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# When is Democracy an Equilibrium? Theory and Evidence from Colombia's La Violencia

Mario Chacón<sup>1</sup>, James A. Robinson<sup>2</sup>, and Ragnar Torvik<sup>3</sup>

## Abstract

The conventional wisdom is that for a democracy to be consolidated, all groups must have a chance to attain power. If they do not, then they will subvert democracy and choose to fight for power. In this article, the authors show that this wisdom is seriously incomplete because it considers absolute, not relative payoffs. Although the probability of winning an election increases with the size of a group, so does the probability of winning an armed conflict. Thus, in a situation in which all groups have a high chance of winning an election, they may also have a high chance of winning a fight. Indeed, in a natural model, the authors show that democracy may *never be consolidated* in such a situation. Rather, democracy may only be stable when one group is dominant. The authors explore this key aspect of the theory using data from La Violencia, a political conflict in Colombia during the years 1946–1950 between the Liberal and Conservative parties. Consistent with their results, and contrary to conventional wisdom, the authors show that fighting between the parties was more intense in municipalities where the support of the parties was more evenly balanced.

## Keywords

democratic consolidation, partisan conflict, polarization, balance of power

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When Guyana and Mauritius became independent from Britain in 1966 and 1968, respectively, political conflict had coalesced into a struggle between those of East Indian descent and the rest. In Mauritius, East Indians composed about 70 percent of the population, and their interests were represented by the Labour Party headed by Seewoosagur Ramgoolam. In contrast, East Indians were only 50 percent of the population in Guyana under the leadership of the People's Progressive Party headed by Cheddi Jagan.

The conventional wisdom in political science makes a clear prediction about which country was more likely to become a consolidated democracy. This prediction is based on the idea that groups can either fight for power or they can instead decide to compete for votes and abide by the outcome of elections. Democracy will arise and be consolidated when all the groups anticipate that they have a chance of power in democracy. If they do not, then they will subvert the institutions of democracy. As Przeworski (1991, 30-31) puts it,

compliance depends on the probability of winning within the democratic institutions. A particular actor . . . will comply if the probability it attaches to being victorious in democratic competition . . . is greater than some minimum . . . Democracy will evoke generalized compliance when all the relevant political forces have some specific minimum probability of doing well under the particular system of institutions.

The clear implication of this line of thinking is that it was Guyana that was more likely to be a democracy. In Mauritius, those who opposed the Labour Party had no chance of attaining power in a society where voting was along ethnic lines. In Guyana they did, and hence the anti-East Indian coalition led by Forbes Burnham's People's National Party could win an election. In contrast, in Mauritius, the anti-East Indian coalition led by Gaetan Duval and his Parti Mauricien Social Democrate (PMSD) had no chance of winning a majority of votes and therefore would be driven to subverting democracy. This was not what happened in these two countries, however. In Guyana, Burnham created a one-party state with himself as dictator while Mauritius has experienced open and democratic political competition. What went wrong?

In reality there are many sources of variation in the political regimes of countries. The fact that the balance of power between ethnic groups and democracy do not correlate in Guyana and Mauritius could be due to any number of idiosyncratic factors. In this article, however, we argue that the failure of the predictions of the conventional wisdom is in fact indicative of an incompleteness in the underlying logic. While it may be true that compliance with the rules of democracy depends in part on the probability of winning within democratic institutions, it also depends on the probability of winning an armed conflict. Indeed, the greater the chance that a group wins an election may correspond to a greater chance that it wins a violent confrontation.

If elections outcomes are close, so that all groups anticipate being able to attain power in a democracy, then all groups have evenly matched support or "strength" in

society. But it is plausible that strength does not simply map into votes in elections; it also determines fighting strength. Therefore, it is precisely in the circumstances when groups have equal strength that they may find it optimal to fight. When the parameters imply that democratic politics is competitive, they also imply that fighting is attractive. Indeed, it can be situations in which strength is asymmetric where elections are lopsided that fighting may not be attractive and democracy will be stable. The intuition for this is the following: when power is asymmetric, there is a dominant group. The smaller group does not fight because, even though it cannot win an election, the probability of success in fighting is also small.

To illustrate this idea, we develop a model of political competition between two political parties. The parties can either follow a democratic strategy and use policies to attract votes and win elections, or alternatively, they can fight for power. We assume that voters have preferences not only over income but also over ideology so that they may be more or less attached to one of the parties. We then examine the circumstances under which democracy is preferred by both parties to fighting and how this depends on their underlying support in the population. In this simple setup, democracy may only emerge as an equilibrium when support is asymmetric in the sense that one of the parties dominates the other. In contrast, when the support of parties is balanced, or in other words in circumstances when both parties have a good chance of winning power in democracy, fighting may occur. In addition, the model shows that while democracy can arise when support is symmetric, it is the stronger party that initiates conflict, despite the fact that they might also prevail in elections.

These results contrast with other works in the literature such as Przeworski (1991), Weingast (1997), or Colomer (2000). These works analyze the circumstances under which democracy is preferred to fighting but focus only on the payoffs from democracy with an exogenous payoff to fighting. The subsequent conclusion is that the circumstance most propitious to the consolidation of democracy is evenly matched party competition. Hence, the main theoretical contribution of our article is to show how when the payoffs to democracy and fighting are interlinked, this result can be overturned. Specifically, we show how a case in which political groups are evenly matched is precisely the situation in which the use of violence to attain power may become most attractive.

In addition to providing a model that clarifies the relationship between democracy and fighting, we investigate one of the implications of the model empirically using subnational evidence from Colombia. Though the example of Mauritius and Guyana is telling, it is difficult to pursue the issues empirically using cross-national data. In most societies, it is hard to measure the “support” of different groups or to calculate how likely they are to win elections. We therefore turn to within national data, where we can investigate the relationship between political competition, support, and the propensity to fight. Our model should apply in countries where there is a clear distinction between different political groups and where violence is politically motivated. One of the clearest examples of such a country is Colombia. Since the 1850s, this country has been governed primarily by civilian

governments of the Liberal or Conservative parties, and the traditional view of Colombian society is that people have historically identified strongly with one party or the other. The period since 1850 has seen both elections and civil wars between the two parties, the most recent being La Violencia, which began in the mid-1940s and lasted until the early 1960s, and in which between 100,000 and 200,000 people were killed. La Violencia was contested between the parties, which formed local militias and guerillas and fought over the control of various parts of the country. We cannot use this experience to directly test the model, but it does allow us to investigate a crucial implication: in situations in which support for the parties was evenly balanced, we can observe conflict, whereas when one of the parties was dominant, we observe peace. As we show in the section on Colombia's La Violencia, subject to the usual caveats about identification, this is exactly what the data demonstrate.

If the balance of power between groups does not explain what factors induce democracy, what does? Our analysis suggests that the issues on which scholars have focused may be second order compared to other factors that promote democracy, such as the costs of conflict. Acemoglu and Robinson (2006) develop a series of models where these costs are influenced by the structure of the economy and asset holdings, for example. This may be an important source of variation. Indeed, as we show in the next section, in our model if the cost of conflict is sufficiently high, democracy is preferred at any distribution of support.

Apart from the works on democratic stability, our article is related to the literature modeling the creation and consolidation of democracy. Most closely related, Rosendorff (2001) also examines the trade-off between fighting and democracy but focuses on factors that make democracy relatively less costly for the combatants, such as lower inequality. La Ferrara and Bates (2001) investigate the trade-off between using public goods and military expenditure to win elections in weak states, and although they use a Downsian model, our approach has similar implications for the effect of military force on the number of political supporters (see the Model section).<sup>1</sup>

The literature on social conflict and on international warfare has also posed in various ways the question about which situations make conflict more likely (see Fearon 1995). This research emphasizes resources rather than *people* as an input into conflict and a source of power.<sup>2</sup> Early work by Hirshleifer (1991) and Skaperdas (1992) emphasized the "paradox of power" in which asymmetric situations create conflict. In these models, the initial distribution of resources does not influence the equilibrium outcome. Subsequent work however showed that conflict may be maximized when "power" is either balanced or unbalanced. On one hand, Skaperdas and Syropoulos (1997) showed that in more general versions of the Hirshleifer-Skaperdas model, an agent's probability of winning a conflict is increasing in his relative endowment. In their model, if there is some cost of fighting, conflict is more likely when endowments are skewed. Lastly, Esteban and Ray (1999) showed that in their model conflict was maximized when society was

polarized into two evenly matched groups, and Bates (2000) argued that ethnic conflict was greatest in such situations.

None of these papers compare the option of fighting to dividing the pie in other ways. More closely related, therefore, is research studying what sorts of negotiations can avoid conflict. The main result in this literature is that, as Powell (1999, 9) puts it, “War is least likely when the international distribution of benefits reflects the underlying distribution of power.” Anbarci, Skaperdas, and Syropoulos (2002) also study how various bargaining solutions can determine the distribution of resources “under the shadow of power” without conflict taking place. The difference in our article is that we fix a set of institutions, democracy, that distributes the benefits in a specific way. This is less flexible than some bargaining solution, but it does reflect the underlying distribution of power in the sense that we model this as “support” and both the expected utility of fighting and that of democracy is increasing in support.

