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WHEN IS DEMOCRACY AN EQUILIBRIUM?: THEORY AND EVIDENCE FROM COLOMBIA'S *LA VIOLENCIA*

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When is Democracy an Equilibrium?: Theory and Evidence from Colombia's *La Violencia*[*]

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Abstract

The conventional wisdom in political science 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 paper we show that this wisdom is, if not totally incorrect, seriously incomplete. This is so because although the probability of winning an election increases with the size of a group, so does the probability of winning a fight. Thus in a situation where 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, we show that democracy may *never be consolidated* in such a situation. Rather, democracy may only be stable when one group is dominant. We provide a test of a key aspect of our model using data from *La Violencia*, a political conflict in Colombia during the years 1946-1950 between the Liberal and Conservative parties. Consistent with our results, and contrary to the conventional wisdom, we show that fighting between the parties was more intense in municipalities where the support of the parties was more evenly balanced.

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I. Introduction

When Mauritius and Guyana became independent from Britain in 1968 and 1966, respectively, political conflict had coalesced into a struggle between those of East Indian descent and the rest. In Mauritius, East Indians comprised about 70% of the population and their interests were represented by the Labour Party headed by Seewoosagur Ramgoolam. In contrast, East Indians were only 50% 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 fight. As Przeworski (1991, pp. 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 which 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 PMSD (Parti Mauricien Social Democrate) had no chance of winning a majority of votes and therefore would be driven to subverting democracy. That this was evidently not what happened in these two countries is illustrated by Figure 1 which shows their Polity scores since independence. In fact, 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 and the reason the conventional wisdom in political science fails to explain what happened in Mauritius and Guyana could be due to any number of idiosyncratic factors. In this paper however we argue that actually the failure of the predictions of the conventional wisdom is indicative of a serious flaw in the underlying logic. This logic is incomplete because it only considers half of the story. While it may be true that compliance with the rules of democracy depends in part on the probability of winning within democratic institutions, it clearly also depends on the probability of winning a fight. In a natural model, these two things are closely connected. Indeed, the greater the chance that a group wins an election may correspond to a greater chance that it wins a fight.

If the outcome of elections 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 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 therefore, they also imply that fighting is attractive. Indeed, it can be situations where strength is asymmetric, where elections are lopsided, that fighting may not be attractive and democracy will be stable. The intuition for this is immediate. When power is asymmetric, there is a dominant group, and the smaller group does not fight because, even though it cannot win an election, the probability of success in fighting is so 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, or alternatively they can fight for power. We assume that people in the population have preferences not only over income but also over ideology, so that they may be more or less attached to one of the parties (as in a standard probabilistic voting model). 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 the natural model we build, we show that 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.

We do not deny that there exists some model in which the conventional wisdom is true, but our analysis clarifies what properties of the technologies of democracy and fighting must be satisfied for it to be true. These results are exactly the opposite of the conventional wisdom because the conventional wisdom is, if not wrong, seriously incomplete. Scholars such as Przeworski (1991) or Weingast (1997) who have studied the circumstances under which democracy is preferred to fighting emphasize the idea that the circumstance most propitious to the consolidation of democracy is when parties are competitive, in the sense that both are evenly matched. Colomer (2000, p. 10) reiterates this view when he writes that "the establishment of democracy appears as a conventional agreement on new rules of the political game. Agreement is possible because democracy gives different actors reasonable expectations to gain or share power in some undetermined future." In this case both can hope to attain power via elections and neither is tempted to abandon democracy and fight for power. We show, to the contrary, that this is precisely the situation where the use of violence to attain political power may become most attractive.

In addition to providing a model which clarifies the relationship between democracy and fighting, we investigate one of the implications of the model empirically. 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 at least 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 Colombia has been governed primarily by civilian governments of the Liberal or Conservative parties. Periods of military rule have been very short 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 who formed local militias and guerillas and fought over the control of various parts of the country. We cannot use this experience to really test the model, but it does allow us to investigate a crucial implication - in situations where support for the parties was evenly balanced we can observe conflict, whereas where one of the parties was dominant, we observe peace. As we show in section 3, subject to the usual caveats about identification, this is exactly what the data demonstrates.

Our paper is related to the formal literature modelling 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. The work by Acemoglu and Robinson (2000, 2001, 2006) focuses on how democracy arises as a method of making credible commitments to avoid social conflict. They show how the consolidation of democracy depends on the ability of authoritarian elites to contest power in democracy. Specifically, when elites do better in democracy, for example by forming successful political parties, democracy becomes more tolerable and is more likely to be consolidated (subject to the caveat that if elites do too well then democracy will be unconsolidated because it does not deliver enough to the majority). Nevertheless, in their model the outcome of conflict is deterministic and independent of the size of the groups contesting power. The analysis presented here shows that when the technology of conflict is modelled more explicitly there is an offsetting effect - though greater elite strength in democracy makes it more tolerable, it also makes it easier to overthrow democracy. This suggests that the effect of elite strength on democratic consolidation is more complex, though obviously this depends on the source of that strength.[1] Other papers, such as by Conley and Temimi (2001),

[1] Acemoglu and Robinson (2005, Chapter 6) note another reason why the conventional wisdom we question in this paper may be incorrect. In their model of democracy, the elite who dominate nondemocracy can never win power because policies always cater to the preference of the median voter. However, they shows that this does not mean that the elite cannot get what they want in a democracy because they may be able to threaten to undermine democracy. In response to such threats, the policies of the median voter will cater to the preferences of the elite despite the fact that the elite itself do not form the government. Indeed there is an irony here because according to the conventional wisdom, if the elite cannot form a government then they will try to mount a coup and hence democracy is not consolidated. Yet if they can overthrow the system by force then they must have effective power and this is exactly the situation where they will be able to get what they want from the government without having to overthrow it. When the elite do not have such power, they do not get what they want from democracy, but neither are they able to mount a coup. Hence the conventional wisdom is also false in the framework of Acemoglu and Robinson although for a different reason than in our paper.

Jack and Lagunoff (2003), Lizzeri and Persico (2004) and Llavador and Oxoby (2005), also do not discuss the issues which are the focus of this paper. For example, the latter two papers examine how elites may voluntarily extend voting rights to maximize their payoffs and so the issue of the consolidation of democracy does not arise.

The literature on conflict and international warfare has also posed in various ways the question about which situations make conflict more likely. This research emphasizes resources rather than people as an input into conflict and a source of power. This is possibly because the literature on the collective action problem has stressed the idea that larger groups have less rather than more power. Nevertheless, as Esteban and Ray (2001) have shown, this is not a general implication of models of collective action and in our model there are organizations, political parties, who mobilize support and thus there is no collective action problem.

Early work by Hirshleifer (1991) and Skaperdas (1992) emphasized the 'paradox of power' where 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 the 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. On the other hand, 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 the research which studies what sorts of negotiations can avoid conflict. The main result in this literature is that, as Powell (1999, p.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 paper 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. However, as we show, in a natural model they do not increase at the same rate. Powell's remark precisely characterizes the circumstances under which fighting occurs in our model. Our main point is that in a natural model it is much more likely to happen when support is symmetric, which is exactly the circumstances where the conventional wisdom in comparative politics asserts that democracy is more attractive.

II. A Model

In this section we develop a model of the trade-off between fighting and democracy. To see the ideas at work it is simplest to consider a situation where 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 etc. that is not transferred back to the population. The groups vie for the support of citizens. There is one group of such 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 also, 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 non-cooperatively to win the support of citizens by offering tax and transfer policies. The party which wins most votes wins the election, takes power and consumes the rents which 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 who and this allows parties

to target punishments or rewards.

We now develop our model of democracy.

A. 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 which 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.[2] 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. δ and σ^i are the characteristics of the parties unrelated to their economic promises - 'overall popularity δ' and 'ideology σ^i'. The interpretation of $\delta + \sigma^i$ is that it represents the utility which is independent of economic policy to individual i of voting for C. These are preferences over some unalterable characteristic of the party. δ is common to all, but σ^i is specific to each individual.

