34)	(0.34)
Per capita income	-0.34**	-0.31**	-0.29**	-0.34**	-0.32**	-0.31**	-0.33**	-0.32**
	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)
Log(population)	0.26**	0.27**	0.25**	0.26**	0.24**	0.25**	0.26**	0.25**
	(0.07)	(0.07)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)
Log(% mountainous)	0.22**	0.21**	0.20**	0.21**	0.21**	0.20**	0.20**	0.20**
	(0.08)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)
Noncontiguous state	0.44	0.54**	0.55*	0.43	0.44	0.48*	0.40	0.42
	(0.27)	(0.27)	(0.29)	(0.29)	(0.29)	(0.29)	(0.30)	(0.30)
Oil exporter	0.86**	0.68**	0.68**	0.86**	0.82**	0.75**	0.76**	0.76**
	(0.28)	(0.28)	(0.30)	(0.30)	(0.30)	(0.30)	(0.30)	(0.30)
New state	1.71**	1.96**	2.06**	1.98**	1.97**	2.00**	1.96**	1.92**
	(0.34)	(0.40)	(0.40)	(0.40)	(0.40)	(0.40)	(0.40)	(0.41)
Instability	0.62**	0.59**	0.53**	0.43	0.46*	0.50*	0.47*	0.45*
	(0.24)	(0.25)	(0.27)	(0.27)	(0.27)	(0.27)	(0.27)	(0.27)
Ethnic fractionalization	0.17	0.14	0.25	0.19	0.24	0.23	0.26	0.26
	(0.37)	(0.37)	(0.40)	(0.40)	(0.40)	(0.40)	(0.40)	(0.40)
Religious fractionalization	0.29	0.25	0.07	0.12	0.05	0.09	0.12	0.15
	(0.51)	(0.52)	(0.55)	(0.55)	(0.55)	(0.55)	(0.55)	(0.55)
Constant	-6.73**	-6.83**	-6.67**	-6.61**	-6.66**	-6.60**	-6.67**	-6.37**
	(0.74)	(0.74)	(0.78)	(0.78)	(0.78)	(0.77)	(0.78)	(0.79)
Number of observations	6327	6272	6034	6034	6034	6034	6034	6034
Log likelihood	-480.40	-466.68	-429.98	-427.99	-428.90	-429.78	-429.03	-428.62

Note: Standard errors in parentheses. POLITY=Full Polity index; POLITY-NO TRANSITS=Polity without regime transitions; XCONST=Constraints on chief executive; XRCOMP=Competitiveness of executive recruitment; XROPEN=Openness of executive recruitment; X-POLITY=Polity index without PARCOMP or PARREG; PARCOMP=Competitiveness of political participation; PARREG=Regulation of political participation.

* Significant at the 90% confidence level. ** Significant at the 95% confidence level.

Alternatives – Freedom House, Vanhanen, and SIP

(main article pages 414-415)

Earlier studies of a nonlinear relationship between regime and political violence used the Freedom House data (e.g. Muller and Weede 1990). There is also the Vanhanen data, which measures political participation in terms of voter turnout and the vote share of the largest party. And there is the new Scalar Index of Polities (SIP) developed by Gates, Hegre, Jones, and Strand (2006), which combines the executive components of Polity with the participation measures from Vanhanen.[1] As scholars may be interested in testing the anocracy hypothesis using these alternative measures of political regime, I discuss my findings here. Note that because these political regime data are available in country-year format, like Fearon and Laitin's (2003), I analyze only Fearon and Laitin's model. For work with the event-history data of Hegre et al. (2001), where merging data is not straightforward, see Strand (2007).

There are advantages and disadvantages of using the alternative measures of political regime. The main conclusions are the following.

First, Freedom House is even worse to use than Polity for the study of civil war. While both are coded with explicit reference to political violence (and even civil war), at least Polity can be broken into its component parts, and the "contaminated" components can be removed. Freedom House cannot be fixed; sufficiently detailed components are not available. So, at the risk of being pedantic, let me state this clearly. With civil war explicitly coded in the middle of the Freedom House index, it should not be surprising that the middle is correlated with civil war. The finding is true by fiat.

