

Repression or Civil War?

By TIMOTHY BESLEY AND TORSTEN PERSSON*

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.¹ These two types of violence have been studied extensively by political scientists and economists, but have typically been treated as separate phenomena.²

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.³ 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.

I. Theory and Prediction

There are two groups denoted by J : an incumbent government I and an opposition O .⁴ Each group makes 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 linear conflict technology

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

We assume that $A^I/\mu \leq 1/2 \leq 1 - A^O/\mu$, which holds for large enough μ .⁵ This function entails the (non-essential) assumption that in the absence of fighting, each group has an equal chance of becoming the incumbent.

*Besley: London School of Economics and CIFAR, Houghton Street, London WC2A 2AE, UK, (e-mail: t.besley@lse.ac.uk); Persson: Institute for International Economic Studies and CIFAR, Stockholm University, S-106 91 Stockholm, Sweden (e-mail: Torsten.Persson@iies.su.se). We thank Mauricio Cardenas and Raghu Rajan for comments, David Seim and Prakash Singh for research assistance, and Benedikt Goderis for sharing his data with us.

¹ We model the motive for insurgency as the desire to take over control of the state. This is a significant motive for insurgency in practice—see the discussion in James Fearon (2008).

² See Christopher Blattman and Edward Miguel (forthcoming) for a recent review of the literature on civil conflict. Paul Collier and Dominic Rohner (2008) and Benedikt Goderis and Mila Versteeg (2008), among others, study determinants of state repression.

³ The model and results here are based on Timothy Besley and Torsten Persson (2008). The idea of looking at

a wider range of political regimes is also suggested in Jean-Paul Azam (2005).

⁴ Besley and Persson (2008) sets up a more general model with similar conclusions, but focus on the analysis of civil war.

⁵ If this assumption does not hold—or if the opposition has a relative advantage in fighting—the model permits the possibility of “unopposed violence” (terrorism), an interesting possibility beyond the scope of this short paper.

The winning group has access to a fixed amount of government revenue denoted by R , which we interpret as natural resource rents. (However, this “prize” could relate to any, economic or noneconomic, 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 the opposition which thus bears the full per capita cost. This is 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:

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

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:

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

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 $4R(1 - 2\theta)/w \leq \mu$.

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

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

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 $2R(1 - 2\theta)/w$, the ratio of 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 lower. 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 it is 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 circumstances.

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 $F(2R(1 - 2\theta)/w)$, the probability

of observing repression is $F(4R(1-2\theta)/w) - F(2R(1-2\theta)/w)$, while the probability of observing peace is $1 - F(2R(1-2\theta)/w)$. 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.

II. 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.

A. Measuring Repression and Civil War

A large body of literature looks at the determinants of civil war.⁶ 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 one if a given country in a given year is involved in a violent conflict which claims a (cumulated) death toll of more than 1,000 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 are 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 zero when there is neither repression nor civil war, one when there is repression, but no civil war, and two 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 equal to one in any year when purges exceed zero. Here, we use the data from 1962 onward 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, 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 \$3,200, while the countries in civil war are the poorest with average incomes of \$2,000. A similar pattern is seen for the Banks measure.

The regularity across political regimes is equally clearcut. 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.

B. Determinants of Repression and Civil War

Tables 1A and 1B explore 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

⁶ 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.

TABLE 1A—ORDERING LOGIT ESTIMATES OF DETERMINANTS OF PEACE, REPRESSION AND CIVIL WAR

	(1)	(2)	(3)
Log GDP	0.668*** (7.85)	0.652*** (7.56)	0.660*** (6.81)
Parliamentary democracy	0.401*** (6.98)	0.345*** (7.84)	0.316*** (7.88)
Large oil exporter	1.102 (0.63)	1.269 (1.43)	1.081 (0.41)
Large primary exporter	0.644*** (3.97)	0.572*** (4.66)	0.377*** (6.80)
Weather shock	1.186*** (3.88)	1.420*** (8.32)	1.399*** (7.66)
Export price index			1.106*** (3.24)
Import price index			0.206** (2.52)
Oil export prices			1.008 (0.46)
Oil import prices			1.394*** (7.68)
Year dummy variables	No	Yes	Yes
Observations	1,993	1,993	1,878

Notes: The dependent variable is constructed from the COW and Gibney et al. (2007) 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 the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

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 heat waves 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 of Table 1A 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) nontransformed 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, i.e., a negative coefficient). 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.

TABLE 1B

	(1)	(2)	(3)
Log GDP	0.631*** (8.37)	0.630*** (8.24)	0.626*** (7.97)
Parliamentary democracy	0.578*** (3.36)	0.554*** (3.72)	0.580*** (3.39)
Large oil exporter	1.200 (1.13)	1.314* (1.67)	1.205 (1.06)
Large primary exporter	0.284*** (7.30)	0.284*** (7.30)	0.195*** (7.26)
Weather shock	1.124*** (2.78)	1.250*** (4.69)	1.275*** (4.93)
Export price index			1.172*** (3.83)
Import price index			1.413 (0.82)
Oil export prices			1.030*** (3.33)
Oil import prices			1.198*** (2.59)
Year dummy variables	No	Yes	Yes
Observations	3,549	3,549	3,394

Notes: The dependent variable is constructed from the COW and 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 the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

In columns 1–3 of Table 1B, 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.

