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Respect for Physical-Integrity Rights in the Twenty-First Century: Evaluating Poe and Tate's Model 20 Years Later

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Poe and Tate's 1994 study is likely the most influential in the quantitative study of human rights, serving as a foundation for a great deal of scholarship. In this article, we briefly consider the impact this article had on academic research on state repression, particularly in relation to democracy. We then empirically revisit Poe and Tate's model using a longer timeframe, updated method of estimation, improved measure of state repression, improved measures of some independent variables, and a spatial indicator. We stratify our results by specific physical-integrity right, world region, and time, finding variation in the associates of state repression across types of rights and world regions but stability over time. Finally, like Davenport and Armstrong (2004), we find a threshold where democracy's protective effects appear to begin, but this threshold differs across specific types of rights and that democracy may have rights-protective effects at lower levels than expected.

Introduction

Just over 20 years ago, Steven Poe and Neal Tate (1994) published "Repression of Human Rights to Personal Integrity in the 1980s: A Global Analysis" in the *American Political Science Review*. This study has proven to likely be the most influential in the quantitative study of human rights, serving as a foundation for most of the later scholarship in this area. In a review of methodological diversity in human rights research, Hafner-Burton and Ron (2009) credit Poe and Tate with pioneering the first truly global analysis of human rights violations. Indeed, the Poe and Tate article uniquely offered a large replication data set on physical-integrity rights abuses, constructed a cohesive theoretical framework for explaining the use of state repression of physical-integrity rights and applied rigorous methods to produce findings.

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The impact of Poe and Tate's (1994) work has been immense. Response to their study exceeds an expansive 700 citations according to the current Google Scholar estimate, which includes references from both peer-reviewed academic journals, as well as references in unpublished scholarship available online, such as theses. Additionally, the impact of this work has not been restricted to the field of political science. The article has been referenced by a diverse array of academic journals, including the *Yale Law Review*, the *American Journal of Sociology, Journal of International Economics, The Journal for the Scientific Study of Religion*, and the *Annals of the Association of American Geographers*. The amount of attention given to this article is not only a credit to the uniqueness and quality of the original work but also to the significance of the topic and of the continued relevance of the theoretical framework and findings.

This article pays homage to Poe and Tate's (1994) contribution in two ways: field essay and empirical reexamination. In the first part, we consider the origins of Poe and Tate's (1994) influential model and the impact it has had on the growing body of academic research on state repression of physical-integrity rights. In the second part, we empirically revisit the model using a longer timeframe (1981–2011), an updated method of estimation, an improved measure of government respect for physical-integrity rights, improved measures of some of the original independent variables, and the addition of a spatial indicator. We present our results not only in the global aggregate, like Poe and Tate, but also broken out by specific physical-integrity rights, world region, and a five-year window.

Our empirical reexaminations find interesting variation in the associates of the level of government respect for physical-integrity rights across types of these rights and across geographic regions. At the same time, we find great temporal stability. Principally, we add important detail to Davenport and Armstrong's (2004) qualification that a threshold effect exists in the relationship between democracy and state repression of physical-integrity rights — the most-cited relationship examined by Poe and Tate (1994). We find that this threshold differs across types of rights. Further, when looking at an aggregate indicator of rights respect, we find a lower democratic threshold than that found by Davenport and Armstrong, meaning that even lower levels of democracy might be protective of physical-integrity rights.

The Original

Like most enduring work, Poe and Tate's (1994) study did not come out of the blue but, rather, drew from and improved upon the small-but-growing quantitative human rights literature at the time, most importantly Mitchell and McCormick (1988) and Henderson (1991, 1993). These and a few other studies attempting to build a stable set of associates of state repression of physical-integrity rights clearly laid the foundation for Poe and Tate's work.[1] Mitchell and McCormick strove for a global analysis that would reveal those types of governments most likely to engage in physical-integrity-rights violations, which are government violations of prohibitions on extrajudicial killing, torture, political imprisonment, and disappearance.[2] So, they assembled a group of theoretically probable explanations—poverty, economic development, dependency, political culture, and regime type—and statistically tested each factor's explanatory capacity. However, their analysis was based on one report, the *Amnesty International Report 1985*, their measures were limited to the use of torture and political imprisonment, and their analysis was bivariate. Henderson (1991) "hypothesized that democracy, economic growth, and economic development would reduce—and 'socioeconomic needs" and inequality would

increase—levels of repression" (Poe and Tate 1994: 854) but only used correlation analysis. In his 1993 article, Henderson focused on population density and the rate of population growth as factors likely to increase physical-integrity-rights violations. All of these factors from Henderson (1991, 1993) found their way into Poe and Tate's model.

Building on this previous work as well as their own theoretical devices, Poe and Tate's (1994) model comprised a fairly comprehensive framework and many of the associations examined have held up very well over these years—tested as part of hundreds of other models— making the core of their empirical model a starting point for later models testing other possible associates of physical-integrity-rights violations. Their model was comprised of 11 independent variables used to explain variation in government respect for physical-integrity rights, each of which is listed below with the expected direction of its relationship to the use of state repression of physical-integrity rights:[3]

Level of repression in the previous year (+);
Level of democracy (−);
Population size (+);
Population change (+);
Economic standing (−);
Economic growth (+);
The presence of a leftist government (+);
Military control of the state (+);
British cultural influence (−);
Involvement in international war (+);
Involvement in civil war (+).

While others before them had used ordinary least squares (OLS) linear regression to study respect for human rights, Poe and Tate improved upon existing studies by adding a much-longer timeframe of analysis and a larger country sample than previously had been used, as well as the methodological improvements of robust standard errors to account for the pooled nature of the dataset and a lagged dependent variable to help correct for serial correlation. They also used two measures of democracy as a test for the robustness of that finding across different measures.[4]

Of the factors listed above, past level of respect for physical-integrity rights, level of democracy, population size, economic standing, and involvement in international and civil wars proved to be statistically significant. A reexamination done in 1999 (Poe et al. 1999) that extended the timeframe of analysis through 1993 corroborated those results and also found leftist government, military control, and British cultural heritage to be reliable associates. However, these additional factors were found by later studies to lack reliable explanatory power (e.g., Camp-Keith 1999; Hafner-Burton and Tsutsui 2005; Melander 2005; Davenport 2007). Likewise, the international war component found reliable by both studies by Poe and Tate has proven statistically insignificant in several later studies (e.g., Richards et al. 2001; Abouharb and Cingranelli 2006; Peksen 2009; Carey 2010; Cingranelli et al. 2013; Hill and Jones 2014).