Second, there is nothing wrong with using the Vanhanen data to test the anocracy hypothesis about civil war. They are not coded with reference to political violence. Analysis with the Vanhanen variables, however, does not confirm the anocracy hypothesis.

Third, there is also nothing wrong with using the SIP measure. It is not coded with explicit reference to civil war. Again, however, analysis with the variable does not confirm the anocracy hypothesis.

Freedom House

Regarding the Freedom House data, there is bad news for scholars of civil war. While there is some limited evidence of a relationship between the

[1] Also see Moon et al. (2005), who have developed a Participation Enhanced Polity Score. The Przeworski et al. (2000) measure of political regime is dichotomous and thus less amenable to nonlinear tests. For attempts to "continuize" the scale, see Elkins (2000) and Vreeland (2003).

Freedom House data and civil war, these data, like the Polity data, are coded with reference to political violence.

The overall Freedom House index of political regime is constructed from two variables, one measuring "political rights" and the other measuring "civil liberties." For the overall index, countries are classified as either "free," "partly free," or "not free," based on the average scores on scales of the political rights variable and the civil liberties variable. These two variables (ranging from 1 to 7) are coded using country experts, who consider a checklist of factors. In part because there is overlap between the checklists, the two variables are highly correlated (ρ=0.93).

Here comes the bad news. The checklist for the political rights variable includes certain questions that might be influenced by the presence of a civil war or growing political violence. Such questions include:

- Are the people free from domination by the military, foreign powers, totalitarian parties, religious hierarchies, economic oligarchies, or any other powerful group?[2]
- Is the government or occupying power deliberately changing the ethnic composition of a country or territory so as to destroy a culture or tip the political balance in favor of another group?[3]

The Freedom House documentation notes specifically that the reasons for rating a country in the middle of the political rights scale – ratings of 3, 4, or 5 – "can include civil war."[4] A country may alternatively be rated 7 in the presence of "severe oppression in combination with civil war."[5]

For the civil liberties measure, the problem is even more obvious. One of the checklist items is:

- Is there freedom from war and insurgencies?[6]

Data from these questions are not useful for studying civil war because the presence of civil war determines their answers. This is not because of an endogenous relationship between the variables but rather a *definitional* relationship.

The Freedom House checklist does include other questions that would be useful to study the relationship between civil war and political regime. These include questions that address whether elections determine the fate of the government, whether people have the right to organize political parties, and whether opposition parties have a realistic opportunity to win power through

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[2] http://www.freedomhouse.org/template.cfm?page=351&ana_page=166&year=2002 accessed 8/13/07.
[3] http://www.freedomhouse.org/template.cfm?page=351&ana_page=166&year=2002 accessed 8/13/07.
[4] http://www.freedomhouse.org/template.cfm?page=351&ana_page=298&year=2006. Accessed August 20, 2007.
[5] http://www.freedomhouse.org/template.cfm?page=351&ana_page=298&year=2006. Accessed August 20, 2007.
[6] http://www.freedomhouse.org/template.cfm?page=351&ana_page=166&year=2002 accessed 8/13/07.

elections. Unfortunately, except for the years 2006 and 2007, Freedom House has not provided data on the individual checklist items.[7] Instead, it provides only the aggregate political rights and civil liberties scores. Thus, unlike the Polity data, a researcher cannot remove the questions that may in part be defined by civil war.

With the caveat that Freedom House data suffers from the same problem as the aggregate Polity index, I re-analyze the Fearon and Laitin (2003) model, introducing the Freedom House variables. Note that the political rights and civil liberties variables range from 1 to 7, with 1 being the most democratic. The overall Freedom House index measure ranges from 1 to 3, with 1 being the most democratic.[8] I construct dummy variables for each measure, coded 1 for the mid-range of the measure and 0 otherwise (see Table W2 above). I also test the quadratic and linear formulations. As in the previous section, I leave out the Polity dummy variable for democracy when testing the linear effect of regime. All variables are lagged one year, just as the Polity index is lagged in the original specifications.