We assume that δ is a random variable distributed uniformly on the interval $\left[-\frac{1}{2\phi}, \frac{1}{2\phi}\right]$ with density $\phi > 0$. σ^i is individual specific and distributed uniformly on the interval $\left[-\frac{\mu}{h}, \frac{1-\mu}{h}\right]$ with density $h > 0$. Thus a share $\mu \in [0, 1]$ of the population has an ideological bias towards party L, while a share $1 - \mu$ of the population has an ideological bias in favor of party C. If $\mu = \frac{1}{2}$ we are back in the standard version of the probabilistic voting model, where ideology is symmetrically distributed for the two parties. If $\mu > \frac{1}{2}$ we have a situation where the distribution of ideology is skewed to the left so that a majority ideologically prefers party L, while if $\mu < \frac{1}{2}$ party C enjoys an ideological advantage. Thus μ may be though of as the share of the population that sympathizes with party L, alternatively we may think of μ as the share of the population in one particular ethnic

[2] 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.

group associated with party L, etc. We shall also refer to μ and $1-\mu$ as measuring the underlying or the intrinsic support for a party.

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

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

The fraction of the population who support L is then,

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

using the fact that the distribution of σ^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,

$$\begin{aligned} \pi &= \Pr\left\{\mu + h\left(y_L - y_C - \delta\right) > \frac{1}{2}\right\} = \Pr\left\{\delta < y_L - y_C + \frac{\mu - \frac{1}{2}}{h}\right\} \\ &= \int_{-\frac{1}{2\phi}}^{y_L - y_C + \frac{\mu - \frac{1}{2}}{h}} \phi di \\ &= \frac{1}{2} + \phi\left(y_L - y_C\right) + \frac{\phi(\mu - \frac{1}{2})}{h}. \end{aligned} \tag{4}$$

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

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

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

$$\phi\left(R - y_L\right) - \pi = 0. \tag{6}$$

(6) has a nice interpretation. The first term, $\phi\left(R - y_L\right)$, 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 ϕ, the density of δ. The second term, π, is the expected marginal cost of this. Holding constant the

probability of winning, expected utility falls by π when the party offers voters more; π is simply the probability of winning the election so that the politician has to deliver these promises. Thus, note from (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 (4) we can re-write (6) as,

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

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,

$$\phi (R - y_C) - (1 - \pi) = 0, \tag{8}$$

and solving as above gives,

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

A (pure strategy) Nash equilibrium in this model is a vector of policies, (y_L, y_C) that simultaneously satisfy (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 (9) and (7) we find

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

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

Consider first the case studied in the standard model of probabilistic voting where the two ideological groups are of the same size; $\mu = \frac{1}{2}$. Then 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 ϕ).

In our model, however, it can be seen from (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 (10) and (11) into (4). This yields

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

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 election probability 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 just 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 inserting from (10) and (12) in (5) we find the expected utility of politician L under democracy, U_L^D, which is

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

We note that the utility of politician L increases with μ, so that the larger the group that ideologically supports the politician, the higher is his 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 this will turn out to be key to understanding the political choice between democracy and fighting, the second derivative of U_L^D with respect to μ is positive. The intuition for this can be seen from (10) and (12). Consider the effect of tilting the distribution of ideology or group size in favor of politician L, i.e. increasing μ. As can be seen from (10) this decreases the transfers offered by politician L linearly, and thus also increases the rents of winning the election linearly. As seen from (12) the election probability is also linear in μ. Consequently, an increased μ increases both the probability of winning and the prize of winning linearly. As the expected utility of democracy is these two terms multiplied, this explains why the expected utility increases faster than linearly with an increased μ.

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 (10) and (11), and the expected utility of a party from democratic competition is a strictly increasing and convex function of its intrinsic support.*

B. Fighting

A difference between democracy and fighting is that with 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 that did not support him by expropriating a share $\tau \leq 1$ of their income. 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,

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

Here the left hand side is the expected utility to individual i of supporting L; with a probability ρ party L wins the fight in which case income is y, while with probability

$1-\rho$ party L looses 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. By rearranging the inequality we get,

$$\sigma^i < -\delta - (1-2\rho)\tau y. \tag{15}$$

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. By using the same approach as above we can then find[3]

$$n_L = \mu - h(1-2\rho)\tau y. \tag{16}$$

To determine the probability of winning a fight we use the standard contest success function of Tullock (1975) which has by now become standard in the literature on conflict (see Powell, 1993, 1999). Thus

$$\rho = \frac{n_L}{n_L + (1-n_L)} = n_L. \tag{17}$$

Inserting from (17) for ρ in (16) we then find the number of supporters for politician L as[4]

$$n_L = \frac{\mu - h\tau y}{1-2h\tau y}. \tag{18}$$

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 (17) and (18) we obtain

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

[3] 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 $n_L = 1$.

[4] 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 (16) $\mu \geq h(1-2\rho)\tau y$. Inserting from (17) this can be restated as $n_L \geq \frac{1}{2}\left(1 - \frac{\mu}{h\tau y}\right)$. Inserting from n_L from (18) yields after simple calculation that $\mu - h\tau y \geq 0$. From $n_L \in [0,1]$ and (18) it then follows that $1 - 2h\tau y \geq \mu - h\tau y \geq 0$. Q.E.D.

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

$$\frac{\partial U_L^F(\mu)}{\partial \mu} = \frac{1}{1-2h\tau y}\left[R - D + \left(1 - 2\frac{\mu - h\tau y}{1-2h\tau y}\right)\tau y\right]. \tag{20}$$

A larger μ has two effects on the payoff from fighting. First, the direct effect of an increased μ is increased support and thus an increased probability of winning the fight. Second, an increased μ makes the rents from winning smaller as the income expropriated from losers will be smaller. It is evident from (20) that the first effect will always dominate for small μ, while $\frac{\partial U_L^F(\mu)}{\partial \mu}$ may become negative for high μ 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 μ increases.

Furthermore, note from (20) that the second derivative of $U_L^F(\mu)$ is given by

$$\frac{\partial^2 U_L^F(\mu)}{\partial \mu^2} = \frac{-2\tau y}{(1-2h\tau y)} < 0. \tag{21}$$

Thus the utility of fighting is concave in μ. The intuition for this is straightforward. Winning a fight means winning the possibility of punishing the losers by expropriating part of their income. When μ increases the value of using this punishment is smaller as there are less losers.[5] Hence the following result,

Proposition 2 *There is a unique Nash Equilibrium of the conflict model and the expected utility of a party from fighting is a concave function of its intrinsic support μ. The function is strictly increasing in μ when μ is small (and may for a larger μ be increasing or decreasing in μ).*

C. 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.

[5] As we have modelled 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 $U_L^F = \frac{\mu - h\tau y}{1-2h\tau y}\left[R - D - w + \left(1 - \frac{\mu - h\tau y}{1-2h\tau y}\right)\tau y\right]$, i.e. introducing this would have the same effect as a higher D.

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 μ. Then party C has an ideological group of size $1-\mu$, so that the corresponding utility of party C is $U_C^D(1-\mu)$ etc. Democracy is then preferred to fighting when the following two conditions hold simultaneously,

$$U_L^D(\mu) > U_L^F(\mu), \text{ and} \tag{22}$$

$$U_C^D(1-\mu) > U_C^F(1-\mu), \tag{23}$$

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 μ 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

$$U_L^D(\mu) > U_L^F(\mu), \text{ and} \tag{24}$$

$$U_L^D(1-\mu) > U_L^F(1-\mu). \tag{25}$$

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, μ. In the second type of equilibrium fighting results independently of μ. In the third, and most interesting type, democracy or fighting emerge in a way that depends on the ideological group size μ.

Consider first the case where for all μ we have $U_L^D(\mu) > U_L^F(\mu)$. Then democracy will always emerge. We note from (13) and (19) that this is more likely the lower the rents of power R and the higher the destruction D.[6]

[6] Note that the situation $U_L^D(\mu) < U_L^F(\mu)$ for all μ can never arise as from (13) and (19) 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.

Consider next the case where the curves cross once at μ^*, as depicted in Figure 2. 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 μ is less than μ^* 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. Nevertheless, it does even worse if it fights. Now note that as μ increases, the expected utility of fighting increases faster than that of democracy and if μ is higher than μ^*, fighting is preferred by politician L. What about the preferences of C? When μ is smaller than μ^*, so that L prefers democracy, $1-\mu$ is bigger than μ^*, and consequently politician C will be in favor of fighting. Therefore, in this case the type of political equilibrium is independent of μ - fighting will always result.

