Repression or Civil War?*

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1 Introduction

Perhaps the crowning achievement of mature democracies is the peaceful acceptance of the ballot box as the primary instrument for deciding who should hold power in society. We do not have to go far back in the history of most democratic states, however, to find a distinct role for political violence. Moreover, many inhabitants of the globe still remain at risk of falling prey to widespread violence in the struggle for political office.

Forms of political violence differ a great deal. We focus on two important manifestations: repression and civil war distinguished by whether violence is one-sided or two-sided. Repression is one-sided use of violence by the incumbent government to stay in office, effectively repressing any latent insurgency by the opposition. Civil war is two-sided use of violence by the state as well as an insurgent group. These two types of violence have been studied extensively by political scientists and economists, but have typically been treated as separate phenomena.[1]

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[1]See Christopher Blattman and Edward Miguel (2008) for a recent review of the literature on civil conflict. Paul Collier and Dominic Rohner (2008), among others, study determinants of state repression.

We present a unified approach to studying these forms of political violence with common roots in poverty, natural resource rents, and weak political institutions. First, we lay out a rudimentary model to analyze whether violence will occur and, if so, manifest itself as repression or civil war.[2] Three regimes – peace, repression and civil war – emerge as alternative equilibrium outcomes in the interaction between an incumbent government and an opposition group. Moreover, the theory suggests a natural ordering of these regimes.

We then construct empirical measures of repression and civil war, which we map into ordered variables as suggested by the theory. We investigate how the regime depends on economic and political variables, using an ordered logit model defined over the three regimes. Our estimation results indicate a strong correlation between low incomes, weak political institutions and both forms of political violence.

2 Theory and Prediction

There are two groups denoted by J: an incumbent government I and an opposition O.[3] Each group make up half the population and can mobilize a fraction A^J ($\leq 1/2$) of its citizens as members of an army. Let $\delta^J \in \{0, A^J\}$ denote each group's decision whether to mobilize. Modeling this as a discrete choice is a bit artificial, but helps keep the analysis simple.

A conflict can result in a transition of power from the incumbent to the opposition group. The probability that the opposition wins office is given by the insurrection technology

$$\frac{1}{2} + \frac{1}{\mu}\left[\delta^O - \delta^I\right] \ .$$

We assume that $\frac{1}{\mu}A^I \leq 1/2 \leq 1 - \frac{1}{\mu}A^O$, which holds for large enough μ.[4] This function entails the (non-essential) assumption that in the absence of

[2] The model and results here are based on Tomothy Besley and Torsten Persson (2008). The idea of looking at a wider range of political regimes is also suggested in Jean-Paul Azam (2005).

[3] Besley and Persson (2008) sets up a more general model with similar conclusions, but focus on the analysis of civil war.

[4] If this assumption does not hold – or if the opposition have a relative advantage in fighting – the model permits the posibility of an "unopposed coup", an interesting posibility which is beyond the scope of this short paper.

fighting, each group has an equal chance of becoming the incumbent.

The winning group has access to a fixed amount of government revenue denoted by R that we interpret as natural resource rents. (However, this "prize" could relate to any, economic or non-economic, issue determined by the incumbent.) But the winner is constrained by institutions in distributing the prize. An institutionalized sharing rule says that the incumbent gets $(1-\theta)\,2R$ while the opposition receives $\theta 2R$ where $\theta \in [0, 1/2]$. With $\theta = 1/2$, there is full sharing with each group getting its per capita share of revenue while $\theta = 0$ means that institutional constraints are entirely absent. In this sense, higher θ represents better institutions.

Each citizen supplies a unit of labor to a market earning a real wage of w. The incumbent army is financed by a labor tax on all citizens so that each group only bears half the cost. In contrast, the insurgent army of the opposition group is financed exclusively by opposition who thus bears the full per capita cost. This a natural asymmetry, given the incumbent's control of government.

The timing is as follows. First, the opposition decides whether to mount an insurgency by using its army to seize power. Then, the government decides whether to use its army, which it can do whether or not there is an insurgency. These choices and the insurrection technology probabilistically determine who is in power. Finally, the winner determines the allocation of R.

Putting the pieces together, the expected per capita payoff of the incumbent group is:

$$w\left(1-\frac{\delta^I}{2}\right)+\left(\frac{1}{2}-\frac{1}{\mu}\left[\delta^O-\delta^I\right](1-2\theta)\right)2R\ .$$

The first term is the net of tax wage, and the second is the expected return from holding office, given the (endogenous) expected probability of transition. The parallel expression for the opposition is:

$$w\left(1-\delta^O-\frac{\delta^I}{2}\right)+\left(\frac{1}{2}+\frac{1}{\mu}\left[\delta^O-\delta^I\right](1-2\theta)\right)2R\ .$$

We now look for a sub-game perfect Nash equilibrium in the sequential game where the opposition moves first. It is straightforward to identify three possible equilibria.

