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Álvaro Aguirre

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Álvaro Aguirre
Banco Central de Chile

Abstract
This paper proposes a specific mechanism to explain differences in political institutions based on the asymmetric and uncertain costs of civil conflicts. Asymmetry implies that the net benefit of fighting an insurgency is not shared equally by members of the elite. But uncertainty implies that these benefits are more evenly distributed ex-ante. The members of the elite face a commitment problem: they would like to commit in advance to a strong response to insurgencies, but ex-post they have the incentives to block any response if the conflict mainly affects other members of the elite. One way of solving this is empowering the executive so he may react forcefully to conflicts, despite the opposition of some fraction of the elite. In the model this group has to decide on the constraints imposed on the executive. Fewer constraints lead to a higher risk of expropriation. But more constraints lead to a suboptimal response to conflicts. The main prediction is that, conditional on asymmetric and uncertain costs, the higher is the likelihood of a civil conflict in the future, the lower are the constraints imposed on the executive. The paper empirically validates this implication using two types of evidence. First, it uses a sample of former colonies that became independent after WWII and geographic variables to identify the exogenous component of the likelihood of civil conflicts at the moment of the independence. Second, the model is used to explain the political events in the Americas after independence. Countries less prone to internal conflicts were the ones that imposed more constraints on the executive during the second half of the nineteenth century.

Resumen
Este trabajo propone un mecanismo específico para explicar diferencias en instituciones políticas basado en la asimetría e incertidumbre que poseen los costos de ciertos conflictos civiles. La asimetría implica que el beneficio neto de pelear contra una insurgencia nos es compartido de forma similar entre los miembros de la clase gobernante o elite. Pero la incertidumbre implica que estos beneficios están mejor distribuidos con anterioridad a que se produzca un conflicto. Debido a esto a los miembros de la elite les gustaría comprometerse a una respuesta fuerte a cualquier insurgencia en el futuro, pero luego que ésta ocurre tienen el incentivo a bloquear una respuesta fuerte si ellos no son afectados de forma importante. Una manera de solucionar este problema es empoderando al ejecutivo para que éste pueda reaccionar de manera más fuerte ante un eventual conflicto, no obstante la oposición de una fracción de la elite. En el modelo este grupo debe decidir en las restricciones que se imponen al ejecutivo. Menores restricciones llevan a un riesgo de expropiación mayor, pero mayores restricciones llevan a una respuesta débil a conflictos civiles. La principal predicción del modelo es que, condicionando en costos asimétricos e inciertos, mientras mayor es la probabilidad de un conflicto civil en el futuro, menores son las restricciones impuestas al ejecutivo. El trabajo valida empíricamente esta predicción utilizando primero un grupo de países que lograron su independencia luego de la Segunda Guerra Mundial y variables geográficas para capturar el componente exógeno del riesgo de conflicto futuro y los países de América luego de la independencia. Se muestra que en ambos casos países que estaban más sujetos al riesgo de conflicto interno impusieron menos restricciones a sus ejecutivos luego de su independencia.

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1 Introduction

There is an extensive empirical literature that identifies political institutions as one of the main determinants of income per capita today. Efficient political institutions ensure that the government (or elite) is sufficiently constrained so it cannot engage in coercion and expropriation. Thus, adequate constraints on the decision-making powers of chief executives are associated with political institutions conductive to long-run economic growth. These findings have spawned a research agenda that tries to understand the determinants of institutional quality. In this context, conflict has received growing attention in explaining how societies are organized. Acemoglu and Robinson (2000, 2006) identify the fear of revolutions as the key factor behind the extension of franchise to a larger fraction of the population, Glasser and Schleifer (2002) argue that coercion through violence may explain differences in judicial independence, and Besley and Persson (2010) show that a higher probability of conflict reduces the incentives to invest in both fiscal and legal capacity. This paper proposes a specific mechanism to explain differences in political institutions based on a particular feature of civil conflicts that has not been explored before. We develop a simple model of institutional building to study how intra-elite power is allocated under the risk of rebellions, and test its main prediction using different strategies to identify the risk of internal conflicts for different groups of countries.

In the model there is an elite that faces the risk of uprisings by external groups. If the benefit of fighting an insurgency is not internalized equally by the elite's members, due for instance to regional interests, there is disagreement in terms of the size of an eventual response. But if there is uncertainty about who will be affected by future uprisings, disagreement is lower ex-ante because the expected benefits of fighting are shared more evenly among members of the elite. Thus, conflicts generate a commitment problem. Elite members would like to commit in advance to a larger military response to conflicts than the one they are willing to sustain once a conflict has erupted in some region. Institutional building is characterized in the model as a stage in which the elite restricts policy-making in the future, imposing constraints on the executive's decisions. There is a trade-off at this point: more constraints lead to lower expropriation or a larger provision of public goods in the future, but they also lead to an ex-ante suboptimal response to conflicts[1]. Since the executive can finance war without taxing his own district, and because members of the elite not affected directly by the conflict are likely worse off from financing the military response, the lower are the constraints facing the executive, the larger is the military response. The main implication of the model follows; under asymmetric and uncertain costs, a higher likelihood of a civil conflict in the future incites the elite to impose fewer constraints on the executive, even though that is not conducive to long run economic growth[2].

[1] Intra-elite conflicts are not analyzed in the model. However one could think that an additional benefit of having more constraints on the executive is to reduce the risk of this type of conflict.

[2] This assumes some additional institutional constraints, particularly the lack of private insurance and the impos-

The model shows that two features of conflicts are necessary to generate this prediction, their costs should be asymmetric and uncertain. It follows that external conflicts and revolutions, which affect the elite as a whole, would not generate the aforementioned effect on political institutions[3]. The literature that studies modern civil wars has shown that most of them are ethnic, geographical, and religious in nature, while class struggle is relatively rare (Ray, 2010). In particular, one of the strongest relationships that the empirical literature has found is between civil conflicts and geographic conditions, particularly the abundance of mountains and forests (Fearon and Laitin, 2003; Collier and Hoeffler, 2004; Hegre and Sambanis, 2006). This illustrates the fact that most of these conflicts are, at least in the beginning, localized in specific regions, and therefore they particularly affect members of the elite with economic interests in those regions. Thus, the assumption of asymmetric costs seems justified. With respect to the second condition there are reasons to expect that the distribution of the costs of modern civil wars is uncertain, mainly because geography may generate conflicts where there are no apparent reasons for it (Kalyvas, 2007). Thus the theory may be applied to most modern civil wars, which have been the focus of recent economic research surveyed by Collier and Hoeffler (2007) and Blattman and Miguel (2010).

This paper uses a sample of more than 80 countries, mostly from Africa, Asia, and Eastern Europe, that became independent after WWII to show that a higher likelihood of a civil war in the future lowers the average constraints imposed on the executive during the first years after independence[4]. To identify causality geographic variables are used as instruments to capture the exogenous component of the likelihood of a civil conflict in the future. This is consistent with the theoretical model and follows previous empirical work on the causes of civil wars. Additionally it is shown that (1) the magnitude of the effect is larger when only minor conflicts are considered, and (2) the effect is significant only in countries without oil fields. These results are in line with the theoretical prediction, since the costs of internal conflicts are more likely to be asymmetric and uncertain when the conflicts are small and when natural resources are not abundant in the country.

A different environment to which the model can be applied is the post-independence period in the Americas. In this case historians have identified the possibility of uprisings by natives and slaves as an important risk for the elites (Coatsworth, 1988; Eakin, 2007; Williamson, 2009). Rebellions were costly, localized in certain regions but widespread, and, with very few exceptions, far from seizing power. The elite was geographically dispersed, since these were mainly agrarian and mining economies. These features closely approximate those required by the model's main mechanism. As an additional test the paper studies if the model is able to explain the political

sibility to separate military and economic decisions between the executive and the rest of the elite.

[3]Indeed, models focusing on the elite's fear of revolutions have the opposite prediction (Acemoglu and Robinson, 2000, 2006). Bueno de Mesquita and Smith (2009) is an exception since under certain conditions a threat of revolution may facilitate a reduction of the coalition needed to support the executive.

[4]The explanatory variable is constraints on the executive, from the Polity IV database, which refers to the institutionalized constraints on the decision-making powers of chief executives imposed by any accountability group (Marshall and Jaggers, 2007).

events in the Americas after independence. The econometric evidence shows that the fear of race wars affected the design of political institutions during the nineteenth century as predicted by the model. In particular countries prone to this type of conflict, proxied by the fraction of the population comprised of natives and slaves, were the ones that imposed fewer constraints on the executive after independence. Moreover we show that this was particularly the case in countries with geographic conditions preventing an efficient reaction to uprisings by the government.

In this dimension this paper belongs to the literature on the colonial origins of development (Engerman and Sokoloff, 1997, 2002; Acemoglu et al., 2001, 2002). The common theme is that the exploitation of natives by Europeans generated deep inequalities and extractive institutions that were not designed to enforce property rights. However, this paper deals with institutions regulating the relationship among members of the elite, and not between the elite and the rest of the population. In this context this paper stresses that the exploitation of the population in the colonies not only generated a concentration of political power within societies, but also within the group holding the political power. This may have had dynamic consequences, such as reducing the political power of new members of the elite that appeared when economies started to diversify, whose interests were closer to democracy and long-run economic growth, or raising the stakes of politics, hindering the evolution of democratic institutions[5].

Perhaps the most notable historical example to illustrate the model's prediction is the US Constitution, a case in which the debates and ideas that shaped it have been well documented. The previous political order, defined by the Articles of Confederation, was based on the individual liberty philosophy observed by the Revolutionary movement. Political power was concentrated in the states, leaving the national government unable to implement most policies. In particular Congress did not have power to suppress domestic insurrections (Maier, 2010). Although the convention in Philadelphia in 1787 was intended to fix other problems of the Articles of Confederation, Thach (1969), who studies the political environment before the convention, concludes that its outcome was importantly influenced by rebellions and the different experience of the states regarding executive power. With respect to the first issue, he argues that *"the most important influence convincing the gentry that [national] government strength ... was desirable, was the rising discontent of the poorer classes which ... precipitated disturbances such as those in Connecticut, New Hampshire and, specially, Massachusetts [Shay's Rebellion]"*[6]. Rebellions also influenced the second issue, as New York, the state with the strongest executive, stood out as the only one able to sustain a strong reaction to them[7]. Therefore many delegates to the convention, influenced by Shay's Rebellion or

[5]García-Jimeno and Robinson (2011) identify a particular channel. They show that the presence of a frontier in the Americas after independence affected long-run development conditional on how constrained the executive was at the time of national expansion. Differences in political institutions resulted in different paths, ranging from clientelistic to open access to frontier lands.

[6]The Shay's rebellion was defeated by an army financed voluntarily by wealthy Bostonians, as the states seemed powerless against upheavals (Maier, 2010).

[7]Thach (1969) argues that *"the experience of the states taught ... the futility of legislative military control. Most*

the experience of the states, wanted a strong national executive (Horowitz, 2002). Thach (1969) illustrates the trade-off facing the elite: *"As men's thoughts turned towards the establishment of public order and ceased to focus on individual liberty, it was inevitable that the executive department should be the chief beneficiary of the change in emphasis"*. Members of the elite were aware of the costs of empowering the national executive. Besides their experience with the British government, they also saw how the control of patronage by the governor of New York allowed him to become the dominant political force in the state[8].

The theoretical model is based on the work by Baron and Ferejohn (1989), who highlight the trade-off between delay and the arbitrariness of policy decisions when analyzing different formal rules regarding the way legislatures bargain. More generally this paper belongs to the literature on conflict and institutional development, where, in addition to the work by Acemoglu and Robinson (2000, 2006), Bueno de Mesquita and Smith (2009), Glasser and Schleifer (2002), and Besley and Persson (2010), a fundamental relationship between intra-elite violence and social orders (North et al., 2009), and between war and state development (Tilly, 1992), have been previously proposed[9].

As mentioned already, because of its empirical applications the paper also belongs to the literature on the colonial origins of development (Engerman and Sokoloff, 1997, 2002; Acemoglu et al., 2001, 2002). Nunn (2008), in an empirical study for the Americas, finds a significant relationship between slavery and subsequent economic development, even across the British West Indies and across US states. But he does not find significant evidence that this relationship has been explained by the effect of slavery on inequality, as argued by Engerman and Sokoloff (1997, 2002). Indeed his results are consistent with the role of institutions as the mechanism through which slavery affected development in the region, in line with the predictions of our model[10]. Due to our empirical work we also refer intensively in the paper to the empirical literature on civil wars and the post-independence period in the Americas.

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states included almost every conceivable provision for reducing the executive to a position of complete subordination, being New York the most notable exception, where the strong reaction against insurrections and the opposition to a legislature that threatened to surrender New York's claims in the Vermont region, distinguished it from the other states."

[8]The recent experience of Peru illustrates how the response to civil conflicts may be obstructed by the system of check and balances. Only five months after his self-coup of 1992, which gave him exclusive powers, Alberto Fujimori ended the guerilla war faced by the government since 1980 in the highlands of Ayacucho. After this he won the 1995 presidential elections in the first round of voting. In 2009 he was convicted for his role in killings and kidnappings, and for embezzlement and bribery. Another case, described in the empirical section, is the strong government of Porfirio Díaz in 1884, which was a fundamental cause for the reduction of rural rebellions in Mexico (Katz, 1988).