Next, consider the case where U_L^D and U_L^F cross twice, as in Figure 3 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:

$$\begin{aligned} U_L^D(0) &> U_L^F(0), \\ U_L^D(\mu) &< U_L^F(\mu) \text{ for } 0<\mu<1, \\ U_L^D(1) &> U_L^F(1). \end{aligned}$$

Here politician L prefers fighting for $\mu^S < \mu < \mu^H$. It follows that politician 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 μ or $1-\mu$. In the situation depicted in Figure 3, democracy is most easily sustained when one group has a very small size and the other has a very big size. This is contrary to the conventional wisdom which states that when one group is small fighting is likely to result. 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 3 it is when such a dominant group loses support to an opposition that democracy can collapse.

Another situation, that may initially look favorable to the conventional wisdom, arises when U_L^F cuts U_L^D from below at $\mu^* > \frac{1}{2}$ as in Figure 4. Now politician L prefers fighting when $\mu > \mu^* > \frac{1}{2}$ while politician 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: 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. A result again completely contrary to the conventional wisdom.

The final type of situation that can arise when $\frac{\partial U_L^F(\mu)}{\partial \mu} > 0$ is depicted in Figure 5. 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 μ but for higher μ, $\frac{\partial U_L^F(\mu)}{\partial \mu} < 0$. 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 2 and 4. 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 3 and 5.

III. Colombia's *La Violencia*

The model above suggests that it is entirely plausible that the conventional wisdom is completely wrong. To our knowledge there is no evidence which supports this or test of the idea that democracy is consolidated when political power is balanced. Moreover, it is quite easy to think of many other counterexamples. For instance, the conventional wisdom suggests that the rising support for the Nazi Party in Germany in the early 1930s should

have helped to consolidate the Weimar Republic, which is not an obviously plausible conjecture. Nevertheless, it could be correct. It is difficult to test the above model using cross-national data for several reasons. First, it is hard to identify in cross-national data the underlying support for different groups or parties. Sometimes this may be possible when voting is along pure 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 (though again this case does not look good for the conventional wisdom). Yet even here 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 huge issues of endogeneity and omitted variable bias which will be hard to solve. Finally, to take the model to the cross-national data it would be desirable to have a richer sense of the observable circumstances which lead fighting 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. We do so in the context of *La Violencia*, a civil war which gripped Colombia between 1946 and 1963. There are several features of this conflict which make it ideal. First, it is a clear case where fighting was along party political lines. Indeed, from the formation of the Liberal and Conservative parties which 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. There was therefore a recurring interplay between voting and fighting (see Mazzuca and Robinson, 2006, for an analysis of this inter-relationship for the structure of the electoral system in Colombia). Second, the apparently enduring nature of political identities in Colombia makes it relatively straightforward to measure the intrinsic support or strength of the parties.

A. A Brief Historical Sketch of *La Violencia*

We now provide a quick sketch of the relevant period, accessible general accounts as Bushnell (1993, Chapter 9) and Safford and Palacios (2002, Chapter 14) with useful

more specialized overviews being Oquist (1980) or LeGrand (1997). 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 in the 1930 Presidential election and lost to the Liberal 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. López Pumarejo launched what he called the "Revolution on the March" which involved the introduction of universal male suffrage and a whole vector of social reforms. López Pumarejo also attempted to implement agrarian reforms in order to pacify the countryside where there had been continual violence and land occupations for decades. The 1930s were an era of rapid social change, industrialization and urbanization in Colombia and the Liberal party attempted to reposition itself in policy space in order to appeal to the newly articulated interests, particularly organized labor and those on the left who supported the dissident Liberal caudillo, Jorge Eliécer Gaitán. López Pumarejo was followed in the presidency by Eduardo Santos, but was re-elected 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 which 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. In consequence 1946 is usually taken to be the start of what came to be *La Violencia* (Bushnell, 1993, p. 204). On 9th of April 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. In the 1950 presidential election the Liberals refused to run a candidate and Laureano Gómez was elected unopposed. 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 which 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 in 1958. This regime was a pact between the parties which legislated explicit power sharing at all levels of the administration and government in an attempt to guarantee an equal share of the spoils of office to both parties. After this reconciliation between the parties many independent guerilla groups that the conflict had created persisted until the early 1960s.

The historical evidence suggest 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 violence (1946-1953) and the late violence period (1957-1963). In particular after the military coup and the subsequent creation of the National Front regime, the conflict became less and less along party lines and became much more of a guerilla conflict. Since our model is about fights for power between well defined political groups, not guerilla warfare, we restrict our empirical analysis to the early period. Moreover, due to data availability we focus only on the period 1946-1950.

IV. 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 Liberals candidates, Jorge Eliécer Gaitán and Gabriel Turbay competing against the Conservative Mariano Ospina Pérez. We aggregate the votes for

the two Liberal candidates. This is a plausible source for the variable we need because of the fact that political identity was enduring over time which means that these numbers give a good idea of support even subsequently in the 1950s. Moreover, in 1946 power switched from the Liberals to the Conservatives and this is indicative of the fact that this was a relatively uncorrupt election so that the recorded vote totals are meaningful. We constructed various measures of political competition from these numbers. The left panel of Figure 6 shows the municipalities with Liberal and Conservative majorities for the 1946 presidential elections. Of the 755 municipalities for which there is available information, 65% had a Liberal electoral majority. Of this 65%, only 19% were electorally competitive (defined as a situation where the Liberals won between 51% and 60% 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% of these were competitive in the 1946 election. The right panel of Figure 6 distinguishes between municipalities with and without electoral competition. We see that the competitive municipalities were mainly located in the departments of Antioquia, Viejo Caldas (subsequently divided into the modern departments of Caldas, Quindío and Risaralda), Tolima and Valle.

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 the measurement of political competition used is:

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

On the 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 taxes the value of 0. The second way we looked at the data was to construct some dummy variables which classify municipalities according to the percentage of the vote for each party. Municipalities with 80% or more of votes for the Liberal party were classified as a situation with "Liberal hegemony," municipalities where the Liberals won between 60% and 79% 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 less than 10% as competitive.

The second main type of data we need are measures of political conflict or fighting. Here we use two sources. Unfortunately, we have official information for the homicide rate only at the departmental level. We therefore coded a dummy variable which indicates the occurrence of violent deaths in a municipality (it takes the value of 1 if violent deaths were registered in the period 1946-1950 and 0 if not). The information on violent deaths was collected from several sources, specifically the more specialized regional studies by Ortiz (1985), Henderson (1985), Guerrero (1991), Uribe (1996), Roldán (2002) and Pécaut (2001). Particularly important is the two volume work by Guzmán Campos et al. (1980) which attempted to provide a comprehensive overview of *La Violencia*. Figure 7 shows the location of the municipalities which experienced partisan violence in this period.

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 violent deaths directly related to the partisan conflict. This integer scale therefore goes from 0 to 4.

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 fighting. We first used a group of exogenous geographical variables, namely latitude, altitude, the distance in kilometers between municipalities and the department capital, various measures of soil types and surface area in square kilometers. All these variables were taken from the municipal data base 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 which help to determine both the extent of political competition and violence. One idea might be that both of these stem from underlying variation in the socio-economic structure of municipalities. By using the geographical variables therefore we are using an exogenous source of variation which hopefully picks up important aspects of this varying socio-economic structure. 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.

To further control for possibly relevant socio-economic factors we also used the literacy rate and a measurement of municipal urbanization. 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 Monsalve (1927) on the incidence of coffee growing. Specifically, we calculated the total number of coffee trees per municipality divided by the population.

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 (as in our observations about Antioquia and Santander above). Historically this has been reflected in the relatively decentralized political system in Colombia with departments having a large degree of autonomy. Indeed, after the Rionegro Constitution of 1863 during the Liberal republic, Colombia became a hyper-federal country where the national army did not have the right to intervene in the affairs of individual states! However, the system was to an extent re-centralized after 1886. 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.

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 19th century civil wars or the War of a Thousand Days on the location of conflict, there does exist fairly comprehensive data collected by LeGrand (1988) on

agrarian conflicts. LeGrand (1988) 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. LeGrand (1988) 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. Table I records the basic descriptive statistics of the data.