Without a doubt, Poe and Tate's (1994) finding that democracy is protective of physical-integrity rights is its most cited and corroborated. Most importantly, this finding led to the next big question: Why does democracy have this effect? Davenport (1997) and Richards (1999) posited that national elections might be the cornerstone of democracy's ability to protect human rights. These initial studies found that national elections do and do not, respectively, help protect physical-integrity rights. Later, Richards and Gelleny

(2007) made the case that it is the type of election — executive or legislative — that matters with Hafner-Burton et al. (2014) following up on their finding that executive elections seem to reliably spur violation of physical-integrity rights. Buena De Mesquita et al. (2005) asserted that it is the presence of multiparty competition that has the biggest impact on reduction in the use of repressive activities by government. Looking at types of democracies, Cingranelli and Filippov (2010) found that countries with proportional representation electoral systems exhibit a higher respect for human rights.

Abouharb et al. (2013) found that a state's degree of de facto independence of the judiciary has a positive effect on respect for physical-integrity rights due to the perceived legitimacy and authority of the institutions. Conrad and Ritter (2013) also determined that an effective and legitimate judiciary poses a significant deterrent to state actors considering the viability of using repression tactics to maintain control, as the presence of effective legal resistance further raises the cost of such actions, especially for leaders who are secure in their positions (407). These findings build on previous scholarship such as that of Powell and Stanton (2009), who found that countries with effective judicial bodies are likely to demonstrate greater compliance with human rights treaties. Finally, tying together the national and the international, Neumayer (2005) found that highly-democratic states with strong civil societies are most likely to ratify and uphold human rights treaties in practice.

Others examined at what point it is, exactly, in the democratization process that greater respect for human rights is to be expected. Unlike Poe and Tate's (1994) specification, these studies work from the assumption that the relationship between democracy and respect for human rights is nonlinear (Fein 1995; Davenport and Armstrong 2004; Bueno De Mesquita et al. 2005; Sobek et al. 2006). Davenport and Armstrong (2004) determined that the level of democracy in a country has no discernable effect on government respect for physical-integrity rights until democracy reaches a "critical level," at a score of 8 (out of 10) on the often-used Polity scale of democracy (Marshall et al. 2014).

These studies are obviously not representative of the entire research program studying the relationship between democracy and state repression of physical-integrity rights, but they are indeed representative of the manner in which an enduring study, and/or finding, can produce a line of research that contributes in significant ways to our understanding of our complex sociopolitical world. Further, it is our belief that all these studies just mentioned are illustrative of this fact in that they all owe a debt of gratitude to Poe and Tate (1994), either directly or indirectly, for their existence.

Reexamining Repression

In this section, we reexamine Poe and Tate's (1994) model, data, and findings, contributing new insights about state repression of physical integrity rights — in particular its relationship with democracy — using updated data and methods not available to them at the time.

Data

Our analyses make use of a dataset containing information about government respect for physical-integrity rights and possible associates for 195 countries from 1981 to 2011. Below, we describe our data and the methods we used to conduct our analyses.

Dependent Variable
In their 1994 article, Poe and Tate used as their dependent variable a 5-point ordinal country-year indicator of government violation of physical-integrity rights known as the

Political Terror Scale (PTS; see Wood and Gibney 2010). Since that time, the creation of data has become increasingly important to fuel the types of statistical analyses foreshadowed by Poe and Tate (1994), so alternative measures were developed, such as those created by Cingranelli and Richards (1999) and Hathaway (2002). While the PTS was clearly the best physical-integrity-rights indicator available at the time for Poe and Tate, we use data from the CIRI Human Rights Data Project (Cingranelli and Richards 2010; Cingranelli et al. 2014) for our empirical reexamination. These data on government respect for physical-integrity rights offer proven reliability as well as provide us with the ability to conduct analyses specific to particular rights.

Another reason we use CIRI is that PTS coders are encouraged to take into account violations committed by nonstate actors (Gibney and Dalton 1996; Cornett and Gibney 2005; Wood and Gibney 2010), while the CIRI data do not include physical integrity violations by nongovernmental actors. This is important because Poe and Tate were primarily concerned with government's decision to repress, so these data likely provide a closer representation of the quantity of theoretical interest than did the data in the original article itself. Incorporating violations by nongovernmental actors into measures of state repression of physical-integrity rights would, it seems, downwardly bias estimates of *government* respect of physical-integrity rights to the extent that violations of these rights are resident in the data.

Specifically, we use two forms of physical-integrity data from CIRI. First, we use a 9-point additive index of the level of government respect for prohibitions against torture, political imprisonment, extrajudicial killing, and disappearance. This is known as the "Physical Integrity Rights Index" and ranges from 0 (no respect for any of these four rights) to 8 (full respect for all four rights). This index is seen by some as being so similar to the PTS that the two can be used as robustness checks for one another. However, given the findings of Cingranelli and Richards (1999, 2010), we would dispute the notion these two indicators are interchangeable and, thus, offer no such robustness check here. Finally, since CIRI offers data in disaggregated form, we also we use separate 3-point ordinal measures of the level of government respect for these same four physical-integrity rights. Each of these indicators ranges from 0 (no respect for this right) to 2 (full respect for this right).

Independent Variables
One of the reasons for the lasting nature of the Poe and Tate (1994) article is its establishment of a rather stable set of indicators accounting for variation in government respect for physical-integrity rights. We began our selection of independent variable indicators with those found by Poe and Tate to be statistically significant. From there, we made substitutions where data sources had to be changed in order to bring the analyses through the present time, where better data now exist, and we added a few alternative explanations that have come to prominence since the original article.

Population size and national wealth. Poe and Tate (1994) used the logarithmic value of a country's population to indicate population size and the logarithmic value of a country's per capita gross domestic product to indicate its level of national wealth (what they called "economic standing"). We did the same.[5] Our data for each of these variables were obtained from the World Bank (2014).

Regime type. Poe and Tate (1994) used two indicators of democracy, one from Freedom House (Gastil 1990) and one from Tatu Vanhanen (1990). We diverge from their practice of separating democracy and autocracy (indicated via a military government variable in their 1994 article) in analyses and instead use an ordinal indicator from the Polity IV data set (Marshall et al. 2014) of a state's regime type. This measure is a 21-

point scale, ranging from -10 (a fully autocratic regime) to $+10$ (a fully consolidated democracy). The Polity measure does not include elements of substantive democracy (e.g., civil liberties), rather it only measures procedural aspects, so it should not bear endogeneity problems with our dependent variable.[6] The Freedom House political rights indicator, used by Poe and Tate, does include problematic elements (Freedom House 2012). For instance, one of its checklist questions is the following: "Is there protection from political terror, unjustified imprisonment, exile, or torture, whether by groups that support or oppose the system? Is there freedom from war and insurgencies?" This element would not only overlap with our dependent variable but would be correlated with our measures of domestic conflict, as well.

