Cohesive Institutions and the Distribution of Political Rents: Theory and Evidence*

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Abstract

This paper considers how public resources are distributed across groups and how this depends on the institutional environment. It shows how executive constraints and openness should matter to this and argues that a key role for institutions is to protect politically excluded groups. It develops an approach to judging political institutions based on the idea that cohesive institutions play a role when there is uncertainty about the allocation of political power. Using spatial data on night light, it shows inequality is lower with executive constraints. In addition, politically excluded groups do better within countries when such constraints are in force.

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1 Introduction

The past twenty years have seen a transformation in the way economists think about economic development routinely bringing in insights from political economy. Moreover, the idea that effective institutions lie behind the economic development process is now widely accepted by economists and political scientists alike. Yet there is still much debate about the mechanisms at work and the kinds of policy distortions that are important. Knowledge that is widely applicable is most likely to be made by developing models of policy making and assessing their empirical relevance.

This paper discusses the role of institutions in distributing the benefits from government spending. We look at a world where two sets of institutions can affect policy outcomes building from the simple model of Besley and Persson (2011a). First, there are those institutions which affect access to political power. This would include at one extreme rules of hereditary succession and at the other processes for conducting open, free and fair elections. Broadly speaking, the history of political development in the past two hundred years has been to open up access to political office and the introduction of elections where all citizens are eligible to run for office and the franchise encompasses all adult citizen. Second, there are institutions that regulate how power is used once it has been acquired. These include the processes for achieving legislative approval for policy decisions and the framework of law within which policy is made. Particularly important is whether there is a framework of independently enforced rights which the policy process must respect. Besley and Persson (2011a) formalize the idea of cohesive institutions and argue that strong executive constraints are a crucial component. As in the case of openness, the direction of travel over the past two centuries has been towards more constraints on executive power and a stronger role of independent judicial authority.

Whether it is openness or executive constraints at issue, how policy outcomes are affected by political systems is a function of both formal and informal rules. Whether there is electoral intimidation, control of the media or a threat of violence by an incumbent if he loses support is an equilibrium outcome rather than a function purely of the rules. Many closed systems, such as USSR, held elections but under highly restricted conditions and there are many de facto one-party systems in the world. Whether there is real legislative oversight is similarly a function of the way that the game of politics is played. The same goes for judicial oversight which depends on how judges

are selected and whether they can be overruled by politicians. As late as the 1930s in the United States, there was still a question of where the limits of supreme court power lie and this has been established over time through the interplay of judicial and executive authority.[1]

A second contribution of the paper is to try to build an explicit link between institutional choices and the distribution of resources across groups with a focus on the welfare properties of different institutional arrangements. There are basically two distinct normative approaches to democratic institutions. The first is an intrinsic value tradition which argues from the nature of human agency.[2] The second argues for democracy more from the instrumental benefits that it brings. For example, democracy can make governments more responsive to the preferences of citizens which lead to better social provision. The latter is more appealing from a traditional welfare-economic approach. Here we develop a normative approach based on a Rawlsian view, specifically we look at how well groups do based on a "worst case scenario" where they are politically powerless. We discuss how this perspective can be used to make a normative case for strong executive constraints.

After developing a simple model of resource allocation, we look at the link between political institutions and between-group inequality. The underlying data for this exercise come from the geographical distribution of luminosity at night which can be used to look at ethnic group inequality by linking this to maps of the homelands of specific groups. We find that having strong executive constraints is associated with less inequality between ethnic groups. We then look at within-country variation in institutions and exploit differences across ethnic groups according to whether they are politically excluded. We find that it is politically excluded groups which benefit particularly from strong executive constraints.

This paper is tied to debates about the use and abuse of political power. The state is frequently used to pursue private interest with some individuals or groups benefitting from having control of some aspects of policy. At one extreme, this can lead to personal enrichment in the form of corruption which is widely condemned. The case of political rents due to office holding is more of a grey area. To the extent that these compensate for historical disadvantage, then allocating these rents towards groups in power

[1] See Dahl (1957) for an insightful discussion of the New Deal period. By the time that he was writing, New Deal legislation comprised one third of all legislation that had been declared unconstitutional by the supreme court.

[2] See, for example, Sen (1999).

could be normatively justified. Indeed, a range of initiatives to increase the representation of traditionally disadvantaged groups are in place such as ethnic, gender or caste quotas. However, there is also a dark side to political favoritism. Favoritism can harm the efficiency of the allocation of state spending and, even worse, can destabilize the state, particularly when a political elite is entrenched. The instrumental benefit of institutional constraints is best seen in this context. Even if the political rents distributed are not illegal, they are a source of long run inequalities which, if not held in check, can fracture otherwise stable polities.

The remainder of the paper is organized as follows. In the next section, we discuss some background literature and issues. Section three discuss some background theory and section four looks at the data. Section five offers some concluding comments.

2 Background

Who gets benefits from government spending is a classic issue in political economy. This has been studied in the voluminous literature known as the study of "distributive politics" among political scientists. While this originated in studying the U.S., there is now a much wider interest in these issues across a range of countries (see Golden and Min, 2013, for a recent review). As conventionally modeled, for example by Dixit and Londregan (1996) and Lindbeck and Weibull (1987), two parties who compete for office make promises of transfers as a means of enhancing their electoral chances. Hence, the main focus is on *pre-election* politics and the promises that are made. A key issue whether parties tend to target loyal supporters or swing voters. In the basic models, political control does not matter per se as this simply involves fulfilling pre-election pledges.

In the basic models, little attention has been paid to what makes electoral promises credible. Lack of commitment implies a tendency for winners to favor their own group regardless of any pre-election promises as in Besley and Coate (2003). Selection of candidate types then becomes a core issue. This perspective is particularly relevant for studying ethnic politics. Moreover, within-country studies of resource allocation find strong evidence of ethnic favoritism. For example, Franck and Rainer (2012) find, using the spatial variation in the micro data of the Demographic and Health Surveys (DHS) that ethnic leaders in Africa appear to target their own ethnic groups when

in power. Hodler and Raschky (2014) use satellite data in a panel more than 38,000 sub-national regions in 126 countries for the years 1992-2009 to show that luminosity is higher in the birthplace of a country's political leader. They also show that this effect is attenuated in countries with higher polity scores.[3] We will use data from Alesina et al (2016) which has mapped ethnic inequality within countries with a particular focus on how endowments affect ethnic inequality.