[9]This paper is not about the most efficient way of designing institutions in order to avoid civil conflicts. Although there is not a consensus on that issue, there are constitutional theories that try to address it, like the consociational approach (Lijphart, 1995) and the incentives approach (Horowitz, 2002). However, most constitutions, even the relatively new ones in Eastern Europe, seem to have a very large idiosyncratic component, despite these theories and the increasing involvement of international experts and practitioners in their design (Horowitz, 2002).

[10]Nunn (2008) includes population density in 1750 as a control in his estimations, which may capture the mechanism proposed by Acemoglu et al. (2001, 2002) to link colonialism and current development.

The paper is organized as follows. The next section presents the model. The empirical evidence for countries that became independent after WWII is shown in the first part of Section 3. In the second part the implications of the model for the post-independence period in the Americas are discussed and tested. The last section concludes.

2 The Model

The Environment

The economy is divided into $N+1$ districts indexed by j. Each of these districts is populated by a representative agent. A district j may be in conflict or in peace. Define $s_j = 1$ if there is a conflict in district j, and $s_j = 0$ otherwise. It is assumed for simplicity that there are only $N+2$ aggregate states, one state where every district is in peace, $s_j = 0$, $\forall j$, and $N+1$ states where only one district is in conflict, $s_j = 1$ and $s_{-j} = 0$. Define by $S = 1$ an aggregate state where there is a conflict in one district ($s_j = 1$ for some j), and $S = 0$ otherwise. As will be clear later there are only three states for an individual member: $s = (s_j, S_{-j}) \in \{(0,0),(1,0),(0,1)\}$, where $S_{-j} = 1$ if $S = 1$ and $s_j = 0$, i.e. there is a conflict but not in j's district, and $S_{-j} = 0$ otherwise. Output in each district and state is given by

$$y_j = \begin{cases} 1 & \text{if } (0,0) \\ 0 & \text{if } (1,0) \\ 1/\theta < 1 & \text{if } (0,1) \end{cases}$$

Thus $\theta > 1$ captures the fact that a conflict is costly for all regions, independently of where it occurs. Agents are risk neutral and flow utility is $u_j = (1-\tau_j)y_j - s_j\zeta$, where τ_j is the tax rate in district j, and $\zeta > 0$ captures the fact that a conflict may destroy the factors available for production. Notice that the pair (θ, ζ) determines how asymmetric are the costs of conflicts. In particular the lower is θ and the higher is ζ, the more asymmetric are the costs of conflicts[11].

The transitional probabilities between states are given by p, which captures the exogenous probability of conflict onset, and q, which captures the endogenous probability of ending a conflict[12].

[11] It is natural to think about θ as district-specific, and so to define $y_j = 1/\theta_{ij} < 1$ when there is a conflict in district i. The model in this case could only be solved numerically, as the number of states is much larger. If this heterogeneity makes the expected costs of conflicts less uncertain then it would affect the main prediction because the commitment problem becomes weaker. Otherwise it will only affect the ex-post cost distribution, including the costs of the response to rebellions.

[12] Although it simplifies the model and facilitates the mapping to the data, making the probability of conflict onset exogenous may seem unrealistic. If endogenous but not caused by political institutions then the model predictions would not change. Otherwise, if p depends on political institutions, which may be the natural case, but still has an exogenous component, then the structure presented below is flexible enough to accommodate the endogenous effect as a cost of not constraining the executive, and the exogenous component as the factor causing differences in political institutions.

That is, if there is peace in the country, then the probability of a conflict in the following period is given by p. There is an equal probability of conflict onset in each district, so the probability to observe a conflict in district j after observing peace in the country is $p/(N+1)$. This implies a high degree of uncertainty in terms of the costs of future conflicts. If there is a conflict in district j the probability of it ending this period is q. Finally it is assumed that a conflict can move to another district with probability $pN/(N+1)$ if it is not terminated in the current period[13]. Defining $n = 1/N$, we can represent the law of motion of the states by the following transition matrix:

$$\begin{bmatrix} (0,0) \\ (1,0) \\ (0,1) \end{bmatrix} = \begin{bmatrix} 1\text{-}p & q & q \\ np & 1\text{-}(1\text{-}n)p\text{-}q & np \\ (1\text{-}n)p & (1\text{-}n)p & 1\text{-}np\text{-}q \end{bmatrix} \begin{bmatrix} (0,0) \\ (1,0) \\ (0,1) \end{bmatrix}$$

In case of conflict tax revenues are used to finance a military response. Thus the probability of a conflict ending, q, depends positively on these resources, which are denoted by T,

$$T = \frac{\sum_j \tau_j y_j}{N}$$

where the normalization by the constant N is for simplification.

It is also assumed that q depends negatively on p. Therefore p not only captures how likely is the onset of a conflict, but also its expected duration. This assumption follows the finding in the empirical literature on civil wars, where (exogenous) geographic conditions that hinder government actions, influence both onset and persistence. It is also useful to help map the model into the data in the next section. For simplicity the following function is assumed for q:

$$q = max\left\{0, Q\left(\lambda T\right) - p\right\} \tag{1}$$

where $Q' > 0$, $Q'' < 0$, $Q(0) = 0$, and $Q(1) \leq 1$. Thus, when the executive is not able to collect a sufficient amount of resources the probability of ending a conflict is zero. This introduces a discontinuity in the model. We further assume $max(Q(\lambda T)) = Q(\lambda/\theta) > p$ to get $q > 0$ at least for sufficiently large revenues. The positive constant λ captures how efficient the government is in collecting taxes and investing the revenues to form a military response. The parameter θ has a similar effect than λ on q because it reduces the resources available for given tax rates. In order to distinguish between the effects coming from efficiency (λ) from those coming from asymmetric costs (θ) we normalize $\lambda = \tilde{\lambda}\theta$, with $\tilde{\lambda} > 0$, and we conduct comparative statics with respect to $\tilde{\lambda}$. Finally the linearity of q on p greatly simplifies the model.

Taxes need to be set every period there is conflict in any district ($S = 1$). Policymaking is modelled using the legislative bargaining approach of Baron and Ferejohn (1989). Each district has

[13]This is necessary when restricting the existence of a conflict to only one district at any point in time, as is done here to reduce the number of states and simplify the model. If it is assumed that the conflict can not move between districts then it may be better for a member to maintain the conflict in another district because in this case the probability of conflict arising in his own district is zero. This worsens the commitment problem.

a member in the legislature. As agents are identical inside each district we do not model elections. There is one agent, the executive, with agenda power. He does not represent any district, nor can he commit to future proposals, and he dislikes conflicts[14]. He proposes the set $(\tau_j)_{j=1}^{N+1}$, which defines a tax rate for every district. This proposal has to be approved by M members of the legislature to be implemented, otherwise $\tau_j = 0$ in all districts is the outcome. The ratio $m = M/N$ captures the constraints on the executive, and it is set in the initial period and under $S = 0$. As members of the legislature are ex-ante identical there is no disagreement, and so we may assume that m is chosen by unanimity, after which it is assumed exogenous[15]. As usual the subset of members whose votes are decisive for approving the proposal is called the minimum winning coalition (WC).

To keep the model simple it is assumed that taxes are zero when there is peace. The benefits of more constraints on the executive are introduced as a function $I(m)$, with $I'(m) > 0$, $I'(0) = \infty$, and $I''(m) < 0$. This function enters flow utility linearly in every state. Possible benefits are a lower probability of expropriation, a higher provision of public goods, or a lower probability of intra-elite conflicts. These are not modeled explicitly since this has been done before, and because our focus is on the costs of having more constraints[16]. Now we can define the value functions for individual j and each state (s_j, S_{-j}),

$$\begin{bmatrix} V_j(0,0) \\ V_j(1,0) \\ V_j(0,1) \end{bmatrix} = I(m) + \begin{bmatrix} 1 \\ -\zeta \\ \frac{1-E(\tau)}{\theta} \end{bmatrix} + \delta \begin{bmatrix} 1\text{-}p & q & q \\ np & 1\text{-}(1\text{-}n)p\text{-}q & np \\ (1\text{-}n)p & (1\text{-}n)p & 1\text{-}np\text{-}q \end{bmatrix} \begin{bmatrix} V_j(0,0) \\ V_j(1,0) \\ V_j(0,1) \end{bmatrix} \quad (2)$$

where δ is the discount rate.

Equilibrium

The focus is on Markov equilibria. First the model is solved for a given value of m. This implies finding a proposal $(\tau_j)_{j=1}^{N+1}$ that has the support of a WC. Once this is done we obtain $q^* = q(m)$, the equilibrium value of ending a conflict as a function of m. This function is constant over time since the executive can not commit to future proposals. After this function is characterized the first period problem can be solved, which consists of finding m^* that maximizes the utility of the

[14] Assuming that the agenda setter is a member of the legislature does not change the results but introduces an asymmetry that complicates the solution of the model, because the policy function is different when the conflict arises in the district of the executive.

[15] The ratio m is assumed to be continuous, which may be the case if the number of legislators per district varies.

[16] $I'(m)$ could be a function of other exogenous variables, which will affect the equilibrium level of m as well. One of these determinants may be the degree of heterogeneity inside the elite. When the elite is more heterogeneous it may be easier for the executive to expropriate, for example by distorting relative prices, or it may be more convenient to transfer public resources to a subset of the elite instead of providing public goods. Thus elite heterogeneity may increase the marginal benefit of constraining the executive, an insight that will be useful for analyzing the empirical results.

members of the legislature under $S = 0$. Finally the effects of $(p, \theta, \zeta, \tilde{\lambda})$ on m^* can be explored, which will guide the empirical exercise.

First fix $m > 0$. The problem of the executive is very simple. Because conflicts are costly for him and he does not bear any costs of financing a military response, he chooses $(\tau_j)_{j=1}^{N+1}$ to maximize q as defined in Equation (1). Notice that this is equivalent to maximizing total output in the economy. If he does not face any constraint he would set $\tau_j = 1$ in all the N districts in peace, so q would take its maximum value, $q = Q(\tilde{\lambda}) - p > 0$. Then it is clear that the only constraint that he faces is to get the approval of the WC. He will propose $\tau_{\text{NWC}} = 1$, and the proposal for τ_{WC} will be such that the following holds,

$$\begin{aligned} V_{\text{WC}}(0,1) &= I(m) + \frac{1-\tau_{\text{WC}}}{\theta} + \delta\left[qV_j(0,0) + (1-n)pV_j(1,0) + (1-(1-n)p-q)\,V_j(0,1)\right] \\ &\geq I(m) + \frac{1}{\theta} + \delta\left[(1-n)pV_j(1,0) + (1-(1-n)p)\,V_j(0,1)\right] \end{aligned}$$

The first term is the utility of a member of the WC of accepting the proposal, while the last term is the value of the status-quo, where there are no tax revenues to finance the military response to a conflict, and so $q = 0$. This condition is equivalent to,

$$\delta q[V_j(0,0) - V_j(0,1)] \geq \frac{\tau_{\text{WC}}}{\theta}$$

The LHS of this expression is the future total gain from a military response for an individual member of the legislature, while the RHS is the corresponding cost. The former depends on how efficient the government is at fighting the conflict and the expected value of ending it. The higher is the LHS, the higher the tax rate the executive is able to set for members of the WC. Since efficiency is decreasing in m because fewer members pay the maximum tax, the higher is m the lower is τ_{WC}. Likewise, as the expected value of ending the conflict is increasing in θ, the higher is θ the higher is τ_{WC}. Notice that the constraint does not depend on $V(1,0)$. This is in part what makes m relevant: once a conflict has erupted in some other district a member of the elite has a lower incentive to finance a military response than before its onset, when it is uncertain if the conflict will occur in his district. As he can not commit ex-ante to some given amount of resources to finance the response, any member of the elite may find it optimal to change the institutional environment so he finds it more difficult to block a proposal.

To solve for the equilibrium value of τ_{WC} we need to know how the relative value of peace, $V_j(0,0) - V_j(0,1)$, is affected by τ_{WC}. Using the fact that the equilibrium outcome is constant over time and that there is a probability m of being part of the WC in the future, so $E(\tau) = (1/\theta)(m\tau_{\text{WC}} + (1-m))$ in (2), this equation can be used to express the relative value of peace as a function of τ_{WC} and the exogenous parameters,

$$V_j(0,0) - V_j(0,1) = \frac{1}{1-\delta(1-q-p)}\left[1 - m\frac{(1-\tau_{\text{WC}})}{\theta}\right] > 0$$

Therefore the proposed tax rate, τ_{wc}, will be such that,

$$\frac{\delta q(\theta - m)}{1 - \delta(1-p) + \delta q(1-m)} \geq \tau_{\text{wc}} \tag{3}$$

and tax revenues will be,

$$T = \frac{m(\tau_{\text{wc}} - 1) + 1}{\theta}$$

Proposition 1.