V. Empirical Results

A. Linear Models

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

$$d_i = \gamma c_i + \mathbf{x}_i' \boldsymbol{\beta} + \mu_j + v_i, \tag{26}$$

where $d_i \in \{0, 1\}$ is a dummy variable which takes the value one if violence was present in municipality i during the period 1946 to 1950, c_i is our measure of political competition in municipality i, μ_j is a fixed effect for department j and v_i is an error term which we assume is orthogonal to the explanatory variables. $\mathbf{x}_i'$ is a vector containing all the covariates or control variables. The coefficient of interest here is γ. Note that to consistently estimate γ by OLS we require that $cov\,(c_i, v_i) = cov\,(x_i^z, v_i) = 0$ for all z where x_i^z is the jth element of the vector $\mathbf{x}_i$. In other words, this type of estimation requires that there be no omitted variables correlated with the right-hand side variables in the model. This could be problematic if there were municipality characteristics that influenced both the extent of political support for the parties and also the propensity for violence. The best way of dealing with this issue would be to have an instrument for c_i. Since we do not have such an instrument, we have to be cautious in interpreting our estimates of γ 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 socio-economic structure. These facts lead us to be relatively confident that we can treat c_i as econometrically exogenous.

Table II provides the basic results from the estimation of equation (26) by OLS.[7] 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 in the municipality. Column 2 looks at this in a different way by 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% 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 column 1.

In the two next columns we return to the basic measure of political competition to check the robustness of our result. In column 3 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 or not a municipality has a Liberal majority to check whether or not the effect of political competition depends on which party has the (small) majority. The important thing to note from this and the last two columns of the table is how robust the estimated coefficient on political competition is. Both the estimated coefficient and the standard error are relatively unchanged by the addition of many different types of covariates. From the variables capturing land grants or land conflicts, only the one measuring the number of land concessions per-capita has a significant over the presence of violence. Interestingly, we find that previous land concessions tend to reduce the probability that a municipality will be violent. Moreover, historical land conflicts are associated with a greater probability of experiencing violence.

[7] Since heteroskedasticity is prevalent in linear probability models, in all tables we report heteroskedasticity-robust standard errors.

Also, we find that conditional on there being political competition, municipalities with a Liberal majority do have a higher probability of experiencing violence. In column 4 we add a full set of departmental fixed effects to try to control for omitted variables which are common at the departmental level. As we see, the results are very robust even after controlling for these fixed effects.

In the final two columns of Table II, as a further robustness check, we also take into account the possibility of spatial autocorrelation. This a serious concern because our observations are spatially correlated, which means that the observations of a geographical unit do not depend only of the characteristics of this unit but also on the characteristics of other neighboring units.[8]Spatial dependency can be due to the fact that the variable measured goes beyond the boundaries of the spatial unit and may have a regional dimension. Thus, if spatial dependence is an issue, ignoring it would lead to unbiased and inconsistent estimates of γ. To allow for the possibility of such effects we estimated a model of the form

$$d_i = \rho W \mathbf{d} + \gamma c_i + \mathbf{x}_i' \boldsymbol{\beta} + \mu_j + v_i, \tag{27}$$

where $\mathbf{d} = (d_1, d_2, ., d_n)$ and W is a spatial weighting matrix. This is an inverse distances matrix, standardized by rows, in which element ik (with $i \neq k$) contains the inverse of the distance between the center of municipality i and the center of municipality k. This matrix was calculated for all the municipalities in the sample using geographical coordinates. This specification was chosen since we want to analyze if the expected interactions between violent municipalities is an inverse function of the distance between them.

Columns 5 and 6 contain the estimation of (27) using different sets of covariates. The models were estimated with the Bayesian methodology for spatial autoregressive models with heteroskedastic error process proposed by LeSage (1999).[9] The results of these models confirms the robustness of the estimates obtained previously. The estimated effect

[8]This is what in the spatial econometrics literature is known as *spatial dependence*. Spatial dependence is similar to temporal dependence displayed by time-series, which is corrected using lag operators. Nevertheless, the spatial effects cannot be corrected in the same way due to the multidirectional effects that potentially exist between spatial units.

[9]For more details of this see Chacón (2005)

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.

Table III investigates the robustness of the effect of political competition on municipal violence taking the count variable previously described as dependent variable. Here we replicate all the estimations presented in Table II. Thus, the model estimated in columns 1 though 5 is exactly the same as (26) but with a dependent variable y_i such that $y_i \in \{0, 1, 2, 3, 4\}$. Again we find a very strong, positive, statistically significant effect of our political competition variable.

B. Non-Linear Models

One common argument against the linear probability model is that some fitted values may lie outside the zero-one interval. Since our main interest is to consistently estimate γ, the fact that some predicted values are outside this interval is not very important. However, our estimate could be biased because the linear model implies that a ceteris paribus change in c_i has a constant effect over the probability of violence, regardless of the initial level of c_i. To address these limitations we estimated a standard probit model of the form

$$prob(d_i = 1 \mid c_i, \mathbf{x}_i) = \Phi(\gamma c_i + \mathbf{x}_i'\boldsymbol{\beta} + \mu_j), \tag{28}$$

where $\Phi(.)$ represents the standard normal distribution function. To check the performance of the point estimates obtained by our linear specification (26) we can compare them with the partial (marginal) effects of the probit model. Table IV presents the results from the estimation of equation (28) via Maximum Likelihood. In column 1 we replicate a regression including our political competition measurement as the only explanatory variable. Again, the results suggest that greater is political competition, the greater is the probability of violence. The magnitude of this effect indicates that the difference in probability between a municipality with absolute hegemony of any of the two parties and one in which there is perfect electoral competition is 21%. Remarkably, this effect is very close to the one obtained by the linear probability model (19%) and is robust to the inclusion

of departmental fixed-effect and all other controls. This validates the robustness of the estimated coefficient on political competition and the performance of our linear model.

Finally, in the last two columns of Table IV we turn to the determinants of the intensity of the conflict using the count variable we described above - the number of years that the municipality was violent. Since the dependent variable now takes integer values, 0,1,2,3,4 we investigate the impact of political competition on the intensity of conflict by using a count data model of the form

$$prob(y_i \mid c_i, \mathbf{x}_i) = \frac{\exp(-\lambda_i)\lambda_i^{y_i}}{y_i!} \tag{29}$$

where $y_i \in \{0, 1, 2, 3, 4\}$. λ_i represents the conditional mean of y_i and is assumed to take the functional form $\ln\lambda_i = \gamma c_i + \mathbf{x}_i'\boldsymbol{\beta} + \mu_j$ (Wooldridge, 2002, Chapter 19). Column 5 presents the model where we only include dummy-variables according to electoral categorization. Once more and consistent with our previous finding, the higher values of y_i are predicted for municipalities moving away from Conservative hegemony to a full electoral competition. In column 6 we present the complete model including the electoral competition measure plus the full set of controls.

VI. Conclusions

In this paper we have argued that the conventional wisdom about the circumstances under which democracy is consolidated is flawed. 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 or not democracy will be stable, and considering it is therefore a necessary part of the study of democratic consolidation. However, in this paper 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 two party 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 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.

A model does not of course prove that the conventional wisdom is wrong. Nevertheless, the model does illustrate that the existing literature is logically incomplete and the real relation between political support and democratic consolidation must be much more complex than has been recognized. Clearly what is required is serious 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 which 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 violence. This is not consistent with the conventional wisdom, but it is consistent with our model.