Table W7 presents the results. The table can be read like the previous tables. The "political regime" row (and "political regime squared" row for the quadratic approach) presents the effect of political regime for the specification in question. The top of each column is labeled with the measure of political regime employed – the overall Freedom House index, the political rights measure, or the civil liberties measure – in nonlinear or linear form. For the nonlinear hypotheses I employ both the dummy variable approach and the quadratic formulation.

Table W7 shows no statistically significant effect of the overall Freedom House index despite the definitional issues. There is some evidence, however, that the political rights measure has a relationship with civil war. The political rights dummy variable for anocracy has a statistically significant positive effect. The relationship does not hold when a quadratic specification is used. The civil liberties dummy variable for anocracy has a marginally significant positive effect. This relationship does not hold either when the quadratic specification is used.

What should one make of these results? Recall that the aggregate Polity index, which is defined with reference to civil war, has a statistically significant non-linear relationship with civil war. When the components of the index that

[7] Even for the years 2006 and 2007, the data for actual questions on the checklists are not provided. Instead, data are provided for three Political Rights sub-categories (Electoral Process, Political Pluralism and Participation, and Functioning of Government), and four Civil Liberties sub-categories (Freedom of Expression and Belief, Associational and Organizational Rights, Rule of Law, and Personal Autonomy and Individual Rights).

[8] I assign the numerical values arbitrarily.

Table W7: Testing Fearon and Latin (2003) specification with the Freedom House measures of political regime

	Freedom House index			Political rights			Civil liberties		
Variable	Anocracy indicator	Quadratic	Linear	Anocracy indicator	Quadratic	Linear	Anocracy indicator	Quadratic	Linear
Political regime	0.43	1.07	-0.10	0.55**	0.47	-0.03	0.59*	1.21	0.02
	(0.27)	(1.47)	(0.21)	(0.27)	(0.56)	(0.08)	(0.30)	(0.75)	(0.10)
Political regime squared		-0.32			-0.07			-0.13*	
		(0.32)			(0.c06)			(0.08)	
Prior war	-0.99**	-0.97**	-1.02**	-1.00**	-0.94**	-1.02**	-0.93**	-0.93**	-1.04**
	(0.39)	(0.40)	(0.40)	(0.39)	(0.39)	(0.40)	(0.40)	(0.40)	(0.40)
Per capita income	-0.33**	-0.34**	-0.36**	-0.34**	-0.34**	-0.36**	-0.32**	-0.30**	-0.34**
	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)
Log(population)	0.28**	0.29**	0.29**	0.29**	0.28**	0.28**	0.28**	0.27**	0.28**
	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.10)	(0.09)
Log(% mountainous)	0.23**	0.23**	0.24**	0.22**	0.22**	0.24**	0.22**	0.23**	0.24**
	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)
Noncontiguous state	0.42	0.38	0.36	0.42	0.38	0.38	0.45	0.47	0.42
	(0.45)	(0.45)	(0.45)	(0.44)	(0.45)	(0.45)	(0.45)	(0.45)	(0.45)
Oil exporter	0.30	0.30	0.36	0.33	0.32	0.37	0.29	0.26	0.32
	(0.38)	(0.37)	(0.37)	(0.38)	(0.38)	(0.37)	(0.37)	(0.38)	(0.37)
New state	2.98**	3.01**	3.07**	3.04**	3.02**	3.07**	2.99**	2.97**	3.09**
	(0.58)	(0.58)	(0.56)	(0.57)	(0.57)	(0.56)	(0.57)	(0.57)	(0.56)
Instability	0.68**	0.66**	0.71**	0.67**	0.65**	0.72**	0.61**	0.66**	0.75**
	(0.30)	(0.30)	(0.30)	(0.30)	(0.30)	(0.30)	(0.30)	(0.30)	(0.30)
Democracy	-0.31	-0.51		-0.31	-0.58		-0.44	-0.21	
	(0.36)	(0.48)		(0.36)	(0.53)		(0.36)	(0.45)	
Ethnic fractionalization	0.62	0.58	0.65	0.59	0.53	0.65	0.49	0.53	0.68
	(0.52)	(0.52)	(0.52)	(0.52)	(0.52)	(0.52)	(0.52)	(0.52)	(0.52)
Religious fractionalization	-0.45	-0.39	-0.45	-0.43	-0.40	-0.47	-0.32	-0.42	-0.55
	(0.69)	(0.69)	(0.70)	(0.69)	(0.69)	(0.69)	(0.69)	(0.70)	(0.70)
Constant	-6.85**	-7.27**	-6.49**	-6.86**	-6.99**	-6.55**	-6.93**	-9.10**	-6.80**
	(0.98)	(1.89)	(1.05)	(0.98)	(1.64)	(1.05)	(0.99)	(2.02)	(1.08)
Joint hypothesis test		0.23			0.16			0.20	
Number of observations	3664	3664	3678	3664	3664	3678	3664	3664	3678
Log likelihood	-270.01	-269.80	-271.75	-269.23	-269.35	-271.79	-269.32	-269.49	-271.85