- *For every $m \in (0,1]$ there is a unique τ^*_{WC}, which, together with $\tau^*_{NWC} = 1$, is proposed and accepted each period when $S = 1$.*
- *There exist constants $\bar{\theta} > 1$ and $\bar{m} \in (0,1)$ such that the functions $\tau^*_{WC} = \tau_{WC}(m)$ and $q^* = q(m)$ are strictly decreasing in m if $m \in (0, \bar{m})$ and $\theta < \bar{\theta}$. If $\theta > \bar{\theta}$, then $\tau^*_{WC} = 1$, and if $m > \bar{m}$ and $\theta < \bar{\theta}$, then $\tau^*_{WC} = 0$.*
- *If $m \in (0, \bar{m})$ and $\theta < \bar{\theta}$, τ^*_{WC} and q^* are strictly increasing in θ and $\tilde{\lambda}$, and strictly decreasing in p. Both τ^*_{WC} and q^* are independent of ζ.*

Proof. See Appendix A. ■

The proposition shows that ex-post, once a conflict has erupted in some district, the executive would be able to set a higher τ in the district of the WC members the higher are θ and $\tilde{\lambda}$ and the lower are p and m. A higher θ means that the conflict is more costly for the members of the districts which finance the military response. This is why, for $\theta > \bar{\theta}$, there will be no commitment problem and so m would not constrain the response to conflicts. Conflicts with high θ may be those when the whole elite is threatened, i.e. interstate wars and revolutions, or when the elite's main source of power is affected, perhaps oilfields as one example. If the environment is more prone to conflicts, which is captured by a higher p, the effectiveness of a military response falls and so the members of the WC only accept lower taxes, which in turn imply a lower q in equilibrium[17]. Similarly, if the government is less efficient (lower $\tilde{\lambda}$), taxes fall, increasing the negative effect on q. Taxes also fall with m. As m rises there will be fewer districts paying the maximum tax. That has both a direct and an indirect effect on q, as the lower efficacy of the military response lowers the tax that members of the WC are willing to accept. As explained earlier the effect of m is discontinuous, so only below $\bar{m}$ this result holds. Above that level revenues are not enough to make $Q(\lambda T) > p$, and so no positive tax is accepted in equilibrium. Finally, as taxes are set once a conflict has erupted

[17]Notice that this effect is only due to the assumption that q depends on p, i.e. that a conflict is more difficult to fight when p is high. If the relationship in Equation (1) were not linear there would be an additional effect of p through the likelihood of conflict onset. This probability lowers the value of peace and therefore reduces the incentives to fight.

and they are used to end that specific conflict, ζ is not relevant for the WC at the moment they evaluate the proposal[18].

Now the value of m^* can be derived. First express $V_j(0,0)$ as a function of m, τ_{wc}, q and the exogenous parameters,

$$V_j(0,0) = \frac{1}{(1-\delta)}\left[I(m) + \frac{1}{(1-\delta(1-q^*-p))}\left(1-\delta(1-q^*)+\delta p\left((1-n)m\frac{(1-\tau^*_{\text{wc}})}{\theta} - n\zeta\right)\right)\right] \tag{4}$$

Because members of the legislature are homogeneous under $S = 0$, their problems are identical. They maximize (4) subject to (1) and (3). The first order condition implies,

$$I'(m) = -p\delta^2\left[\frac{\partial q^*}{\partial m}\left(\frac{1-(1-n)m(1-\tau^*_{\text{wc}})/\theta + n\zeta}{1-\delta(1-q^*-p)}\right) - \frac{(1-n)}{\delta\theta}\left(m\frac{\partial \tau^*_{\text{wc}}}{\partial m} - (1-\tau^*_{\text{wc}})\right)\right] \tag{5}$$

The LHS is the marginal benefit and the RHS the marginal cost of increasing m. The first term inside the square brackets captures the effect of m on the expected length of conflicts through its effect on q. A marginal decrease in q has an expected cost equal to the flow utility without conflicts, minus the expected flow utility if there is a conflict. The second term captures the fact that there is a higher probability of being in the WC, and so to pay τ_{wc} instead of $\tau_{\text{nwc}} = 1$.

Proposition 2.

If $\theta > \bar{\theta}$, $m^* = 1$ for any p, $\tilde{\lambda}$ and ζ. Otherwise $\exists$ constants $\underline{\zeta}$ and $\bar{\zeta}$, where $\underline{\zeta} < \bar{\zeta}$, and such that,

- *if $\zeta < \underline{\zeta}$, $m^* = 1$ for any p, $\tilde{\lambda}$ and ζ.*
- *if $\zeta > \bar{\zeta}$, $m^* \in (0, \bar{m})$ is unique (and then $q^* > 0$). Moreover in this case m^* is strictly decreasing in p and ζ.*

Proof. See Appendix A. ■

To analyze the results notice that at this stage members of the elite decide on the optimal response to conflicts, q^*. We can see this in Equation (4), where the costs of m manifest mainly through that variable. Then the exogenous parameters may have either a direct effect on the marginal cost, because they change the desired response to conflicts, or an indirect effect, coming from Proposition 1, as they affect the ability to collect taxes ex-post. Parameters ζ, p, and θ all raise the marginal cost of m since all of them increase the expected cost of conflicts. Thus, members of the legislature are willing to spend more on military reactions, something that is hindered in the future by a high m. In the case of ζ there is no indirect effect, so it is clear that m needs

[18]This last result is obtained because of the assumption that q does not affect the probability that the ongoing conflict may move to other districts.

to go down to increase the size of the military response. If ζ is too low, the proposition shows that $m^* = 1$: if conflicts are not costly then there are no costs of imposing more constraints. An increase in p raises the marginal cost through both the direct and the indirect effects. This latter effect is due to the reduction in revenues ex-post after an increase in p due to the lower efficacy of a military campaign. The effect on m is then unambiguous, it falls with an increase in p[19]. In the case of θ the indirect effect lowers the marginal cost because more revenues are collected for a given value of m as shown in Proposition 1. Ex-post tax rates rise because the conflict is more costly for members financing the military response, even though it occurs in a different district. Thus, since a higher θ implies a larger optimal response ex-ante, its effect on m is ambiguous. However, if θ is above some threshold $\bar{\theta}$, there is no commitment problem, so again there are no costs of imposing constraints on the executive. In this case m is not an instrument useful to enlarge the military response. A change in $\tilde{\lambda}$ has also an ambiguous effect on the marginal cost, and therefore its effect on m is also ambiguous. On the one hand lower efficiency means less capacity to collect taxes ex-post, and therefore m should be lower for the same value of q^*. But on the other hand, even ex-ante, legislators are less willing to finance military campaigns, and so they are not willing to bear the costs of a higher m. Finally, although by construction, it is worth noticing that a more heterogeneous elite, a possible determinant of $I'(m)$ as explained above, would lead to higher levels of m.

Thus, the negative effect of p on m, which is the main implication of the model, depends on the thresholds $\bar{\theta}$ and $\underline{\zeta}$. If $\theta \geq \bar{\theta}$ or $\zeta < \underline{\zeta}$ then there is no commitment problem. In the first case everyone in the legislature agrees ex-post on maximizing the resources to finance a military response to conflicts, in the second the ex-ante desired response is so small that the lack of commitment is not a problem. In these cases m has only benefits, and then $m^* = 1$. Therefore, assuming everything else constant, we can conclude that the constraints imposed on the executive (m) in peacetime should be lower in countries where potential conflicts are more likely and difficult to be fought (higher p), but only when their costs are uncertain and highly asymmetric among members of the elite (high ζ and low θ).

3 The Evidence

This section tries to empirically validate the main prediction of the model. We do this in two ways. First the model is tested using a sample of countries that became independent after WWII. The model is also used to explain the experience of former colonies in the Americas during the nineteenth century. Different strategies are used in each of these exercises to identify the likelihood of conflicts that impose uncertain asymmetric costs on members of the elite.

[19]Notice that the direct effect of p, unlike the indirect effect through ex-post revenues, is because of the change in the likelihood of conflict onset, not because of the difficulty of fighting the conflict.

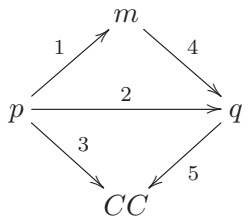

Figure 1: Theoretical Predictions Conditional on $\zeta > \bar{\zeta}$ and $\theta < \bar{\theta}$

Figure 1 illustrates the theoretical relationships among the main variables in the model, conditional on observing $\zeta > \bar{\zeta}$ and $\theta < \bar{\theta}$. It also shows the expected effects on the likelihood of observing a conflict at any point in time, denoted by CC. This variable, not defined explicitly in the last section, is useful to explain the empirical strategy. The exogenous variable is p, the probability of future civil conflicts. Relationship 3 exists by definition because, everything else constant, a higher probability means that we should observe more conflict in equilibrium. Likewise, q, the likelihood of a conflict ending, reduces CC, explaining 5. Link 2 is negative and exists by construction, because Equation (1) defines q as a function of p. Relationship 4, which comes from Proposition 1, means that more constraints on the executive, m, lowers the likelihood of ending a conflict. This is key in generating relationship 1, which is the main prediction of the model and the one we test in this section. Since a higher m reduces q, making a conflict more likely to be observed, the ruling class may prefer to lower m when facing a high p. This is the result in Proposition 2. Finally notice that there is no direct relationship between m and CC since the former is set before the latter is realized.

There are two important difficulties when trying to prove relationship 1. First we do not observe p. We only have a good indicator of m (as explained below), and we may observe CC in some cases. Second, 4 and 5 makes CC endogenous, implying that the correlation between CC and m is not a good object for characterizing 1. To solve these problems we use proxies for p. These proxies not only need to be associated with the likelihood of future conflicts having high ζ and low θ, they also need to be unaffected by changes in m. In the first exercise we take advantage of a good database on civil conflicts and apply a TSLS strategy to better capture the particular form of 3. In the second exercise we do not observe CC, but we claim that the proxy we use is closely related to the likelihood of conflicts, so we are able to study its direct effect on m.

A common feature of both exercises is the use of the variable Constraints on the Executive, from the Polity IV database, to capture institutional design, or the variable m in the model. Unlike others, this index explicitly measures how constrained the executive is in making arbitrary decisions, and so it seems an excellent mapping from the model into the data. In particular it *"...refers to the extent of institutionalized constraints on the decision-making powers of chief executives... imposed*

by any accountability groups [like] legislatures... the ruling party in a one-party state; councils of nobles or powerful advisors in monarchies; the military in coup-prone polities; and ... a strong, independent judiciary... [It captures] the checks and balances [in] the decision-making process." (Marshall and Jaggers, 2007). A particular benefit of using this variable is that it is not directly affected by the fraction of people with voting rights. Best scores are possible with large groups excluded from the political process (and vice versa). For instance, South Africa under apartheid, and the US before the National Voting Rights Act of 1965, had the top-coded score, while France today does not. In the case of the Americas during the nineteenth century we observe countries with very high scores like Argentina, Chile, and Uruguay, coexisting with voting restrictions leading to no more than 15% of the population with voting rights (Colomer, 2004). This property is useful to test the model because our prediction is only about the constraints that the elite imposes on the chief executive, not about the constraints that the whole population imposes on the government or elite.

An additional issue is how to identify the period of institutional design. In the first exercise, when we study the experience of the countries that became independent after WWII, it is assumed that this is done during the first years after independence. This allows us to separate the effects of the risk of civil conflicts, for which the model has a clear prediction, from the effect of actual conflicts, for which we do not have a prediction. In the case of the Americas, basically because of the type of conflicts considered and because of historical developments described below, we take the first decades after independence as the period of institutional building. Therefore we resort to the empirical literature on the persistence of political institutions to link our dependent variable with current political and economic conditions. In particular a simple regression shows that about half of the difference in the constraints imposed after independence persisted until 2006 for the group of 92 countries in our sample of states that became independent after WWII. In the case of the Americas, 15% of the difference in 1900 persists until 2006 for our group of 21 countries[20].

3.1 Civil Wars in The Post War Period

This section implements cross-country TSLS regressions to test the main implication of the model for a sample of countries that became independent after WWII. The basic exercise is to try to explain political institutions at the time of institutional building, using the likelihood and expected persistence of a future civil conflict as an explanatory variable. It is assumed that the institutional building process occurs immediately after independence. The availability of data on the type of civil conflicts suggested by the model for the post-war era determines the time frame of our sample.

As predicted by the model there are some characteristics civil wars should possess to generate

[20]Moreover, controlling for the constraints observed in 2006, those imposed after independence and in 1900 are significant in explaining GDP per capita today in these two groups respectively. These results show that our dependent variable affects GDP per capita today even without taking into account the persistence in political institutions.

the main mechanism: they need to impose uncertain and asymmetric costs among members of the elite. With respect to the asymmetry of costs, external conflicts and revolutions, which affect the elite as a whole, would not generate the required asymmetry. But civil war is defined as intra-state war with at least one organized rebel army, therefore external conflicts and popular uprisings or revolutions are excluded from that definition. Wars of liberation for colonialism are also excluded as it is required that the national government is actively involved (Collier and Hoeffler, 2007). Furthermore, as noted by Ray (2010), "*many [civil] conflicts appear to be largely ethnic, geographical, and religious in nature, while outright economic class struggle is relatively rare.*" In particular one of the strongest relationships that the empirical literature has found is between civil conflicts and geographic conditions, including mountains, forests and long distances from the state's center (Fearon and Laitin, 2003; Collier and Hoeffler, 2004; Hegre and Sambanis, 2006). This illustrates the fact that most of these conflicts are, at least in the beginning, localized in specific regions, mainly because these environments benefit insurgents relative to more conventional armies[21]. Therefore they particularly affect members of the elite with economic interests on those regions, which suggests asymmetric costs.