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Figure 1: Polity Score for Mauritius and Guyana

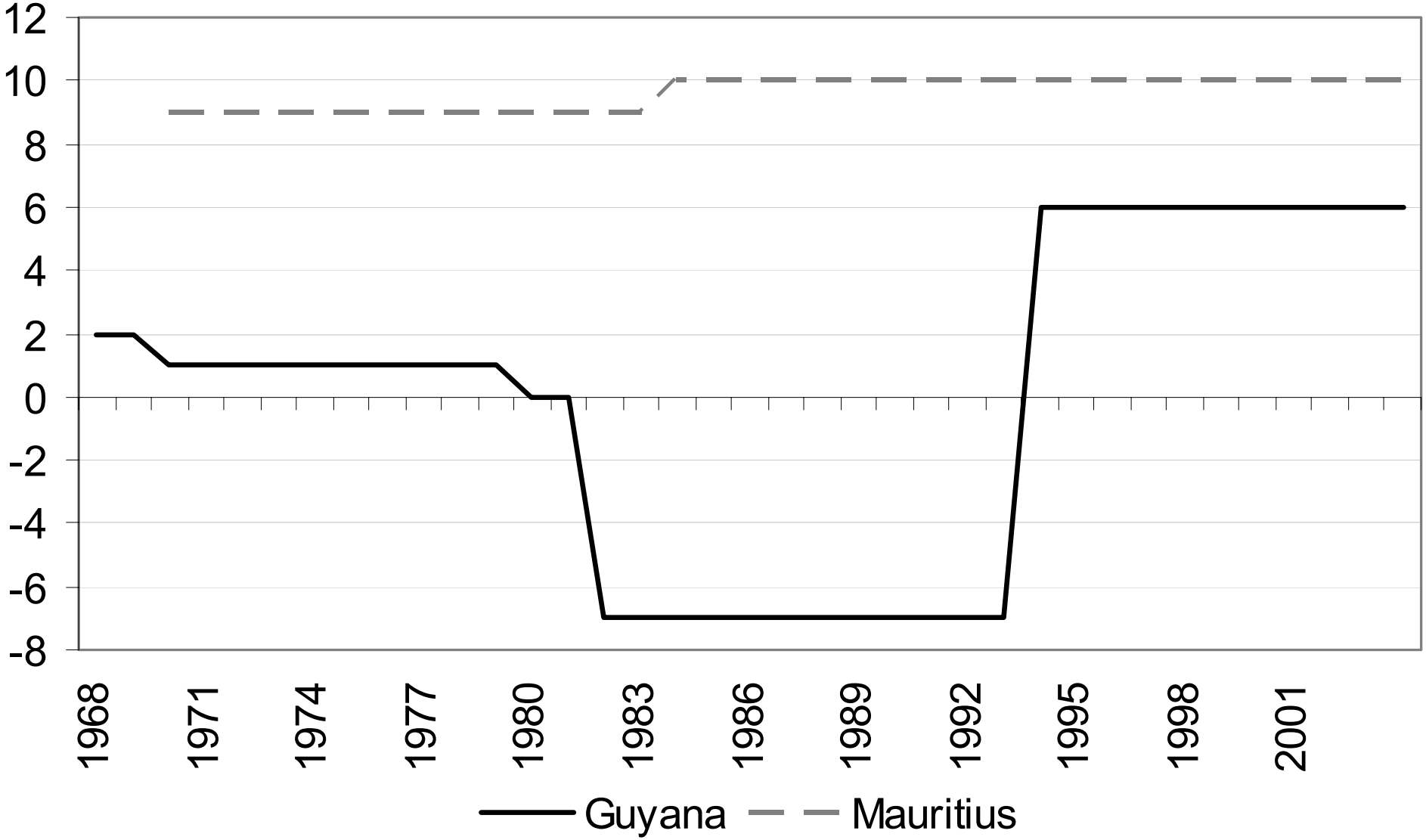


Figure 2: The Impossibility of Democracy

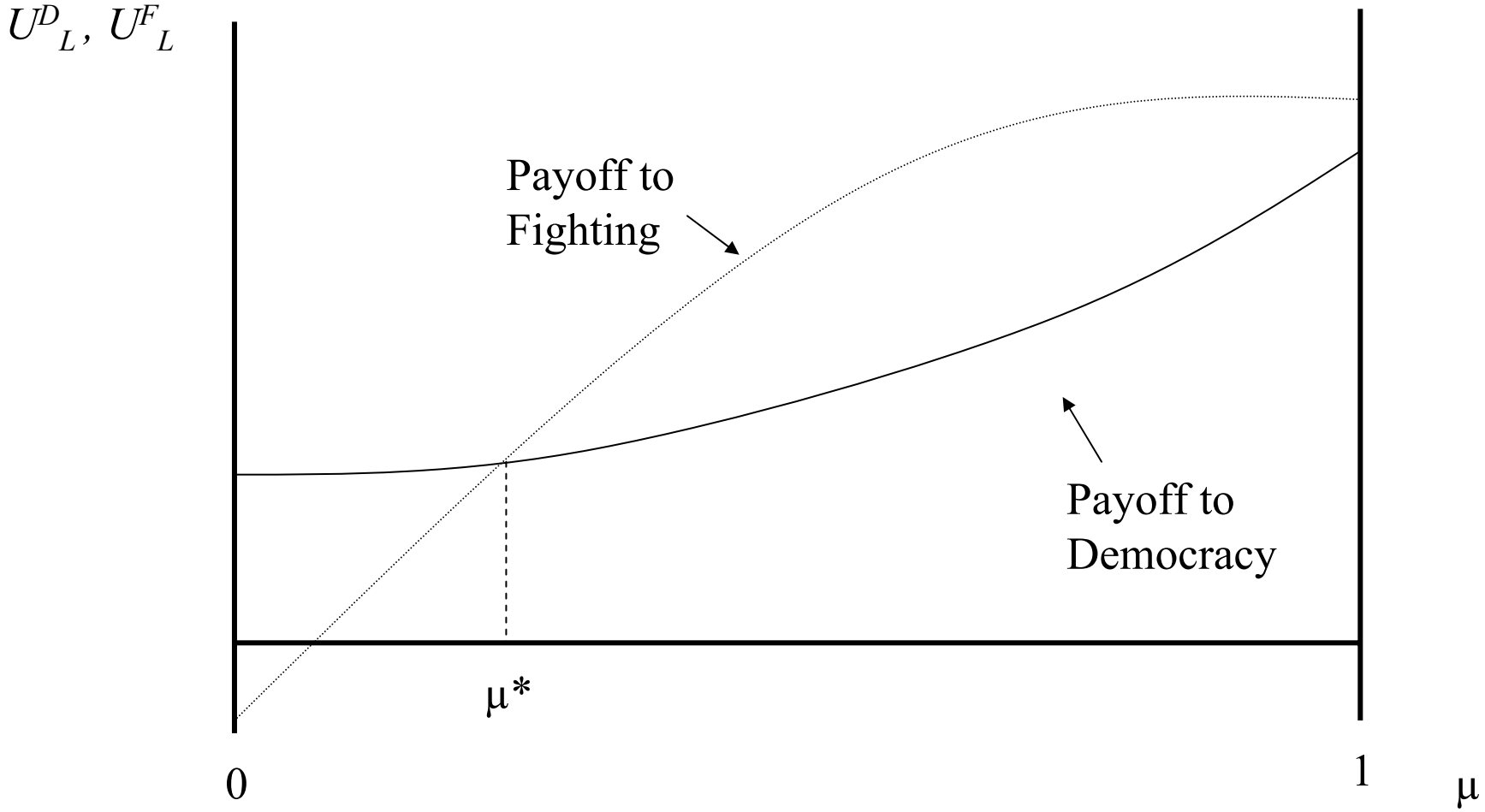


Figure 3: Democracy with asymmetric Distributions of Support