Also relevant to this paper is the large literature on the consequences of institutional reform for patterns of development. In particular, there is an interest in how and why democratization matters where the PolityIV project has provided a way of tracking patterns of institutional change in some detail. It is now well appreciated, see for example Persson and Tabellini (2008), that the relationship linking growth and development is quite heterogeneous with the possibility of two-way causality between growth and institutions. Moving beyond growth, a range of outcome measures have been studied. For example, Burgess et al (2015) provide a case study for Kenya which also shows that democratization affects the allocation of road spending. Kudamatsu (2012) uses the DHS data to show that democracy has reduced infant mortality in Africa.

A growing theme in the political economy literature is the need to disaggregate institutions beyond a unidimensional democracy index. This has emerged from both theoretical and empirical studies. Besley and Persson (2011) suggest a simple bivariate classification between institutions which affect access to power (openness) and institutions which regulate use of power (executive constraints). On a world scale, openness and strong executive constraints have both become more widespread over the past two centuries, executive constraints lag behind openness. This can be seen in Figure 1, from Besley and Persson (2016), which comes from the Polity IV data where we measure strong executive constraints as a dummy variable which is equal to one when a country in a given year receives the highest score on this basis (on a seven point scale) and openness as dummy variable which is equal to one if a country receives the highest score (on a four point scale). We graph the fraction of countries in the dataset which receive the highest score on each indicator for two groups of countries: the fifty countries that were in that data, i.e. were independent polities, in 1875 and all countries in the

[3]Luca et al (2015) also find proof of ethnic favoritism but do not find political institutions affect this.

data. The latter has countries entering the data over time, e.g. as the become independent entities. The pattern is quite consistent with both types of institutions growing but with openness ahead of executive constraints.

This disaggregation is underpinned by theory as we shall see below. Besley and Persson (2011a) observed that cohesiveness is related to executive constraints and is related to the incentive to build state capacity. However, this is not so true of openness; a more open political system may simply increase political instability. Besley and Persson (2001b) argues that strengthening executive constraints is particularly important in thinking about incentives for political violence. This echoes Collier (2009) who has argued that elections can be problematic in a polarized environment when there is a "winner takes all" structure. More generally, it reinforces the need to think about components of liberal democracy in its widest sense with a more central role for the rule of law and what sustains it as argued, for example, in Fukuyama (2011) and Mukand and Rodrik (2015).[4]

In fact, this argument has a much older provenance. Some of the earliest discussion of democratic institutions were concerned about the "tyranny of the majority" as a consequence of elections whereby the winning group governs in its own interests to the detriment of those excluded from power. Beginning with John Adams in practical debates around the founding of the United States, it was taken up by Alexis de Toqueville and J.S. Mill. Separation of powers can help by preventing one group capturing all spheres of government. Mill (1859), for example, described a limit to the power of a ruler that can be achieved through *"[...] establishment of constitutional checks, by which the consent of the community, or of a body of some sort, supposed to represent its interests, was made a necessary condition to some of the more important acts of the governing power."* However, strong legal protection of minorities upheld by courts and long-run players such as established political parties which act as broad coalitions of interests can also help to diminish the concern that government is run in the interests of narrow group. Here we show that executive constraints are important in explaining lower ethnic inequality and in raising the incomes of politically excluded groups building on Mueller and Tapsoba (2016) who find that the exclusion from executive power translates into decreases in night-light but only in absence of institutional constraints on the executive.

[4] An alternative argument is that independence of central bankers and other bureaucrats provides effeciency benefits. For a review of this literature see Mueller (2015).

We make use of data derived from light density at night per capita to measure the distribution of income across groups. This approach follows Henderson et al (2012) who show that a 100% increase in night light density per capita is associated with around a 30% increase in GDP per capita. A range of studies, such as Alesina et al (2016) and Michalopoulos and Papaioannou (2014), which have used these data to look at spatial development patterns and historical institutions. This is useful since it is difficult otherwise to get at the spatial distribution of income within a country. This is particularly influential in the literature on ethnic conflict where it is possible to exploit locational differences in conflict and relate these to economic outcomes. This has been exploited, for example, in Girardin et al (2015) and Cederman et al (2010).

Our welfare criterion will be informed by a maxmin approach in which we worry about the ethnic groups which are politically excluded. In this we follow Rawls (1971) who made the argument that decisions taken behind a veil of ignorance would pay more attention to downside risks in society. Behind the veil of ignorance each member of society might worry about the members of society who are worst off. Second, there could be important externalities arising from politically and economically excluded groups. The maxmin criterion then arises from a desire for robustness.

There is an important issue that we do not cover in this paper, namely the concern that political conflict can arise from ethnic inequality.[5] Besley and Persson (2011b) argue that strong executive constraints might prevent political conflict because the incentives to capture the state are diminished. Goldstone et al (2011) and Michalopoulos and Papaioannou (2016) show that discrimination of ethnic groups implies a higher likelihood of conflict. The cautiousness implied by a maximin approach would only strengthen our argument in the context if strong constraints were able to limit the risk of descent into violence.

3 Theory

In this section, we develop a simple conceptual framework to think through the issues. In the model, which is based on Besley and Persson (2011a), an ethnic group is in power and political institutions affect the probability that a group is in power as well as constraining the use of power once acquired.

[5] See, Alesina and La Ferrara (2005), for a summary.

Set-up There are M groups each with population share σ_i labelled so that $\sigma_1 > ... > \sigma_M$. In each period one group is the incumbent group which controls the government which has access to revenue per capita τ. This tax revenue can be spent on private transfers or public goods. The per capita transfer made to the ruling group is T while that made to other groups is t and spending on the public good whose price is normalized to one is denoted by G. Hence the government budget constraint when group k is in power is:

$$\tau = G + \sigma_k T + (1 - \sigma_k) t. \tag{1}$$

Preferences in each group are identical and denoted by:

$$\alpha\phi(G) + x_i$$

where x_i is private consumption in group i. The income of group i is y_i. We suppose that all groups pay τ per capita in taxes. The focus here is exclusively on between group inequality so we allow the income to be the same in each group.