Peace: $\delta^I = \delta^O = 0$, *which occurs if* $\frac{4R(1-2\theta)}{w} \leq \mu$

Repression: $\delta^I = A^I$ *and* $\delta^O = 0$, *which occurs if* $\frac{2R(1-2\theta)}{w} \leq \mu < \frac{4R(1-2\theta)}{w}$

Civil war: $\delta^I = A^I$ *and* $\delta^O = A^O$, *which occurs if* $\mu < \frac{2R(1-2\theta)}{w}$.

In peace, neither group chooses to fight. Under repression, the government uses its army to stay in power. Under civil war, both groups use their armies. A crucial determinant of the equilibrium is the value of $\frac{2R(1-2\theta)}{w}$, the ratio between the prize captured by the winner and the real wage. The greater the natural resource rents at stake (R), the greater the likelihood of a violent outcome. This is also true if wages (w) , and hence the opportunity cost of fighting, are higher. For inclusive enough political institutions (θ close enough 1/2), the outcome will be peaceful. Middling values (all else equal) imply repression, whereas very non-inclusive institutions more likely spurn two-sided conflict. Finally, political violence is less likely when less effective in bringing about a change in power (a high value of μ). We expect all these parameters to vary across countries and time in response to economic and political shocks.

Repression becomes a real possibility because of the asymmetry in government control. The government can use the whole tax base to finance the formal army making it cheaper to use violence. In other words, the classic Weberian monopoly of violence, derived here from monopoly access to taxation, opens the door to government repression of the opposition.

How can we approach the data in light of the model? To fix ideas, suppose we observe proxies for variables R, w and θ across countries and time, but do not observe μ. We also observe if a particular country is in repression or civil war in a particular year. Let μ be distributed across countries and time according to some distribution with c.d.f. $F(\cdot)$. Then the expressions defining equilibrium imply that the probability of observing civil war is $F(\frac{2R(1-2\theta)}{w})$, the probability of observing repression is $F(\frac{4R(1-2\theta)}{w}) - F(\frac{2R(1-2\theta)}{w})$, while the probability of observing peace is $1 - F(\frac{2R(1-2\theta)}{w})$. This immediately suggests that we may estimate an ordered logit (or probit) to gauge how the variables identified by the model affect the relative probabilities of the three regimes.

3 Data and Estimation

Before presenting our estimation results, we discuss how to measure the three ordered states and the empirical determinants suggested by the model.

3.1 Measuring Repression and Civil War

A large body of literature looks at the determinants of civil war.[5] In this paper, we use a variable from the Correlates of War (COW) data set, which provides annual data on conflicts (from 1816) up to 1997. The COW *intrastatewar* indicator takes a value of 1 if a given country in a given year is involved in a violent conflict which claims a (cumulated) death toll of more than 1000 people. We remove conflicts that involve interventions by another state and do not consider extra-systemic wars.

To measure repression, we use data from two independent sources. The first source is the data on human rights violations in Mark Gibney, Linda Cornett and Reed Wood (2007). These are collected by two organizations, the US State Department and Amnesty International, and available from 1976 onwards. Each series has a political terror scale ranked from 1 to 5. We take the maximum value of the two series in any given country and year and use a cutoff of 3 and above to classify it as repression. This implies that civil and political rights violations such as execution, imprisonment and political murders/brutality are widespread. In the worst cases, leaders of society place no limit on the means or thoroughness with which they pursue personal or ideological goals. For the period 1976 to 2006, around 32 percent of all country years are classified as being in repression. Not surprisingly, many of these coincide with civil war.

To construct the ordered variable suggested by the theory, we set a value of 0 when there is neither repression nor civil war, 1 when there is repression, but no civil war, and 2 when there is civil war, whether there is repression or not. We focus on the 21 years of data for which we have measures of both civil war incidence and repression. Given our classification rules, 81 percent of our sample has peace, 8 percent repression, and 11 percent civil war.

Our second ordered variable is derived from a measure of repression in Arthur Banks (2005), which counts up purges: systematic murders and eliminations of political opponents within regimes. We create an indicator which is equal to one in any year when purges exceed zero. Here, we use the data from 1962 onwards in our ordered logits. Over the period 1962-2005, on average 6 percent of country-years are classified as being in repression – the Banks measure is thus much more conservative than the Gibney et al measure. Also,

[5] There are a number of issues involved in the coding of conflicts into civil wars. See Nicholas Sambanis (2004) for a thorough discussion about different definitions that appear in the empirical literature.

purges seem rarely to coincide with civil war.

Is there a natural ordering across the three states as in our theory? For income per capita, the answer is a clear-cut yes. According to the Gibney et al measure, peaceful countries have an average GDP per capita of \$6,500, repressing countries are considerably poorer with \$3200, while the countries in civil war are the poorest with average incomes of \$2000. A similar pattern is seen for the Banks measure.

The regularity across political regimes is equally clear-cut. Here, we use parliamentary democracy as our institutional measure to correspond to θ in the theory. By the Gibney et al measure, 35 percent of peaceful countries, 16 percent of repressing countries, and 9 percent of civil-war countries are in parliamentary democracy. Again, the ordering is consistent with the theory. A similar pattern again emerges for the Banks measure.