Note: Standard errors in parentheses. The anocracy indicator variables are coded 1 for the middle of each variable and 0 otherwise. The definition for the middle range of each variable is reported in Table W2.

* Significant at the 90% confidence level. ** Significant at the 95% confidence level.

are defined by civil war are removed from the index, however, the relationship loses significance. With the Freedom House results, the situation may be the same. The problem is that one cannot isolate and remove the parts of the Freedom House measures "contaminated" by civil war. This is why Freedom House is worse than Polity for studying civil war. All civil war findings with the Freedom House data are suspect and should be viewed with much skepticism.

Vanhanen

Regarding the Vanhanen (2003) data, there is good news. The coding of this variable makes no reference to political violence. The Vanhanen index has two components, a measure of political competitiveness and a measure of political participation. As explained in Vanhanen (2003), the political competitiveness measure is equal to 100 minus the votes garnered by the leading party or candidate. The political participation measure is equal the percentage of voter turnout, augmented by five points for each national referendum and one point for each district referendum. The overall index of political regime is constructed by multiplying the competitiveness and participation measures and dividing by 100. The component measures of political competitiveness and political participation range from 0 to 70.[9] The overall index ranges from 0 to 49.

To test if there is any support for the anocracy hypothesis using the Vanhanen data, I introduce each of the three variables into the Fearon and Laitin (2003) model. I construct dummy variables for each measure coded 1 for the mid-range of the measure and 0 otherwise (see Table W2 above). New for this Web Appendix, I also try the quadratic formulation. In addition to testing the nonlinear anocracy hypothesis, I also introduce the unmodified variables to test for linear relationships. When testing the linear effects of the components of Polity, I remove the overall Polity indicator variable of democracy. All variables are lagged one year, following the original model.

Table W8 present the results. The table can be read like the previous tables. The "political regime" row presents the effect of political regime (for the quadratic result, see the "political regime squared" row). Each column is labeled with the measure of political regime employed – the overall Vanhanen index, the political competitiveness measure, or the political participation

[9] This description follows Vanhanen (2003). In the actual data, the political participation variable ranges from 0 to 75. In the replication materials, I re-visit the analysis presented in Table W8 (below), leaving out the observations coded greater than 70. The results are qualitatively the same, although weaker.