Conflict.   Poe and Tate (1994) used two dichotomous variables to represent whether a state was involved in a civil war and/or an interstate war in a given year. We do not believe Poe and Tate's data match their theory in this area, however, as there are conflictual events well short of actual civil and interstate war that could be linked to state repression of physical-integrity rights. Thus, we employ three measures of conflict in order to capture variation in both type and level. First, we use a measure of the level of hostility in an interstate dispute from the Militarized Interstate Disputes (MID) 4.01 data set (Palmer et al. 2015). This variable ranges from 1 (no militarized action) to 2 (threat to use force) to 3 (display of force) to 4 (use of force) to 5 (war). Values of 0 indicate no interstate hostility in that country-year.

Second, we use two indicators to capture domestic conflict. One is an ordinal measure of violent civil conflict from the Peace Research Institute Oslo (PRIO) armed conflict data set (Gleditsch et al. 2002; Themnér and Wallensteen 2014) that ranges from 0 (no civil conflict) to 1 (minor civil conflict) to 2 (civil war). The other is an index of domestic turmoil that includes antigovernment demonstrations, general strikes, government crises, purges, and riots — events that would not be picked up in the PRIO measure. The indicator is a factor score produced from raw data about those five types of turmoil obtained from the Cross-National Time-Series Data Archive (Banks and Wilson 2012).

Geographic space.   Several recent studies have demonstrated that significant spatial autocorrelations may exist in the level of government respect for physical-integrity rights (e.g., Greig et al. 2006; Greenhill 2010; Bell et al. 2012). What has been demonstrated is that the physical-integrity-rights practices of other states may affect individual governments' own propensities for engaging in the abuse of those rights. In particular, we follow Greig et al. (2006), who found that the level of respect for physical-integrity rights among states that are, at most, 950 km away are positively associated with government respect for physical integrity in the referent state. From a theoretical standpoint, this is a significant finding that should be incorporated in studies of physical-integrity rights, as it opens the door to studies focusing on the diffusion of human rights norms, laws, and practices through physical space. From a methodological standpoint, it is also important to acknowledge these findings, as they suggest that, even within time periods, our observations are *not* independent as is assumed by most regression models. That is, our data do not only demonstrate the temporal autocorrelation regularly discussed in studies of physical-integrity rights (e.g., Poe and Tate 1994; Hafner-Burton 2005; Drury and Peksen 2014) but also spatial autocorrelation. Autocorrelation can cause problems in generating valid inferences from regressions utilizing time-series cross-sectional data, particularly by affecting the calculation of standard errors and leading to false rejections, as well as failures to reject, of the null hypothesis (Beck and Katz 1995). As such, for both these theoretical and methodological reasons, we felt it was important to account for the possibility of spatial autocorrelation in our own analyses.

In order to examine this possibility, we generated spatial lags of each of our dependent variables (Beck et al. 2006). This was done by creating a row-standardized inverse distance matrix, W, that weights each state according to its distance from the referent in the current year and multiplying that weight matrix by the vector of physical-integrity-rights data. Based on Greig et al.'s (2006) findings, we want to give the human rights practices of all states within a distance of 950 km a positive weight. However, Greig et al. found that the size and significance of one state's effect on another state's human rights practices diminishes at longer distances; as such, states that are further away should be weighted less than those that are nearby. Further, Greig et al. found no significant effects for states beyond 950 km, so states that are farther than 950 km away should receive no weight. States with no neighbors within 950 km of their borders are excluded from our analysis.

Therefore, our nonstandardized spatial weights matrix, W^{ns}, was created based on the following rules:

1. If state j's borders were more than 950 km from state i's borders, then $W^{ns}_{ij} = 0$.
2. If state j's borders were less than or equal to 950 km from state i's borders, then $W^{ns}_{ij} = \frac{1}{(d_{ij}+1)}$, where d_{ij} equals the minimum distance between states i and j in kilometers.
3. A state was given a weight of 0 with regard to its own practices, such that $W^{ns}_{ii} = 0$.

This matrix was then row-standardized to create the final spatial weights matrix, W, such that $W_{ij} = \frac{W^{ns}_{ij}}{\sum W^{ns}_{ij}}$. Thus, after W is multiplied by the vector containing the data on each state's respect for physical-integrity rights, we are left with the inverse-distance weighted average of respect for physical integrity among states whose borders are within 950 km of the borders of the referent country.[7]

Methods

There have been significant advances in statistical methodology and, especially, statistical software, over the years since Poe and Tate (1994). So, the ways in which scholars now estimate models of respect for physical-integrity rights differ from theirs. Poe and Tate (1994) used ordinary-least-squares regression to estimate their model. However, as McKelvey and Zavoina (1975) established long ago, ordinal data violate important assumptions of the classical linear regression model (CLRM), so using a CLRM with these data results in at least two important threats to making valid inferences. First, the distances between categories of an ordinal indicator are not equidistant, rendering precise substantive interpretation of CLRM results very difficult, if not impossible. Second, the nonconstant error variance structure of an ordinal indicator can produce false positives when used with a CLRM. Thus, one might think a statistically reliable relationship exists, where one actually does not.

In the last decade and a half, nearly all quantitative human rights studies using categorical dependent variables have shifted away from using a CLRM towards using models appropriate for this type of dependent variable, creating better estimates and allowing for appropriate interpretation of results (Richards et al. 2001; Hafner-Burton 2005; Cingranelli and Filippov 2010; Cole 2013; Neumayer 2013). Like so many previous studies, we use the ordered logit technique to produce the results in this article.[8] The ordered logit

model is a nonlinear model that allows appropriate estimation in the presence of a categorical dependent variable and provides for a probability-based interpretation of results (see Long and Freese 2014: Chapter 7).

We use several techniques to account for the pooled time-series nature of our data. First, like Poe and Tate (1994), we use Huber-White standard errors to account for possible heteroskedasticity in our pooled data. We believe Poe and Tate were the first in the quantitative human rights subfield to control for the effects of pooling on the estimation of standard errors. Second, unlike Poe and Tate, we employ a random effects formulation of ordered logit that helps account for unmodeled heterogeneity among the units (countries) in our sample. Unmodeled heterogeneity would mean the independent variables in our model do not account for all of the ways in which our units vary with regards to the dependent variable; worse, some units might have these unmodeled sources of variation in common with one another.