III. Concluding Comments

This paper contributes to the debate about the nature of political equilibrium in poor countries with weakly institutionalized polities where the use of political violence can be endemic. We

argue that it is useful to think about repression and civil conflict in a unified way and develop a 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 the 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

- Azam, Jean-Paul.** 2005. "The Paradox of Power Reconsidered: A Theory of Political Regimes in Africa." *Journal of African Economies*, 15(1): 26–58.
- Banks, Arthur.** 2005. *Cross-National Time-Series Data Archive*, Databanks International File. www.databanksinternational.com.
- Besley, Timothy, and Torsten Persson.** 2008. "The Incidence of Civil War: Theory and Evidence." Unpublished.
- Blattman, Christopher, and Edward Miguel.** Forthcoming. "Civil War." *Journal of Economic Literature*.
- Collier, Paul, and Dominic Rohner.** 2008. "Democracy, Development and Conflict." *Journal of the European Economic Association*, 6(2–3): 531–40.
- Fearon, James.** 2008. "Economic Development, Insurgency and Civil War." In *Institutions and Economic Performance*, ed. Elhanan Helpman, 292–328. Cambridge, MA: Harvard University Press.
- Gibney, Mark, Linda Cornett, and Reed Wood.** 2007. *Political Terror Scale 1976 to 2006*. www.politicalterrorsscale.org.
- Goderis, Benedikt, and Mila Versteeg.** 2008. "Human Rights Violations after 9/11 and the Role of Constitutional Constraints." Unpublished.
- Sambanis, Nicholas.** 2004. "What Is Civil War. Conceptual and Empirical Complexities of an Operational Definition." *Journal of Conflict Resolution*, 48(6): 814–58.

This article has been cited by:

1. María Cubel, Santiago Sanchez-Pages. 2016. An axiomatization of difference-form contest success functions. *Journal of Economic Behavior & Organization* **131**, 92-105. [[CrossRef](#)]
2. Colin O'Reilly, Ryan H. Murphy. 2016. DO INSTITUTIONS MITIGATE THE RISK OF NATURAL RESOURCE CONFLICTS?. *Contemporary Economic Policy* . [[CrossRef](#)]
3. Oeindrila Dube, Omar García-Ponce, Kevin Thom. 2016. FROM MAIZE TO HAZE: AGRICULTURAL SHOCKS AND THE GROWTH OF THE MEXICAN DRUG SECTOR. *Journal of the European Economic Association* **14**:5, 1181-1224. [[CrossRef](#)]
4. STERGIOS SKAPERDAS, AMJAD TOUKAN, SAMARTH VAIDYA. 2016. Difference-Form Persuasion Contests. *Journal of Public Economic Theory* . [[CrossRef](#)]
5. Sajjad F. Dizaji, Mohammad Reza Farzanegan, Alireza Naghavi. 2016. Political institutions and government spending behavior: theory and evidence from Iran. *International Tax and Public Finance* **23**:3, 522-549. [[CrossRef](#)]
6. David Castells-Quintana, Maria del Pilar Lopez-Uribe, Thomas K.J. McDermott. 2016. Geography, institutions and development: a review of the long-run impacts of climate change. *Climate and Development* 1-19. [[CrossRef](#)]
7. Yang-Ming Chang, Zijun Luo. 2016. ENDOGENOUS DESTRUCTION IN CONFLICT: THEORY AND EXTENSIONS. *Economic Inquiry* . [[CrossRef](#)]
8. Ibrahim Ahmed Elbadawi, Raimundo Soto. 2015. Resource rents, institutions, and violent civil conflicts. *Defence and Peace Economics* **26**:1, 89-113. [[CrossRef](#)]
9. Yu-Hsiang Lei, Guy Michaels. 2014. Do giant oilfield discoveries fuel internal armed conflicts?. *Journal of Development Economics* **110**, 139-157. [[CrossRef](#)]
10. John C. Anyanwu. 2014. Oil Wealth, Ethno-Religious-Linguistic Fractionalization and Civil Wars in Africa: Cross-Country Evidence. *African Development Review* **26**:2, 209-236. [[CrossRef](#)]
11. G. Leon. 2013. Soldiers or politicians? Institutions, conflict, and the military's role in politics. *Oxford Economic Papers* . [[CrossRef](#)]
12. Ruixue Jia. 2013. Weather Shocks, Sweet Potatoes and Peasant Revolts in Historical China. *The Economic Journal* n/a-n/a. [[CrossRef](#)]
13. O. Dube, J. F. Vargas. 2013. Commodity Price Shocks and Civil Conflict: Evidence from Colombia. *The Review of Economic Studies* . [[CrossRef](#)]
14. Anca M. Cotet,, Kevin K. Tsui. 2013. Oil and Conflict: What Does the Cross Country Evidence Really Show?. *American Economic Journal: Macroeconomics* **5**:1, 49-80. [[Abstract](#)] [[View PDF article](#)] [[PDF with links](#)]
15. K.K. TsuiWorldwide Oil Discoveries and the Resource Curse . [[CrossRef](#)]
16. Timothy Besley, Torsten PerssonTaxation and Development 51-110. [[CrossRef](#)]
17. Daniel Albalade, Germà Bel, Ferran Elias. 2012. Institutional determinants of military spending. *Journal of Comparative Economics* **40**:2, 279-290. [[CrossRef](#)]
18. Juan F. Vargas. 2011. Rebellion, Repression and Welfare. *Defence and Peace Economics* **22**:5, 563-579. [[CrossRef](#)]
19. T. Besley, T. Persson. 2011. The Logic of Political Violence. *The Quarterly Journal of Economics* **126**:3, 1411-1445. [[CrossRef](#)]
20. Thierry Verdier. 2010. Ouverture, conflits et capacité étatique : une perspective d'économie politique. *L'Actualité économique* **86**:4, 415. [[CrossRef](#)]