Institutions There are two aspects of institutions. First, there is an ex post restriction on the use of power which we refer to as cohesiveness as in Besley and Persson (2011a). This says that for every dollar of transfers that the incumbent makes to its group it has to give $\theta \in [0, 1]$ dollars to the other groups. Hence, if $\theta = 1$, there is full equality while if $\theta = 0$, the incumbent "takes" all. From an empirical point of view, we think of θ as reflecting executive constraints. However, as we argue further below, it could also reflect informal constraints on behavior due to social norms.

The way that we model this is somewhere between the two extreme views of how legislative institutions distribute local public goods and transfers that have been developed in the literature.[6] At one extreme, legislative politics is governed by minimum winning coalitions as emphasized, for example, by Buchanan and Tullock (1962), Riker (1962), and Baron and Ferejohn (1989), there will always be a group comprising around 50% of legislators which then chooses policy. This would be wider than a single group deciding policy but would still exclude some groups. The alternative is a more cooperative legislature as modeled by Weingast (1979) and Weingast, Shepsle and Johnson (1981). On the limit this view gives no advantage to the insider at all with

[6] See Besley and Coate (2003) for a discussion and synthesis.

all groups getting an equal share. But it is important to recall that executive constraints is wider than just legislative institutions as it includes judicial or constitutional protection available to excluded groups.

The second aspect of institutions regulates access to power. Thus, let γ_i be the probability that group i holds office. The most closed system is where $\gamma_i = 1$ for a single group. The most open system would arguably be one where $\gamma_i = 1/M$ for all i so that each group has equal access to power regardless of group size.

As in the case of θ, we expect these parameters to reflect a mixture of formal and informal rules. Thus, the case where $\gamma_i = 1$, and there is a monopoly ruling group this is likely to reflect a range of factors possibly including repression. Control of media outlets is a frequent device for controlling electoral processes beyond more crude devices such as intimidating candidates and voters. All of these are likely in practice to affect the allocation of power in a political system. Almost every country in the world holds some form of elections so formal openness and real contests for power are likely to be only loosely correlated.

Policy Choice Suppose that group k is in power and consider its policy choice. Since executive constraints bind then $t = \theta T$. Using this in (1), its decision problem boils down to selecting G such that[7]

$$G_k^* (\theta, \alpha, \tau) = \arg\max \left\{ \alpha\phi (G) - \frac{G}{\sigma_k + (1 - \sigma_k)\theta} \right\}.$$

Define

$$\alpha\phi' \left(\hat{G}_k (\theta, \alpha) \right) = \frac{1}{\sigma_k + (1 - \sigma_k)\theta}.$$

Then the level of public goods provided is:

$$G_k^* (\theta, \alpha, \tau) = \min \left\{ \hat{G}_k (\theta, \alpha), \tau \right\}.$$

It is immediate that this is (weakly) increasing in θ. So executive constraints increase spending on public goods and reduce transfer spending.

Using this, the level of utility of group j when it is in power is:

$$V_{kk}^I (\theta, \alpha, \tau) = \alpha\phi \left(G_k^* (\theta, \alpha, \tau) \right) + \frac{\tau - G_k^* (\theta, \alpha, \tau)}{\sigma_k + (1 - \sigma_k)\theta} + y_k - \tau$$

[7] To understand this problem note that for every dollar not spend on G the transfer T can go up by $(\sigma_k + (1 - \sigma_k)\theta)^{-1}$ dollars.

for the incumbent and

$$V_{jk}^{N}(\theta,\alpha,\tau)=\alpha\phi\left(G_{k}^{*}(\theta,\alpha,\tau)\right)+\theta\frac{\tau-G_{k}^{*}(\theta,\alpha,\tau)}{\sigma_{k}+(1-\sigma_{k})\theta}+y_{j}-\tau$$

for others. This the value of being in power, i.e. the political rent is:

$$V_{kk}^{I}(\theta,\tau,\alpha)-V_{jk}^{N}(\theta,\tau,\alpha)=(1-\theta)\frac{\tau-G_{k}^{*}(\theta,\alpha,\tau)}{\sigma_{k}+(1-\sigma_{k})\theta}\geq 0.$$

Thus the model makes precise the link between θ and political political rents which are lower with strong executive constraints. In the limiting case where it is infeasible for the incumbent group to favor itself, $\theta=1$, then all tax revenues are spent on public goods and the group receives no rents from holding power.

Dynamic Implications Since we wish to look at data drawn from a number of years, we now add a temporal dimension to the model. Suppose then that we consider a dynamic model with date $s=1,2,...$ and that there is an impact of past transfers on future incomes. We do not specify why this is true but there a variety of micro-foundations. One possibility is to think of T_i being partly in the form of an investment in a productivity enhancing local public good. Suppose, specifically, that income in group i at date s is

$$y_{is}=Y_{i}+\sum_{u=1}^{s-1}\lambda^{s-u}m_{iu}$$

so Y_i is a group-specific source of economic advantage or an endowment and λ is a "persistence" parameter where

$$m_{iu}=\begin{cases}\tau-G_{i}^{*}(\theta,\alpha,\tau) & \text{if group } i \text{ is in power at date } u\\ \theta\left[\tau-G_{j}^{*}(\theta,\alpha,\tau)\right] & \text{if group } j\neq i \text{ is in power at date } u.\end{cases}$$

This formulation will imply that there are persistent effects from past political control. This is important as it is likely that data on group-inequality will reflect this amplifying the consequences of long-term political exclusion.

The Distribution of Consumption Total consumption of group i at date s is

$$X_{is}=y_{is}-\tau+m_{is}+G_{s}$$

where G_s varies exclusively due to switches in political control.[8] The share of total income of group i at date s is

$$\begin{aligned}\chi_{is} &= \frac{X_{is}}{\sum_{j=1}^{M}\sigma_j X_{js}} = \frac{y_{is}-\tau+m_{is}+G_s}{\sum_{j=1}^{M}\sigma_j y_{js}} \\ &= \frac{y_{is}-\tau+m_{is}+G_s}{\sum_{j=1}^{M}\sigma_j y_{js}+G_s}.\end{aligned}$$

This will reflect an immediate advantage due to m_{is} being greater from holding office and a longer term advantage due to past transfers if a group has been in office before. So if $\theta < 1$, then political control which favors one group generates a permanent advantage.