Finally, our empirical evidence is related to recent literature studying the strategic choice between voting and other political strategies—such as violence and urban protest. Closer to our approach is the work by Balcells (2010a, 2010b) on the Spanish Civil War, which examines how local political support shapes the occurrence of political violence. Still, these papers differ from ours in that they focus on how political support can affect the type of violence (direct vs. indirect) observed against civilians. Other works in this literature have examined how violence is a complement to voting, rather than a substitute—as in our model (see, e.g., Wilkinson 2004).

## **Model**

Consider a situation in which there are two political parties, denoted  $L$  and  $C$ , contesting power. These parties care about being in power, and the benefit of being in power is the income of the state from tax revenues, natural resources, and so on, that is not transferred back to the population. There is one group of citizens with total population mass normalized to 1. Citizens are endowed initially with some income, which we assume is a stock of the single consumption good in the economy, and in a democracy, the parties compete by offering redistributive policies. Citizens get utility from consumption and, as in the standard probabilistic voting model of Lindbeck and Weibull (1987), Dixit and Londregan (1996, 1998), and Persson and Tabellini (2000), from fixed characteristics of the political parties which we associate with “ideology.” Individuals are heterogeneous with respect to this characteristic, and we assume that the parties know the distribution of these characteristics.

When there is democracy, the parties compete noncooperatively to win the support of citizens by offering tax and transfer policies. The party that wins most votes wins the election, takes power, and consumes the rents that are implied by its policy platform. When power is contested by fighting, political parties attempt to win support by coercing people into fighting for them. The probability that a party

wins the fight is increasing in the number of citizens who support it. The key difference in our model is that, in a democracy, parties do not know who voted for them and cannot make policy conditional on this. When parties fight, however, it is clear who supports whom, and this allows parties to target punishments or rewards.

We now develop our model of democracy.

### Democracy

We assume that the utility of consumption is linear and that all individuals have the same endowment of income, denoted  $y \geq 0$ . Parties compete by noncooperatively offering income transfers to voters that are not individual specific. Given a vector of policies  $(y_L, y_C)$  offered by the two parties, an individual  $i$  supports party  $L$  if

$$y + y_L > y + y_C + \delta + \sigma^i. \tag{1}$$

Here  $y + y_L$  is the income (and therefore consumption and utility) of an individual, which is made up of initial income  $y$ , plus the transfer promised by party  $L, y_L$ .<sup>3</sup> This is the total utility of voting for  $L$ . On the right side of the inequality,  $y + y_C$  is income when voting for party  $C$ .  $\delta$  and  $\sigma^i$  are the characteristics of the parties unrelated to their economic promises—“overall popularity  $\delta$ ” and “ideology  $\sigma^i$ .” The interpretation of  $\delta + \sigma^i$  is that it represents the utility that is independent of economic policy to individual  $i$  of voting for  $C$ . These are preferences over some unalterable characteristic of the party.  $\delta$  is common to all, but  $\sigma^i$  is specific to each individual.

We assume that  $\delta$  is a random variable distributed uniformly on the interval  $[-\frac{1}{2\phi}, \frac{1}{2\phi}]$  with density  $\phi > 0$ .  $\sigma^i$  is individual specific and distributed uniformly on the interval  $[-\frac{\mu}{h}, \frac{1-\mu}{h}]$  with density  $h > 0$ . Thus, a share  $\mu \in [0, 1]$  of the population has an ideological bias toward party  $L$ , while a share  $1 - \mu$  of the population has an ideological bias in favor of party  $C$ .  $\mu$  may be thought of as the share of the population that sympathizes with party  $L$ . Alternatively, we may think of  $\mu$  as the share of the population in one particular ethnic group associated with party  $L$ , and so on. We shall also refer to  $\mu$  and  $1 - \mu$  as measuring the underlying or the intrinsic support for a party.

For given policies and aggregate shock  $\delta$ , we can now calculate the fraction of people who support  $L$ . To do this, we define a critical value of  $\sigma^i$ , denoted  $\tilde{\sigma}^i$ , such that all individuals with  $\sigma^i < \tilde{\sigma}^i$  strictly prefer to vote for  $L$ . Clearly from equation (1),

$$\tilde{\sigma}^i = y_L - y_C - \delta. \tag{2}$$

The fraction of the population who support  $L$  is then

$$\int_{-\frac{\mu}{h}}^{y_L - y_C - \delta} h di = \mu + h(y_L - y_C - \delta) \tag{3}$$

using the fact that the distribution of  $\sigma^i$  is uniform. The probability that  $L$  wins the election, denoted  $\pi \in [0, 1]$ , is simply the probability that this fraction is greater than one half of the population, or,

$$\pi = \Pr\left\{\mu + h(y_L - y_C - \delta) > \frac{1}{2}\right\} = \frac{1}{2} + \phi(y_L - y_C) + \frac{\phi(\mu - \frac{1}{2})}{h}. \quad (4)$$

Consider now the optimal strategy of party  $L$  in a democracy. Party  $L$ 's optimization problem can be written

$$\max_{y_L} \pi(R - y_L). \quad (5)$$

Here  $R > 0$  denotes the exogenous (gross) rents from winning power. Taking into account equation (4), the first-order condition for the choice of  $y_L$  that maximizes expected utility is

$$\phi(R - y_L) - \pi = 0. \quad (6)$$

Equation (6) has a nice interpretation. The first term,  $\phi(R - y_L)$ , is the marginal benefit of increasing the amount of income transfer offered to citizens. Holding constant the net amount of rents,  $(R - y_L)$ , this increases the probability that  $L$  wins the election by  $\phi$ , the density of  $\delta$ . The second term,  $\pi$ , is the expected marginal cost of this. Holding constant the probability of winning, expected utility falls by  $\pi$  when the party offers voters more;  $\pi$  is simply the probability of winning the election so that the politician has to deliver these promises. Thus, note from equation (4) that on an expected basis election promises are, other things equal, more costly for a party that has an ideological advantage in the population. Since such a party is more likely to win the election, there is a larger probability that the promises have to be delivered. In contrast, if a party has little ideological support, election promises are cheap, as they most likely will not have to be paid for.

By equation (4) we can rewrite equation (6) as

$$y_L = \frac{R}{2} + \frac{y_C}{2} - \frac{1}{4\phi} - \frac{\mu - \frac{1}{2}}{2h}. \quad (7)$$

Since the probability that party  $C$  wins the election is  $1 - \pi$ , it solves the optimization problem,  $\max_{y_C} (1 - \pi)(R - y_C)$ . Maximizing this with respect to  $y_C$  gives

$$\phi(R - y_C) - (1 - \pi) = 0, \quad (8)$$

and solving as above gives

$$y_C = \frac{R}{2} + \frac{y_L}{2} - \frac{1}{4\phi} + \frac{\mu - \frac{1}{2}}{2h}. \quad (9)$$

A (pure strategy) Nash equilibrium in this model is a vector of policies,  $(y_L, y_C)$  that simultaneously satisfy equations (9) and (7). Such an equilibrium exists here as the



second-order conditions for the two maximization problems are satisfied. Moreover, the equilibrium is unique. By solving equations (9) and (7) we find

$$y_L = R - \frac{1}{2\phi} - \frac{\mu - \frac{1}{2}}{3h}. \quad (10)$$

$$y_C = R - \frac{1}{2\phi} + \frac{\mu - \frac{1}{2}}{3h}. \quad (11)$$

Consider first the case studied in the standard model of probabilistic voting where the two ideological groups are of the same size;  $\mu = \frac{1}{2}$ . In this case, we get the well-known result of policy convergence: the two groups offer the same policy. As a consequence,  $y_L - y_C = 0$ , and each party has a probability of  $\frac{1}{2}$  of winning the election. Politicians offer more income transfers the higher the rents of having power  $R$ , and the more voters care about economic relative to other factors (high  $\phi$ ).

In our model, however, it can be seen from equations (10) and (11) that the standard result of policy convergence in the probabilistic voting model does not hold when  $\mu \neq \frac{1}{2}$ . When  $\mu > \frac{1}{2}$  so that party  $L$  has more underlying support in the population and thus an intrinsic advantage over party  $C$ , party  $L$  offers less to voters and party  $C$  more to voters than in the symmetric case. The intuition for this is that in this case, if the policies offered were the same, the probability of  $L$  winning would be greater than the probability of  $C$  winning. But this implies that the expected cost of transfers is higher for  $L$  than for  $C$ . Thus,  $C$  offers more than in the symmetric case, while  $L$  offers less.