Table W8: Testing Fearon and Latin (2003) specification with the Vanhanen measures of political regime

	Vanhanen overall index			Vanhanen competition measure			Vanhanen participation measure		
Variable	Anocracy indicator	Quadratic	Linear	Anocracy indicator	Quadratic	Linear	Anocracy indicator	Quadratic	Linear
Political regime	0.35	0.05	-0.0004	-0.16	-0.01	-0.001	0.07	0.023	-0.01
	(0.35)	(0.04)	(0.01)	(0.26)	(0.02)	(0.005)	(0.23)	(0.02)	(0.01)
Political regime squared		-0.002			0.0002			-0.001*	
		(0.001)			(0.0003)			(0.0003)	
Prior war	-0.88**	-0.89**	-0.89**	-0.88**	-0.87**	-0.89**	-0.88**	-0.93**	-0.89**
	(0.32)	(0.32)	(0.32)	(0.32)	(0.32)	(0.32)	(0.32)	(0.32)	(0.31)
Per capita income	-0.32**	-0.30**	-0.32**	-0.31**	-0.31**	-0.32**	-0.31**	-0.26**	-0.28**
	(0.08)	(0.08)	(0.08)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)
Log(population)	0.28**	0.29**	0.29**	0.28**	0.28**	0.29**	0.28**	0.29**	0.28**
	(0.08)	(0.08)	(0.07)	(0.08)	(0.08)	(0.07)	(0.08)	(0.07)	(0.07)
Log(% mountainous)	0.19**	0.19**	0.20**	0.19**	0.19**	0.20**	0.19**	0.18**	0.18**
	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)
Noncontiguous state	0.47*	0.50*	0.45	0.52*	0.50*	0.46	0.49*	0.54*	0.50*
	(0.28)	(0.29)	(0.29)	(0.29)	(0.29)	(0.29)	(0.28)	(0.28)	(0.28)
Oil exporter	0.71**	0.69**	0.73**	0.70**	0.71**	0.73**	0.70**	0.66**	0.68**
	(0.29)	(0.29)	(0.29)	(0.29)	(0.29)	(0.29)	(0.29)	(0.29)	(0.29)
New state	1.98**	1.94**	1.84**	1.97**	1.97**	1.85**	1.96**	1.91**	1.80**
	(0.42)	(0.42)	(0.41)	(0.42)	(0.42)	(0.42)	(0.42)	(0.42)	(0.42)
Instability	0.71**	0.71**	0.72**	0.74**	0.73**	0.72**	0.73**	0.70**	0.68**
	(0.24)	(0.24)	(0.23)	(0.24)	(0.24)	(0.23)	(0.24)	(0.24)	(0.24)
Democracy	-0.28	-0.17		-0.04	-0.12		-0.11	-0.15	
	(0.35)	(0.35)		(0.29)	(0.36)		(0.30)	(0.30)	
Ethnic fractionalization	0.28	0.22	0.18	0.26	0.26	0.19	0.25	0.14	0.16
	(0.39)	(0.39)	(0.38)	(0.39)	(0.39)	(0.38)	(0.39)	(0.38)	(0.38)
Religious fractionalization	0.04	0.10	0.15	0.05	0.04	0.15	0.06	0.25	0.22
	(0.54)	(0.54)	(0.53)	(0.54)	(0.54)	(0.53)	(0.54)	(0.53)	(0.53)
Constant	-6.95**	-7.05**	-7.03**	-6.87**	-6.89**	-7.02**	-6.99**	-7.04**	-6.81**
	(0.76)	(0.77)	(0.75)	(0.77)	(0.77)	(0.75)	(0.78)	(0.78)	(0.75)
Joint hypothesis test		0.48			0.87			0.10*	
Number of observations	6206	6206	6227	6206	6206	6227	6206	6206	6227
Log likelihood	-447.36	-447.08	-451.43	-447.67	-447.72	-451.43	-447.82	-444.99	-450.27

Note: Standard errors in parentheses. The anocracy indicator variables are coded 1 for the middle of each variable and 0 otherwise. The definition for the middle range of each variable is reported in Table W2.