In terms of uncertainty, Kalyvas (2007) argues that an insight from case studies is that geography "may trump pre-war allegiances", as guerillas are typically strong in places where geography favors them but where there were no apparent grievances among the population to justify a conflict. Collier et al. (2009) analyze a sample of civil wars for the period 1965-2004 and find support for the "feasibility hypothesis" i.e., that where civil war is feasible it will occur without reference to motivation. In light of these results it is not surprising that one of the main sources of unrest that interacts with other features of the environment to facilitate civil wars is something as random as crop failure (Kalyvas, 2007). Accordingly, Miguel et al. (2004) use rainfall growth as an instrument for economic stagnation to explain, successfully, the onset of civil wars.

All of these findings suggest that modern civil wars meet the main requirements imposed by the model in terms of the asymmetry and uncertainty of their costs. This justifies the empirical strategy of estimating the effect of the risk of these types of conflicts on political institutions. We also exploit two additional issues. First we would expect that it is more likely to observe uncertain and asymmetric costs arising from low-scale conflicts, so we distinguish in the estimations between small and large armed conflicts. Second, natural resource availability, which raises the payoff to rebellion (Collier and Hoeffler, 2004), may be the most important factor reducing the asymmetry and uncertainty of the allocation of the costs of conflict. These resources are commonly the main source of wealth for elites and all members suffer when they are lost. Rebels often try to appropriate these resources, and so the eruption of a conflict will be more likely in the region where these are localized. Not all natural resources are geographically concentrated though. Illegal drugs like

[21] Kalyvas (2007) enumerates additional causes for the observation that most insurgencies begin and are fought primarily in the rural countryside.

cocaine, hash, and heroin, timber resources, and alluvial diamond mining, all having been identified as very important in financing civil wars, are more widely dispersed than oil or pit mining (Buhaug and Gates, 2002). Therefore we distinguish in the estimations between the effect of conflicts in countries with and without significant oil resources.

Of course, and as the model predicts, civil wars are endogenous. Everything else constant, as shown by relationships 4 and 5 in Figure 1, fewer constraints on the executive should reduce the likelihood of observing a civil war. Collier and Rohner (2008) find that this is true for poor countries using democracy as the institutional variable and different types of violence as explanatory variables. They argue that this is because democracy constrains the possibilities of government repression. Similarly, Collier et al. (2008) show that less democratic countries are less likely to revert to violence[22]. To overcome the endogeneity problem geographic conditions are used as an instrument, exploiting the strong relationships the empirical literature has found between civil conflicts and geographic variables to capture the exogenous likelihood and persistence of civil wars. As argued by Hegre and Sambanis (2006), "*rough terrain is ideal for guerrilla warfare and difficult for a government army to control. Mountain areas, giving advantage to rebel troops, allow the rebels to expand the scope of conflict, whereas forests provide cover, particularly against detection or aerial attack*". This is consistent with the conclusion by Kalyvas (2007) that geography "may trump pre-war allegiances" and more generally with theories that focus on feasibility to explain the causes of civil conflicts: a rebel group exists as a result of unusual conditions that enable it to be viable during the period of violent conflict (Collier and Hoeffler, 2007).

Additionally, and also following previous empirical literature on civil conflicts, we use rainfall variability as an additional instrument. In particular, studies that exploit within-country variation in the exogenous determinants of conflict have found significant effects of weather shocks. As described above Miguel et al. (2004) use the growth rate in rainfall as an instrument for short-term economic fluctuations that trigger conflicts. They argue that this strategy is only valid for countries with large agricultural sectors without extensive irrigation systems. Hence they consider only African countries in their study. However there are additional channels trough which weather shocks may affect the likelihood of civil conflicts. Nel and Righarts (2008) analyze the relationship between natural disasters and the risk of civil conflict. Using a sample of 187 political units from 1950 to 2000 they find a significant increase in the risk of civil conflict after climate-related disasters, which basically include hydro-meteorological events. More recently Besley and Persson (2011) use a measure of natural disasters, which includes floods and slides, as an explanatory variable for civil wars and political repression. In our cross-section framework we claim that in countries with

[22] An alternative hypothesis is that better institutional constraints limit the stake of politics and the pay-off from overthrowing the government, lowering the incidence of violence (North et al., 2009; Besley and Persson, 2011). In this case these institutional constraints must be very difficult to change, as they should persist after the government is overthrown. Another effect is that weaker constraints could generate more intra-elite conflict. The regression results may help to determine which effect is more important.

historically larger rainfall variability the incidence of extreme whether shocks is more important, raising the likelihood of conflict[23]. Since we are interested in both onset and persistence, we think it is better to include rough terrain and rain volatility together as instruments instead on including only one of them[24].

The empirical literature on civil wars has also found significant time effects when explaining the onset of civil wars, probably due to the effect of the Cold War. To exploit this source of variability the year of independence is used as an additional instrument instead of rain variability as a robustness analysis.

The following equations are estimated to test the main prediction of the model,

$$XC_{j,indep} = \beta_0^{\text{OLS}} + \beta_1^{\text{OLS}} CC_j + \beta_k^{\text{OLS}} X_{kj} + \epsilon_j^{\text{OLS}} \tag{6}$$

$$CC_j = \sum_{t=indep}^{2008} \frac{CC_{jt}}{2008 - indep + 1} = \alpha_0 + \alpha_1 RT_j + \alpha_2 RV_j + \alpha_k X_{kj} + \upsilon_j \tag{7}$$

$$XC_{j,indep} = \beta_0^{\text{TSLS}} + \beta_1^{\text{TSLS}} \hat{CC}_j + \beta_k^{\text{TSLS}} X_{kj} + \epsilon_j^{\text{TSLS}} \tag{8}$$

The variable $XC_{j,indep}$ is the five year average of constraints on the executive after independence[25]. CC_{jt} is a variable that takes a value of 1 if there is a civil war in country j and year t. Our source is the UCDP/PRIO Armed Conflict Dataset (Harbom et al., 2008). UCDP/PRIO defines armed conflict as "a contested incompatibility that concerns government and/or territory where the use of armed force between two parties, of which at least one is the government of a state, results in at least 25 battle-related deaths in a year." In particular, CC_{jt} takes a value of one when internal armed conflict occurs between the government of a state and one or more internal opposition group(s) regardless of intervention from other states. Thus the endogenous explanatory variable CC_j not only captures the onset of a civil war, but also how persistent it is, as required by the model. There are other data sets with detailed information about civil wars. However, to my knowledge, the UCDP/PRIO Dataset is the only one that includes conflicts with as low as 25 battle-related deaths in a year. Other data sets use a 1000 deaths threshold. As discussed above low scale conflicts are more likely to meet the requirements of the model, so we prefer this dataset. This also allows us to distinguish between small and large conflicts, an exercise we implement below. RT_j is the rough terrain variable used by Fearon and Laitin (2003) and Hegre and Sambanis (2006), corresponding to the proportion of the country that is mountainous. RV_j is our measure of rain volatility in country j, and it is defined as the log of the ratio between one plus the average

[23] In doing so we take into account that the countries in our sample are poor and probably not able to offset the effect of these events with better infrastructure when they are very likely. The model implies that, at least in terms of their effect on conflict, political institutions may be an offsetting mechanism.

[24] Bruckner and Ciccone (2011) finds that democratic conditions improve after severe rain shocks. This should not influence the exclusion condition because our focus is on initial (post-independence) institutional quality.

[25] Results are unchanged if we use the three year average instead of the five year average.

monthly maximum rainfall, and one plus the average monthly minimum rainfall. The source is Parker (1997). Finally $\hat{CC}_j$ is the predicted value of CC_j using the estimated parameters from Equation (7).

Additional control variables, included in the vector X_{kj}, are fractionalization, whether the country was a British colony at the moment of independence , and whether the existence of oil reserves was known at the moment of independence. The source for the fractionalization variable is Humphreys (2005). This variable has been used extensively in empirical papers to explain civil wars but without success, although there are good theoretical reasons to expect it to have a significant effect on the incidence of civil wars (Collier and Hoeffler, 2007; Kalyvas, 2007; Blattman and Miguel, 2010). Fractionalization could be a determinant of the benefits of constraining the executive, i.e. the function $I(m)$ in the model, and therefore may be an explanatory variable for the constraints on the executive as well. The dummy for British colonies is included because the literature that studies the late decolonization process concludes that these colonies were more likely to establish good institutions. Smith (1987) enumerates a series of reasons the British were favored at the time they withdrew from their colonies to established better institutions[26]. Finally the existence of oil reserves is included as an additional explanatory variable. This variable takes a value of one when the existence of oilfields was known at the moment of independence. The source for this variable is Humphreys (2005). An interaction of this variable with the civil conflict variable is introduced to control for conflicts with low uncertainty and asymmetry as explained above. As a robustness analysis we also include dummies for African countries and former USSR republics. All the data used in the estimations is reported in Appendix B.

According to the model, we expect $\beta_1^{TSLS} < 0$ and $\beta_1^{TSLS} < \beta_1^{OLS}$. The second relationship captures a feature of the model that is necessary to obtain its main prediction, i.e. that more constraints on the executive lead to a lower probability of observing a conflict (links 4 and 5 in Figure 1), a statistical relationship that is only captured by the OLS specification. An additional reason to expect differences in the coefficients is that our instruments are chosen to capture primarily the type of conflicts for which our theory predicts there is a negative relationship with political institutions. If other conflicts are still included in CC_j despite the discussion above, they would not be well captured by the instruments, and hence, unlike in the OLS case, the second-stage coefficients would not include their effects[27]. Finally we also expect a positive interaction between oil reserves and conflict, and a negative and highly significant effect of both rough terrain and rain variability in the first-stage.

[26] Among them is the fact that in the last decades of colonialism the British implemented reforms which associated the peoples in the colonies closely to their own governing, something not observed in the French, Portuguese or Belgian colonies.

[27] The case of Israel is illustrative in this respect. Through inter-state armed conflicts Israel occupied or annexed vast territories, which gave rise to a number of intrastate conflicts (UCDP Conflict Encyclopedia, Uppsala University). Clearly in this case the main mechanism of the model does not apply. Accordingly CC is more than three times $\hat{CC}$ in the case of Israel.

	(1) OLS	(2) TSLS	(3) OLS	(4) TSLS	(5) TSLS	(6) Inst	(7) Inst
Civil Conflict	0.097	−1.482**	0.040	−1.607**	−3.483**		
	0.188	*0.666*	*0.171*	*0.702*	*1.676*		
Fractionalization			−0.027	0.160	0.180		0.123
			0.129	*0.232*	*0.303*		*0.102*
British Colony			0.212**	0.218	0.235		−0.014
			0.085	*0.136*	*0.183*		*0.055*
Oil Reserves			0.104	0.257*	−0.290		0.106*
			0.087	*0.136*	*0.246*		*0.059*
Civil Conflict × **Oil Reserves**					3.270*		
					1.710		
Rough Terrain						0.036***	0.039***
						0.011	*0.014*
Rainfall Variability						0.037***	0.037**
						0.014	*0.016*
R^2	0.004	0.101	0.105	0.229	0.254	0.118	0.176
Observations	92	92	86	86	86	92	86
Sargan statistic		0.544		0.806	1.203		
F-statistic						7.555	7.865
Conditional LR p-value		0.001		0.000			

Notes: The dependent variable in columns (1)-(5) is $XC_{j,indep}$ and in columns (6) and (7) is CC_j (see the text for details). Robust standard errors are in italics, * means significant at 10%, ** significant at 5%, and *** significant at 1%. The Conditional LR p-value is the p-value of the robust to weak instruments test by Moreira (2003) applied to the endogenous regressor.

Table 1: Constraints on the Executive and the Risk of Civil Conflicts

Results are shown in Table 1. In the first column we show the OLS estimation with civil war as the only explanatory variable, and the coefficient is not significant and very close to zero. When using the two stages procedure in column (2), again without other explanatory variables, the coefficient becomes negative and significant, as expected. The first-stage regression results are shown in column (6), where we can see that both instruments are highly significant and have the expected sign, although they may be weak as deduced from the low level of the F-statistic relative to the critical values reported by Stock and Yogo (2005). In order to see if this influences the results we perform the Conditional LR test (Moreira, 2003), which is robust to weak instruments. In the last row of Table 1 we present the p-value, which shows that the traditional t-test underestimates the significance of the coefficient. It turns out that the latter is significant at the 1% confidence level when the robust test is considered[28]. In columns (3) and (4) the additional explanatory variables are included in the regressions. The effect of civil war in the OLS case remains not significant and very close to zero, while in the TSLS case the coefficient remains significant and negative, in line with the model predictions. According to the robust Conditional LR test the coefficient is still significant at the 1% confidence level in this case.

[28]We also estimate the regressions using the LIML method, for which the critical values reported by Stock and Yogo (2005) are smaller, and results do not change much.