The consequences of this for the election probability can be found by inserting equations (10) and (11) into equation (4). This yields

$$\pi = \frac{1}{2} + \frac{\phi(\mu - \frac{1}{2})}{3h}. \quad (12)$$

From the requirement  $\pi \in [0, 1]$ , the parameter restriction  $\frac{\phi}{3h} \leq 1$  follows. Note that even if the politician with a favorable ideological bias offers less to voters, his probability of being elected is still higher. The effect that politicians with strong ideological support offer less to voters can never outweigh the effect of strong ideological support itself. This means that the endogenous choice of policies does not completely compensate for the bias in favor of a politician, so that at the Nash equilibrium, the politician with a favorable bias still has a larger probability of winning the election. However, we note that  $\frac{d\pi}{d\mu} \leq 1$ , so that an increased group share transforms into a smaller increase in the election probability than the increase in the group share itself. The reason for this, of course, is that the politician in part utilizes the increased support by offering less to voters, leaving him better off both as a result of an increased election probability and increased rents in case he should win the election.

By substituting from equations (10) and (12) into equation (5), we find the expected utility of politician  $L$  under democracy,  $U_L^D$ , which is

$$U_L^D = \phi \left( \frac{1}{2\phi} + \frac{\mu - \frac{1}{2}}{3h} \right)^2 \equiv U_L^D(\mu). \quad (13)$$

We note that the utility of politician  $L$  increases with  $\mu$ , so that the larger the group that ideologically supports the politician, the higher is his or her expected rents of democracy. A strong ideological support allows the politician to optimally choose a combination of a high probability of winning the election and low transfers to voters.

Moreover, and key to understanding the political choice between democracy and fighting, the second derivative of  $U_L^D$  with respect to  $\mu$  is positive. The intuition for this can be seen from equations (10) and (12). As can be seen from equation (10), the higher  $\mu$  is in the first place, the lower transfers are to voters, and thus, the higher the net rents of power are. This implies that a marginal increase in  $\mu$ , which can be seen from equation (12) to increase the election probability linearly, is more valuable the higher is  $\mu$  in the first place.

We can sum up the results of this section with the following result.

*Proposition 1:* There is a unique democratic Nash Equilibrium where the equilibrium policy vector satisfies equations (10) and (11), and the expected utility of a party from democratic competition is a strictly increasing and convex function of its intrinsic support.

## Fighting

In a democracy, one offers citizens carrots, while with fighting one uses sticks. With elections, a politician will not know who voted for him and who did not. When it comes to a fight, however, it will be more transparent who supports a politician and who does not. This opens up the possibility of making it costly to support “the wrong side.” We assume that if a politician wins power by a fight, he is able to punish those who did not support him by expropriating a share  $\tau \leq 1$  of their income.<sup>4</sup> We assume that citizens have the same preferences as before with respect to consumption and ideology. Since politicians use sticks rather than carrots, we assume no direct income transfers are given to voters. When it comes to a fight, agents need to decide which side to support. We denote the probability that politician  $L$  wins the fight by  $\rho \in [0, 1]$ . A particular individual supports  $L$  if

$$\rho y + (1 - \rho)(1 - \tau)y > (1 - \rho)y + \rho(1 - \tau)y + \delta + \sigma^i. \quad (14)$$

The left-hand side is the expected utility to individual  $i$  of supporting  $L$ ; with a probability  $\rho$  party,  $L$  wins the fight in which case income is  $y$ , while with probability  $1 - \rho$  party,  $L$  loses the fight in which case income is  $(1 - \tau)y$ . Thus, it is costly

to support the loosing side. The right-hand side of the inequality is what individual  $i$  gains by supporting politician  $C$ .

Denote by  $n_L \in [0, 1]$  the expected number of people that supports politician  $L$  in a fight and by  $1 - n_L$  those that support politician  $C$ . Using the same approach as above we can then find<sup>5</sup>

$$n_L = \mu - h(1 - 2\rho)\tau y. \tag{15}$$

To determine the probability of winning a fight, we use the standard contest success function of Tullock (1975), which is standard in the literature on conflict (see Powell 1993, 1999). Specifically, the probability that party  $L$  wins a fight given  $n_L$  is given by

$$\rho = \frac{n_L}{n_L + (1 - n_L)} = n_L. \tag{16}$$

Inserting from equation (16) for  $\rho$  in equation (15), we then find the number of supporters for politician  $L$  as<sup>6</sup>

$$n_L = \frac{\mu - h\tau y}{1 - 2h\tau y}. \tag{17}$$

The politician that wins a fight captures the rents  $R$  minus the eventual costs  $D \geq 0$  that may arise due to destruction because of fighting. In addition, he expropriates income from those who did not support him in the fight. Thus, politician  $L$ 's expected utility of fighting,  $U_L^F$ , is given by  $U_L^F = \rho R - D + (1 - n_L)\tau y$ .

Inserting from equation (16) and equation (17) we obtain

$$U_L^F = \left( \frac{\mu - h\tau y}{1 - 2h\tau y} \right) \left[ R - D + \left( 1 - \frac{\mu - h\tau y}{1 - 2h\tau y} \right) \tau y \right] \equiv U_L^F(\mu). \tag{18}$$

The first derivative of  $U_L^F(\mu)$  with respect to  $\mu$  is given by

$$\frac{\partial U_L^F(\mu)}{\partial \mu} = \frac{1}{1 - 2h\tau y} \left[ R - D + \left( 1 - 2 \frac{\mu - h\tau y}{1 - 2h\tau y} \right) \tau y \right]. \tag{19}$$

A larger  $\mu$  has two effects on the payoff from fighting. First, the direct effect of an increased  $\mu$  is increased support and thus an increased probability of winning the fight. Second, an increased  $\mu$  makes the rents from winning smaller as the income expropriated from losers will be smaller. It is evident from equation (19) that the first effect will always dominate for small  $\mu$ , while  $\frac{\partial U_L^F(\mu)}{\partial \mu}$  may become negative for high  $\mu$  if  $R - D$  is sufficiently small. Note however that since the interesting case is  $R - D > 0$ , we have  $\frac{\partial U_L^F(0)}{\partial \mu} > 0$ . Thus, even in the case where  $\frac{\partial U_L^F(\mu)}{\partial \mu}$  becomes negative, it must start positive and then change sign as  $\mu$  increases.

Furthermore, note from equation (19) that the second derivative of  $U_L^F(\mu)$  is given by

$$\frac{\partial^2 U_L^F(\mu)}{\partial \mu^2} = \frac{-2\tau y}{(1 - 2h\tau y)} < 0. \quad (20)$$

Thus, the utility of fighting is concave in  $\mu$ . The intuition for this is straightforward. Winning a fight means winning the possibility of punishing the losers by expropriating part of their income. When  $\mu$  increases the value of using this punishment is smaller as there are fewer losers,<sup>7</sup> hence the following result:

*Proposition 2:* In the conflict model the expected utility of a party from fighting is a concave function of its intrinsic support  $\mu$ . The function is strictly increasing in  $\mu$  when  $\mu$  is small (and may for a larger  $\mu$  be increasing or decreasing in  $\mu$ ).

### Extensions

*Income distribution.* In the model above, we simply assumed that all citizens had the same income, and thus there where no role for issues related to income distribution. It is easily seen that the model of democracy is unchanged even if we allow citizens' income to differ. The same does not, however, hold for the model of fighting. To see in a simple way how income distribution affects the model of fighting assume now that income is skewed in the favor of minority group. Assume for instance  $\mu \geq \frac{1}{2}$  so that the citizens with an ideological bias in favor of party  $L$  forms a majority while the citizens with an ideological bias in favor of party  $C$  forms a minority and denote also the income of a minority group citizen by  $y_{1-\mu}$ . Let

$$y_{1-\mu} = \theta y,$$

where  $\theta \geq 1$ , which seems to be the interesting case since normally the relatively rich are numerically a minority in society.<sup>8</sup> Moreover, the income distribution is more unequal the higher is  $\theta$ .

Using the same approach as above we then find number of supporters for politician  $L$  to be<sup>9</sup>

$$n_L = \frac{\mu - h\tau\theta y}{1 - 2h\tau\theta y},$$

which is higher than the number of supporters given by (17) and is increasing in  $\theta$ . In turn, the expected payoff from fighting for politician  $L$  is now given by

$$U_L^F = \left( \frac{\mu - h\tau\theta y}{1 - 2h\tau\theta y} \right) \left[ R - D + \left( 1 - \frac{\mu - h\tau\theta y}{1 - 2h\tau\theta y} \right) \tau\theta y \right].$$

There are three channels through which higher income inequality affects the expected payoff for politician  $L$ : first, when the minority group has a high expected share of total income, it becomes more costly for a minority citizen to support the minority politician in a fight; should the majority politician win, the cost of being expropriated is high. Thus, support for  $C$  decreases and support for  $L$  increases, and

as a result, party  $L$  is more likely to win the fight. This pulls in the direction of a higher payoff the higher is the income inequality. Second, when inequality is higher, the value of expropriating the minority group is higher because there is more to expropriate from each citizen. Again, the payoff from a fight increases with income inequality. The third effect is different, however. With higher income inequality, there will be fewer citizens from whom to expropriate should the majority politician win the fight. Viewed in isolation, this would decrease the payoff from fighting as income inequality rises. Yet, it is easy to show that the first two effects dominate the latter.<sup>10</sup> This means that higher income inequality increases the payoff from a fight for party  $L$ .