* Significant at the 90% confidence level. ** Significant at the 95% confidence level.

measure – in nonlinear or linear form. For the nonlinear hypotheses I employ both the dummy variable approach and the quadratic formulation.

There is but one finding of note. The effect of the quadratic formulation of the Vanhanen political participation measure is marginally significant at the 90 percent level. The overall inverted U-shaped relationship is marginally significant (p=0.10). The coefficients indicate that civil war is most likely when the political participation variable takes on a value of 18 and becomes less likely if voter turnout is either higher or lower than this threshold. This is not a strong statistical finding, and it would require many further tests to establish. But it may represent a good place to begin for scholars interested in the relationship between political participation and civil war. Bear in mind, however, that the finding is quite weak; it does not hold using the anocracy dummy variable approach; and there is no other evidence of a relationship using the other Vanhanen measures.

SIP

Finally, regarding the SIP measure of political regime (Gates et al. 2006), there is good news and bad news. The good news is that the coding of this variable also makes no reference to political violence. The bad news is that the variable appears to have no relationship (linear or nonlinear) with civil war.

The SIP index represents a nice innovation over the Polity index. Like the X-Polity measure I use, it does not include PARCOMP or PARREG. Thus, it is not "contaminated" by political violence. To re-introduce political participation into the index, however, the Vanhanen data are used. As explained in Gates et al. (2006), the measure combines the executive components of Polity with the participation measures from Vanhanen. The overall index is normalized to range from 0 to 1.

To test if there is any support for the anocracy hypothesis using SIP, I introduce it into the Fearon and Laitin (2003) model. I construct a dummy variable for the measure coded 1 for the mid-range of the measure and 0 otherwise (see Table W2 above). In addition to testing the nonlinear anocracy hypothesis, I also introduce the unmodified variables to test for linear relationships. I remove the overall Polity indicator variable of democracy when testing the linear specifications of the other measures of democracy. All variables are lagged one year, just as the Polity index is lagged in the original specifications.

Table W9 present the results. The table can be read like the previous tables. The top of each column lists the version of SIP employed – in nonlinear or linear form. The effect of the measure of political regime in question is reported in the "political regime" row (and "political regime squared" row for the

Table W9: Testing Fearon and Latin (2003) specification with the SIP measure of political regime

Variable	Anocracy indicator	Quadratic	Linear
Political regime	0.31	0.49	0.24
	(0.26)	(1.43)	(0.34)
Political regime squared		0.50	
		(1.68)	
Prior war	-0.74**	-0.75**	-0.79**
	(0.33)	(0.33)	(0.33)
Per capita income	-0.26**	-0.28**	-0.29**
	(0.07)	(0.07)	(0.07)
Log(population)	0.26**	0.27**	0.25**
	(0.08)	(0.08)	(0.08)
Log(% mountainous)	0.18**	0.19**	0.21**
	(0.09)	(0.09)	(0.09)
Noncontiguous state	0.53*	0.46	0.50*
	(0.29)	(0.29)	(0.29)
Oil exporter	0.71**	0.79**	0.84**
	(0.30)	(0.30)	(0.30)
New state	2.08**	2.13**	1.98**
	(0.40)	(0.40)	(0.39)
Instability	0.49*	0.47*	0.52*
	(0.27)	(0.27)	(0.27)
Democracy	-0.23	-0.85*	
	(0.31)	(0.45)	
Ethnic fractionalization	0.29	0.23	0.26
	(0.41)	(0.41)	(0.41)
Religious fractionalization	0.20	0.21	0.27
	(0.56)	(0.56)	(0.56)
Constant	-6.95**	-7.08**	-6.91**
	(0.79)	(0.81)	(0.79)
Joint hypothesis test		0.14	
Number of observations	5990	5990	6012
Log likelihood	-421.55	-420.38	-423.50

Note: Standard errors in parentheses. The anocracy indicator variable is coded 1 for the middle and 0 otherwise. The definition is reported in Table W2.
* Significant at the 90% confidence level. ** Significant at the 95% confidence level.

quadratic approach). For the nonlinear hypotheses I employ both the dummy variable approach and the quadratic formulation. The results are clear. Nothing is statistically significant.