Both of these findings hint at the validity of thinking of peace, repression and civil war as ordered states featuring different levels of political violence.

3.2 Determinants of Repression and Civil War

Table 1 explores some evidence from alternative ordered logit models. For each of our two ordered left-hand side variables, we use three specifications. In the first, we include the log of GDP, an indicator for parliamentary democracy, and dummy variables measuring whether a country is a large exporter of oil or primary products. As a source of exogenous time variation in income, we use data on natural disasters from the EM-DAT data set. Specifically, we construct an indicator that adds together the number of floods and heatwaves in a given country and year, assuming that both act as a negative shock to real incomes. The second specification adds a set of year dummies to control for trending variables. The third specification follows Besley and Persson (2008), adding price indexes for primary exports and imports and oil import and export prices. These are arguably good exogenous measures of (positive) shocks to resource rents and (negative) shocks to real incomes.

Columns (1)-(3) display results for our ordered variable based on Gibney et al (2007). The estimated coefficients are reported as odds ratios, with a ratio above (below) one corresponding to a positive (negative) non-transformed coefficient. Column (1) shows that higher GDP per capita reduces the probability of repression and civil war, while the same is true if a country is a parliamentary democracy (the significance levels refer to an odds ratio significantly different from one). Large primary products exporters tend to have

lower chances of being in repression or conflict, while being a large oil exporter does not systematically affect political violence. Our weather shock variable also predicts a significant increase in the probability of being in repression or civil war. Column (2) shows that these results hold up when we include year dummy variables. Column (3) shows that there is a positive correlation between the likelihood of political violence and commodity export prices as well as oil import prices.

In columns (4)-(6), we repeat the same exercise for the ordered variable based on Banks (2005). The findings for income per capita, parliamentary democracy, primary exporter status and weather shocks are all very similar. But the results are different for the price indexes. Now, commodity export and import prices are both significant in the expected direction, as are oil export prices.

Overall, the findings are consistent with the prediction that economic shocks are important determinants of repression and civil war. Moreover, more inclusive political institutions as measured by parliamentary democracy significantly reduce the prospect of political violence.

4 Concluding Comments

This paper contributes to the debate about the nature of political equilibrium in poor countries with weakly institutionalized polities. We argue that it is useful to think about repression and civil conflict in a unified way and develop a very simple model to illustrate this argument. Our approach recognizes three states, and we discuss how this helps us think about measurement of political outcomes. Finally, the data support the idea that there is indeed an ordering – with peace, repression and conflict as the three states.

In our view, it is valuable to study conflict from a stepping stone of a well-articulated theoretical model. Such an approach holds out the hope that we may better integrate our understanding of conflict with other issues in political economy – in particular the character of government in non-conflict situations. Clearly, much remains to do, in order to bridge the gap between theory and data in this area. The ultimate goal is to map political and economic circumstances into our wider understanding of the forces that shape economic and political development. This short paper is only a small building block in that wider project.

References

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Table 1: Economic and Political Determinants of Repression and Civil War

	(1)	(2)	(3)	(4)	(5)	(6)
Log GDP	0.677***	0.657***	0.635***	0.667***	0.671***	0.652***
	(7.85)	(7.56)	(6.81)	(8.37)	(8.24)	(7.97)
Parliamentary Democracy	0.401***	0.351***	0.332***	0.524***	0.484***	0.549***
	(6.98)	(7.84)	(7.88)	(3.36)	(3.72)	(3.39)
Large Oil Exporter	1.156	1.339*	1.147	0.999	1.365*	1.203
	(0.63)	(1.43)	(0.41)	(1.13)	(1.67)	(1.06)
Large Primary Exporter	0.814*	0.772**	0.480***	0.359***	0.454***	0.295***
	(3.97)	(4.66)	(6.80)	(7.30)	(7.30)	(7.26)
Weathershock	1.183***	1.419***	1.371***	1.113***	1.306***	1.263***
	(3.88)	(8.32)	(7.66)	(2.78)	(4.69)	(4.93)
Commodity Export Price Index			1.074**			1.140***
			(3.24)			(3.83)
Commodity Import Price Index			0.618			2.180**
			(2.52)			(0.82)
Oil Export Prices			1.004			1.028***
			(0.46)			(3.33)
Oil Import Prices			1.292***			1.068
			(7.68)			(2.59)
Year Dummy Variables	No	Yes	Yes	No	Yes	Yes
Observations	2351	2351	2137	5261	5261	3970

Notes to Table: In columns 1-3, the dependent variable is constructed from the COW and Gibney et al (2007) as described in the text. In columns 2-4, the dependent variable is constructed from the purges data in Banks (2005) as described in the text. Sources for other variables as described in Besley and Persson (2008). All columns are estimated using an ordered logit. The reported coefficients are odds ratios with robust *z*-statistics in parentheses: (* significant at 10%; ** significant at 5%; *** significant at 1%).