Inter-Group Inequality and the Allocation of Political Power One simple way of thinking about access to power is to distinguish between two groups: the politically powerful where $\gamma_i > 0$ and the politically excluded where $\gamma_i = 0$. Let $\delta_i = 1$ denote being a member of a politically powerful group. The distribution of income will now reflect the distribution of political control.

A simple ex ante measure of between group inequality is

$$\begin{aligned}\Delta &= \left[\sum_i \sigma_i \left[\frac{\delta_i y_{is}}{\sum_j \delta_j \sigma_j} - \frac{(1-\delta_i)\, y_{is}}{\sum_j [1-\delta_j]\,\sigma_j}\right]\right] \\ &\quad + \sum_i \sigma_i \left[\frac{\delta_i \left[\gamma_i [\tau - G_i] + \sum_{\ell \neq i} \gamma_\ell [\tau - G_\ell]\,\theta\right]}{\sum_j \delta_j \sigma_j [\sigma_i + (1-\sigma_i)\,\theta]} - \frac{(1-\delta_i)\,\theta \sum_\ell \gamma_\ell [\tau - G_\ell]}{\sum_j [1-\delta_j]\,\sigma_j [\sigma_i + (1-\sigma_i)\,\theta]}\right]\end{aligned}$$

The first term is a long-run effect of political power on income and the second a short-term effect reflecting differences in transfers at date s. Both of these terms depend upon the distribution of political control. Note that since group specific control is a sufficient statistic for G the second term does not depend explicitly on time.

If there is a single ruling group, k, the latter term collapses to

$$\frac{[\tau - G_k]\,(1-\theta)}{\sigma_k + (1-\sigma_k)\,\theta}$$

[8] Note that we are simply adding the per capita cost of providing public goods consumption here, utility is $\alpha\phi(G_s)$. This is common in distributional analyses by statistical agencies which attempt to take public spending into account to create a measure of post-transfer income. Nothing would change qualitatively in our analysis if we would take a different view.

which is decreasing in θ.

More generally, one construct a range of inequality measures on between-group inequality. We will mainly use the between-group Gini coefficient which corresponds to a social welfare function which has rank order weights and for a vector of income per capita by group $x_{1s}, ..., x_{2s}$, is:

$$W(x_{1s}, ..., x_{2s}) = \frac{1}{M}\left(M + 1 - 2\frac{\sum_i (M+1-i)\, x_{is}}{\sum_i x_{is}}\right).$$

Below we will explore how these are related to executive constraints at the country level (which we think of as capturing variation in θ) and openness (which we think of telling is something about cross country variation in $\{\gamma_i\}_{i=1}^{M}$).

A Rawlsian Approach to Cohesive Institutions We now explore the case for cohesive institutions, as represented by higher θ using a Rawlsian argument. This would suggest comparing institutions based on a comparison of institutions behind the veil of ignorance where no group is certain of its place in the polity, in particular whether it will enjoy political power.

We will suppose that there is a range of possible polities $\theta_1, ...\theta_P$ ordered so that $\theta_P > ... > \theta_1$ so that polity P is the most cohesive society. We also suppose that there is a range of possible patterns of political control $c = 1, ...C$ where $C > M$ in each society $\left\{\{\gamma_{ic}\}_{i=1}^{M}\right\}_{c=1}^{C} \in \Gamma$. We suppose that $C > M$ and make the following key assumption:

Assumption For all i, there exists c such that $\gamma_{ic} = 0$.

This says that each group has to contemplate political exclusion in each possible society. We will consider what kind of society will be preferred.

Since choice is behind the veil of ignorance, we suppose that the exact pattern of political control is uncertain for each group. Thus it has to form beliefs about expected political control. A conventional decision-making approach would be to allow each group to form a subjective probability distribution over its prospects of being political powerful. Were this the case, there would be a conflict of interest behind the veil of ignorance with groups which expect to be powerful preferring lower θ while those with low prospects of holding power prefer θ to be high.

To capture the spirit of Rawls, we suppose that there is uncertainty over political control in the Knightean sense and follow the suggestion of Gilboa

and Schmeidler (1989) to use the max min expected utility criterion which motivates the criterion used by a Rawlsian paradigm. However, the test here is quite specific based on uncertainty about the allocation of political control.[9]

The procedure that we have described here will yield unanimity in the institutional choice, leading to a preference for the polity where θ_p is highest. This is because the worst case for each group is political exclusion. In this case, the payoff of group i when group $k \neq i$ is in power in society p is

$$y_{is} - \tau + \alpha\phi\left(G_k\right) + \frac{\theta_p\left(\tau - G_k\right)}{\sigma_k + \left(1 - \sigma_k\right)\theta_p}$$

which is increasing in θ_p for all i, k. Thus, each group will prefer to have the highest possible value of θ_p. This argument is summarized in:

Proposition 1 *With uncertainty about the allocation of political control a Rawlsian approach to institutional choice yields a unanimous preference for a polity where θ_p is highest.*

This reasoning underpins a normative approach to cohesive institutions which is directly linked to the distribution of political rents. Once the comparison is made for $\gamma_{ic} = 0$, then there is unanimity since every excluded group will prefer to have the highest value of θ_p no matter whichever other group is in power.

This analysis can be tied into an observation in Rawls (1971) who says that:

> "the effects of injustices in the political system are much more grave and long lasting than market imperfections. Political power rapidly accumulates and becomes unequal; and making use of the coercive apparatus of the state and its law, those who gain the advantage can often assure themselves of a favored position. ... Universal suffrage is an insufficient counterpoise; for when parties and elections are financed not by public funds but by private contributions, the political forum is so constrained by the wishes

[9] The idea that institutions should have this kind of robustness property follows a recent literature in macro economics on policy rules which do not require a unique prior. See Barlevy (2011) for a review of the ideas.

> of the dominant interests that the basic measures needed to establish just constitutional rule are seldom properly presented. ... We are in the way of describing an ideal arrangement, comparison with which defines a standard for judging actual institutions, and indicates what must be maintained to justify departures from it."