Third, we employ lagged dependent variables to account for serial dependence in our dependent variables. Here, we depart from the common practice (including Poe and Tate 1994) of using a single variable that is a one-year lag of Y. Instead, we follow Hafner-Burton (2005) and Drury and Peksen (2014) in creating binary variables representing the value of Y at t-1 for each category of each of our dependent variables. For example, the CIRI torture indicator has three possible values: 0, 1, and 2. Thus, in models using torture as the dependent variable, we add three dichotomous variables — torture0(t-1), torture1 (t-1), and torture2(t-1) — with each representing whether the value of Y in the previous year was that particular value on the dependent variable. Because these variables are included for diagnostic rather than substantive reasons and given the large number of them (e.g., nine for models using the physical-integrity index), we do not report their estimates in our findings section.[9]

Findings

In addition to testing a general model similar to that of Poe and Tate (1994), we also conduct a series of additional analyses testing the robustness of these findings across a variety of environments. Any analysis of government respect for physical-integrity rights that uses an additive index like CIRI or PTS assumes that the associates of respect being tested act similarly with regards to all of the particular rights contained in the additive index of rights. Because we regard both respect for, and violations of, human rights as policy outputs, we believe it reasonable that government behavior towards different human rights guarantees might vary for different reasons. Thus, we test our model using data on government respect for four individual physical-integrity rights — freedoms from torture, disappearance, political imprisonment, and extrajudicial killing — in addition to the additive CIRI index.

We might expect there to be variance across geocultural traditions, so we conduct an analysis for five separate world regions. Next, we examine whether the general model differs with regards to time. That is, are any of our findings tied to particular time periods? Finally, the most highly cited and corroborated finding of Poe and Tate (1994) is the robust association between greater levels of democracy and greater levels of government respect for physical-integrity rights. Davenport and Armstrong (2004) made a significant contribution towards understanding this general relationship, finding a democratic threshold where real protection for these rights begins. We pick up where they left off, examining the sensitivity of their finding to individual physical-integrity rights (rather than an additive scale) and a different estimation technique.

Basic Models

Table 1 contains the results from five ordered logit models estimating possible associates of state repression of physical-integrity rights. Each model uses a different dependent variable: The first uses the aggregated CIRI Physical Integrity Rights Index, while the following four use indicators of government respect for four specific physical-integrity rights. The chi-squared statistics show all models to be statistically significant improvements upon their null counterparts. A Brant test of the proportional odds assumption (POA) was conducted for each model and none showed significant violations.

Instead of regression coefficients, we report odds ratios, which tells us how much a one-unit increase in an independent variable affects the odds of falling into the highest category of the dependent variable. As odds ratios rise above 1.0, the probability of a country-year being in the highest category of the dependent variable are increased. As odds ratios dip below 1.0, chances of this fall. An odds ratio of exactly 1.0 demonstrates

Table 1

Odds Ratios From Random-Effects Ordered Logistic Regression Using a Global Sample

	Physical-Integrity Index	Extrajudicial Killing	Torture	Political Imprisonment	Disappearance
Regime Type	1.057***	1.01	1.025***	1.118***	1.045***
	(6.17)	(0.96)	(2.61)	(9.64)	(3.8)
Population Size	0.379***	0.402***	0.351***	0.421***	0.524***
	(6.72)	(5.42)	(7.1)	(5.8)	(3.83)
National Wealth	1.754***	2.327***	1.719***	1.573***	2.007***
	(4.15)	(4.9)	(3.68)	(3.02)	(3.71)
Interstate Hostility	0.98	0.991	0.979	0.962	0.948
	(0.87)	(0.28)	(0.77)	(1.35)	(1.54)
Civil Conflict	0.319***	0.303***	0.647***	0.492***	0.294***
	(9.49)	(9.03)	(3.75)	(5.23)	(8.3)
Domestic Turmoil	0.559***	0.405***	0.863	0.433***	0.694
	(2.74)	(3.58)	(0.61)	(3.84)	(1.29)
Spatial Lag (*Y*)	1.231***				
	(5.76)				
Spatial Lag (*Y*)		2.054***			
		(5.84)			
Spatial Lag (*Y*)			2.284***		
			(6.04)		
Spatial Lag (*Y*)				1.893***	
				(6.64)	
Spatial Lag (*Y*)					1.308*
					(1.94)
N	3,966	3,989	3,989	3,988	3,989
Prob > chi^2	0.000	0.000	0.000	0.000	0.000
Log-Likelihood	−5580	−2440	−2576	−2402	−1758

Note. Figures in parentheses are *z* statistics, calculated using robust standard errors.
*$p \leq .10$. **$p \leq .05$. ***$p \leq .01$.

no effect on the dependent variable. So, in this case, odds ratios greater than 1.0 signify that increases in a variable are associated with an increased probability of a high level of respect for physical-integrity rights by governments, and odds ratios below 1.0 signify that increases in a variable are associated with a decreased probability of a high level of respect for physical-integrity rights by governments.

The Physical Integrity Rights Index model (or the "general model") is the most-like of these five to that of Poe and Tate (1994). Our regime-type indicator shows that movements towards democracy reliably increase the probability of a high level of respect for physical-integrity rights by governments. This is similar to what Poe and Tate found. Similarly, we find greater macroeconomic wealth to be reliably associated with better respect of physical-integrity rights. On the other side of the coin, larger populations, greater civil conflict, and greater domestic turmoil are all associated reliably with reductions in the probability of government respect for physical-integrity rights. What is starkly different from Poe and Tate is that we do not find the hostility level of international conflicts to be a statistically significant indicator of the level of state repression of physical integrity rights. This difference is possibly due to the high threshold of actual interstate war used by Poe and Tate to represent the concept of "International War," as opposed to our hostility-level approach.

Figure 1 illustrates the relative effect of a one unit increase in the statistically significant indicators from the Physical-Integrity Rights Model in Table 1 on the probability of a high level of respect for physical-integrity rights by governments. The vertical line at 1.0 represents no effect. By far, a country's macroeconomic wealth is the strongest associate of a country's level of respect for physical-integrity rights, even controlling for the other six factors in the model.[10] Good human rights practices by a country's neighbors follow, with regime type falling a far third in terms of the potency of the effect of a one-unit change. On the other side of the reference line, a country's experience of civil conflict (ranging all the way up to civil war) has the most deteriorating effect on the
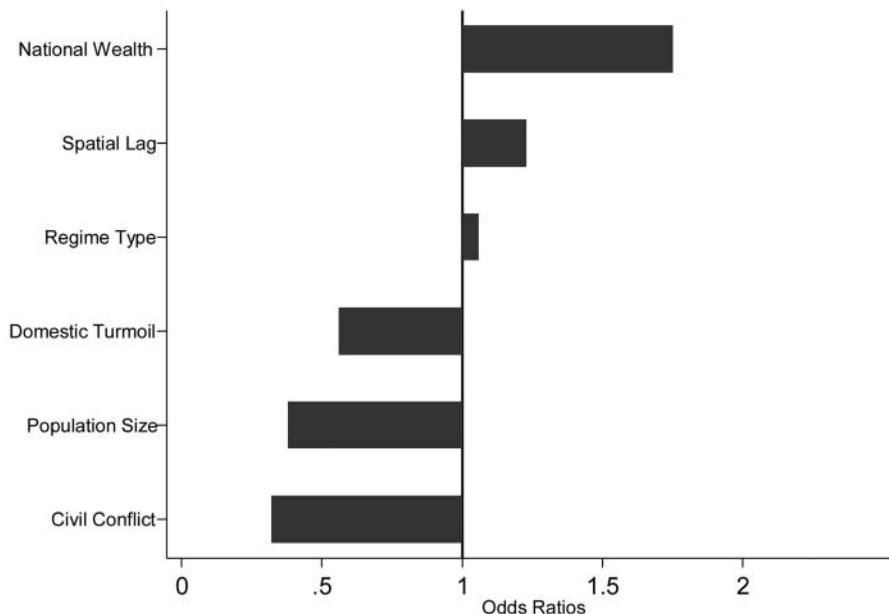

Figure 1. Significant odds ratios of full respect of Physical Integrity Rights (Index), global sample.

probability of high levels of government respect for these rights. The size of a country's population follows, with low-level turmoil events like riots and demonstrations coming third in terms of potency of effect.