	Africa			*Ex-USSR*			*Africa and Ex-USSR*		
	(1) OLS	**(2) TSLS**	**(3) TSLS**	**(4) OLS**	**(5) TSLS**	**(6) TSLS**	**(7) OLS**	**(8) TSLS**	**(9) TSLS**
Civil Conflict	0.053	−1.139**	−2.883**	0.099	−1.396*	−3.546*	0.075	−1.158*	−3.358**
	0.165	*0.570*	*1.436*	*0.169*	*0.722*	*1.923*	*0.167*	*0.614*	*1.698*
Fractionalization	0.211	0.333	0.323	−0.036	0.135	0.176	0.166	0.347	0.392
	0.146	*0.228*	*0.307*	*0.125*	*0.216*	*0.290*	*0.150*	*0.251*	*0.361*
British Colony	0.239***	0.242**	0.253	0.270***	0.246*	0.240	0.259***	0.237*	0.229
	0.083	*0.116*	*0.159*	*0.084*	*0.132*	*0.194*	*0.086*	*0.122*	*0.189*
Oil Reserves	0.002	0.119	−0.327	0.106	0.241*	−0.321	0.020	0.115	−0.426*
	0.094	*0.117*	*0.208*	*0.092*	*0.132*	*0.266*	*0.098*	*0.119*	*0.241*
Africa	−0.280***	−0.265***	−0.217				−0.232**	−0.278**	−0.271
	0.078	*0.100*	*0.138*				*0.094*	*0.128*	*0.197*
Ex-USSR				0.252**	0.127	0.017	0.104	−0.028	−0.140
				0.111	*0.137*	*0.211*	*0.126*	*0.152*	*0.237*
Civil Conflict			2.833*			3.443*			3.375**
× Oil Reserves			*1.452*			*1.927*			*1.682*
R^2	0.219	0.286	0.314	0.172	0.248	0.294	0.227	0.286	0.345
Observations	86	86	86	86	86	86	86	86	86
Conditional LR p-value		0.004			0.008			0.013	

Notes: The dependent variable is the five-year average constraints on the executive indicator. Robust standard errors are in italics, * means significant at 10%, ** significant at 5%, and *** significant at 1%. The Conditional LR p-value is the p-value of the robust to weak instruments test by Moreira (2003) applied to the endogenous regressor.

Table 2: Constraints on the Executive and Civil Conflicts, Africa and Former USSR Dummies

Fractionalization is neither significant explaining institutions in the second-stage (column 4), nor it is explaining conflict in the firs-stage (column 7). British colony has a significant and positive effect only in the OLS case. In the TSLS case the size of the coefficient is similar but the standard error rises. Hence the non-significance may be due to the lower accuracy when estimating the two stages. Oil reserves have both a direct positive, and an indirect negative effect trough conflicts in the TSLS case. This may be explained by the interaction effect with civil wars that the model predicts. This interaction is included in column (5)[29]. We can see now that the effect of civil wars on the constraints imposed on the executive is almost twice as large as before for countries without oil reserves, but for countries with oil reserves the coefficient becomes not significant, in line with the main predictions of the model. The direct effect of oil reserves becomes not significant when the interaction is included.

Sargan tests, reported in Table 1, reject over-identification. Accordingly when including each instrument as an additional explanatory variable in the second-stage regressions these variables are not significant, suggesting that they do not have a direct effect on the constraints imposed on the executive. In Table 2 we show that results are unchanged when including dummy variables

[29]Here we treat the interaction term as endogenous and include interactions among the exogenous variables as additional instruments to avoid estimating the forbidden regression (Wooldbridge, 2002). Since we have more than one endogenous variable we can not apply the Conditional LR test.

	(1) OLS	(2) TSLS	(3) OLS	(4) TSLS	(5) TSLS	(6) Inst	(7) Inst
Civil Conflict (Minor)	0.191	−1.973**	0.129	−2.163**	−3.695**		
	0.247	*0.908*	*0.220*	*0.964*	*1.794*		
Fractionalization			−0.030	0.119	0.075		0.067
			0.126	*0.253*	*0.308*		*0.087*
British Colony			0.212**	0.218	0.230		−0.012
			0.084	*0.138*	*0.160*		*0.041*
Oil Reserves			0.098	0.261*	−0.165		0.083*
			0.086	*0.144*	*0.217*		*0.049*
Civil Conflict × Oil Reserves					2.427*		
					1.439		
Rough Terrain						0.025**	0.027**
						0.010	*0.012*
Rainfall Variability						0.030***	0.031**
						0.011	*0.013*
R^2	0.009	0.106	0.108	0.239	0.250	0.114	0.160
Observations	92	92	86	86	86	92	86
Sargan statistic		0.275		0.323	1.494		
F statistic						6.426	6.636
Conditional LR p-value		0.001		0.000			

Notes: The dependent variable in columns (1)-(5) is $XC_{j,indep}$ and in columns (6) and (7) is CC_j (see the text for details). Robust standard errors are in italics, * means significant at 10%, ** significant at 5%, and *** significant at 1%. The Conditional LR p-value is the p-value of the robust to weak instruments test by Moreira (2003) applied to the endogenous regressor.

Table 3: Constraints on the Executive and the Risk of Minor Civil Conflicts

for Africa and for former USSR republics. Only the first is significant in the second-stage, and neither of them is significant in the first-stage. With respect to the coefficient on civil conflicts, its significance in the TSLS case remains very high, and it remains not significant and close to zero in the OLS case. According to the Conditional LR test only when both dummies are included at the same time (column 8), the significance falls below the 1% confidence level.

The UCDP/PRIO Armed Conflict Dataset allows us to distinguish between minor and large conflicts. We exploit this to test if, as predicted by the model, results are stronger for smaller conflicts. Low-scale conflicts are defined as those where battle-related deaths are between 25 and 999 in a year. Large conflicts, or civil wars, are those conflicts with more than 999 battle-related deaths in a year. In Table 3 we present the baseline estimations presented in Table 1, but redefining the variable CC_{jt} to take the value one only when there is a minor conflict. These are about 77% of the episodes captured in Table 1, and in Appendix B we report the new variable CC_j constructed under this definition. The sign and significance of the coefficients is unchanged, including the interaction term with oil reserves, but now the effect of the risk of conflicts on the constraints imposed on the executive is larger than before. As discussed above, this is in line with the main predictions of the model if these smaller conflicts are more closely related to the conditions needed by its main mechanism.

	(1) OLS	(2) TSLS	(3) OLS	(4) TSLS	(5) TSLS	(6) Inst	(7) Inst
Civil Conflict	0.097	−0.827	0.040	−1.141**	−2.999*		
	0.188	*0.598*	*0.171*	*0.563*	*1.551*		
Fractionalization			−0.027	0.108	0.154		0.159
			0.129	*0.184*	*0.250*		*0.101*
British Colony			0.212**	0.216*	0.232		−0.041
			0.085	*0.116*	*0.162*		*0.051*
Oil Reserves			0.104	0.214*	−0.224		0.109*
			0.087	*0.118*	*0.234*		*0.057*
Civil Conflict × **Oil Reserves**					2.771*		
					1.646		
Rough Terrain						0.032***	0.035**
						0.012	*0.015*
Independence						−0.004***	−0.004***
						0.001	*0.001*
R^2	0.004	0.031	0.105	0.177	0.236	0.118	0.194
Observations	92	92	86	86	86	92	86
Sargan statistic		0.000		0.095	0.919		
F-statistic						7.138	9.479
Conditional LR p-value		0.104		0.009			

Notes: The dependent variable is the five-year average constraints on the executive indicator. Robust standard errors are in italics, * means significant at 10%, ** significant at 5%, and *** significant at 1%. The Conditional LR p-value is the p-value of the robust to weak instruments test by Moreira (2003) applied to the endogenous regressor.

Table 4: Constraints on the Executive and Civil Conflicts using Independence as Instrument

Finally in Table 4 we show the results when, together with rough terrain, we use the year of independence instead of rain volatility as an instrument in the baseline specifications. As expected the effect of the year of independence is negative and highly significant in the first-stage (columns 6 and 7). Results are not as strong as before but the general pattern persists. In particular when no additional control variables are included the OLS coefficient is still close to zero and not significant. In the TSLS case the coefficient on civil conflict remains negative but the significance falls. According to the robust Conditional LR test it is significant at a 10% level. When the other control variables are included in columns (4) and (5), the significance is again very high (at the 1% level) and the size of the coefficients very similar to those reported in Table 1.

3.2 The Americas after Independence

In the aftermath of independence the new countries in the Americas, particularly in Latin America, suffered a vacuum of political power, which led to lack of governance and numerous armed conflicts. The first decades were chaotic and disorganized; there was little institutionalization and almost no agreement on national goals or ideology (Wiarda, 2005). The wars of independence unleashed a crisis with power struggles between regional elites or *caudillos* for control of the new independent

countries, predatory militarism, and clashes between civilians and the military, or between the church and anticlerical forces. Besides internal wars and economic stagnation, Latin America fell victim to foreign interventions and numerous border wars, especially in Central America (Bates et al., 2007)[30].

After a short period where power was generally held by radical groups, who favored wide popular participation following the spirit of the wars of independence, conservatives dominated politics. This group supported the rebuild of the colonial order so as to secure authority over the lower classes. In constitutional terms, see e.g. Loevman (1993), Gargarella (2004) and Wiarda (2005), they supported a strong presidency. They saw the executive as a national authority with the means to prevent internal disorders, and so they invested him with extraordinary powers during internal or external crises, when he could declare a state of emergency, suspend the constitution, and rule by decree. They also defended centralist governments, weak parliaments and courts, and a powerful army, which was constitutionally obliged to step in when disorder broke out. Consequently, authoritarian governments were common throughout the region in the aftermath of independence.

The rise of conservatives in almost every country after 1820 in the context of intra-elite conflicts can be potentially explained by the model. According to its main prediction, fragmented societies like the ones in Latin America after independence needed to concentrate political power to impose order. But authoritarism raised the expected pay-off from controlling the government, increasing the incentives to fight with different factions inside the ruling class.

Nevertheless we do not test the model empirically by trying to explain the events that occurred during these decades. There is little variance during that period in terms of executive power, beyond the differences between North America and Latin America. Neither is there data to capture the incidence nor the main features of the conflicts, which would need to comply with the main requirements described in the previous section in order to apply the main mechanism of the model. Finally, if there was a serious effort in building institutions during these decades, the process was probably influenced by the ongoing conflicts in most of the countries, further obscuring the mapping of the model into the data. The focus of our empirical exercise is on racial conflicts, for which we have better proxies and that, according to the model, should have continued to influence political institutions after the "lost decades" following independence.

Indeed historians have identified the fear of a race war as one of the main causes for the lack of revolutionary support by the elites in the Americas at the end of the nineteenth century, mainly because the colonial pact also consisted on the effective maintenance of the internal colonialism of white over non-white which the Catholic monarchy had been able to provide (Williamson, 2009, p.203). The white oligarchies in the Americas did not have representative political institutions or access to high government posts. But this was the price that had to be paid for the massive

[30]Countries that achieved order notably early were Brazil, which maintained the system of monarchy, and Chile, which established a centralized republican government. In both cases it has been documented that the elites were relatively homogeneous at that time as well (Collier and Sater, 2004; Williamson, 2009)

legitimacy of the Catholic monarchy, that could best evoke loyalty to the established order from the Indian communities and the lower classes of Hispanics, blacks and mixed-bloods in the colonies (Williamson, 2009, p.115). In short, the elite needed imperial protection from the slaves and indigenous peasants, and only when the king faltered, did settler elites in the empire understand they could no longer rely on Spain to protect them (Bates et al., 2007).

The most spectacular, notorious, and disturbing indigenous uprising in the Colonial period exploded across Peru in 1780, led by Túpac Amaru (Eakin, 2007; Drake, 2009). Other notable episodes were the revolt by the Aymara speakers in Upper Peru, the *comunero* revolt in Colombia, the local revolts linked to the Hidalgo movement in Mexico, and a mulatto revolt in the northeastern province of Bahia in Brazil. Although these uprisings had important costs for the elites -including in some cases the indiscriminate slaughtering of whites-, they were far from seizing political power. All of them were brutally suppressed, save the Haitian Revolution -a colony where roughly 95% of the population were slaves-, the only successful non-white rebellion in the Americas' colonial period, and an event that kept alive the fear of race war among the elites throughout the continent in the nineteenth century.

Rebellion by the lower classes continued to be endemic after independence. Katz (1988), analyzing rural rebellions in Mexico, argues that rural revolts between 1810 and 1920 affected that country much more than such revolts had ever influenced the territory during the colonial period. This was particularly the case in central Mexico, where rebellions became more common, larger, and bloodier, and repression more pronounced. Between 1840 and 1870 there was an unprecedented resurgence of village revolts, race wars, and regional rebellions (Coatsworth, 1988). According to Katz (1988) and in line with the model, one of the reasons for this was the greater strength of the Spanish crown relative to the new Mexican state. Moreover he argues that post-independence rebellions became less common around 1884 due, among other factors, to the beginning of the strongest state that independent Mexico had ever known, led by Porfirio Díaz, despite the massive expropriation of villagers' lands by wealthier classes that began in the late nineteenth century.

Coatsworth (1988) surveys the literature on rural rebellions since the end of the seventeenth century in Latin America[31]. This literature consists mainly of case studies and therefore is not exhaustive. Most of the events studied took place in Mexico, Guatemala, Peru, Bolivia, and Brazil. In the case of revolts involving Mesoamerican and Andean villages, Coatsworth (1988) distinguishes three main types: land invasions, village riots, and caste wars. All of these involved high degrees of violence, including theft and assassinations, and they were mostly directed against the rural elites: land owners in the first case, public officials in the second case, and whites in the third case. Caste wars, regional uprisings directed towards the expulsion or elimination of non-Indian authority, were the largest revolts, while the most common and prolonged revolts involved formal

[31] Although the author recognizes that rebellions in cities and towns were also very common and similar to rural rebellions, they are not included in this analysis

and informal alliances between Indian villagers and non-Indian low classes. Finally slave-based revolts consisted of plantation riots and uprisings, slave insurrections, and maroon warfare. Slave insurrections, although uncommon, usually sought the expulsion or extermination of the European elite and, together with caste wars, could arise from small riots via contagion, a danger recognized by ruling classes throughout Latin America (Coatsworth, 1988, p.30).