The "instability" variable

(main article pages 403, 419, 420fn4)

In addition to the anocracy hypothesis, there is a related instability hypothesis (see, for example, Hegre et al. 2001; Sahin and Linz 1995; Tarrow 1994). Countries with a regime coding that fluctuates over time may be susceptible to civil war. Thus, Fearon and Laitin (2003) consider the effect of *changes* in the Polity index.[10] They create a dummy variable "indicating whether the country had a three-or greater change on the Polity IV regime index in any of the three years prior to the country-year in question" (Fearon and Laitin 2003, 81). They find the variable has a positive statistically significant impact on civil war.

Are these findings driven by the political violence coded in PARCOMP and PARREG? I find not. Even with the suspect components of the Polity index are removed, my new instability indicator variable is significant, at least in the original Fearon and Laitin (2003) specification.

It does bear mentioning, however, that this finding is not completely robust. As seen in the main article (412t3) and here (Tables W1, W6, and W9), there are several specifications where the significance of the instability measure does not obtain. The instability finding itself is not so stable. One of the reasons appears to be the inclusion of key observations in the dataset.

As explained in the main article, for some observations of the Polity variable used by Fearon and Laitin (2003) – called Polity2 – the specific values for the five components are missing, and interpolated values for these observations are used. For example, "interregnum" or "anarchy" observations are coded as 0 (on the −10 to +10 scale, hence coding them as anocracies), and ''regime transition'' observations are coded as the average of the first and last Polity scores before and after the transition.[11] The custodians of the data warn that these observations "are especially prone to outbreaks of political violence; as such, these special cases, though relatively rare (they constitute only about four percent of the annual cases) are a highly biased subset" (Polity IV Project 2006).

When I drop these observations from the analysis, the significance of the effect of instability drops (see main article, page 412t3). It seems the finding is driven in part by the special observations. Yet, the finding does obtain

[10] For analysis of this question using the Hegre et al. (2001) data, see Strand (2007).
[11] I am grateful to an anonymous reviewer for encouraging to pursue this.

significance in some of the specifications even without the suspect observations, as seen in the main article (page 412t3) and Table W10.

When I re-construct the instability measure leaving out PARREG and PARCOMP and include the new version in the original specification of Fearon and Laitin (2003), the significance of the variable obtains. I suggest that the fragility of the effect of instability is thus probably not related to PARREG or PARCOMP.

Note that to create the variable, I consider changes in X-POLITY, the version of Polity without PARCOMP or PARREG. Thus, instability is coded 1 when a country had a three-or greater change on the X-POLITY regime measure in any of the three years prior to the country-year in question, and coded 0 otherwise.

Table W10 presents the results. There is essentially no difference between them and the results presented in the main article (page 412t3). If anything, the new instability variable performs slightly better, even though the finding is not robust across all specifications.

Conclusion

Do not use the full Polity variable in statistical analyses of civil war. Do not use PARCOMP or PARREG.[12] Do not use Freedom House.

When it comes to civil war, controlling for linear and nonlinear effects of political regime may be unnecessary. But if control variables for political regime (democracy, dictatorship, or anocracy) are desired, researchers should use any of the following variables (together, separately, or combined in an index): X-POLITY, XCONST, XRCOMP, XROPEN, the Vanhanen measures, and SIP. The ACLP measure can also be used, although the dichotomous measure is not amenable to nonlinear hypotheses.[13] For convenience, X-POLITY, XCONST, XRCOMP, and XROPEN are available with the replication materials.[14] The faint glimmer of hope for the anocracy hypothesis and civil war is the Vanhanen political participation measure. For future work on the anocracy hypothesis, researchers may want to begin with this variable.

[12] This does not imply that these variables should never be used. For a more appropriate use of PARCOMP looking at economic growth, see Pinto and Timmons (2005).