Going back to Table 1, we can look at the next four models to see what happens to this list of possible associates when the outcome (dependent) variable is a particular right, not an aggregated index. Right away, we can see that the results are slightly different from model to model. Regime type is not reliably associated with respect for the prohibition against extrajudicial killing. This is likely the result of countries that combine(d) highly autocratic governance and social control with a significant number of years where there were no extrajudicial killings reported by Amnesty International or the US State Department; such states include Oman, Qatar, Saudi Arabia, Swaziland, Turkmenistan, United Arab Emirates, and others.

Next, in the torture model we can see that, while domestic turmoil events are not reliably associated with the probability of state practice of torture, the higher threshold of civil conflict is. Domestic turmoil is also not a reliable predictor of a government's proclivity towards disappearances, controlling for the other explanations in that model. In the disappearance model, a one unit increase in civil conflict reduces the odds of high government respect for physical-integrity rights with greater effect (odds ratio of 0.294) than a one unit change in any other associate reduces the odds of respect for any right in Table 1.

Figure 2 helps clarify differences in the associates of government respect for these four physical-integrity rights and is read in the same way as Figure 1. The spatial lag indicator is the strongest associate of greater government respect for prohibitions against torture and political imprisonment with national wealth following. One way to think of this is that "better neighborhoods are associated with better practices." Indeed, the largest absolute effect seen in Figure 2 is the "good neighborhood" impact on government respect for the right not to be tortured. For extrajudicial killing and disappearance, national wealth is the strongest associate of respect, with the spatial lag following. Where
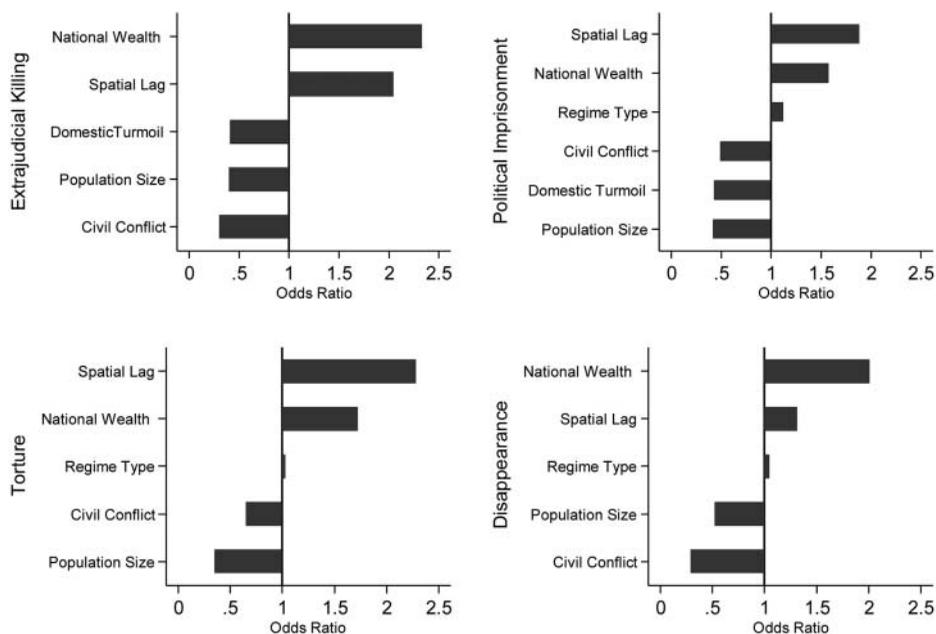

Figure 2. Significant odds ratios of full respect for four types of physical integrity.

regime type is statistically significant (all models except extrajudicial killing), it has very little impact compared to national wealth and the spatial lag.

Similarity between the extrajudicial killing and disappearance models extends to the finding that civil conflict is the most robust factor reducing the odds of government respect for these rights. Population size is the most detrimental associate to respect for torture and political imprisonment, and the second-most robust negative factor in the other two models. The significance of population size makes sense, as it should be much harder to govern larger populations without resorting to human rights violations as a means of control— even accounting for all the other factors in these models—than to govern small populations.

Regional Analyses

Among other things, the success of the spatial lag (neighborhood effect) in the previous analyses tells us that when accounting for government respect for physical-integrity rights, there is a geospatial element that must be accounted for. Perhaps this spatial element becomes a proxy for variations in regional norms. If so, there is likely interesting variation worth exploring among geolocalities. Thus, we conducted a series of regional analyses; the results of which are shown in Figure 3. Space constraints in the present
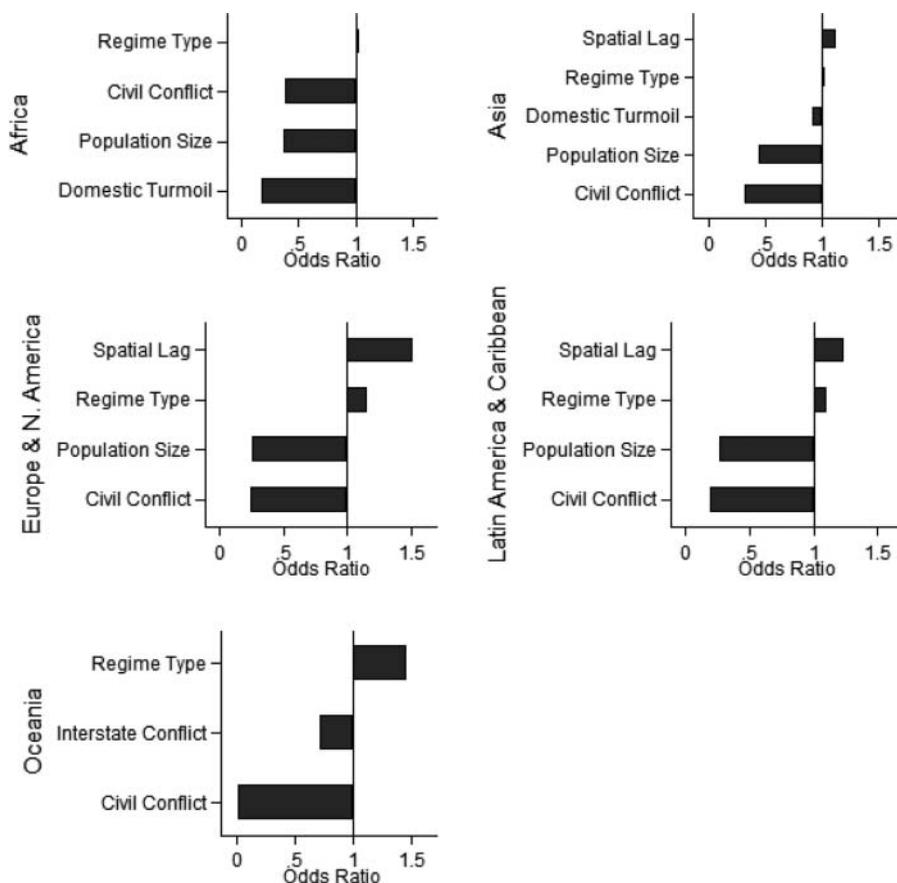