This result is of course predicated on the assumption that  $\theta \geq 1$ . If  $\theta < 1$  so that the income of the majority group is higher than that of the minority group then this will have an offsetting effect in the sense that inequality always increases the incentive of the relatively poor group to engage in a fight. It can also be verified that for the same reasons the payoff from a fight for the minority group supporting politician  $C$  is decreasing in income inequality.

*Asymmetric fighting strength.* There may obviously be other factors than the number of supporters among citizens that are decisive for the probability of winning a war. For instance, the army may be biased toward one of the parties creating this way a military advantage for the party that enjoys such bias. To analyze the effect of this military asymmetry assume now that the probability of winning a fight for  $L$  is not given by equation (16) but by

$$\rho = b + n_L,$$

so that if  $b < 0$  the army is biased in favor of party  $C$  while if  $b > 0$  the army is biased in favor of party  $L$ .

Solving for the number of supporters for politician  $L$  in this case, we get

$$n_L = \frac{\mu - h\tau y + 2h\tau y b}{1 - 2h\tau y}, \tag{21}$$

which in turn implies that the probability  $L$  wins the fight is given by

$$\rho = \frac{\mu - h\tau y + b}{1 - 2h\tau y}.$$

We then obtain

$$U_L^F = \left( \frac{\mu - h\tau y + b}{1 - 2h\tau y} \right) \left[ R - D + \left( 1 - \frac{\mu - h\tau y + 2h\tau y b}{1 - 2h\tau y} \right) \tau y \right]. \tag{22}$$

A higher  $b$  increases the probability of winning directly and indirectly because the number of supporters increases. This reason for the latter effect is that when  $b$  is higher, it is more risky to support the other side since the probability of being expropriated increases, and the number of supporters of the strongest side thus increases.

This effect is similar to La Ferrara and Bates (2001, 164) who find “military force as offensive in nature, enabling a competitor to undermine the political support of her rival.” The expected utility of fighting thus increases in  $b$  because the probability of winning goes up, and provided there are sufficient rents to fight for, the effect of fewer losers to expropriate can never offset this effect.

More interesting, however, is to note that in this case (as in the basic model with symmetric strength), the first derivative of  $U_L^F$  may or may not shift from a positive to a negative sign as  $\mu$  increases. Also, the second derivative of  $U_L^F$  is always negative and independent of  $b$ . Thus, the expected utility of a party from fighting is still a concave function of its intrinsic support  $\mu$ .

### Comparison of Payoffs

Taken together, Propositions 1 and 2 demonstrate that there is no a priori reason why a group’s relative preference for democracy would increase when its support increases. This is because the expected utility of fighting also increases with underlying support in the population. Indeed, we now demonstrate that the expected utility of fighting may increase faster, thus destabilizing democracy.

Recall that  $U_L^D(\mu)$  denotes the expected utility of party  $L$  under democracy when  $L$  has an ideological group of size  $\mu$ . Then party  $C$  has an ideological group of size  $1 - \mu$ , so that the corresponding utility of party  $C$  is  $U_C^D(1 - \mu)$ . Democracy is then preferred when the following two conditions hold simultaneously,

$$U_L^D(\mu) > U_L^F(\mu), \quad \text{and} \quad (23)$$

$$U_C^D(1 - \mu) > U_C^F(1 - \mu), \quad (24)$$

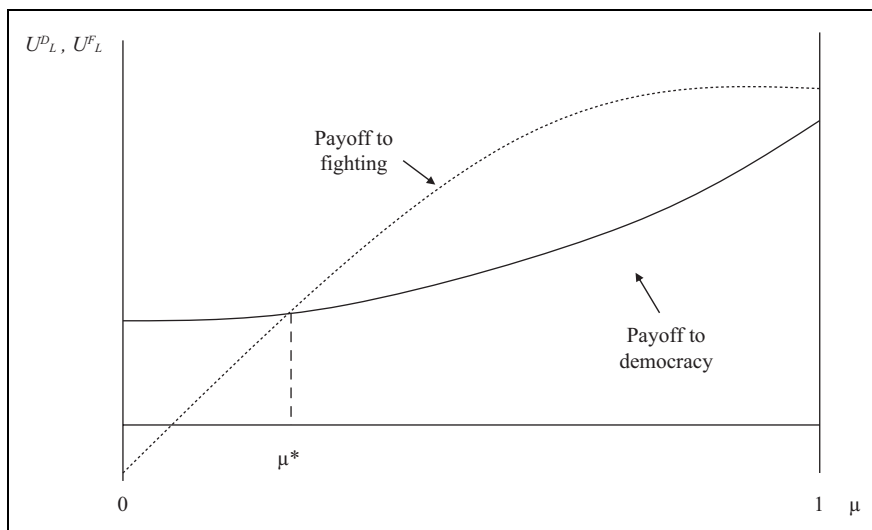
which imply that for both parties, the expected utility of democracy must be greater than that of fighting. Obviously, democracy can only be an equilibrium if it is preferred by both parties. One party preferring to fight is enough for democracy to collapse.

Furthermore, since the effect of group size  $\mu$  on the expected utility of party  $L$  is exactly the same as the effect of group size  $1 - \mu$  for party  $C$ , we can restate these conditions as

$$U_L^D(\mu) > U_L^F(\mu), \quad \text{and} \quad (25)$$

$$U_L^D(1 - \mu) > U_L^F(1 - \mu). \quad (26)$$

To determine the type of political equilibrium, it thus suffices to investigate the expected utility curves of party  $L$ . There are three different possible types of equilibria in this model. In the first type, democracy emerges independently of the level of underlying support,  $\mu$ . In the second type of equilibrium, fighting results



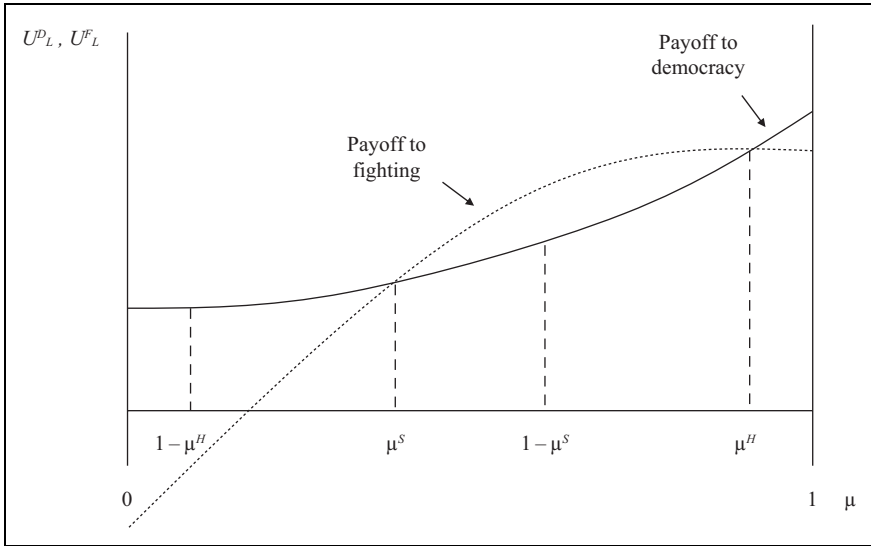
**Figure 1.** The impossibility of democracy

independently of  $\mu$ . In the third, and most interesting type, democracy or fighting emerge in a way that depends on the ideological group size  $\mu$ .

Consider first the case where for all  $\mu$  we have  $U_L^D(\mu) > U_L^F(\mu)$ . Then democracy will always emerge. We note from equations (13) and (18) that this is more likely the lower the rents of power  $R$  and the higher the destruction  $D$ .<sup>11</sup>

Consider next the case where the curves cross once at  $\mu^*$ , as depicted in Figure 1. When politician  $L$  has a small group of ideological supporters, he does not find it worthwhile to fight for power. Few people support him in the first place, and as a consequence of that his chances of winning are small, making even fewer people support him as they are afraid of ending up as supporters of the loser. For  $L$  accordingly, when  $\mu$  is less than  $\mu^*$  the payoff from fighting is lower than the payoff from democracy, so  $L$  prefers democracy. Even though a group with such a small amount of support does not do very well in democracy—there is little chance that it could win an election. Now note that as  $\mu$  increases, the expected utility of fighting increases faster than that of democracy and if  $\mu$  is higher than  $\mu^*$ , fighting is preferred by politician  $L$ . What about the preferences of  $C$ ? When  $\mu$  is smaller than  $\mu^*$ , so that  $L$  prefers democracy,  $1 - \mu$  is bigger than  $\mu^*$ , and consequently politician  $C$  will be in favor of fighting. Therefore, in this case, the type of political equilibrium is independent of  $\mu$ —fighting will always result.