It is clear from this that Rawls understood that openness, which he refers to in the form of universal suffrage, is not sufficient for justice to prevail. The notion of cohesiveness here tries to capture this element of Rawlsian justice.

While this is an attractive argument, it is developed for a stylized model. However, the reasoning seems quite general – finding ways of creating greater universalism in the use of political power will be attractive to groups who have little chance of holding agenda setting power in government. This could explain why the kind of norm of universalism in the U.S. congress studied by Weingast (1979) could emerge as a norm to improve the resilience of a political system by creating a stake for politically excluded groups.[10]

This result motivates an empirical exercise developed below which looks at the fate of politically excluded ethnic groups and whether they do better in countries with more cohesive institutions. If they do, then we can use this as the basis of a normative argument for strengthening cohesiveness based on the reasoning that we have developed here.

4 Evidence

Data We use two sources of data as measures of between-group inequality. The first is from Alesina, Michalopoulos and Papaioannou (2016) who construct the measures of ethnic inequality based on aggregating (via the Gini coefficient formula) luminosity per capita across the homelands of ethnic groups. For this, they use two different approaches for identifying the groups. The first is the Georeferencing of Ethnic Groups (GREG) data which is the digitized version of the Soviet Atlas Narodov Mira (Weidmann, Rod, and Cederman (2010)). This portrays the homelands of 928 ethnic groups around the world for the early 1960s. The second source is the 15th edition of the Ethnologue (Gordon (2005)) that maps 7581 language-country

[10] Dixit et al, (2000) also develop a model where political compromise arises as the equilibrium of a dynamic game played between political parties. This equilibrium could be interpreted as a social norm which mitigates "winner-takes-all" politics.

groups worldwide in the mid/late 1990s, using the political boundaries of 2000. The Gini coefficient for a country's population then consists of a set of groups with values of luminosity per capita for the historical homeland of each group. This gives two sets of cross-sectional data, one for each underlying ethnic atlas, on the Gini coefficient across ethnic groups within a country based on night-light per capita for 155 countries in 2010. Alesina et al show that this inequality reflects differences in geographic attributes across ethnic homelands. We will include their variable on the inequality in geographical endowments as a control below.

The second source of data is the unified platform for geographical research on war (GROW^{up}). This comes from Girardin et al. (2015) who merge and update data on Ethnic Power Relations (EPR) from Cederman et al. (2010) with data on night light emissions (NOAA-NGDC, 2013). The data covers 564 ethnic groups in 130 countries in the period 1992-2010. The dataset covers all countries with the exception of failed states, overseas colonies and countries with fewer than 500,000 people. It includes all politically relevant ethnic groups; with an ethnic group being classified as relevant if at least one political organization claims to represent it in national politics or if its members are subject to political discrimination by the state. It gives us yearly panel data on access to political power and night light emissions as well as interpolated population data. The data also captures access to power documenting participation of members of relevant ethnic groups in the executive. Here there are seven subcategories: discriminated, powerless, self-excluded, junior partner, senior partner, dominant and monopoly. These categories are intended to capture how well the group is represented in the executive of a country. Thus, if a group is coded as having a monopoly, then elite members from this group hold monopoly power in the executive to the exclusion of members of other ethnic groups. A group classified as being a junior partner means that representatives of the group share access to executive power with a more powerful group. We will categorise groups as excluded if they are discriminated, powerless or self-excluded.

As our core measures of institutions, we merge these data with Polity IV measures of strong executive constraints where we create a dummy variable that is equal to one if the variable *xconst* is equal to 7 and high openness which is a dummy variable which is equal to one if the variable *xropen* is equal to 4. We will interpret these, following Besley and Persson (2011a) as measures of the theoretical parameters θ and γ. However, they are only proxy measures for a variety of reasons, not least because they are largely

attempts to capture formal rules. Both are measured at a country-level for each year.

To get a feel for what the variable captures, a good starting point is the Polity4 code book which describes the construction of *xconst* as follows:

> "Operationally, this variable refers to the extent of institutionalized constraints on the decision making powers of chief executives, whether individuals or collectivities. Such limitations may be imposed by any "accountability groups." In Western democracies these are usually legislatures. Other kinds of accountability groups are the ruling party in a one-party state; councils of nobles or powerful advisors in monarchies; the military in coup-prone polities; and in many states a strong, independent judiciary. The concern is therefore with the checks and balances between the various parts of the decision-making process."

This makes intuitive sense as a way of measure constraints on incumbent power and hence a reasonable candidate measure of θ. The case of *xconst* equal to 7 is where "accountability groups have effective authority equal to or greater than the executive in most areas of activity" We will investigate whether this way of capturing constraints is correlated with the distribution of resources across groups remains to be seen. Even though it has a clearly-defined rationale, a cut-off threshold of 7 for this variable is somewhat arbitrary. Below, we will check what happens if we use a lower threshold to capture "strong" executive constraints.

Measuring the nature of political institutions is inevitably imprecise and judgemental. Hence, it is also fruitful to compare the results using variables in the Polity IV dataset with other measures of political institutions data such as those available from Freedom House or the updated database of political institutions based on Beck et al (2001) and Keefer and Stasavage (2003). While all dimensions of democratic institutions are positively correlated, there is some institutional variation captured in these variables. For example, Keefer and Stasavage (2003) propose a measure based on the *number* of checks on the executive, $checks\_lax$, which while positively correlated with the measure based on *xconst*, is based on a rather different procedure. For example, as we discuss in the Appendix, the $checks\_lax$ does not seem to include judicial independence as a criterion. For $checks\_lax > 3$ around 60 percent of all country/years also have strong executive constraints. Below, we will use this as an alternative measure.

The variable *xropen* is described in the PolityIV users manual in the following terms:

> "Recruitment of the chief executive is "open" to the extent that all the politically active population has an opportunity, in principle, to attain the position through a regularized process."

The notion of a regularized process is quite open to interpretation. A score of 4 denotes a case in which chief executives are chosen by elite designation, competitive election, or transitional arrangements between designation and election. We also use the variable called *eiec* from the World Bank's database of political institutions. We use the threshold $eiec = 7$ which is intended to capture a situation in which the executive is elected in competitive elections, i.e. in which the largest party received less than 75 percent of the votes.