Figure 3. Significant odds ratios of full respect for Physical Integrity Rights (Index), by region.

work forbid fine-grained geoanalysis, but we feel there is value at starting at the top level of world regions and letting future work go forward in greater detail should results dictate.

In Figure 3 the dependent variable is the CIRI physical-integrity-rights index, and the graph can be read in the same way as Figures 1 and 2 with, again, only statistically significant variables being represented.[11] Countries were placed into regions according to categories created by the United Nations Statistics Division.[12] Because there are only two countries in the North America region (rendering analysis infeasible), we combined this with the European region, as we felt this was the best geocultural match.

First, Figure 3 shows a good diversity of results, both across regions and compared with the general model in Table 1. Interestingly, in Oceania, interstate conflict is a reliable associate of government respect for physical-integrity rights, whereas we saw no cases of statistical significance of this indicator in the previous results. In the case of Oceania, almost all instances of interstate hostility in this region in this time period are bound to Australia and Papua New Guinea. Australia averages a 7.1 (out of 8) across this period on the Physical Integrity Rights Index, with the deficit resulting from torture-related violations. Papua New Guinea averages a 5.3 due to violations of the prohibitions on torture, extrajudicial killings, and, to a lesser extent, disappearance. Thus, the few cases of interstate hostility in this region happen in country-years with slightly or substantial deviations from full government respect for physical-integrity rights that likely do not have anything to do with the interstate conflict. For example, in the early 1990s Australia received nonzero hostility-level scores for participating in naval exercises with South Korea and the United States aimed at North Korea, which would bear no logical relationship with the consistent, moderate use of torture used by Australia's state agents seen over the years. Likewise, in the late 1990s, Australia participated in peacekeeping exercises in East Timor that show up on the hostility-level indicator because "The Australian led Interfet force sent to East Timor in September 1999 faced 'aggressive probing' from Indonesian aircraft and submarines" (Correlates Of War Project 2013: MID 4264).

The Europe and North America and Latin America and Caribbean regions show themselves to be similar with the spatial lag and regime type being the associates most favorable for increased odds of good human rights respect, while population size and civil conflict reliably decrease the odds of great government respect for physical-integrity rights. Except for the absences of domestic turmoil and national wealth, these two regions' results look very much like those of the general model illustrated in Figure 1. National wealth actually failed to be a statistically reliable associate of respect for physical-integrity rights in any of the regional analyses represented in Figure 3.

It is only in Africa and Asia where, in Figure 3, domestic turmoil is a significant associate of respect for physical rights. Looking at our data, Africa and Asia had a far greater number of riots (especially) and antigovernment demonstrations than any other region. In the regions other than Africa, civil conflict is the factor that most robustly decreases the odds of a high level of government respect for physical-integrity rights. In Africa, population size has an effect almost equal to that of civil conflict, and domestic turmoil is the leading negative factor.

Time

We also considered the possibility that the substantive importance of each of the chief variables in our main model have varied over time. As such, we conducted a large number of robustness checks by testing our model of physical-integrity rights across 5-year moving windows within the larger sample, starting with all country-years from the time period of 1982 to 1986, moving forward to 1983–1987, then to 1984–1988, and

continuing in this manner until the final period of 2006–2010. However, while there was some slight variance in the individual variables' level of statistical significance from period to period, there was no strong evidence that any one variable has become a significantly more or less reliable associate of respect for physical-integrity rights over time. Thus, overall, it appears that the results in Table 1 are representative of the entire time period under analysis.

How Much Democracy Is Necessary?

Poe and Tate (1994) confirmed, with more data than anyone up to that point, that greater levels of democracy are associated with lesser levels of state repression of physical-integrity rights. But how democratic does a state have to be for this protection to begin? Davenport and Armstrong (2004: 548) found democracy's protections of physical-integrity rights to begin at a score of 8 on the Polity project's democracy index, which ranges from 0 (nondemocracy) to 10 (fully consolidated democracy). This is a really interesting and important finding and, since it is so closely related to the key conclusion of Poe and Tate, it deserves attention here.

Our offering towards advancing what we know about this democratic threshold is based on improved physical-integrity data that allow us to test whether there are different thresholds for different physical-integrity rights, an estimation technique better suited for the analysis of pooled categorical data and a longer timeframe (1981–2011 as opposed to 1976–1996). We also use the Polity regime-type indicator instead of the Polity democracy indicator used by Davenport and Armstrong. We think it is a better specification of Poe and Tate's theoretical framework than including democracy and military-controlled government in the model as separate indicators, if for no other reason than military governments are not the only possible variant of autocracy, which is really what the military-control indicator was meant to proxy in contrast to the democracy indicator. Further, even entities such as anocracies (mixtures of autocratic and democratic features that score from −5 to +5 on the regime-type scale) may have some democratic features.[13]

The five columns of results in Table 2 are based on information from estimating the five models shown in Table 1. Using the factor variable option in the Stata 13 statistical package, we are able to show how all the different categories of our regime-type indicator relate to the odds of full government respect for physical-integrity rights. The −10 (total autocracy) score is not represented in the table, as it is the base category against which all these results are to be compared. The results in Table 2 can be read simply. For example, in the Physical Integrity Rights Index column, we would say that being at a regime-type score of 7 (moderate democracy), compared with being a −10 on regime type (total autocracy), increases the odds of higher government respect for physical-integrity rights by a factor of 1.57, holding all other variables constant. Again, it is important to keep in mind when reading Table 2 that the total autocracy category (−10) is the referent to which these results are to be compared.