Because the analysis is based on case studies for certain countries only, numbers are not very informative. However they give a lower bound on the number of conflicts. Coatsworth (1988) reports 521 village riots and uprisings, and 286 slave-based revolts, from 1700 to 1899. In the case of regional, "peasant", and caste wars, he reports 6 events before 1810, and 42 thereafter; 23 in Mexico, 8 in Brazil, 7 in Peru, and 10 in other countries (Argentina, Barbados, Bolivia, Ecuador, El Salvador, Guatemala, and Jamaica). In the case of Mexico these rebellions took place in 15 different regions. A similar pattern is observed in Brazil and Peru. This shows that they were not localized only in some specific regions. Of 31 maroon wars and slave insurrections recorded between 1700 and 1832, 13 occurred in the Guianas, Suriname, and Venezuela, while the rest were spread throughout the Caribbean islands and the mainland.

The model in this paper predicts that fear of race wars also affected the institutions built after independence. The main features of this type of conflict resemble those needed by the main mechanism of the model, and there are good reasons to think that these risks persisted for most of the nineteenth century. This is because independence was a political and not a social or economic revolution. White elites still employed coerced non-white labor in agrarian or mining economies. Therefore the risk of an uprising was virtually unchanged. Moreover there are reasons to expect that the risk of uprisings by Indians and slaves was even higher after the lost decades following independence. The improved long-run economic prospects in these economies increased this risk as, for example, landowners tried to enlarge their land possessions at the expense of the lower classes, or as the demand for forced labor increased (Coatsworth, 1988).

Indeed it has been documented by historians that the risk of uprisings by the lower classes, together perhaps with the risk of intra-elite conflicts, was among the main reasons for the establishment of autocratic regimes throughout the continent after independence. The trade-off facing the new political elite was similar to the one highlighted in the model: "*...a contradiction appeared: the only coherent political ideology available to [the elites] was liberalism, but democratic values such as liberty and equality ... tended to undermine state authority in regionally dispersed societies which were still seigniorial, hierarchical, racially divided and often based on slavery.*" (Williamson, 2009, p.233). Given severe racial and class inequalities, elite fears of mass upheaval compelled many of them to prefer authoritarism over republicanism, and where colonial rule relied on exploitation of large indigenous or slave populations, that cleavage carried on past independence and hindered democratic prospects (Drake, 2009, p.54). Eakin (2007) concludes that much of US history in the aftermath of the revolution is about how to implement the ideals of the founding fathers, while in

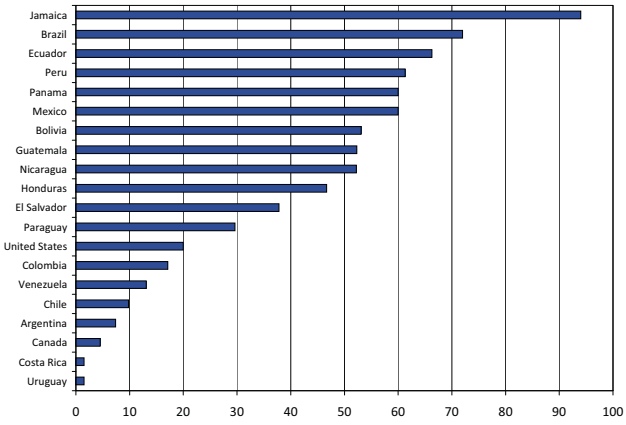

Figure 2: Blacks and Indians in the Americas, % of total pop, circa 1800

Latin America, where the elites all read, discussed, and exchanged the ideas of the age, the presence of liberal ideals and principles is very weak and minimal, and the focus is on war and maintaining elite control (Eakin, 2007, p.199).

The discussion so far makes clear that the existence of oppressed non-whites; Indians, blacks, mulattoes, and even mestizos, generated a risk of conflicts for the white elites similar to those highlighted by the model. It follows that a variable measuring non-whites as a fraction of total population may be a good explanatory variable for the constraints imposed on the executive throughout the region. Unfortunately there are only measures of Indians and blacks available, so we focus on these groups only. Mahoney (2003) estimates Indians and blacks as a fraction of total population for different countries in Latin America for the years around 1800. This variable is complemented with data from McEvedy and Jones (1978) to expand the sample to most of the former colonies in the Americas. Figure 2 shows the results. This fraction ranges from roughly 1% in Uruguay and Costa Rica, to more than 90% in Jamaica. Uruguay and Costa Rica, together with Chile and Argentina which had low indigenous populations as well, have been identified as the countries with the most democratic institutions in Latin America (Drake, 2009)[32]. On the other hand Jamaica only obtained its independence in 1962, a fact that may have been motivated by the example of Haiti (Eakin, 2007)[33].

[32]The US, which shows the highest constraints on the executive since independence (and much higher than Latin American countries), appears as a country with not a low but moderate fraction of Indians and blacks, between Colombia and Paraguay. However blacks in the US were not dispersed as most of them went to the colonies in the south. This weakens the main mechanism of the model as uncertainty about the distribution of the costs of uprisings falls. Moreover there were important institutional differences between the south, with oligarchic institutions, and the north, with more democratic institutions (Kim, 2009).

[33]Because of its late independence Jamaica is included in the previous estimations for the post-war period, but not

But it is not easy to identify the period of institutional building in the Americas. It took decades of civil discord before most of the countries could bring about enough order to construct functioning governments (Drake, 2009, p.15). Countries that moved to less autocratic political institutions made such changes slowly, only after the negative economic and political effects of the wars of independence started to be overcome, and with the help of new groups inside the elites that appeared when the economies started to diversify. As stated by Williamson (2009), only after about 1850 did overseas demand begin to pull a few Latin American economies out of stagnation, leading to a degree of political consolidation and, in some republics, to a period of constitutional politics and rule of law (Williamson, 2009, p.234). Liberals started to dominate politics. This group, who particularly benefited from overseas trade and new economic opportunities, supported the creation of a modern liberal state following the US constitution. They tried to constrain the potential abuses of the executive through limits on the president's terms of office, restrictions on his powers of veto, and the elimination of his exceptional powers (Gargarella, 2004; Drake, 2009).

In this context the model helps to explain which countries developed political institutions that constrained the power of chief executives after the political and economic chaos following independence, when better economic conditions and the diversification of the economy, pushed by international factors, led to order and a period of institutional building. By 1870 liberals dominated politics in almost every country, but they were not always able, or willing, to establish political institutions consistent with the liberal principles described above. To capture the process of institutional design and how it was affected by the fear of uprisings, we estimate the following regression for every year since 1835,

$$XC_{j,t} = \beta_{0,t} + \beta_{1,t} CC_j + \beta_{2t} XC_{j,indep} + \epsilon_{j,t}$$

where

$$CC_j = \left(\frac{blacks + indians}{pop} \right)_{j,indep}$$

The inclusion of constraints on the executive at the moment of independence as an additional explanatory variable captures other features that may have affected institutions, such as the colonial system of government or the process of independence. As there is not too much variance across countries in terms of initial constraints, results are very similar when this variable is not included.

Results are shown in Figure 3. In the left panel the sequence of $\beta_{0,t}$ is plotted. We observe an increase in this coefficient from 1830 to 1900, consistent with the facts documented in the prior paragraphs. But in the right panel we can see that this was the case only in countries with small Indian and black populations. The graph plots the sequence for $\beta_{1,t}$, and it can be seen that it becomes negative and significant in the second half of the nineteenth century. It is interesting to see that this coincides with the period of economic recovery and political domination by liberals. As

in the estimations below for the Americas.

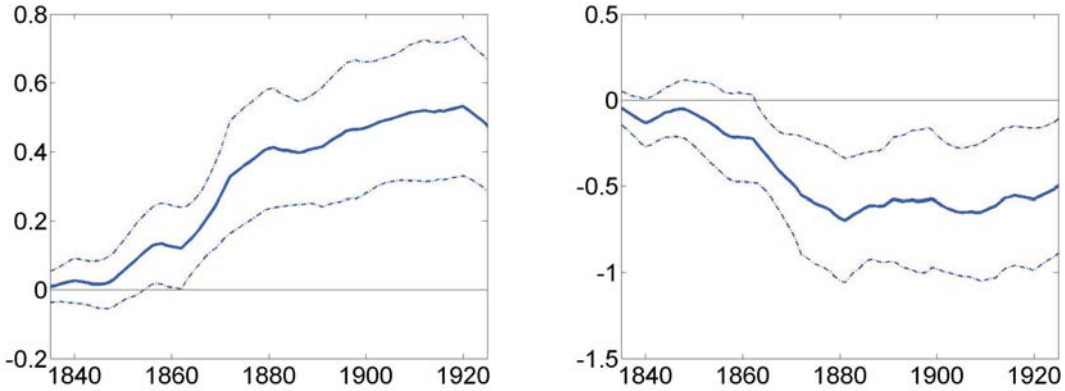

Figure 3: Natives, Blacks, and Political Institutions: Regression Results

documented by Eakin (2007) (p.220), liberals sided with the option of authoritarian governments once they obtained the political power in countries like Mexico and Brazil, but extended political participation in countries like Chile, Argentina, Uruguay, and Costa Rica. This trend also coincides with the generalized economic recovery and the emergence of new sectors in the economy. The latter may have increased the marginal benefits of constraining the government as explained in the last section. As this happened, countries able to constrain their executive, because of a low risk of internal conflicts, did so. On the other hand, the strong economic recovery may have increased the risk of uprisings in countries with large Indian and slave populations, as argued by Coatsworth (1988), contributing to the observed divergence as well.

It can also be seen in Figure 3 that the coefficient capturing the effects on institutions of the likelihood of uprisings stays significant for most of the twentieth century. Because race uprisings like the ones highlighted by the model became less likely this shows that the effects on political institutions explained by the model had very persistent effects. This may be either because the political process makes them persistent, or because autocratic regimes had effects on other determinants of political institutions like inequality.

It is worth emphasizing that the empirical results are not a direct outcome of the exclusion of certain groups from political participation. Ethnic friction, together with social inequalities, was probably behind the difficulties in achieving democracy in Latin America. But in this case the effect is on the institutions regulating the relationship among the members of the elite and not between them and the rest of the population[34]. To confirm that the results really correspond to the mechanism predicted by the model an interaction term with rough terrain (RT), the instrument for civil conflict used in the last subsection, is introduced. As argued above this variable captures how

[34]As explained above, constraints on the executive is only indirectly related to the fraction of population voting in elections. Moreover the fraction of the population voting in elections was much lower than the fraction of whites in the population at that time (Colomer, 2004).

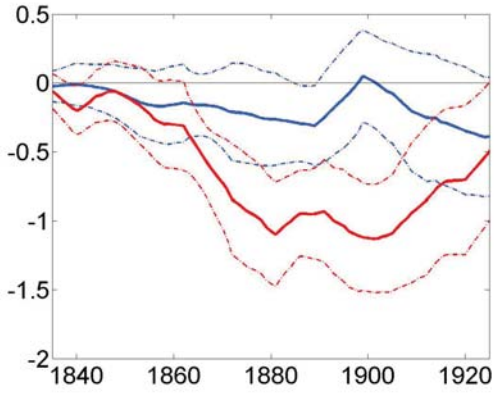

Figure 4: Natives, Blacks, Rough Terrain, and Political Institutions: Regression Results

difficult is to fight an uprising, thus a relatively larger oppressed population should have a larger effect on the constraints imposed on the executive in countries with a relatively higher value of RT. Note results from this more complex specification should be interpreted with caution because of the small sample.

Results are shown in Figure 4. The red line corresponds to the marginal effect of CC in a country with the 90^{th} percentile value of RT (between the value of Peru and Honduras), and the blue line the marginal effect for a country with the 10^{th} percentile value of RT (between the value of Brazil and Paraguay). As expected the effect is significant only in countries with high values of RT, suggesting that the channel is the one predicted by the model: a larger population of Indians and blacks meant a higher probability of civil conflicts, and when these conflicts were difficult to fight, the elite needed to organize itself in a certain way so to make the response to these events easier.

4 Conclusions

This paper explores a specific mechanism to explain differences in political institutions, which have been identified as one of the main determinants of GDP per capita today by an extensive empirical literature. A theoretical model shows that, when the elite faces a high risk of uprisings from the rest of the population, and the costs of these conflicts are uncertain and asymmetric for members of the elite, they may find it optimal to set lower constraints on the executive even if this is costly for them due to a higher risk of expropriation or a lower provision of public goods. This is because the members of the elite face a commitment problem. Ex-ante, when they know there is a probability of facing a particularly costly conflict, they are willing to finance a larger response to conflicts than ex-post, when the conflict has erupted but primarily affected other members of the elite. Lower constraints on the executive are a commitment device as their ex-post preferences about

the military response has a lower probability to influence the actual response. Therefore, together with the literature on the effect of political institutions on income per capita, this paper provides a channel to explain the effect of civil conflicts on long-run development, a link that seems to be missing in the related literature.