Summary statistics on all three samples we use are in Table A1.

Determinants of Inequality We look at purely cross-sectional variation to see whether ethnic inequality is higher with strong executive constraints. The specification that we run is:

$$Gini(light\ per\ capita)_c = \alpha_1 \times constraints_c + \alpha_2 \times openness_c + \theta_r + \beta X_c + \epsilon_c \tag{2}$$

where $constraints_c$ and $openness_c$ are the share of years before 2000 in which the country had the respective institutions, θ_r are continent dummies and X_c are other controls, the mean values (for each country) of distance to sea coast, elevation, precipitation, temperature, and land quality for agriculture. We use the Gini constructed by Alesina et al (2016) as well as constructed from the GROWup data. In the former case, we use Alesina et (2016)'s composite index of inequality in geographic endowments which is their main variable of interest. It is measured as the first principal component of five inequality measures (Gini coefficients) measuring inequality across ethnic/linguistic homelands in distance to the coast, elevation, precipitation, temperature, and land quality for agriculture. Controlling for this allows us to show that our interest in institutions has additional explanatory power to their variable.

As a robustness check on our results, we instrument executive constraints using Acemoglu et al (2001)'s settler mortality variable, i.e. where the first stage is:

$$\widehat{constraints}_c = \zeta \times \log(mortality_c) + \omega_r + \kappa X_c + \eta_c \tag{3}$$

This has certain advantages since it may be that there is some joint determination of institutions and the level of ethnic inequality. However, there is also a cost since it reduces the sample of countries that can be studied and the exclusion restriction is quite demanding, i.e. that effects of settler mortality come entirely through institutions. The reader will note, however, that that is precisely the claim in Acemoglu et al (2001).

The results for the variables in Alesina et al (2016) are in Table 1. In columns (1) through (3) and (8), we use the GREG data and columns (4) through (6) and (9) use the Ethnologue data. Across the board, the results show that there is a strong and consistent negative correlation between ethnic inequality and experience with strong executive constraints for both measures. When we include openness, it does not affect the core result and is not significant. But this could well be because there is much less variation in openness than in executive constraints across the sample – a much higher proportion of countries have always been open. The results are robust to whether or not controls are included. To get a sense of the size of the effect note that the ethnic Gini has a mean of 0.43 and standard deviation of 0.26. So the effects estimated are quite sizeable.

Column (7) estimates (3) – the F-statistic on the instrument is bigger than 10. And in the subsequent columns, we find that there is a larger and strongly significant IV estimate between ethnic inequality and strong executive constraints.

In Table 2, we estimate the results using our own estimates of ethnic inequality from the GROWup data. These are time varying since we have data form 1992-2010 so all of the variables in (2) should now be time subscripted and we include year dummies to capture any macro trends. The results are very similar to those in Table 1 with a strongly negative correlation between share of years in strong executive constraints and ethnic inequality. Columns (4) and (5) show that these results are robust to instrumenting and we have a very strong first stage. The results in Table 2 are also robust to using alternative measures of cohesive institutions. This level of the analysis does not allow us to distinguish which dimension of democratic institutions is responsible for the strong pattern in the data.

Overall, these results are highly suggestive – strong executive constraints seem to reduce ethnic inequality. Of course, this is only a one-dimensional take on the theory which is not specific about the salient dimension of group inequality which could be religion or some kind of non-ethnic geographical basis. However, the finding is still striking in view of the model and the

role that it gives to strong constraints in creating a more even distribution of public expenditures.

Excluded Groups We now turn to a within-country analysis to examine how excluded groups fare with strong executive constraints. We do so by looking at the light per capita at a group level within country during periods of strong and weak executive constraints comparing groups which are excluded from power to those that are part of the government. For this purpose, we define an excluded group based on the GROWup data as being excluded if they are either classified as being powerless, discriminated or self-excluded.

Our core specification for group i in country c in year t is:

$$\begin{aligned} log(light\ per\ capita)_{ict} &= \alpha_1 \times excluded_{ict} + \\ &+\alpha_2 \times excluded_{ict} \times weakconstraints_{ct} + C_{ct} + \eta_i + \epsilon_{it} \end{aligned} \tag{4}$$

where C_{ct} are country/year fixed effects, η_i are group fixed effects. Specifically, the variable $excluded_{ict}$ is the share of years the group was excluded from political power and $excluded_{ict} \times weakconstraints_{ct}$ is the share of years the group was excluded in a year with weak executive constraints. We look at other measures of institutions as a robustness check.

It bears remarking that this specification is quite demanding as it allows for an arbitrary pattern of within country over time variation and also group fixed effects. If strong executive constraints reduce political rents to incumbents then we expect to find that $\alpha_2 < 0$.

The results are in Table 3. Column (1) gives the basic result. It finds that $\alpha_1 < 0$, so that all excluded groups have a lower value of light per capita. It is also shows that this effect is larger under weak executive constraints. Light per capita is about 20 percent lower in weak groups that were not protected by constraints. This corresponds to around a 7% lower GDP per capita. Column (2) reports a weighted regression where the weight is the population share of each ethnic group. We continue to find that $\alpha_2 < 0$. Column (3) controls for time trends in urbanization, population and area and shows that the results remain robust.

In Table 4 we consider some alternative ways of capturing political institutions. In column (1) we use the same dimension from the Polity IV dataset, xconst, but use a different cut-off to define strong executive constraints, namely we include the intermediate scores of 6. If anything, this

less demanding way of looking at constraints actually strengthens our main result somewhat. In column (2) we use our measure of openness. Being excluded from power when openness is low does not seem to mean that a group does worse which is what we would expect if openness captures γ_i rather than θ. In column (3) we use the aggregate polity2 score of larger 5, again from Polity IV, to define democracies. This general measure leads to similar results as those in Table 3. This is not inconsistent with some dimensions of democracy being more important than others. In columns (4) and (5) we use alternative measures from the World Bank's Database of Political Institutions 2012. The first dimension we look at is a measure of the competitiveness of elections in electing the executive, *eiec* using a cutoff value of 7 as discussed above. The results are similar to when we use openness with no apparent worsening of the consequences of being excluded when there is a stronger electoral constraint. We also find no additional effect of being excluded in a society with few checks and balances as captured by the variable $checks\_lax$.