Next, consider the case where  $U_L^D$  and  $U_L^F$  cross twice, as in Figure 2 and where  $U_L^F$  cuts  $U_L^D$  from below at some  $\mu^S < \frac{1}{2}$ . For two crossings to happen, the following three conditions have to be satisfied simultaneously:



**Figure 2.** Democracy with asymmetric distributions of support

$$U_L^D(0) > U_L^F(0),$$

$$U_L^D(\mu) < U_L^F(\mu) \quad \text{for } 0 < \mu < 1,$$

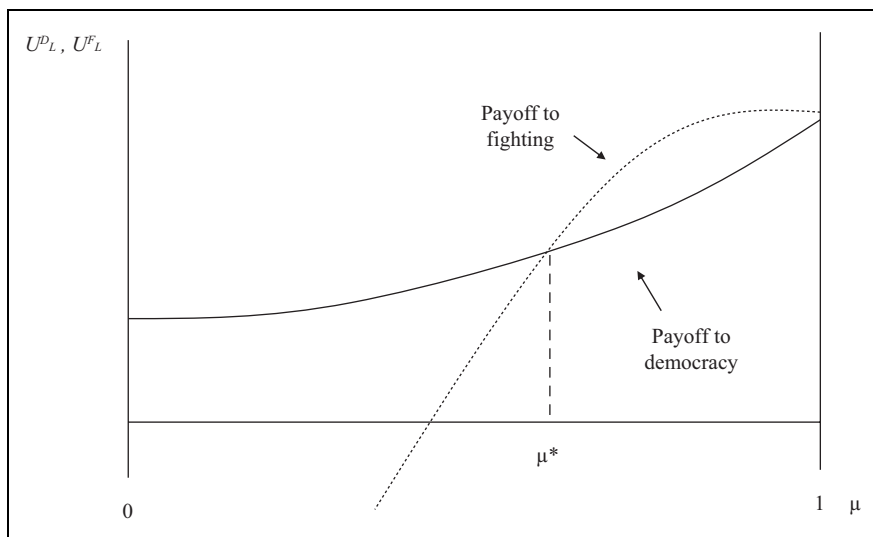
$$U_L^D(1) > U_L^F(1).$$

Here, *L* prefers fighting for  $\mu^S < \mu < \mu^H$ . It follows that *C* prefers fighting for  $1 - \mu^H < \mu < 1 - \mu^L$ . Thus, if  $\mu^S < \mu < \mu^H$  or  $1 - \mu^H < \mu < 1 - \mu^L$ , fighting results, while otherwise democracy becomes the equilibrium.

In this case where the distribution of underlying support actually matters for the equilibrium outcome, it is the likelihood of democracy and not of fighting that is maximized for small  $\mu$  or  $1 - \mu$ . In the situation depicted in Figure 2, democracy is most easily sustained when one group has a very small size and the other has a very big size. Intuitively, when one group is dominant it is almost certain to win democratic elections. Nevertheless, this does not lead democracy to collapse because such a dominant group is almost certain to win a fight as well. In Figure 2, it is when such a dominant group loses support to an opposition that democracy can collapse.

Another situation arises when  $U_L^F$  cuts  $U_L^D$  from below at  $\mu^* > \frac{1}{2}$  as in Figure 3. Now party *L* prefers fighting when  $\mu > \mu^* > \frac{1}{2}$  while party *C* prefers fighting when  $\mu < 1 - \mu^* < \frac{1}{2}$ . Thus, in this case democracy arises only when support is balanced—but for the opposite reason from what the standard wisdom predicts:





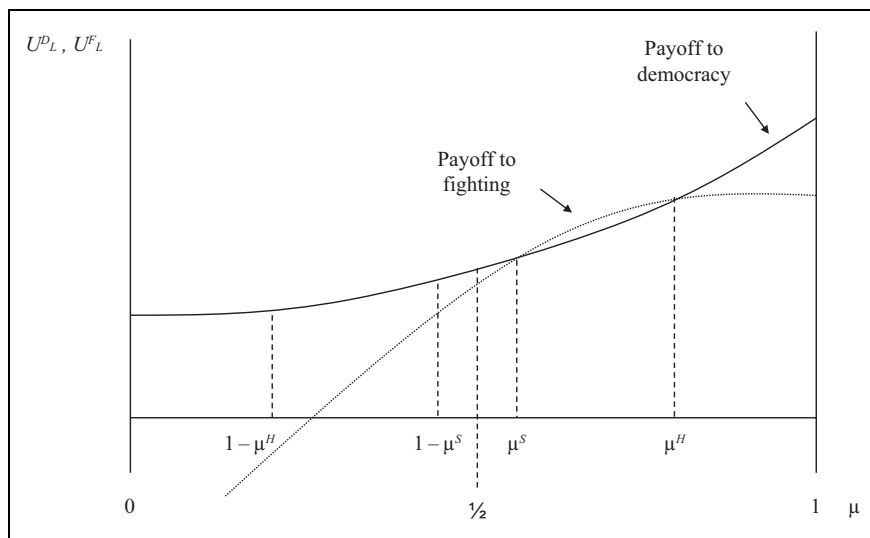
**Figure 3.** Democracy with symmetric distributions of support

It is the biggest and not the smallest group that initiates conflict. In fact, if balanced support is necessary for democracy to consolidate, the only way this can happen is when it is the biggest group that initiates conflict.

The final type of situation that can arise when  $\frac{\partial U_L^F(\mu)}{\partial \mu} > 0$  is depicted in Figure 4. This is when the curves cross twice but  $U_L^F$  cuts  $U_L^D$  from below at  $\mu^S > \frac{1}{2}$ . (An equivalent case not drawn is when the curves cross twice and  $U_L^F$  cuts  $U_L^D$  from above at  $\mu^H < \frac{1}{2}$ ). Here, democracy arises when  $\mu \in [1 - \mu^S, \mu^S]$ , when the two groups are evenly balanced. Note however, that in this case it is still true that democracy is also stable when  $\mu \geq \mu^H$ , so that it is not a necessary condition for democratic consolidation that support be balanced.

For the sake of completeness, we finally consider what happens when  $R - D$  is sufficiently small that  $\frac{\partial U_L^F(\mu)}{\partial \mu} > 0$  for small  $\mu$ , but for higher  $\mu$ ,  $\frac{\partial U_L^F(\mu)}{\partial \mu} < 0$ . The preceding figures show that this does not introduce any new phenomena. There are two cases, either  $U_L^F$  cuts  $U_L^D$  once from below and the situation is qualitatively the same as Figures 1 and 3. Alternatively,  $U_L^F$  cuts  $U_L^D$  twice, first from below and then from above, in which case we again have the two possibilities drawn in Figures 2 and 4.

Taken collectively, this exhaustive analysis of the different possible cases has an important implication. In no part of the parameter space is the conventional wisdom correct. Even in the case of Figure 3 where democracy does dominate for symmetric distributions of support, when fighting dominates it is the stronger group which initiates it. So it is never the case that symmetric distributions of support are required for a democracy to be stable because otherwise the smallest group will fight for power.



**Figure 4.** Democracy possible with symmetric and asymmetric distributions of support

The intuition for this result is apparent from the comparisons of payoffs. Under democracy a group with a relatively small underlying support does relatively well. For such a group, election promises are cheap. Thus, they offer favorable policies for voters, in turn attracting more voters than their underlying support in the population suggests. Under fighting, however, the opposite is the case. Here a small group attracts fewer supporters than what their underlying support in the population suggests. The reason is that under a fight it is costly to support the losing side, and since a small group is more likely to lose than a big one, it is the biggest group that attracts relatively more support than what its intrinsic support suggests. Although the conventional wisdom is correct in pointing out that the payoff from democracy is increasing in group size, it fails because it compares absolute and not relative payoffs.

As regards the role of income distribution note that since this does not affect the expected utility of democracy in the model, it suffices to investigate how the payoffs of fighting are affected. Therefore, in the case where  $\theta \geq 1$ , increased income inequality makes it less tempting for the smallest and more tempting for the biggest group to initiate conflict. Thus, again this strengthens the conclusion that if democracy arises only when support is balanced this is because it is the biggest and not the smallest group that initiates conflict.

Finally, when the expected payoff from a fight is increasing in the bias  $b$  to win the fight, it is obviously that the group with a positive  $b$  is more likely to initiate a fight and the other group less likely to initiate a fight. The important thing to note, however, is that in this case the effect of  $\mu$  on payoffs is qualitatively the same as in

the basic model, and thus, the general conclusions on the effect of  $\mu$  from that analysis remain valid.

## Colombia's La Violencia

To the best of our knowledge, there is no empirical evidence that supports the idea that democracy is less likely to be consolidated when political power is balanced. It is particularly difficult to test the above model using cross-national data for several reasons. First, it is hard to identify the true underlying support for different groups or parties in cross-national data. Sometimes this may be possible when voting occurs along purely ethnic lines, as in Mauritius and Guyana at independence. In the case of South Africa, we could identify the Whites, Cape Coloureds, and those of East Indian descent as one group and black Africans as another. Yet even in these cases, the situation is clouded by the great heterogeneity of political identities and cleavages within the majority black African community. Second, though one could look at variables such as the electoral outcomes before coups, there are issues of identification, which are hard to solve. For example, it is often difficult to identify to what extent electoral results are affected by violence on one hand and to what extent violence is affected by underlying support on the other. Finally, to take the model to the cross-national data, it would be desirable to have a richer sense of the observable circumstances that lead violent confrontation to dominate democracy.