The Physical Integrity Rights Index column in Table 2 shows two important differences from Davenport and Armstrong (2004). First, we see that, compared to the alternative of total autocracy, democracy's statistically significant protections of physical-integrity rights begin at a score of 6, instead of their 8. This may not sound like much, but on an ordinal scale on which countries do not move much, the difference of a category or two can mean quite a bit. Second, Davenport and Armstrong found a binary scenario of protection, wherein Categories 8 and 9 were similar in terms of protection of physical-integrity rights, and Category 10 was on a level of protection all its own. We find a three-level protective scenario, wherein Categories 6, 7, and 8 are similar, Category 9 offers greater

Table 2
Odds Ratios of Full Respect for Four Physical-Integrity Rights by Regime-Type Category

Regime Type	Physical-Integrity Rights Index	Extrajudicial Killing	Torture	Political Imprisonment	Disappearance
−9	0.69	0.72	**0.40**[***]	1.26	1.24
−8	0.85	0.57	0.74	1.43	1.05
−7	0.86	0.78	**0.54**[**]	1.03	1.78
−6	0.81	**0.48**[**]	**0.50**[**]	1.38	1.87
−5	0.85	**0.47**[*]	0.5	2.02	1.8
−4	0.89	0.84	**0.33**[***]	1.69	1.47
−3	0.95	0.81	**0.36**[***]	**2.29**[*]	1.29
−2	0.88	0.88	**0.51**[**]	1.79	1.35
−1	0.9	**0.40**[**]	0.57	1.7	2.17
0	0.61	**0.32**[**]	**0.14**[***]	**3.27**[**]	0.86
1	0.97	1.01	**0.43**[**]	1.76	1.2
2	1.61	0.77	0.96	**6.33**[***]	1.75
3	0.76	0.5	**0.31**[***]	**2.67**[*]	2.01
4	0.87	0.46	**0.32**[**]	**2.84**[*]	1.67
5	1.14	0.58	**0.37**[***]	**3.92**[***]	2.33
6	**1.53**[*]	0.69	0.74	**3.95**[***]	2.1
7	**1.57**[*]	0.65	0.68	**4.55**[***]	**3.07**[*]
8	**1.55**[*]	**0.51**[*]	**0.59**[*]	**5.33**[***]	**3.05**[**]
9	**2.52**[***]	0.99	0.94	**11.51**[***]	**2.88**[**]
10	**5.80**[***]	**2.35**[**]	**1.89**[**]	**26.85**[***]	**9.83**[***]

Note. Statistically-significant odds ratios appear in boldface.
*$p \leq .10$. **$p \leq .05$. ***$p \leq .01$.

protections, and Category 10 clearly offers the most-substantial protections. Being at a regime-type score of 10, compared with being a −10 on regime type, increases the odds of higher government respect for physical-integrity rights by a factor of 5.80, holding all other variables constant.

Looking across the next four columns of results in Table 2, we see quite a bit of variance in democratic thresholds when one looks at respect for individual rights instead of an additive index of rights respect. In Table 1, the extrajudicial killing model was the only one for which regime type was not a statistically significant associate. Here in Table 2, we see partly why. The protective effects of democracy seem only to exist at Category 10 (fully consolidated democracy). Compared to being a total autocracy, being a fully consolidated democracy increases by 2.35 the odds of high levels of respect for the prohibition against extrajudicial killing. Even being at Category 8 is associated with decreased odds of respect. Otherwise, almost all categories of regime type are associated with less respect for the right against torture.

Showing what could be some corroboration of Fein's (1995) "more murder in the middle" thesis that physical-integrity-rights violations will be worst in nascent democracies, the statistically significant odds ratios below 1.0 in both the extrajudicial killing and torture (especially) models point out that being an anocracy — a country with a substantial mix of both democratic and autocratic features — can be more detrimental to government respect for these rights than being a total autocracy.

The opposite seems true with regards to political imprisonment, as in this case it appears even very low levels of democracy can provide protection from government usage of political imprisonment. Big gains in protection can be seen at the thresholds of 2, 9, and 10. Compared to being a total autocracy, being a fully consolidated democracy increases by a factor of 26.85 the odds of high levels of respect for the prohibition against political imprisonment. Our results for disappearance are close to those of the general model in that protections seem to start at Category 7 (in the general model it was 6). However, it offers a two-tiered, rather than three-tiered, protective scheme, with Categories 7 through 9 offering essentially one level of protection and Category 10 offering far more protection (10 times as much as would be expected from an autocracy).

Concluding Remarks

Having revisited their own work in 1999, it is unfortunate that Steve Poe and Neal Tate are no longer with us to see how well the core of their foundational scholarship has held up over an even greater number of years and exposure to alternate methodologies. We found that the results from their 1994 study still largely ring true. Regime type, population size, national wealth, and civil conflict remain reliable associates of an index of government respect for physical-integrity rights—even given a different indicator of government respect for these rights, a longer timeframe, and a more-appropriate estimation technique. Further, using a 5-year moving window, we found great temporal stability in this set of associates across the 1981 to 2011 period examined.

Beyond the variables included in Poe and Tate's original work, we also incorporated a spatial element into our reexamination of the 1994 article, as Steve Poe himself began to do in his later work (Greig et al. 2006), and we found that respect for physical-integrity rights by nearby states to be a consistently reliable associate of government respect for these rights. On its face, this finding simply suggests that scholars studying physical-integrity rights must concern themselves not only with the commonly recognized temporal autocorrelation that exists in human rights practices, but also with spatial autocorrelation, as discussed above. However, we would argue that treating the existence of spatial autocorrelation as a simple nuisance to be corrected in future analyses misses the larger theoretical importance of this finding. Overall, this finding points to the existence of important interconnections between state's human rights practices. While some existing work already sheds light on some of the potential mechanisms driving the interrelatedness of states' respect for physical-integrity rights (e.g., Greenhill 2010; Bell et al. 2012), we believe that this is a fertile area for further research mining the ways in which improvements (and failures) in respect for physical-integrity rights might diffuse through the international system.

While our use of an alternate dependent variable to confirm Poe and Tate's findings surely enhances the certainty of the place of these findings in this core set of associates of repression, some come away appearing particularly robust. For example, a country's population size is given formal consideration when scoring countries on the PTS system used by Poe and Tate (1994). Thus, their finding of statistical significance in this case was no surprise. However, we found population size to be a reliable and robust associate of respect, even using the CIRI measures that do not take population into account for scoring purposes.

Not everything we found corresponded to the 1994 article's results, however. For example, we did not find interstate hostility to be a reliable associate of respect for physical-integrity rights. The only case where interstate hostility showed to affect repression of

these rights was in Oceania, and a careful look showed this finding to be artifactual. We also found that levels of domestic conflict—below the high threshold of civil war used by Poe and Tate— matter to government respect for physical-integrity rights. While true in the general model, this was especially clear in our regional analyses, particularly in Africa and Asia.