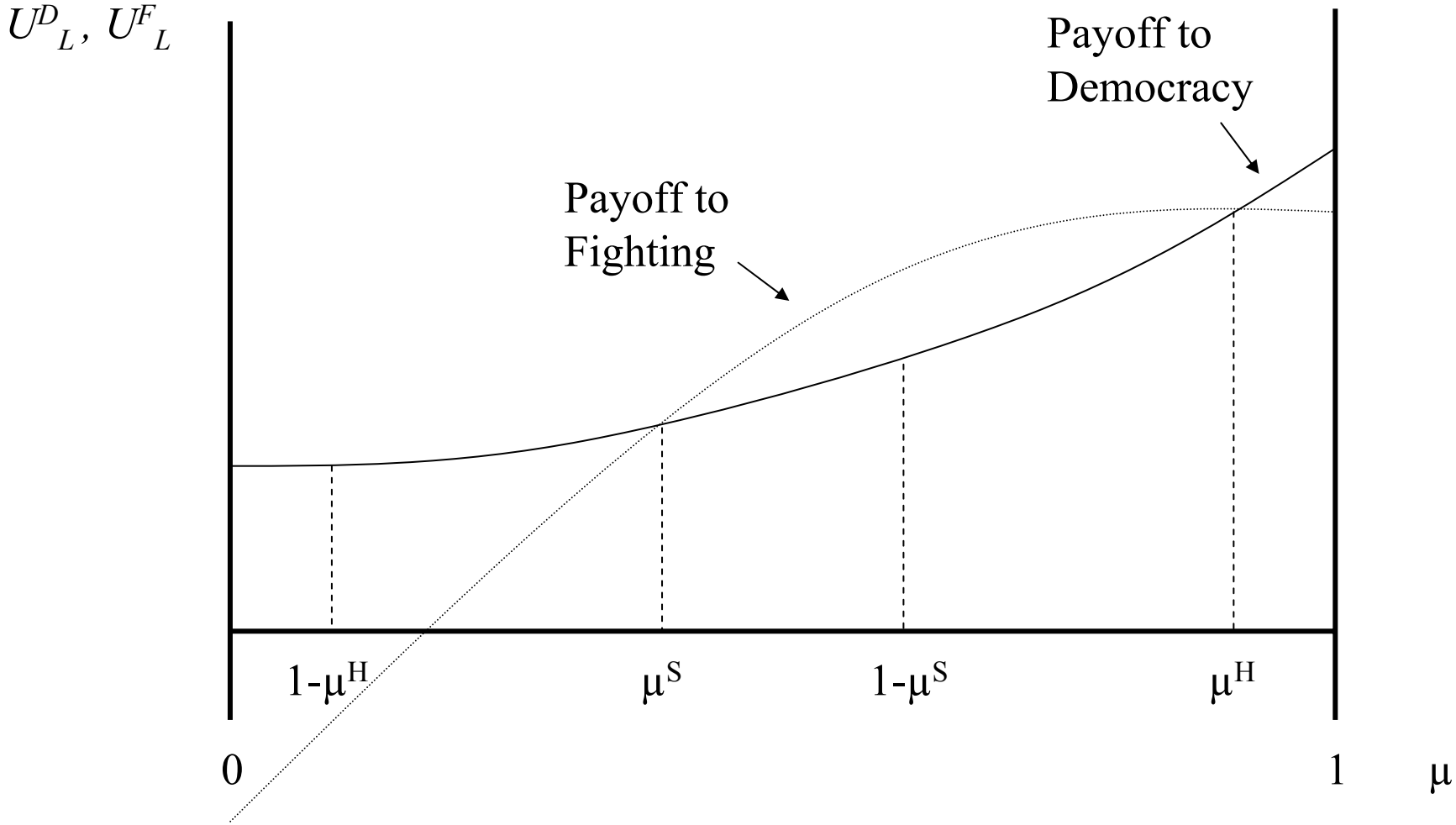


Figure 4: Democracy with symmetric Distributions of Support

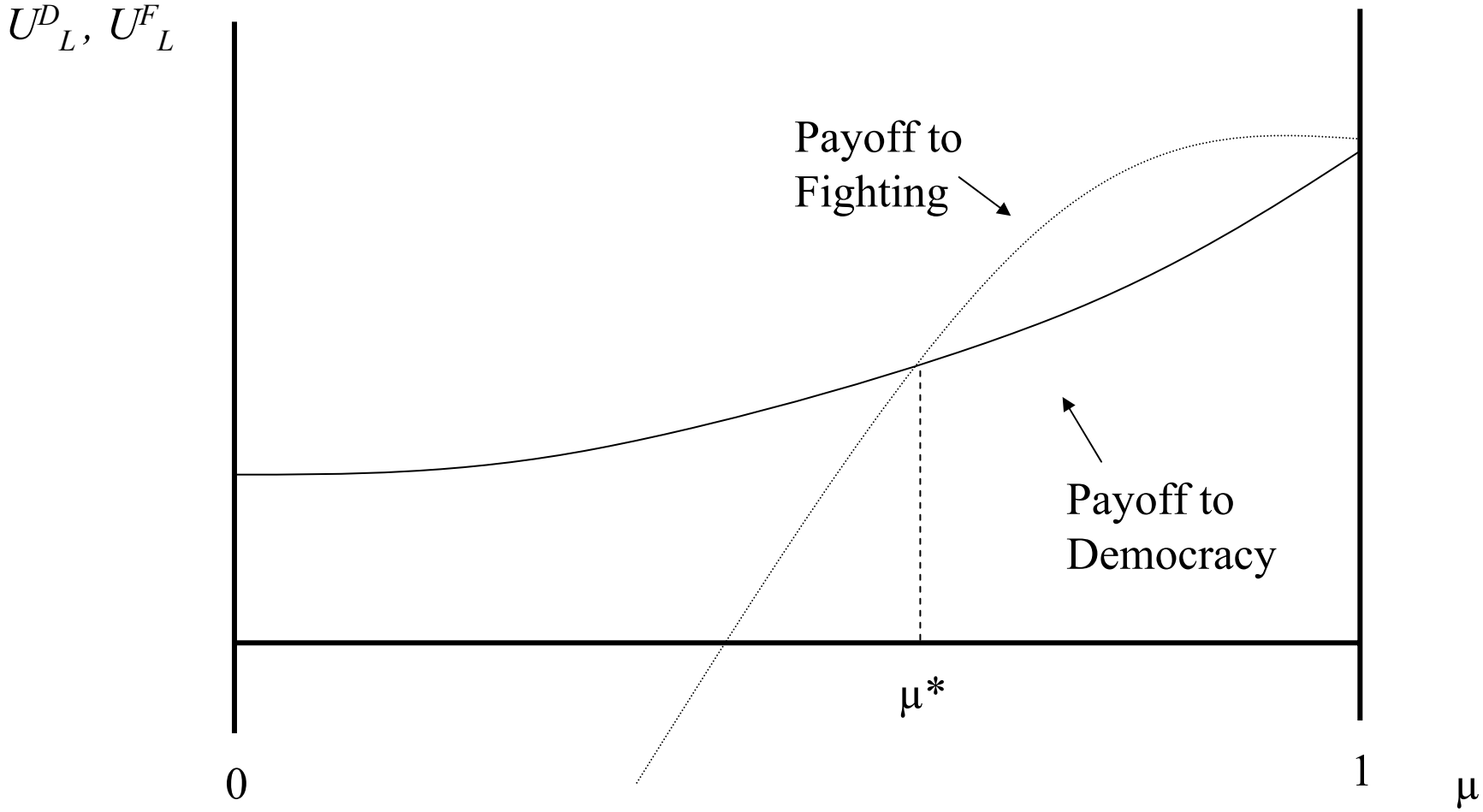


Figure 5: Democracy possible with symmetric and asymmetric Distributions of Support