[13] But see Vreeland (2003). For the original data, see Przeworski et al. (2000). See Cheibub and Gandhi (2004) for the update.

[14] http://jcr.sagepub.com/supplemental.

Table W10: Revisiting the Fearon and Laitin (2003) findings with a reconstructed instability variable – removing PARCOMP and PARREG

Variable	ANOC	ANOC – NO TRANSITS	XCONST	XRCOMP	XROPEN	X-POLITY	PARCOMP	PARREG
Polity measure	0.51**	0.64**	-0.34	0.38	-0.34	0.03	0.61**	0.29
	(0.24)	(0.25)	(0.23)	(0.25)	(0.27)	(0.33)	(0.24)	(0.27)
Prior war	-0.91**	-0.84**	-0.88**	-0.85**	-0.82**	-0.86**	-0.85**	-0.87**
	(0.31)	(0.34)	(0.35)	(0.34)	(0.34)	(0.34)	(0.34)	(0.34)
Per capita income	-0.31**	-0.29**	-0.28**	-0.29**	-0.29**	-0.28**	-0.26**	-0.28**
	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)
Log(population)	0.28**	0.27**	0.26**	0.26**	0.27**	0.26**	0.26**	0.27**
	(0.07)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)
Log(% mountainous)	0.20**	0.18*	0.20**	0.20**	0.17*	0.20**	0.18*	0.19**
	(0.08)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)
Noncontiguous state	0.41	0.38	0.53*	0.53*	0.49*	0.52*	0.45	0.47
	(0.27)	(0.29)	(0.29)	(0.29)	(0.29)	(0.29)	(0.29)	(0.29)
Oil exporter	0.78**	0.69**	0.69**	0.74**	0.74**	0.71**	0.66**	0.67**
	(0.28)	(0.30)	(0.30)	(0.30)	(0.30)	(0.30)	(0.30)	(0.30)
New state	1.15**	1.51**	1.54**	1.67**	1.56**	1.55**	1.47**	1.56**
	(0.36)	(0.44)	(0.44)	(0.44)	(0.43)	(0.43)	(0.44)	(0.43)
Instability (no PARCOMP/PARREG)	0.57**	0.41	0.56**	0.47*	0.48*	0.53**	0.42	0.50**
	(0.23)	(0.26)	(0.26)	(0.26)	(0.26)	(0.26)	(0.26)	(0.26)
Democracy	0.08	0.16	-0.25	-0.06	-0.36	-0.12	-0.21	-0.07
	(0.31)	(0.32)	(0.31)	(0.30)	(0.34)	(0.30)	(0.29)	(0.30)
Ethnic fractionalization	0.17	0.21	0.25	0.20	0.19	0.24	0.25	0.24
	(0.37)	(0.39)	(0.40)	(0.40)	(0.40)	(0.40)	(0.40)	(0.40)
Religious fractionalization	0.31	0.15	0.08	0.06	0.13	0.05	0.15	0.04
	(0.51)	(0.55)	(0.55)	(0.55)	(0.55)	(0.55)	(0.55)	(0.55)
Constant	-7.14**	-7.02**	-6.63**	-6.86**	-6.51**	-6.73**	-6.90**	-6.85**
	(0.76)	(0.80)	(0.78)	(0.79)	(0.80)	(0.78)	(0.79)	(0.79)
Number of observations	6327	6034	6034	6034	6034	6034	6034	6034
Log likelihood	-477.95	-426.58	-428.72	-428.68	-429.06	-429.80	-426.64	-429.25

Note: Standard errors in parentheses. POLITY=Full Polity Index; XCONST=Constraints on chief executive; XRCOMP=Competitiveness of executive recruitment; XROPEN=Openness of executive recruitment; X-POLITY=Polity index without PARCOMP or PARREG; PARCOMP=Competitiveness of political participation; PARREG=Regulation of political participation.

* Significant at the 90% confidence level. ** Significant at the 95% confidence level.

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