Though testing the model is difficult, in this section, we provide some evidence concerning a key implication of the model: other things equal, fighting may be attractive precisely when the support of different parties is balanced. As we pointed out in the introduction, the main source of this result comes from the power function, which assumes that success in conflict depends on the number of supporters one brings to the fight. Though this idea seems widely applicable and plausible, it is doubtful that it applies universally. The advantage of the Colombian context is that it allows us to examine if this implication is consistent with the data in one very salient civil war. This is La Violencia, a civil war that gripped Colombia between 1946 and 1963. There are several features of this conflict that make it ideal. First, it is a clear case in which fighting occurred along party political lines. Indeed, from the formation of the Liberal and Conservative parties that first contested a presidential election in recognizable form in 1850, conflict has been along party lines. After 1850, the parties competed in elections and fought continual civil wars over the results. Hence, there was a recurring interplay between voting and fighting. Second, the apparently enduring nature of political identities in Colombia makes it relatively straightforward to measure the intrinsic support or strength of the parties. Third, using election results from the national election that took place after a long peaceful period, and before the violence erupted, one can be more confident that when measuring underlying support one is not measuring a variable that is itself the result of violence.

### *A Brief Historical Sketch of La Violencia*

We now provide a quick sketch of the relevant period.<sup>12</sup> The traditional historiography isolates the period between 1850, when the Liberal Party first came to power, and 1886, when the Conservatives regained power, as the “Liberal Republic.” After 1886, the Conservative party ruled until they split internally in the 1930 Presidential election and lost to the Liberal candidate Enrique Olaya Herrera. This created a new Liberal regime whose hegemony collapsed at the beginning of La Violencia. The early decades of the century had been relatively peaceful in Colombia, coming in the wake of the most murderous and damaging of the civil wars, the “War of a Thousand Days,” which ended in 1902. After the ascension of power by the Liberals in 1930, however, politics became more polarized. This was particularly so after the presidency fell to Alfonso López Pumarejo in 1934.

The 1930s were an era of rapid social change, industrialization, and urbanization. The Liberal party attempted to reposition itself in the policy space in order to appeal to the newly articulated interests, particularly organized labor and supporters of the dissident Liberal caudillo, Jorge Eliécer Gaitán. López Pumarejo was followed in the presidency by Eduardo Santos but was reelected in 1942. During this period, the Conservative party moved further to the right under the leadership of Laureano Gómez, and politics became more and more polarized. López Pumarejo resigned after a failed coup attempt in 1945, and in the 1946 presidential election, the Conservative Mariano Ospina Pérez defeated a Liberal party that split its support between Gaitán, running as an independent Liberal, and the official candidate, Gabriel Turbay.

The return of the Conservative party led to heightened tensions since many Liberals in the bureaucracy were replaced by Conservatives, and low levels conflict between the parties commenced. By consequence, 1946 is usually taken to be the start of what came to be called La Violencia (Bushnell 1993, 204). On April 9, 1948, Gaitán was assassinated in Bogotá, and massive urban riots and conflict broke out all over the country. After this Ospina Pérez declared a state of siege and soon after closed the congress. All over the country, Liberal and Conservative groups formed militias and fought for control of the countryside.

By the 1950 presidential election, the animosity and violence between the parties was so high that the Liberals refused to run a candidate. Thus, the conservative Laureano Gómez was elected unopposed in this election. The regime Gómez constructed was aimed to institutionalize Conservative dominance, and his virulent anti-Liberalism eventually even alienated his own supporters. He was overthrown by a military coup in 1953 led by General Gustavo Rojas Pinilla, who attracted wide support from Conservatives as well as Liberals. Rojas Pinilla initially had some success in reducing the extent of violence and managed to persuade many Liberal fighters to give up their arms. However, the fighting soon intensified, and it became clear that a real reconciliation between the parties was required for peace to return. This happened in a series of meetings in Sitges in Spain in 1957, and later that year Rojas

Pinilla was deposed by a military junta, paving the way for the emergence of the National Front regime and the return of civilian rule in 1958.

The historical evidence suggests that we can differentiate between two main periods of La Violencia, and the empirical evidence in Chacón (2005) suggests that there were qualitative differences between the period of the early period (1946–1953) and the final years of the military regime and the initial years of the National Front (1957–1963). In particular, after the military coup and the subsequent creation of the National Front regime, the conflict proceeded less and less along party lines and instead came to resemble a guerilla conflict. Since our model is about conflict for power between well-defined political groups, not guerilla warfare, we restrict our empirical analysis to the early 1946–1950 period.

### *The Data*

There are two crucial sorts of data for our empirical work. The first is a measure of the underlying support for the two political parties. To measure this, we use the election results from the 1946 presidential election at the municipality level. As noted above, there were two Liberal candidates competing against the Conservative Mariano Ospina. Thus, we aggregate the votes for the two Liberal candidates. This is a plausible source for the variable we need because political identity was enduring over time, so these numbers provide a good approximation of popular support, even subsequently in the 1950s. Moreover in 1946, power switched from the Liberals to the Conservatives. Hence, this was a relatively uncorrupt election, so that the recorded vote totals are meaningful. Of the 755 municipalities for which there is available information, 65 percent had a Liberal electoral majority. Of this 65 percent, only 19 percent were electorally competitive (defined as a situation where the Liberals won between 51 percent and 60 percent of the vote). This numbers indicate that in the great majority of Liberal municipalities, there was political hegemony. This percentage is similar for the municipalities with Conservative electoral majorities. Only 20 percent of these were competitive in the 1946 election.<sup>13</sup>

We used this political data in two ways. The first is just to construct a measure of political competition based on the margin between the two vote totals. We did this by taking the absolute value of the difference between the percentages of liberal and conservative votes. Therefore, our first measurement of political competition is

$$\text{Political Competition} = 1 - |\% \text{Liberal} - \% \text{Conservative}| / 100.$$

On one hand, when the vote totals for the two parties are the same, we have a highly competitive environment and the index takes the value of 1. On the other hand, when all of the votes go to one of the other parties, we have complete hegemony and the index takes the value of 0.

Our second measure of political support is based on a set of dummy variables, which classify municipalities according to the percentage of the vote for each party. Municipalities with 80 percent or more of votes for the Liberal party were classified

as a situation with “Liberal hegemony,” and municipalities where the Liberals won between 60 percent and 79 percent were classified as being under “Liberal control.” We classified municipalities where the Conservative party won in the same way. Finally, we classified municipalities where one party won by a margin of less than 10 percent as “Competitive.”

The second main type of data we need are measures of political conflict or fighting. Unfortunately, homicide rates at the municipal level are not available. We therefore collected data from politically motivated violence at the municipal level from various sources. Particularly important is the information collected by the government Commission for the investigation of La Violencia lead by Monsignor Germán Guzmán Campos. The main findings of the Commission are presented in the two volume work of Guzmán, Fals Borda, and Umaña (1980).<sup>14</sup> We complemented this information with events reported in the more specialized regional studies by Ortiz (1985), Henderson (1985), Guerrero (1991), Uribe (1996), Pécaut (2001), and Roldán (2002). The main measure used is a dummy variable that indicates the occurrence of political violence in a municipality (it takes the value of 1 if violent deaths associated with the conflict between parties were registered and 0 if not). Also, in order to measure the intensity of the municipal violence, we used the same sources as above to construct a variable capturing number of years in which the municipality registered partisan conflict. This integer scale therefore goes from 0 to 4.<sup>15</sup>

In addition to these basic dependent and explanatory variables, we used other variables to try to control for factors whose omission might bias the estimated relationship between political competition and conflict. We first used a group of exogenous geographical variables, namely, latitude, altitude, the distance in kilometers between municipalities and the department capital, and various measures of soil types. All these variables were taken from the municipal database of the CEDE of the University of the Andes in Bogotá. A serious concern in estimating the causal effect of political competition on violence is that the relationship may be influenced by omitted variables that help to determine both the extent of political competition and the violence. One idea might be that both of these stem from underlying variation in the socioeconomic structure of municipalities. Using the geographical variables, therefore, we are using an exogenous source of variation that hopefully picks up important aspects of this varying socioeconomic structure.<sup>16</sup>

To further control for possibly relevant socioeconomic factors we also used the literacy rate, a measurement of municipal urbanization and (log) of total population. The literacy rate was calculated as the population that knew how to read divided by the number population over seven years of age. The measurement of urbanization was calculated as the proportion of the population living in urban areas divided by the total municipality population. These variables were calculated using the data from the 1951 National Census. Since a lot of the discussion of La Violencia by historians and political scientists suggests that violence may have been particularly pronounced in the coffee growing areas, we also used data from the late 1920s on the

incidence of coffee growing from Monsalve (1927). Specifically, we calculated the total number of coffee trees per municipality divided by the total population.