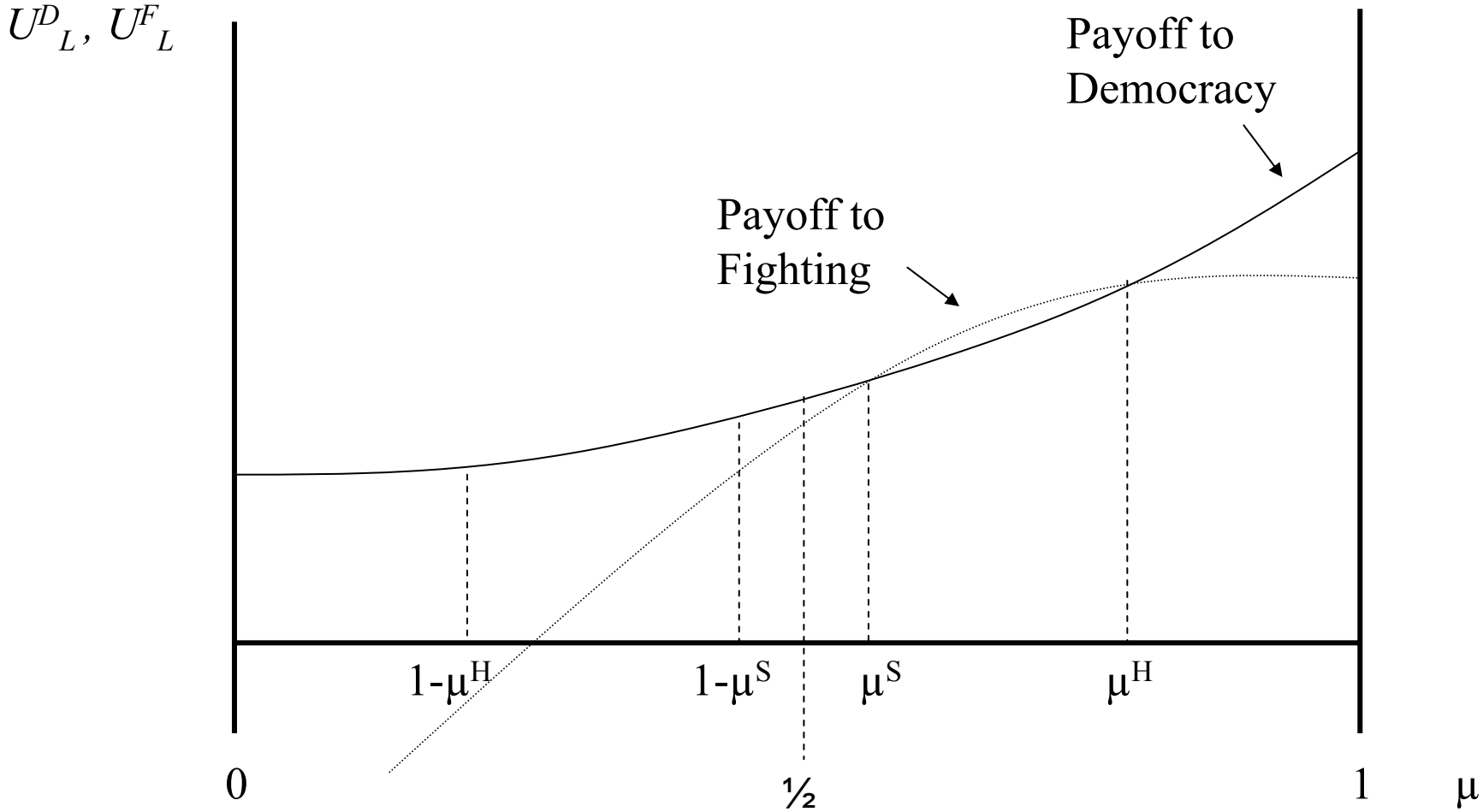
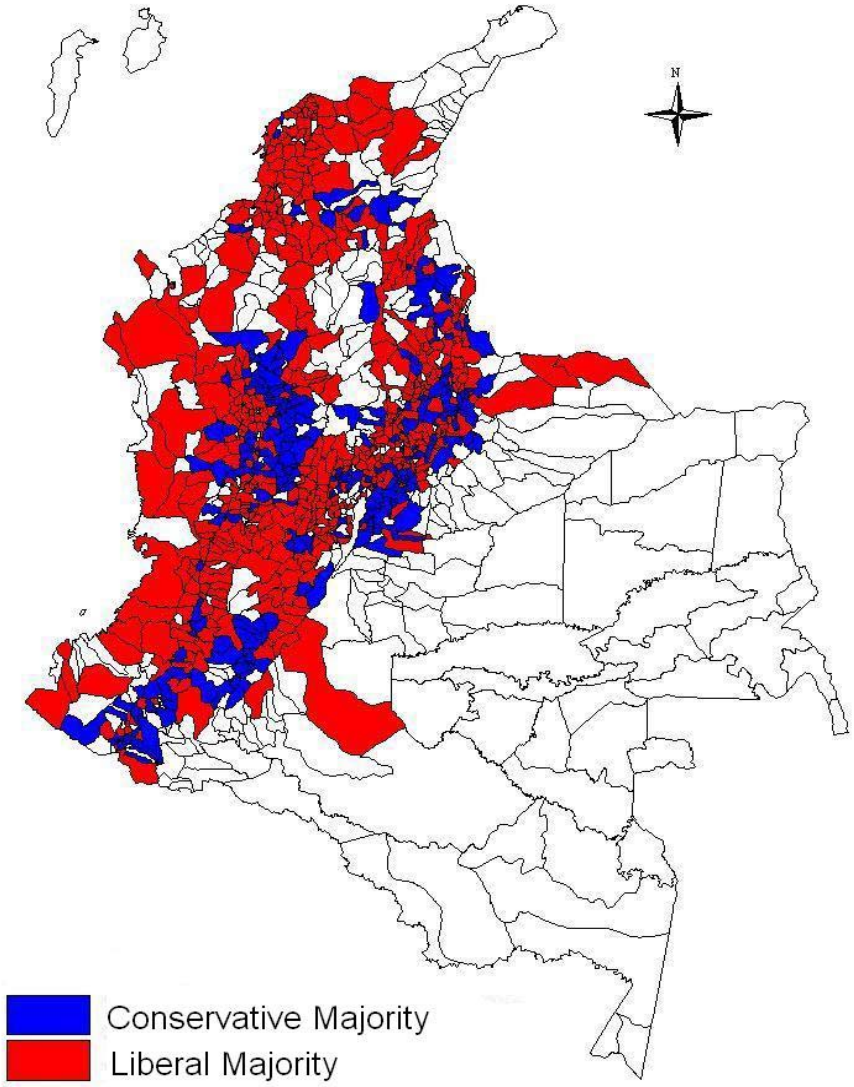