This raises the question of what is specific about the way that the Polity IV measures executive constraints in particular in comparison to our measure of checks and balances. In the appendix we show that the difference is not entirely surprising once the coding of xconst and check_lax is compared. Executive constraints in Polity IV are defined through constitutional arrangements and judicial independence as opposed to the composition of parliament. For example, South Africa where the ANC dominates both the executive and legislature can be coded as having strong executive constraints due to strong judicial independence and constitutional arrangements which give the national assembly the power to elect the president. Hence this could be telling us that it is consideration of judicial independence as mentioned in the construction of $xconst$ that is crucial. However, such a claim is somewhat speculative at this point and merits further investigation.

In summary, the first set of our results is highly robust across a broad set of measures for political institutions although the downside of political exclusion seems specific to using the executive constraints measure from the Polity IV dataset. Overall, the results provide persuasive evidence that the distribution of income between ethnic groups depends on political exclusion and that this effect is particularly strong when executive constraints as measured by PolityIV are weak. Such constraints are "worth" around 5-7% of GDP per capita to politically excluded groups. This speaks directly to the Rawlsian argument for strong executive constraints. Moreover, this gives a

precise sense in which these are indeed "inclusive institutions" in the sense of Acemoglu and Robinson (2012).

5 Concluding Comments

This paper has contributed to debates about how institutions affect economic development. However, the main focus has been on inclusiveness rather than whether growth and development respond to institutional differences. We have argued that having strong executive constraints has a special normative role since it can help to protect those who are politically excluded. We have presented a model where this was true but ultimately, it is an empirical question whether strong executive constraints protect excluded citizens.

The results presented here provide a window on a set of wider debates in political economy. In many respects using xconst from PolityIV as a measure of institutional cohesion (as captured by θ in the model) is quite crude so it is interesting that it delivers robust empirical results. The result that other dimensions of polity do not seem to prevent redistribution away from the politically excluded is interesting and confirms findings in Mueller and Tapsoba (2016). What is somewhat puzzling is the fact that measures on checks and balances based on the composition of the parliament do not yield similar results. A closer look at the two measures of institutional constraints suggests that the fact that PolityIV captures constitutional differences and an independent judiciary might be driving this difference.

However, the interpretation is open. Suppose that societies must first develop values that lead to institutional change, then these findings would simply be reflections of these values rather than institutions. This line of argument is developed in Besley and Persson (2016) who propose a model where values and institutions coevolve. This is linked to the idea championed in political science by Putnam (1993) and Fukuyama (2011) that a strong civil society is needed to underpin effective states. Others, such as Weingast (1997), look at this in terms of coordinating on a focal equilibrium where the rule of law and inclusive democracy prevails.

In the end, it does not matter much whether it is values or institutions that matter when interpreting the findings above. However, for policy purposes it is key. Introducing institutions in places where the values are poorly entrenched may just lead to institutions being compromised or even abandoned. The process of foreign intervention in trying to establish political

institutions is replete with such examples and countries which were given post-colonial constitutions with nascent executive constraints saw these abandoned (see Acemoglu et al, 2001, for a discussion). Hence, this paper only reinforces the need to understand the dynamic of institutional and value change better.

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Appendix

A Discussion of Constraints Measure

In this appendix we discuss the difference between executive constraints as measure by the variable *xconst* in the PolityIV dataset and the strength of checks and balances as measured by *checks_lax* in Keefer and Stasavage (2003).

In Table A2 we plot the share of country-years which are coded xconst=7 for values of checks_lax from 1 to 7+. Two patterns are clear. First, categories with very low values of *checks_lax* also contain very few country/years with strong executive constraints. Second, for larger values of *check_lax* the two measures diverge. There are many country/years which are coded as strong executive constraints but have relatively low values of *checks_lax* and vice versa. Only at values of *checks_lax* = 6 there is a large majority of observations which are also coded as strong executive constraints. Typically, the share is closer to 50 percent.

In Table A3 we show which countries drive this divergence. The most striking feature is that many developed democracies are coded as facing executive constraints but not a high number of checks and balances. Examples are: Sweden, Spain, the UK, Italy, Japan, New Zealand and Norway. Instead, the checks data codes many Latin American countries like Argentina, Brazil, Colombia or Venezuela as having strong checks and balances.

The core of this divergence lies in the way the two variables are coded. The executive constraints variable *xconst* is available on a seven point scale. As noted in the text above, the Polity4 manual explains the variable's construction as follows:

> "Operationally, this variable refers to the extent of institutionalized constraints on the decision making powers of chief executives, whether individuals or collectivities. Such limitations may be imposed by any "accountability groups." In Western democracies these are usually legislatures. Other kinds of accountability groups are the ruling party in a one-party state; councils of nobles or powerful advisors in monarchies; the military in coup-prone polities; and in many states a strong, independent judiciary. The

concern is therefore with the checks and balances between the various parts of the decision-making process."

The rules code $xconst = 1$, for example, when there is unlimited authority in which there are no regular limitations on the executive's actions (as opposed to irregular limitations such as the threat or actuality of coups and assassinations) and category $xconst = 7$ means that accountability groups have effective authority equal to or greater than the executive in most areas of activity.

This is fairly abstract and not easy to interpret. It is therefore important to check the arguments made for coding in some examples. South Africa, for example, is coded as executive parity or subordination (7) for much of its history. The reasoning given in the coding report is:

> *The type of presidential system found in South Africa places significant constraints on the political autonomy of the chief executive. While the president is not directly accountable to the legislature (as is in the case in a traditional parliamentary system), nevertheless, s/he is chosen by the National Assembly. Moreover, under the terms of the 1997 constitution, political power is shared between the president and the Parliament.*
>
> *While the institutional design of the South African government provides for significant horizontal accountability, the dominance of the ANC in the post-apartheid era has provided the executive branch with significant power to chart the course of the country with little interference from the legislature. In 2003 the ANC, through opposition party defections, achieved a two-thirds majority in parliament. The political dominance of the ANC was reaffirmed with their landslide.* The judiciary is largely independent from executive influence. (Centre for Systemic Peace, Polity IV Country Reports 2010)

The United Kingdom is also coded as featuring executive parity or subordination (7). The reasoning given in the report is:

> *The parliamentary structure of government found in the United Kingdom places significant constraints on the autonomous actions of the chief executive. The prime minister is elected by, and is*

*directly accountable to, the legislature. Although Britain does not have a written constitution, historical conventions and norms, as well as legal precedents, serve as the foundations of horizontal accountability in this country. The judiciary, while weaker than in many OECD countries, is autonomous from executive interference. (*Centre for Systemic Peace, Polity IV Country Reports 2010)

The variable *checks_lax* from Keefer and Stasavage (2003) is coded as follows:

Checks_ lax equals one if LIEC OR EIEC is less than 5 – countries where legislatures are not competitively elected are considered countries where only the executive wields a check.