This paper also presents empirical evidence that is consistent with the main prediction of the model. In particular, a higher risk of future civil conflicts, determined by geographic conditions and external conditions, is associated with lower constraints imposed on the executive at the moment of independence in countries that achieved independence after WWII. The estimations also show that these effects are stronger in countries without access to oil fields, and when countries face a risk of minor conflicts. These two results are in line with the main prediction of the model since in these cases the costs of conflicts are more likely to be asymmetric and uncertain.

A different environment to which the model can be applied is the post independence period in the Americas. Historians have argued that the risk of uprisings from non-whites in these economies was important, and some evidence reviewed in the paper suggests that they meet the conditions required by the theoretical model: they were geographically localized and small-scale conflicts that affected a regionally dispersed elite. The econometric evidence shows that only countries with a low risk of this type of conflict were able to raise the constraints imposed on the executive after the lost decades following independence, when a process of institutional design could take place at the same time that new economic sectors started to develop. Moreover the evidence shows that the countries that did not follow this process had a high risk of rebellions, but also had geographic conditions that made it more difficult to fight any rebellion, giving additional support to the main mechanism highlighted in the model.

Appendix A

Proof of Proposition 1

It is clear that the proposed and accepted tax rates in any period when $S = 1$ are $\tau^*_{\text{NWC}} = 1$ and the highest value consistent with expression (3) for τ^*_{WC}. Uniqueness follows directly. If there is no $\tau_{\text{WC}} \in [0, 1]$ consistent with this expression then the unique solution to the executive's maximization problem is $\tau^*_{\text{WC}} = 0$ and $\tau^*_{\text{NWC}} = 1$. If there is only one $\tau_{\text{WC}} \in [0, 1]$ consistent with the inequality then that tax rate and $\tau^*_{\text{NWC}} = 1$ is the unique solution. Finally if there are multiple $\tau_{\text{WC}} \in [0, 1]$ consistent with it then the unique solution is the maximum of them and $\tau^*_{\text{NWC}} = 1$. In the three cases it is clear that we have a unique q^*.

For the second part define

$$LHS(\tau_{\text{WC}}) = \frac{\delta q(\theta - m)}{1 - \delta(1-p) + \delta q(1-m)}$$

and notice that

$$\frac{\partial LHS(\tau_{\text{WC}})}{\partial \tau_{\text{WC}}} = \tilde{\lambda} m Q'(\lambda T) \left[\frac{\delta(\theta - m)(1 - \delta(1-p))}{(1 - \delta(1-p) + \delta q(1-m))^2} \right] > 0 \tag{9}$$

$$\frac{\partial^2 LHS(\tau_{\text{WC}})}{\partial \tau^2_{\text{WC}}} = \left(\tilde{\lambda} m\right)^2 \left[\frac{\delta(\theta - m)(1 - \delta(1-p))}{(1 - \delta(1-p) + \delta q(1-m))^2} \right] \left[Q''(\lambda T) - \frac{2Q'(\lambda T) Q'(\lambda T) \delta(1-m)}{1 - \delta(1-p) + \delta q(1-m)} \right] < 0 \tag{10}$$

Then the LHS of expression (3), ($LHS(\tau_{\text{WC}})$), is strictly increasing and strictly concave in τ_{WC}. Now define $\bar{\theta}$ as the value of θ for which $LHS(1) = 1$,

$$\bar{\theta} = 1 + \frac{1 - \delta(1-p)}{\delta\left(Q(\tilde{\lambda}) - p\right)}$$

thus $\bar{\theta}$ only depends on the exogenous parameters δ, p and $\tilde{\lambda}$. Now we define $\bar{m}$ as the value for which $LHS(0) = 0$, and so $\bar{m}$ solves $Q(\tilde{\lambda}(1-m)) = p$, and we have $0 < \bar{m} < 1$ since $Q(\tilde{\lambda}) > p$ and $Q(0) = 0$. This constant $\bar{m}$ is only a function of the exogenous parameters p and $\tilde{\lambda}$. Since T, and thus $Q(\lambda T) - p$, are continuous, strictly increasing in τ_{WC}, and decreasing in m (strictly decreasing if $\tau_{\text{WC}} < 1$) it follows that if $m < \bar{m}$, $q > 0$ for any τ_{WC} and any θ. This also implies that $LHS(0) > 0$. Notice that $LHS(\tau_{\text{WC}})$ is increasing in θ whenever $q > 0$. Therefore if $m < \bar{m}$ and $\theta < \bar{\theta}$, $LHS(\tau_{\text{WC}})$ is increasing in θ and so $LHS(1) < 1$.

Therefore we have that if $m \in (0, \bar{m})$ and $\theta < \bar{\theta}$, $LHS(0) > 0$ and $LHS(1) < 1$. This, together with inequalities (9) and (10) imply that in this case there is a unique value that makes expression (3) to hold with equality, and therefore this is the unique solution τ^*_{WC} to the executive's maximization problem. We also know that $\partial LHS(\tau^*_{\text{WC}})/\partial \tau_{\text{WC}} < 1$. We can then define $H(\tau_{\text{WC}}) = LHS(\tau_{\text{WC}}) - \tau_{\text{WC}}$ and apply the implicit function theorem to show that the function $\tau^*_{\text{WC}} = \tau_{\text{WC}}(m)$ is well defined, differentiable, and that the derivative $\partial \tau^*_{\text{WC}}/\partial m$ is a continuous function. The same follows for $q^* = q(m)$ since for this range of parameters q is continuous and strictly increasing in τ_{WC}. To prove that these functions are strictly decreasing is sufficient to show $\partial H(\tau_{\text{WC}})/\partial m < 0$ (because $\partial H(\tau_{\text{WC}})/\partial \tau_{\text{WC}} < 0$):

$$\frac{\partial H(\tau_{\text{WC}})}{\partial m} = -\frac{\delta}{1 - \delta(1-p) + \delta q(1-m)} \left[\tilde{\lambda} Q'(\lambda T)(1 - \tau_{\text{WC}}) \left(\theta - \tau_{\text{WC}} - m(1 - \tau_{\text{WC}})\right) + q(1 - \tau_{\text{WC}}) \right] < 0 \tag{11}$$

Therefore if $m \in (0, \bar{m})$ and $\theta < \bar{\theta}$, τ^*_{WC} is strictly decreasing on m, and then T an q are strictly decreasing in it as well. Finally if $\theta > \bar{theta}$ $LHS(1) > 1$ for any m, and so the executive proposes $\tau^*_{\text{WC}} = 1$, which is always accepted. This proves the first part of the second bullet of the proposition (the last part is proved below).

For the third part, i.e. to show that τ^*_{WC} is increasing in θ and λ, and decreasing in p, we need to show $\partial H(\tau_{\text{WC}})/\partial \theta > 0$, $\partial H(\tau_{\text{WC}})/\partial \tilde{\lambda} < 0$, and $\partial H(\tau_{\text{WC}})/\partial p < 0$. The first one can be easily seen above. For the others we have,

$$\frac{\partial H(\tau_{\text{WC}})}{\partial \tilde{\lambda}} = \frac{\delta T Q'(\lambda T)}{1 - \delta(1-p) + \delta q(1-m)} \left[\theta - m - \tau_{\text{WC}}(1-m)\right] < 0$$

$$\frac{\partial H(\tau_{\text{WC}})}{\partial p} = \frac{\delta(m(1 - \tau_{\text{WC}}) - \theta)}{1 - \delta(1-p) + \delta q(1-m)} < 0$$

It follows that q^* is increasing in $\tilde{\lambda}$ and θ, and decreasing in p. Finally $H(\tau_{\text{WC}})$ is not a function of ζ so both τ^*_{WC} and q^* are independent of it.

It is possible to re-define the threshold for m. Take first $m = \bar{m}$, so $LHS(0) = 0$. Notice that for values $\tau_{\text{WC}} > 0$ inequalities (9) and (10) still hold, and $LHS(1) < 1$ if $\theta < \bar{\theta}$. Then we can have two cases depending on the slope of $LHS(\tau_{\text{WC}})$ at $\tau_{\text{WC}} = 0$ when $m = \bar{m}$, which is only a function of the exogenous parameters. If this slope is lower than 1, we know there is only one value consistent with expression (3) holding with equality, i.e. $\tau_{\text{WC}} = 0$. In this case the threshold defined above is the relevant one, and if $m \geq \bar{m}$ and $\theta < \bar{\theta}$, $\tau^*_{\text{WC}} = 0$. But if the slope is greater than one then we have two values consistent with expression (3) holding with equality. In this case the larger one, which is greater than zero, will be the solution to the executive's maximization problem. Moreover at this point all the conditions listed above for the implicit-function theorem hold, and therefore τ^*_{WC} is still continuous and strictly decreasing in m. This happens until there is only one positive tax consistent with expression (3) holding with equality. For this tax there is a certain value of m which is greater than $\bar{m}$ and lower than one. Then we can re-define the threshold with this value of m as $\tilde{m} > \bar{m}$ and all the results hold. Additionally we know that for all $m > \tilde{m}$ there is no value consistent with expression (3) and so $\tau^*_{\text{WC}} = 0$.

QED.

Proof of Proposition 2

From Proposition 1 we know that if $\theta \geq \bar{\theta}$ then $\tau^*_{\text{WC}} = 1$ and $q^* = Q(\tilde{\lambda}) - p > 0$ for any m. Then the RHS of Equation (5) is zero, and so $m^* = 1$ follows from the fact that $I'(m) > 0$.

To see the case when $\theta < \bar{\theta}$, notice that $V(0,0)$ can be discontinuous at $m = \bar{m}$. So first assume there is a unique solution $m^{**} < \bar{m}$ to equation 5. In this case we have two possible equilibria, m^{**} or 1, because 1 is preferred to any $m > \bar{m}$. But there exists a constant $\tilde{\zeta}$ such that if $\zeta > \tilde{\zeta}$, m^{**} is the unique equilibrium. To see this notice that if $m < \bar{m}$ then $q > 0$ (which is independent of ζ), and

$$\frac{\partial V(0,0;m=1)}{\partial \zeta} = -\frac{\delta p n}{(1-\delta)(1-\delta(1-p))} < -\frac{\delta p n}{(1-\delta)(1-\delta(1-q-p))} = \frac{\partial V(0,0;m<\bar{m})}{\partial \zeta}$$

and so $V(0,0;m=1) - V(0,0;m^{**})$ is strictly decreasing in ζ for any m^{**}. Therefore $\tilde{\zeta}$ is defined as the value that makes $V(0,0;m=1) - min_{m\in(0,\bar{m})}(V(0,0;m)) = 0$. Now we need to show the uniqueness and existence of that m^{**}. Notice first that

$$-\frac{\partial T^*}{\partial m} = \frac{1-\tau^*_{\text{WC}}}{\theta}\left[1 - \frac{\partial \tau^*_{\text{WC}}}{\partial m}\frac{m}{1-\tau^*_{\text{WC}}}\right] > 0$$

where the inequality follows from the proof of Proposition 1: if $\theta < \bar{\theta}$ and $m \in (0,\bar{m})$, $\partial\tau^*_{\text{WC}}/\partial m > 0$. Using the implicit-function theorem and some algebra we get,

$$-\frac{\partial T^*}{\partial m} = \frac{1-\tau^*_{\text{WC}}}{\theta}\left[\frac{1-\delta(1-p-q^*)}{1-\delta(1-p)+\delta q^*(1-m)-\delta\lambda Q'(\lambda T^*)\,m\,(1-T^*+(1-\tau^*_{\text{WC}})/\theta)}\right] > 0 \tag{12}$$

Replacing this into Equation (5),

$$I'(m) = RHS(m) \equiv \frac{p\delta(1-\tau^*_{\text{WC}})}{\theta}\left[\frac{\delta\lambda Q'(\lambda T^*)\,(1-(1-n)(1/\theta - T^*)+n\zeta) - (1-n)(1-\delta(1-Q(\lambda T^*)))}{1-\delta(1-p)+\delta q^*(1-m)-\delta\lambda Q'(\lambda T^*)\,m\,(1-T^*+(1-\tau^*_{\text{WC}})/\theta)}\right] \tag{13}$$

Since (12) is finite and strictly positive, the denominator of the term inside the brackets is strictly positive, and so the sign of $RHS(m)$ depends on the sign of the numerator inside the square brackets. Call this term num. Notice first that it is continuous and strictly increasing in m:

$$\frac{\partial num}{\partial m} = \delta\lambda^2 Q''(\lambda T^*)\frac{\partial T^*}{\partial m}(1-(1-n)(1/\theta - T^*)+n\zeta) > 0$$

Also num is continuous and strictly increasing in ζ. So there exists $\hat{\zeta}(m)$ such that for all $\zeta > \hat{\zeta}(m)$, $RHS(m) > 0$ (when $m < \bar{m}$). Moreover $\hat{\zeta}(m)$ is decreasing in m, which implies that if $\zeta > lim_{m\to 0}\hat{\zeta}(m)$, $RHS(m) > 0$ for all $m < \bar{m}$. Moreover in this case,

$$\begin{aligned}\frac{\partial RHS(m)}{\partial m} \quad = \quad & -\frac{\partial \tau^*_{\text{WC}}}{\partial m}\frac{RHS(m)}{(1-\tau^*_{\text{WC}})} + \frac{p\delta^2(1-\tau^*_{\text{WC}})}{\theta\ den}\Big\{\lambda^2 Q''(\lambda T^*)\frac{\partial T^*}{\partial m}(rev) \\ & -RHS(m)\Big[(1-m)\lambda Q'(\lambda T^*)\frac{\partial T^*}{\partial m} - q^* - \lambda^2 Q''(\lambda T^*)\frac{\partial T^*}{\partial m}m(tax) \\ & -\lambda Q'(\lambda T^*)(tax) + \lambda Q'(\lambda T^*)\,m\left(\frac{\partial T^*}{\partial m} + \frac{1}{\theta}\frac{\partial \tau^*_{\text{WC}}}{\partial m}\right)\Big]\Big\} > 0\end{aligned} \tag{14}$$

where *den* is the denominator, *rev* is the first term inside the parentheses in the numerator, and *tax* is the last term inside the parentheses in the denominator, of the term inside the brackets in Equation (13). Because τ^*_{WC} and T^* are decreasing in m, and because $RHS(m) > 0$, we have that this term is strictly positive, and so $RHS(m)$ is strictly increasing in m when $0 < m < \bar{m}$. Additionally $RHS(0)$ is finite. Therefore if $\zeta > \bar{\zeta} = max(lim_{m\to 0}\hat{\zeta}(m), \tilde{\zeta})$ (implying $RHS(\bar{m}) > I'(\bar{m})$), and since $I'(m) > 0$, $I'(0) = \infty$, and $I''(m) < 0$, there exists a unique solution $m^{**} \in (0, \bar{m})$ to Equation 5, and that solution constitute the unique solution to the legislators' problem. Finally define $\underline{\zeta}$ as the maximum between zero and the value that makes $V(0, 0; m = 1) - max_{m\in(0,\bar{m})}(V(0, 0; m)) = 0$. Thus if $\zeta < \underline{\zeta}$, $m^* = 1$ for any combination of the rest of the parameters.