We found slight variation in the set of reliable associates of state repression when examining respect for particular rights, rather than an additive index. Especially, we saw differences in Table 1 in the effect size of various associates of respect. For example, regime type has a much greater impact on political imprisonment than on torture and has no statistically reliable effect on extrajudicial killing at all. We saw that disappearance, the rarest of the four types of physical-integrity violations examined in this study, is most likely budged by high levels of civil conflict, not lower level domestic turmoil activities such as demonstrations and riots.

Maybe most interestingly, we found a threshold of democratic protection of physical-integrity rights different from that of Davenport and Armstrong (2004). While in the same ballpark, our threshold for the general model is lower and has three tiers of respect as opposed to their two-tiered finding. Looking at respect for particular rights, we found quite significant deviation from Davenport and Armstrong's results, reinforcing that appropriate examination of any threshold effect of democracy on government respect for physical-integrity rights must be done in a disaggregated context.

Hill and Jones (2014) make the argument that the longstanding and reliable relation-ship between regime-type/democracy indicators such as Polity and physical-integrity-rights indicators such as CIRI is actually due to conceptual overlap. We would disagree this is necessarily the case. First, Hill and Jones (2014: 677) note that the following are the types of human rights violations possibly found in the competitiveness of participation component of regime type: the killing, torture, and other harassment of opposition lead-ers; restriction on freedom of movement; electoral irregularities; and censorship. So, these are supposedly responsible for the conceptual overlap. However, at least for CIRI, several of these violations are found in the freedom of domestic movement, freedom of foreign movement, censorship, and electoral self-determination indicators, not in the physical-integrity-rights indicators examined by Hill and Jones. A holistic understanding of the ways in which oppositions are harassed by governments demonstrates that the four meth-ods in the CIRI physical-integrity-rights index are not the only options available to repres-sive governments. Methods such as ordinary kidnappings, arbitrary arrest and detention, surveillance, inducement of a priori self-censorship, banning of human rights nongovern-mental organizations, and perpetual litigation against opposition forces are common but do not enter into coding the CIRI data. To the extent they are common indeed reduces the possibility of the conceptual overlap invoked by Hill and Jones.

Because of the measures used in Hill and Jones' (2014) analyses, killing, torture, dis-appearance, and political imprisonment would have to be the *dominant* methods employed by governments to harass political opposition in order for their assumed con-ceptual overlap to occur. They do not empirically demonstrate this to be the case. Look-ing at the arc of respect for these rights across time, disappearance is the least-violated physical-integrity right and — importantly with respect to the critique of Hill and Jones — respect for political imprisonment is steadily improving (Cingranelli and Richards 2010: 416). Finally, as we point out in Note 6, the correlation between the Polity regime-type indicator with, and without, competitiveness of political participation (which includes the elements of human rights violations) is nearly perfect, suggesting that the component does not have large influence on the overall regime-type score.

Thus, while Hill and Jones' (2014) methodological caution against possible tautology is well meant, the conclusion that there is no substantive relationship to speak of between democracy and physical-integrity rights (as measured by CIRI) seems, we think, exaggerated. The usage of the term "state repression" as a synonym for "violations of physical integrity rights" may be partly to blame for some confusion with regard to potential conceptual overlap in empirical models. The term "state repression" stands for any type of action — or lack of action — by a government on behalf of a state, that is meant to reduce some challenge to the persistence of the regime itself, and/or to the survival of the government. However, "state repression" is indeed often used in the narrow sense as a synonym for the violation of physical-integrity rights that, while it indeed constitutes one avenue of repressive action, is just the tip of the iceberg in terms of the options available to authoritarian political actors.

We close by saying that, given ever-accelerating changes in the way human rights violations are tracked and turned into data, who knows what future challenges will be brought to bear on the set of findings examined in this article. What we *can* say is that, at least at the level of sociostructural indicators, important regularities continue to exist in government respect for physical-integrity rights and the effort on the part of many, many scholars to understand the details of these regularities seems to be time well spent.

Notes

1. It is important to note that the first major strain of quantitative human rights research was concerned with the relationship between foreign aid and government respect for human rights. Steven Poe's earliest work was itself in this tradition. However, while these studies pushed advances in research design and data collection, especially, they were not concerned with finding a stable set of general associates of state repression.
2. Poe and Tate used the term "personal integrity rights" but we prefer "physical-integrity rights." In this article, the terms are treated as being interchangeable.
3. A positive relationship indicates an expectation that as the level of a variable increases, state repression will increase. A negative relationship is read in the opposite manner.
4. We do not believe that the two measures of democracy they chose are really trying to measure the same thing, but we acknowledge, certainly, the methodological care evident in including this check.
5. All logarithmic transformations in our study are base 10.
6. Hill and Jones (2014) note that the competitiveness of participation element of the Polity indicator includes physical-integrity-rights respect, creating the possibility of tautology. Thus, they suggest creating a corrected version of the Polity indicator that excludes participatory competitiveness. In our dataset, the original indicator and the corrected indicator correlate at .9935, suggesting that the results of analyses using the corrected indicator will be nearly identical to those using the original indicator. Indeed, that was the case upon further examination, so we chose to use the original indicator for the analyses reported herein. These results of our sensitivity test are available from the authors.
7. The nonstandardized weights matrix was created by using the CShapes package in R (Weidmann and Gleditsch 2010; Weidmann, Kuse, and Gleditsch 2010), and the matrix was row standardized using the spatwmat command in Stata (Pisati 2001).
8. Poe was aware of nonlinear models, having used a probit analysis (1992) to model the gatekeeping stage of Cingranelli and Pasquerello's (1985) foreign-policy model.
9. Full results are available upon request from the authors.
10. When we speak of one indicator's effect being greater or lesser than another's, it is important to keep in mind that the comparison being made is the following: impact on the odds of being in the highest category of the dependent variable per one-unit-change in the independent variable. We choose this basis for comparison because we believe it easiest to think about factors in terms of their original scaling, rather than in terms of standard deviations (which also would be a per-unit relative comparison) or such. For our logged indicators, any logged value, x, can be returned to its original scale using the following simple method: (Original value) = $10x$.

11. Full results are available upon request from the authors.
12. http://unstats.un.org/unsd/methods/m49/m49regin.htm
13. Our regime-type indicator is suitable for comparing with the chief findings from Davenport and Armstrong, as the two correlate highly (e.g., at .965 in our dataset where democracy is a 7 or above). To be extra sure, we ran versions of our models using the Polity democracy indicator instead of the regime-type indicator. The findings from these alternative models did not contradict the stories told by Table 2.

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