Another concern about potential endogeneity, particularly given Colombia's history, is that the spatial location of violence is highly persistent. If political parties then move to control such municipalities, then in estimating the casual effect of political competition it would be desirable to try to control for past conflicts. Though detailed information does not exist from nineteenth-century civil wars or the War of a Thousand Days on the location of conflict, there does exist fairly comprehensive data collected by LeGrand (1986) on agrarian conflicts.<sup>17</sup> LeGrand (1986) also collected information of the distribution of public lands, something often initiated as an attempt to defuse rural conflict. From LeGrand's work, we constructed several variables, the number of territorial concessions made, the number of hectares of public land granted, and the number of reported agrarian conflicts over uncultivated public lands. These variables are available for the periods 1827–1869, 1870–1900, 1901–1918, and 1918–1931.

Our final strategy to try to control for omitted variables is to use departmental fixed effects. Colombia is traditionally thought of as a country of great regional divides and strong regional and departmental identities. Historically, this has been reflected in the relatively decentralized political system in Colombia with departments having a large degree of autonomy. In consequence many of the potentially omitted factors that might jointly influence patterns of political identity and violence could vary systematically across departments. Hence including departmental fixed effects is an attractive way of trying to control for such factors.

Table 1 records the basic descriptive statistics of the data.

## Empirical Results

We start our empirical analysis by estimating a linear probability model of the form

$$d_i = \gamma c_i + \mathbf{x}'_i \beta + \mu_{j(i)} + v_i, \quad (27)$$

where  $d_i$  is an indicator function that takes the value one if political violence was present in municipality  $i$  during the period and zero otherwise.  $c_i$  is our measure of political competition in the municipality and  $\mathbf{x}'_i$  is a vector containing all the covariates or control variables.  $j(i)$  means that municipality  $i$  is located in department  $j$  so  $\mu_{j(i)}$  is a departmental fixed effect. Lastly,  $v_i$  is an error term that we assume is orthogonal to all the explanatory variables.<sup>18</sup>

The coefficient of interest is  $\gamma$ . Note that to consistently estimate  $\gamma$  by ordinary least squares (OLS), we require that  $\text{cov}(c_i, v_i) = \text{cov}(x_i^z, v_i) = 0$  for all  $z$ , where  $x_i^z$  is the  $j$ th element of the vector  $\mathbf{x}_i$ . These moment conditions are violated if municipality characteristics that influenced both the extent of political support and the propensity for violence are omitted from the model. The best way of dealing with this issue would be to have an instrument for  $c_i$ . Since we do not have such an

**Table 1.** Descriptive Statistics

	I's	%	Mean	Min	Max
<b>Dependent variables</b>					
Municipal violence	184	24.4			
No. violent years 1946–1950			0.34 (0.67)	0	4
<b>Political variables</b>					
Political competition			0.51 (0.29)	0	0.99
Liberal hegemony	184	24.4			
Conservative hegemony	112	14.8			
Liberal control	214	28.3			
Conservative control	98	13.0			
Electoral competition	147	19.5			
Liberal majority	494	65.4			
<b>Land variables</b>					
Land concessions (per capita)			0.46 (1.66)	0	18.25
Land conflicts			0.63 (1.86)	0	30
Granted Land (% of arable land)			0.06 (0.21)	0	3.03
<b>Socioeconomic controls</b>					
Literacy rate			0.49 (0.15)	0.02	0.89
Urbanization Index			0.24 (0.2)	0	1
Coffee plants (per capita)			1.34 (1.74)	0	6.82
Ln population			9.13 (0.8)	5.5	13.3
<b>Geographic controls</b>					
Latitude			5.71 (2.2)	0.82	11.23
Altitude (m)			1330 (875.9)	2	3087
Erosion Index			2 (1.03)	0	5
Distance to capital (km)			119.2 (97)	0	790
Number of observations: 755					

Note: Standard deviations in parenthesis.

instrument, we have to be cautious in interpreting our estimates of  $\gamma$  as being the true causal effect. Nevertheless, as we noted above, the origins of political identities in Colombia seem to lie deep in idiosyncratic historical events of the nineteenth century and are not closely associated with such things as land inequality or socioeconomic structure. These facts lead us to be relatively confident that we can treat  $c_i$  as econometrically exogenous.

Table 2 provides the basic results from the estimation of equation 27 by OLS.<sup>19</sup> Column 1 contains the simplest regression of the dummy for the presence of violence against our measure of political competition. The estimated coefficient suggests that the greater is political competition, the greater is the probability of violence. This coefficient is significantly different from zero at standard levels and its magnitude is important. For example, a one standard deviation increase in our competition index is associated with an increase of more than 6 percentage points in the probability of partisan violence ( $[0.29 * 0.23] \approx 6.6/100$ ). In the three next



**Table 2.** Linear Models

	Model					
	Linear probability model					OLS
	(1)	(2)	(3)	(4)	(5)	(6)
						# violent years
Political competition	0.23 (0.05)	0.14 (0.05)	0.20 (0.06)	0.19 (0.05)		0.28 (0.09)
Liberal hegemony <sup>a</sup>					0.14 (0.05)	
Liberal control <sup>a</sup>					0.2 (0.05)	
Political competition <sup>a</sup>					0.23 (0.05)	
Conservative control <sup>a</sup>					0.15 (0.05)	
Liberal majority <sup>a</sup>		0.10 (0.03)	0.08 (0.03)	0.07 (0.03)		0.11 (0.05)
Land concessions (per capita)		0.01 (0.01)	[0]	[0]	[0]	[0]
Granted land (% of arable land)		[0]	-0.06 (0.12)	-0.07 (0.13)	-0.06 (0.13)	-0.16 (0.15)
land conflicts		[0]	[0]	[0]	[0]	[0]
Spatial Lag (dependent variable)				0.20 (0.08)		
Geographical controls	No	Yes	Yes	Yes	Yes	Yes
Socioeconomic controls	No	Yes	Yes	Yes	Yes	Yes
Departmental fixed effects	No	No	Yes	Yes	Yes	Yes
R <sup>2</sup>	0.02	0.13	0.20	0.2	0.2	0.18
Number of observations	755	754	754	754	754	754

Note: Standard errors reported in parenthesis are robust to arbitrary heteroskedasticity. The dependent variable in columns 1 through 5 is a dummy variable taking the value of one if partisan violence was reported in the municipality during the whole period 1946–1950, zero otherwise. The dependent variable in column 6 is the number of years in which violence is reported.

<sup>a</sup>Indicates a dummy variable.

columns we check the robustness of this result. In column 2, we add a full set of geographical and economic controls and also our data on the distribution of government lands and historical land conflicts. We also add a dummy variable for whether a municipality has a Liberal majority to check whether the effect of political competition depends on which party has the (small) majority. Both the estimated coefficient and the standard error are relatively unchanged by the addition of many different types of covariates. Interestingly, none of the variables capturing land grants or land conflicts are significant. Moreover, conditional on there being political competition, municipalities with a Liberal majority do have a higher probability of experiencing violence. In column 3, we add a full set of departmental fixed effects to try to control for omitted variables that are common at the departmental level. As we see, the results are very robust even after controlling for these fixed effects.<sup>20</sup>

As a further robustness check, in column 4 we also take into account the possibility of spatial autocorrelation. This is a serious concern because given the regional dimension in the occurrence of violence, our observations are spatially correlated. This means that the measures of any given municipality do not depend only of the characteristics of this unit but also on the characteristics of other neighboring municipalities. Thus, if spatial dependence is an issue, ignoring it would lead to biased and inconsistent estimates of  $\gamma$ . To allow for the possibility of such effects, we augment model (27) and estimate a model of the form

$$d_i = \rho \mathcal{W} \mathbf{d} + \gamma c_i + \mathbf{x}_i' \beta + \mu_{j(i)} + v_i, \quad (28)$$

where  $\mathbf{d} = (d_1, d_2, \dots, d_n)$  and  $\mathcal{W} = [w_{ij}]_{i,j}$  is a diagonal weighting matrix in which element  $w_{ij}$  (with  $i \neq k$ ) contains the inverse of the distance between the center of municipality  $i$  and the center of municipality  $k$ . Thus, as it is standard in this type of models, we assume that the interaction between violent municipalities is an inverse function of the distance between them. This matrix was calculated for all the municipalities in the sample using geographical coordinates.

Column 4 presents the estimation of equation (28). This model is estimated by OLS.<sup>21</sup> The results of this model confirms the robustness of the estimates obtained previously. The estimated effect of political competition on the probability that a municipality will be violent obtained in the linear-probability model is completely robust to correcting for the presence of spatial effects.

Column 5 looks at the relationship electoral support and violence in a different way using dummy variables corresponding to the classification of municipalities described above. Here the coefficients should be interpreted as relative to the omitted category, which is Conservative hegemony (more than 80 percent of conservative vote share). The estimated coefficients suggest that any movement away from Conservative hegemony increases the probability of violence with the movement to political competition having the largest estimated effect, consistent with the results in columns 1 through 4.