Since, for $\zeta > \bar{\zeta}$ and $\theta < \bar{\theta}$, $m^* \in (0, \bar{m})$, and since along that range for m, $RHS(m)$ is strictly increasing on m, and $I'(m)$ is strictly decreasing on m, we can define $G(m) = I'(m) - RHS(m)$, where $G(m^*) = 0$, and use the implicit-value function to prove the last part of the proposition. To do this it is enough to show that, when $G(m) = 0$, $\partial RHS(m)/\partial\zeta > 0$ and $\partial RHS(m)/\partial p > 0$. Because τ^* is independent of ζ, the first inequality follows directly from Equation (5). In the second case,

$$\begin{aligned}\frac{\partial RHS(m)}{\partial p} \quad = \quad & \frac{RHS(m)}{p} - \frac{\partial \tau^*_{\text{WC}}}{\partial p}\frac{RHS(m)}{(1-\tau^*_{\text{WC}})} + \frac{p\delta^2(1-\tau^*_{\text{WC}})}{\theta\ den}\Bigg\{\lambda^2 Q''\left(\lambda T^*\right)\frac{\partial T^*}{\partial p}(rev) \\ & -RHS(m)\Bigg[(1-m)\lambda Q'\left(\lambda T^*\right)\frac{\partial T^*}{\partial p} + m - \lambda^2 Q''\left(\lambda T^*\right)\frac{\partial T^*}{\partial p}m(tax) \\ & -\lambda Q'\left(\lambda T^*\right)m\left(\frac{\partial T^*}{\partial p} + \frac{1}{\theta}\frac{\partial \tau^*_{\text{WC}}}{\partial p}\right)\Bigg]\Bigg\} > 0 \end{aligned} \tag{15}$$

Because τ^*_{WC} and T^* are decreasing in p, and because $RHS(m) > 0$, every term but $-RHS(m)m$ is positive. But notice that the first term, $RHS(m)/p$, is larger than $RHS(m)m$, so $RHS(m)/p - RHS(m)m > 0$, and so the partial derivative is strictly positive. This proves the last part of the proposition.

QED.

Appendix B: Data

		Indep.	*XC*	*CC*	*Rainfall Variability*	*RT*	*Fractio–nalization*	*British Colony*[†]	*Oil Reserves*	*CC (minor)*
1	Jordan	1946	0	0	4.32	2.72	0.05	1	0	0
2	Lebanon[1]	1946	0.33	0.14	5.26	4.06	0.13	0	0	0.11
3	Syria	1946	0.60	0.08	3.78	1.86	0.22	0	0	0.06
4	Pakistan	1947	0.40	0.21	2.99	3.78	0.64	1	1	0.18
5	Myanmar/Burma	1948	1	0.70	4.98	3.60	0.48	1	1	0.64
6	Sri Lanka	1948	1	0.39	1.67	2.12	0.47	1	0	0.11
7	Israel	1948	1	0.72	4.89	0.99	0.20	0	1	0.72
8	North Korea	1948	0.33	0	2.89	2.26	0.00	0	0	0
9	South Korea	1948	0.30	0	2.99	2.29	0.00	0	0	0
10	Indonesia[2]	1949	0.73	0.52	1.92	2.44	0.76	0	1	0.43
11	Taiwan	1949	0.17	0	1.52	3.86	0.27	0	0	0
12	India	1950	1	0.64	3.81	2.63	0.89	1	1	0.63
13	Libya	1951	0.33	0	4.55	1.95	0.22	0	0	0
14	Cambodia[3]	1953	0	0.54	3.47	0.69	0.30	0	0	0.39
15	Laos[4]	1954	0.67	0.2	4.33	3.61	0.60	0	0	0.04
16	Morocco	1956	0.17	0.30	4.47	3.85	0.53	0	0	0.30
17	Sudan	1956	0.40	0.66	4.28	2.01	0.74	1	0	0.30
18	Malaysia	1957	1	0.10	1.08	2.75	0.65	1	1	0.10
19	Guinea	1958	0	0.04	3.92	1.44	0.75	0	0	0.04
20	Tunisia	1959	0	0.02	2.79	1.34	0.16	0	0	0.02
21	Singapore[5]	1959	1	0	0.41	0	0.42	0	0	0
22	Benin[6]	1960	0.27	0	3.27	0	0.62	0	0	0
23	Burkina Faso	1960	0.33	0.02	5.63	0	0.68	0	0	0.02
24	Cameroon	1960	0.33	0.02	2.51	2.93	0.89	0	0	0.02
25	C.A.R.	1960	0	0.10	3.63	1.69	0.69	0	0	0.10
26	Chad	1960	0	0.69	5.77	2.25	0.83	0	0	0.59
27	Congo (Braz)	1960	0.43	0.12	5.68	0	0.66	0	1	0.10
28	Ivory Coast	1960	0	0.06	2.47	0.34	0.86	0	0	0.06
29	Gabon	1960	0.17	0	4.54	0.07	0.69	0	1	0
30	Ghana	1960	0	0.06	2.41	0	0.71	1	0	0.06
31	Madagascar	1960	0.33	0.02	3.51	3.52	0.06	0	0	0.02
32	Mali	1960	0.33	0.08	5.86	0.34	0.78	0	0	0.08
33	Mauritania	1960	0.47	0.08	4.65	0	0.34	0	0	0.08
34	Niger	1960	0.33	0.14	5.24	1.13	0.73	0	0	0.14
35	Nigeria	1960	1	0.12	2.88	1.22	0.87	1	1	0.04
36	Senegal[7]	1960	0.33	0.18	5.54	0	0.72	0	0	0.18
37	Somalia	1960	1	0.41	4.58	2.61	0.08	1	0	0.31
38	Togo	1960	0.33	0.04	2.41	0	0.71	0	0	0.04
39	Zaire/Congo[8]	1960	0	0.27	4.02	1.65	0.90	0	0	0.20
40	Rwanda	1961	0	0.23	3.14	4.31	0.13	0	0	0.15
41	Sierra Leone	1961	0.67	0.21	5.42	0.99	0.77	1	0	0.21
42	Tanzania	1961	0.33	0	5.03	3.12	0.93	1	0	0
43	Algeria	1962	0.10	0.38	4.93	2.82	0.44	0	1	0.23
44	Burundi[9]	1962	0.30	0.36	3.04	4.32	0.04	0	0	0.36
45	Uganda[10]	1962	0.93	0.68	1.32	2.34	0.90	1	0	0.55
46	Jamaica	1962	1	0	2.43	1.34	0.05	1	0	0
47	Trinidad	1962	1	0.02	1.77	0	0.56	1	1	0.02
48	Kenya	1963	0.60	0.02	2.58	3.31	0.83	1	0	0.02
49	Kuwait	1963	0.23	0	3.37	0	0.18	1	1	0
50	Malawi	1964	0	0	5.39	2.28	0.62	1	0	0

		Indep.	*XC*	*CC*	*Rainfall Variability*	*RT*	*Fractio–nalization*	*British Colony*†	*Oil Reserves*	*CC (minor)*
51	Zambia	1964	0.30	0	5.45	0.18	0.82	1	0	0
52	Gambia	1965	0.67	0.02	6.22	0	0.73	1	0	0.02
53	Botswana	1966	0.67	0	4.68	0	0.51	1	0	0
54	Lesotho	1966	0.80	0.02	2.32	4.42	0.22	1	0	0.02
55	South Yemen	1967	0.33	0.02	3.18	3.34	0.17	0	0	0
56	Mauritius	1968	1	0	3.04	0	0.58	1	0	0
57	Swaziland	1968	0.17	0	2.50	2.79	0.39	1	0	0
58	Bahrain	1971	0.13	0	2.94	0	0.26	0	1	0
59	Qatar*[11]	1971	0	0	3.61	0		1	1	0
60	U.A.R.	1971	0.33	0	3.61	0	0.18	1	1	0
61	Bangladesh	1972	0.47	0.49	4.98	0	0.00	0	0	0.49
62	Guinea Bissau	1974	0.33	0.06	5.54	0	0.80	0	0	0.06
63	Comoros*	1975	0.40	0.06	1.71	0		0		0.06
64	Angola	1975	0.33	0.88	4.77	2.37	0.78	0	1	0.32
65	Mozambique	1975	0.17	0.47	2.24	1.22	0.65	0	0	0.15
66	Vietnam	1976	0.33	0	2.90	3.01	0.27	0	0	0
67	Djibouti	1977	0.17	0.16	3.26	1.59	0.69	0	0	0.16
68	Zimbabwe	1980	0.60	0	5.28	1.36	0.54	1	0	0
69	Namibia	1990	0.67	0	4.38	2.48	0.68	0	0	0
70	Yemen[12]	1990	0.17	0.05	3.18	3.34	0.06	0	1	0
71	Croatia	1991	0.33	0.17	0.72	1.53	0.33	0	1	0.17
72	Armenia	1991	0.60	0	1.79	2.81	0.12	0	0	0
73	Azerbaijan	1991	0.30	0.28	1.79	3.28	0.30	0	1	0.11
74	Belarus	1991	0.87	0	0.88	0	0.40	0	0	0
75	Estonia	1991	1	0	0.69	0	0.52	0	0	0
76	Georgia	1991	0.67	0.28	1.56	4.12	0.50	0	0	0.28
77	Kazakhstan	1991	0.30	0	0.98	4.00	0.69	0	1	0
78	Kyrgyzstan	1991	0.50	0	1.46	4.05	0.66	0	0	0
79	Latvia	1991	1	0	0.69	0	0.61	0	0	0
80	Lithuania	1991	1	0	0.69	0	0.35	0	0	0
81	Macedonia*	1991	0.67	0.06	0.63	2.24		0		0.06
82	Moldova	1991	0.87	0.06	1.09	0	0.55	0	0	0.06
83	Slovenia*	1991	1	0	0.72	2.34		0		0
84	Tajikistan	1991	0.33	0.33	2.82	4.41	0.55	0	0	0.22
85	Turkmenistan	1991	0.03	0	1.39	2.56	0.46	0	0	0
86	Ukraine	1991	0.73	0	1.09	1.74	0.42	0	0	0
87	Uzbekistan	1991	0	0.17	1.39	3.09	0.48	0	1	0.17
88	Czech Republic	1993	1	0	1.29	1.15	0.32	0	1	0
89	Eritrea*	1993	0.33	0.19	3.18	2.48		0		0.19
90	Slovakia	1993	0.83	0	1.15	2.14	0.25	0	1	0
91	South Africa	1994	1	0	2.30	2.16	0.88	0	1	0
92	Serbia Montenegro*[13]	2003	0.13	0	0.72	2.67		0		0

Notes: * Countries only included in the regressions without additional control variables. † British colony at the time of independence. [1] Independence recognized by France in 1943, but the region was under allied control until the end of WWII. [2] Independence proclaimed in 1945, but recognized by the Netherlands in 1949. [3] First two years of XC are coded as transition. The average is taken for 1955-1957. [4] First four years of XC coded as transition. The average is taken for 1958-1959. [5] Fourth year of XC coded as missing. The average is for 1959-1962. [6] Fourth and fifth years of XC coded as transition. The average is taken for 1960-1965 with linear interpolation. [7] Third year of XC coded as transition. The value for that year is interpolated. [8] First year with valid XC is 1966. That value is used, which is the minimum possible. [9] Fourth year of XC coded as transition. Interpolation is used. [10] Fifth year of XC coded as transition. Interpolation is used. [11] RT is not reported by previous papers, but the territory is mostly flat so a value of zero is used. [12] First three years of XC coded as transition. Average is taken for 1993-1994. [13] The value of RT is the one reported for Yugoslavia in previous papers.

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