Figure 6: 1946 Presidential Election Results



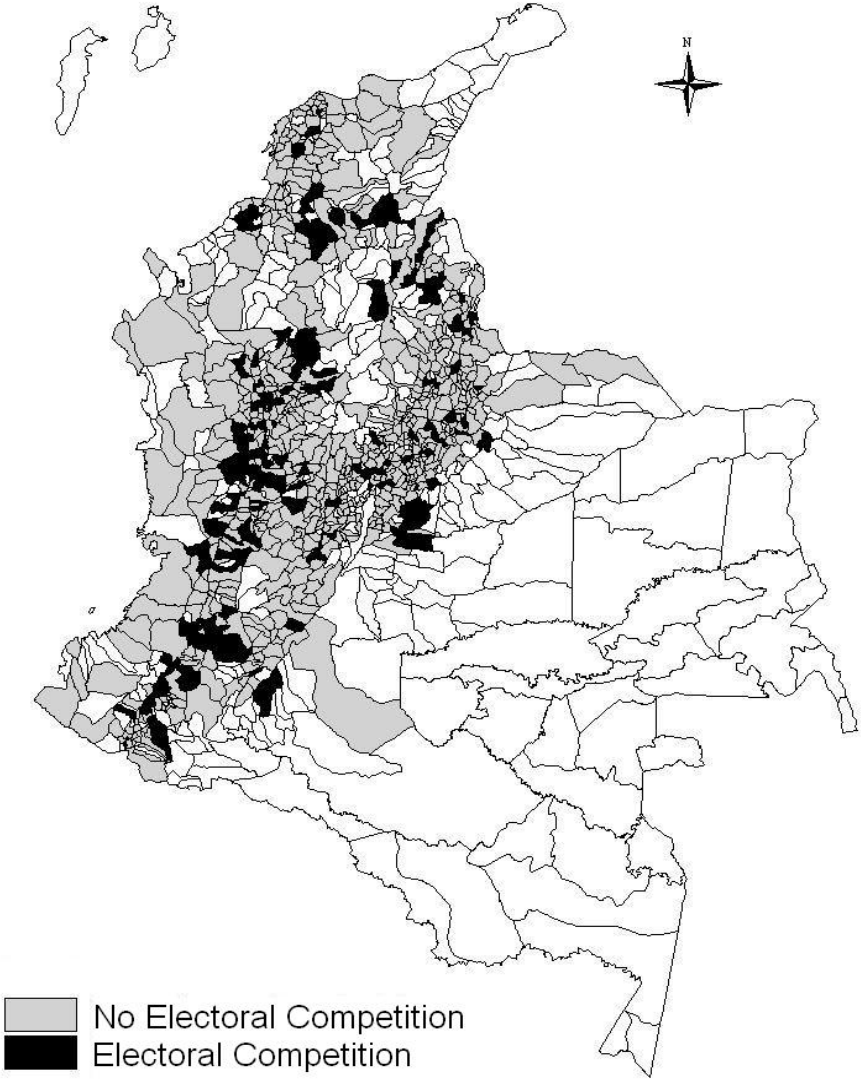


Figure 7: Violent Municipalities, 1946-1950

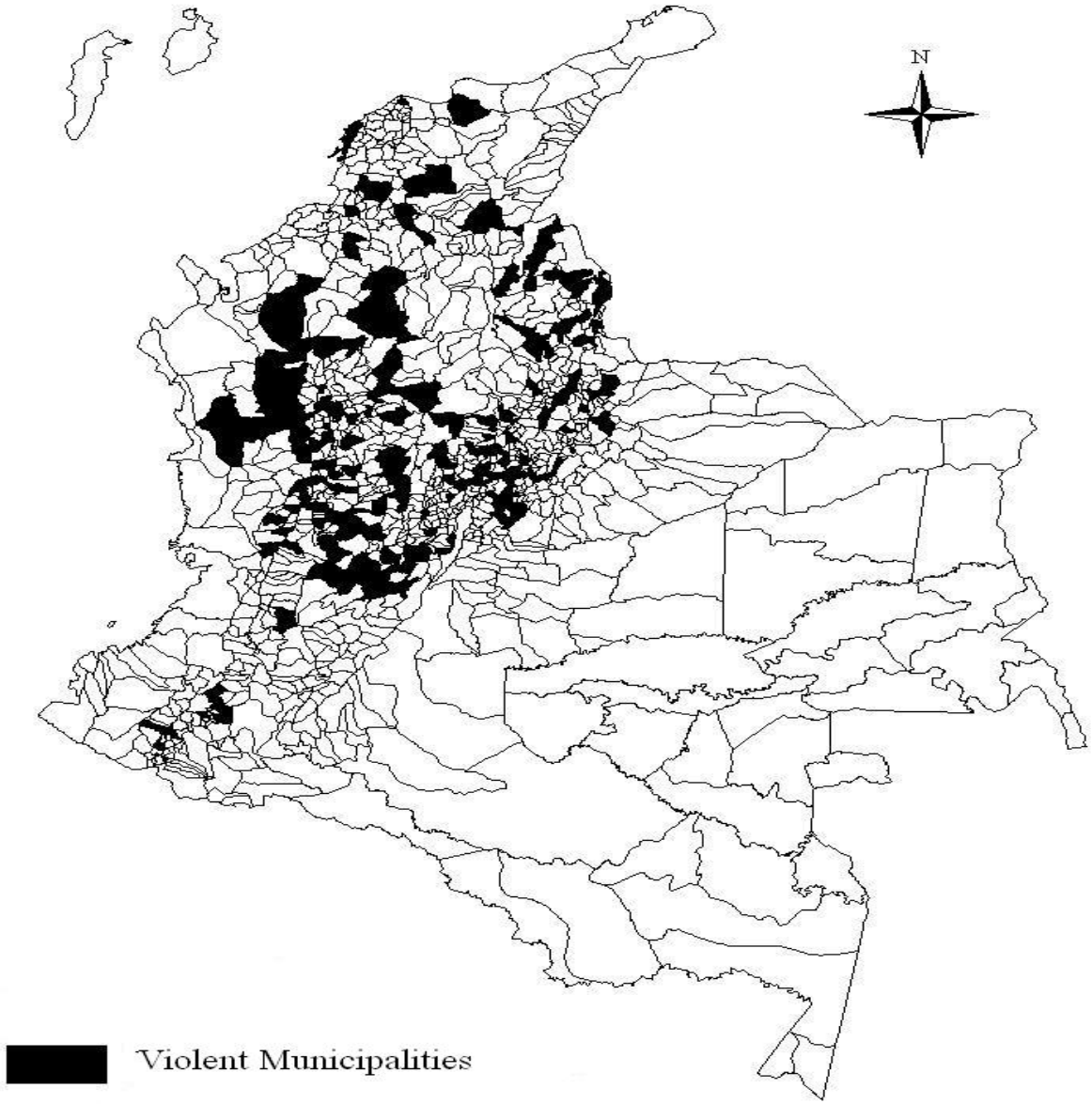


Table I-Descriptive Statistics

Dependent Variable	No.	Percentage	Mean
Violent Municipalities 1946-1950	184	24.4	
Political Variables			
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	
Land Variable			
Land Concessions	256	33.9	
Land Conflicts	173	22.9	
Granted Land (percentage of arable land)			0.06 (0.21)
Economic Controls			
Literacy Rate			0.49 (0.15)
Rural Index			0.75 (0.2)
Urban Index			0.24 (0.2)
Log GDP per capita			0.25 (0.55)
Cafetos per capita			1.34 (0.55)
Number of Observations	755		

Note: Standard deviations in parenthesis

Table II- OLS & Spatial Estimates

	Model 1 OLS	Model 2 OLS	Model 3 OLS	Model 4 OLS	Model 5 Spatial Autoregressive	Model 6 Spatial Autoregressive
	Dependent Variable: Municipal Violence					
Political Competition	0.22		0.14	0.19		0.22
	(0.05)		(0.05)	(0.05)		(0.05)
Liberal Hegemony*		0.13			0.17	
		(0.03)			(0.05)	
Liberal Control*		0.21			0.24	
		(0.04)			(0.05)	
Political Competition*		0.25			0.26	
		(0.04)			(0.05)	
Conservative Control*		0.16			0.18	
		(0.05)			(0.05)	
Liberal Majority*			0.1	0.08		0.09
			(0.03)	(0.03)		(0.03)
Land Concessions (per capita)			-0.001	-0.001		-0.002
			(0.0007)	(0.0005)		(0.001)
Granted Land (% municipality surface)			0.03	-0.4		0.001
			(0.08)	(0.12)		(0.12)
Land Conflicts			-0.001	0.006		0.018
			(0.01)	(0.01)		(0.008)
Spatial Lag (dependent variable)					0.08	0.088
					(0.05)	(0.057)
Geographical Controls	No	No	Yes	Yes	Yes	Yes
Economic Controls	No	No	Yes	Yes	Yes	Yes
Departmental Fixed Effects	No	No	No	Yes	Yes	Yes
R^2	0.02	0.19	0.12	0.19	0.13	0.13
Number of observations	755	755	755	755	755	755

Notes: Robust standard errors in parenthesis. *Dummy variables.

Table III- OLS Estimates

	Model 1	Model 2	Model 3	Model 4	Model 5
	Dependent Variable: Number of violent years				
Political Competition	0.28		0.16	0.27	0.33
	(0.08)		(0.08)	(0.09)	(0.09)
Liberal Hegemony*		0.17			
		(0.06)			
Liberal Control*		0.29			
		(0.06)			
Political Competition*		0.31			
		(0.07)			
Conservative Control*		0.24			
		(0.08)			
Liberal Majority*			0.13	0.11	0.14
			(0.05)	(0.05)	(0.05)
Land Concessions (per capita)			-0.001	-0.002	-0.004
			(0.001)	(0.0008)	(0.0007)
Granted Land (% municipality surface)			-0.04	-0 14	-0 .04
			(0.1)	(0.15)	(0.14)
Land Conflicts			-0.01	-0.003	0.01
			(0.01)	(0.01)	(0.01)
Spatial Lag (dependent variable)					0.02
					(0.09)
Geographical Controls	No	No	Yes	Yes	Yes
Economic Controls	No	No	Yes	Yes	Yes
Departmental Fixed Effects	No	No	No	Yes	Yes
R^2	0.01	0.02	0.1	0.17	0.104
Number of observations	755	755	755	755	755

Note: Robust standard errors in parenthesis. *Dummy variables.

Table IV- Limited Dependent Variable Models*

	Model 1 Probit	Model 2 Probit	Model 3 Probit	Model 4 Probit	Model 5 Poisson	Model 6 Poisson
	Dependent Variable: Municipal Violence				Dependent Variable: Number Violent Years	
Political Competition	0.23		0.14	0.21		0.08
	(0.05)		(0.05)	(0.05)		(0.02)
Liberal Hegemony*		0.2			0.37	
		(0.07)			(0.19)	
Liberal Control*		0.29			0.53	
		(0.06)			(0.2)	
Political Competition*		0.34			0.62	
		(0.07)			(0.25)	
Conservative Control*		0.25			0.54	
		(0.08)			(0.28)	
Liberal Majority*			0.10	0.09		0.04
			(0.03)	(0.03)		(0.01)
Land Concessions (per capita)			-0.001	-0.002		-0.001
			(0.001)	(0.001)		(0.0008)
Granted Land (% municipality surface)			0.02	-0.04		-0.03
			(0.06)	0.09		(0.03)
Land Conflicts			[0]	0.006		[0]
				(0.008)		
Geographical Controls	No	No	Yes	Yes	No	Yes
Economic Controls	No	No	Yes	Yes	No	Yes
Departmental Fixed Effects	No	No	No	Yes	No	Yes
Pseudo R^2	0.02	0.03	0.11	0.17	0,02	0.16
Number of observations	755	755	755	755	755	755

* Marginal effects calculated at the mean of the explanatory variables reported. Note: Robust heteroskedastic standard errors in parenthesis. *Dummy variables.