Lastly, column 6 in Table 2, investigates the robustness of the effect of political competition on municipal violence taking the count variable previously described as dependent variable. Thus, the model estimated in column 6 is exactly the same as equation (27) but with a dependent variable  $y_i$  such that  $y_i \in \{0, 1, 2, 3, 4\}$ , where  $y_i$  measures the number of years during the 1946–1950 period in which partisan violence is reported (see the descriptive statistics for this variable in Table 1). Again we find a very strong, positive, statistically significant effect of our political competition variable on the number of years in which violence takes place. This suggests that political competition affected not only the occurrence of partisan violence but also its intensity during the period.

## Conclusion

In this article, we have argued that the conventional wisdom in comparative politics about the circumstances under which democracy is consolidated is incomplete. The existing literature has focused on the idea that political parties or groups will agree to play by the rules of the democratic game when they anticipate that they can win power with a sufficiently large probability. Obviously, such a calculation is relevant to determining whether democracy will be stable, and considering it is therefore a necessary part of the study of democratic consolidation. However, in this article we show that it is not sufficient to consider this probability. This is because factors that influence the probability that a party wins power under democracy will also influence its ability to win a fight if it decides to violate the democratic rules. In particular, this implies that an increase in the underlying support that a party has in the population does not necessarily improve the prospects for democratic consolidation because the expected utility of fighting for power may increase faster than the expected utility of playing by the rules of the democratic game.

We constructed a simple model of political competition to investigate how the expected utilities of democracy and fighting depend on the distribution of support in society. Though both the model of democratic politics and the fighting are entirely standard, we showed that in a wide class of cases democracy may only be consolidated when one party was hegemonic. In these situations, when the two parties are evenly balanced, the situation where the conventional wisdom predicts that democracy is most likely to be consolidated, one or both of the parties prefers to fight for power because the probability of winning is sufficiently high. Also, we showed that when balanced support was necessary for democracy to consolidate this is not so because the weakest party will otherwise choose fighting, but because the strongest party will do so. Again, this is completely contrary to the conventional wisdom.

Our model shows that real relation between political support and democratic consolidation must be much more complex than has been recognized. Clearly what is required is more empirical work on this topic. Though we did not provide a test of the conventional wisdom here, we did use data from La Violencia, a civil war that influenced Colombia between 1946 and the early 1960s, to examine one key

possibility derived from the model—that violence and fights for power can occur when the support for political parties is evenly balanced. The Colombian evidence is tentative, since we cannot be completely confident that we have estimated the causal effect of political competition on fighting, but nevertheless the results we presented show that, other things equal, greater political competition at the municipality level during this period in Colombia was associated with greater partisan violence. As we show, this result is consistent with a natural model of political competition in which payoffs from participating in democracy and in a violent confrontation are interlinked by popular support.

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### Notes

1. Other formalizations in this literature, such as Conley and Temimi (2001), Jack and Lagunoff (2003), Lizzeri and Persico (2004), and Llavador and Oxoby (2005), do not discuss the issues that are the focus of this article. For example, the latter two papers examine how elites may voluntarily extend voting rights to maximize their payoffs, so the issue of the consolidation of democracy does not arise.
2. This is possibly because the literature on the collective action problem has stressed the idea that larger groups have less rather than more power. In our model, there are political organizations (i.e., parties), who mobilize support, and thus, there is no collective action problem.
3. For simplicity we proceed by assuming that  $y_L \geq 0$  and  $y_C \geq 0$  but one can easily think of the vector  $(y_L, y_C)$  as being transfers net of taxes, in which case it is possible that they are negative in equilibrium. The qualitative results of that model are identical to the one we study here.
4. It can easily be verified that the optimal response of a politician in a fight is to punish a supporter of the other side by expropriating as much as possible of his income. However, there may be limits to such expropriation because if punishment is too strong, the agent

may defect. Thus, the assumption  $\tau \leq 1$  allows for the possibility that the optimal response of the politician may not involve expropriating all the income.

5. More formally  $n_L = \max[0, \min[\mu - h(1 - 2\rho)\tau y, 1]]$ . Thus, note that the requirement that  $n_L \in [0, 1]$ , implies that if  $\mu - h(1 - 2\rho)\tau y < 0$ , then  $n_L = 0$ , while if  $\mu - h(1 - 2\rho)\tau y > 1$ , then  $n_L = 1$ .
6. Although it may not be immediately evident it follows that when  $n_L \in [0, 1]$ , then  $\mu - h\tau y \geq 0$  and  $1 - 2h\tau y \geq 0$ . Proof: When  $n_L \geq 0$ , then from equation (15)  $\mu \geq h(1 - 2\rho)\tau y$ . Inserting from equation (16) this can be restated as  $n_L \geq \frac{1}{2} \left(1 - \frac{\mu}{h\tau y}\right)$ . Inserting from  $n_L$  from equation (17) yields after simple calculation that  $\mu - h\tau y \geq 0$ . From  $n_L \in [0, 1]$  and, equation (17), it then follows that  $1 - 2h\tau y \geq \mu - h\tau y \geq 0$ . Q.E.D.
7. As we have modeled it above people divide their support between the politicians without getting paid for fighting. If the supporters (or soldiers) are hired at a constant wage  $w$  as often assumed in the standard conflict literature, the payoff from fighting would be given by  $U_L^F = \rho R - D + (1 - n_L)\tau y - wn_L$ . Note, however, that this would not change anything of substance in the model as in this case we would have  $U_L^F = \frac{\mu - h\tau y}{1 - 2h\tau y} \left[ R - D - w + \left(1 - \frac{\mu - h\tau y}{1 - 2h\tau y}\right)\tau y \right]$ ; that is, introducing this would have the same effect as a higher  $D$ .
8. If  $\theta = 1$ , we are back in the case analyzed above where all citizens have the same income.
9. To arrive at this expression note that since politician  $L$  has a majority of ideological supporters in the population, all those with an ideological bias towards him will support him, as well as some of the citizens with an ideological bias in favor of politician  $C$ . Thus, all citizens that do *not* support politician  $L$  belong to the group of citizens with an ideological bias in favor of politician  $C$ .
10. To see this more formally, note that  $\frac{\partial U_L^F}{\partial \theta} = \frac{\partial n_L}{\partial \theta} (R - D) + n_L(1 - n_L)\tau y + \frac{\partial n_L}{\partial \theta} \tau \theta y(1 - 2n_L)$ .
11. It is easy to verify that when  $\mu > \frac{1}{2}$  then  $\frac{\partial n_L}{\partial \theta} > 0$  and also that when  $\mu > \frac{1}{2}$  then  $1 - 2n_L > 0$ . It then follows that all three expressions on the right-hand side of the expression for  $\frac{\partial U_L^F}{\partial \theta}$  are positive.
12. Note that the situation  $U_L^D(\mu) < U_L^F(\mu)$  for all  $\mu$  can never arise as from equations (13) and (18), it follows that  $U_L^D(0) > U_L^F(0)$ . Thus, the curve for democracy must always start out above the curve for fighting.
13. For accessible general accounts see Bushnell (1993, chap. 9) and Safford and Palacios (2002, chap. 14). For more specialized overviews on La Violencia, see Oquist (1980) or LeGrand (1997).
14. Competitive municipalities were mainly located in the departments of Antioquia, Viejo Caldas (subsequently divided into the modern departments of Caldas, Quindó and Risaralda, Tolima, and Valle. See the online appendix for maps depicting the electoral support and the level of competition.
15. Given that the commission was a national effort, the main departments of the country were included in the investigation. Thus, we believe the sample of municipalities included in Guzmán, Fals Borda, and Umaña (1980) is representative of the whole set of municipalities. Also, given that the commission was initiated by the military junta

- in 1958 and carried through during the National Front, we also think there is no clear systematic (partisan) bias in the reporting of the events.
16. In the appendix, we also included a map that shows the location of the municipalities that experienced partisan violence during the period 1946–1950.
  17. We should add however that the political geography of Colombia is enormously complex (see Pinzón de Lewin 1989) and certainly defies any simple explanation in terms of economic interests. Historically, various parts of the country identified with the different parties, for example, Antioquia with the Conservative party, Santander with the Liberal party, and there also appear to be many idiosyncratic sources of variation.
  18. LeGrand (1986) shows that the department that reported the greatest number of these type of conflicts during the period 1901–1931 was the Viejo Magdalena department (actually the departments of Magdalena, Cesar, and Guajira) with a total of 108 reported conflicts. For the same period, the region of Viejo Bolivar (currently the Bolivar, Cordoba, and Sucre departments) with 86 reported cases. These regions exhibited the lowest homicides rates during La Violencia.
  19. Even if the linear model (27) is not the best description of the (conditional) probability of violence, it is a convenient approximation and the parameters are easily interpretable.
  20. Since heteroscedasticity is prevalent in linear probability models (e.g., Wooldridge 2002), in all tables we report heteroscedasticity-robust standard errors.
  21. From the economic variables used, we find that higher levels of urbanization are associated with lower levels of violence and more populous municipalities with higher probabilities of violence. This is consistent with the characterization presented in case study works such as Sánchez and Bakewell (1985).
  22. In a previous version of the article (Chacón, Robinson, and Torvik 2007), we also estimate this model using the maximum likelihood method for autoregressive models with spatially lagged dependent variables proposed by LeSage (1999).

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