In countries where LIEC and EIEC are greater than or equal to 5:

- *Checks_ lax is incremented by one if there is a chief executive (it is blank or NA if not).*
- *Checks_ lax is incremented by one if the chief executive is competitively elected (EIEC greater than six).*
- *Checks_ lax is incremented by one if the opposition controls the legislature.*

In presidential systems, Checks_ lax is incremented by one:

- *for each chamber of the legislature UNLESS the president's party has a majority in the lower house*
- *AND a closed list system is in effect (implying stronger presidential control of his/her party, and therefore of the legislature).*
- *for each party coded as allied with the president's party and which has an ideological (left-right-center) orientation closer to that of the main opposition party than to that of the president's party.*

In parliamentary systems, Checks_ lax is incremented by one

- *for every party in the government coalition as long as the parties are needed to maintain a majority*

- *parties in the government coalition, regardless of whether they were needed for a legislative majority).*

- *for every party in the government coalition that has a position on economic issues (right-left-center) closer to the largest opposition party than to the party of the executive.*

From these coding rules it is clear that the composition of parliament receives more weight than the constitutional rules which govern the interplay between legislature and executive. Also, the independence of the judiciary is only mentioned in the description of *xconst* as a factor which certainly explains a part of the divergence. If judicial control is important this is an important difference between the two measures.

Table 1: Ethnic Inequality in 2000 and history of strong executive constraints

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	(OLS)						(First stage)	(IV)	
VARIABLES	Gini (light per capita) across ethnic homelands (GREG data)			Gini (light per capita) across ethnic homelands (Ethnologue data)			share under strong executive constraints	Gini (light per capita) across ethnic homelands	
share of years under strong executive constraints	-0.184***	-0.202***	-0.187***	-0.188***	-0.162***	-0.170***		-0.406***	-0.267
	(0.0622)	(0.0600)	(0.0651)	(0.0594)	(0.0522)	(0.0579)		(0.148)	(0.220)
share of years under high openness			-0.0363			0.0203			
			(0.0473)			(0.0584)			
Inequality in Geography across Ethnic Homelands (PC)	0.0819***	0.0797***	0.0812***	0.115***	0.110***	0.110***	-0.0216	0.0745***	0.0910***
	(0.0100)	(0.0106)	(0.0111)	(0.0127)	(0.0122)	(0.0122)	(0.0277)	(0.0168)	(0.0198)
log settler mortality							-0.147***		
							(0.0492)		
region fixed effects	yes	yes	yes	yes	yes	yes	yes	yes	yes
additional controls	no	yes	yes	no	yes	yes	no	no	no
Observations	155	155	155	155	155	155	60	60	60
R-squared	0.497	0.551	0.553	0.620	0.696	0.696	0.435	0.464	0.571

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. The dependent variable is the ethnic Gini coefficient that reflects inequality in lights per capita across ethnic/linguistic homelands, using the digitized version of Atlas Narodov Mira (GREG) in (1)-(3), (8) and Ethnologue in (4)-(6) and (9). Share of years under strong executive constraints is the share of past years a country had strong executive constraints (xconsthigh==7). Share of years under high openness is the share of past years a country had open recruitment to the executive (xropen==4). All other data is form Alesina, Michalopoulos and Papaioannou (2016). The inequality in geography is the first principal component of five inequality measures (Gini coefficients) measuring inequality across ethnic/linguistic homelands in distance to the coast, elevation, precipitation, temperature, and land quality for agriculture. The mapping of ethnic homelands follows the digitized version of Atlas Narodov Mira (GREG) in columns (1)-(3), (8) and of Ethnologue in columns (4)-(6) and (9). Columns (3) and (6) include as controls the mean values (for each country) of distance to sea coast, elevation, precipitation, temperature, and land quality for agriculture. Region fixed effects are dummies for regions on earth (similar to continents). Log settler mortality is from Acemoglu, Johnson, and Robinson, 2001.

Table 2: Ethnic Inequality in 2010 and history of strong executive constraints (GROWup data)

	(1)	(2)	(3)	(4)	(5)
		OLS			IV
VARIABLES	Gini (light per capita) across ethnic homelands			share under strong executive constraints	Gini (light per capita)
share of years under strong executive constraints	-0.114***	-0.0459***	-0.0391***		-0.390**
	(0.00529)	(0.00483)	(0.00761)		(0.176)
log settler mortality				-0.0459***	
				(0.0125)	
year fixed effects	yes	yes	yes	yes	yes
region fixed effects	no	yes	yes	yes	yes
country-specific time trends	no	no	yes	no	no
Observations	2,115	2,115	2,115	913	913
R-squared	0.099	0.306	0.773	0.282	

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Night light per capita data is from the GROWup database which gives night light and population for each relevant ethnic group in a country. The Gini coefficient is re-calculated every year based on this data. "Strong executive constraints" is defined by xconst==7 in the Polity IV dataset. Log settler mortality is from Acemoglu, Johnson, and Robinson, 2001.

Table 3: Political exclusion and night light

VARIABLES	(1) ln(light per capita)	(2) ln(light per capita)	(3) ln(light per capita)
share of years excluded from power	-0.168*	-0.0504	-0.0503
	(0.0966)	(0.0548)	(0.0553)
share of years excluded from power in weak executive constraints	-0.210**	-0.139***	-0.152***
	(0.0932)	(0.0538)	(0.0542)
country/year fixed effects	yes	yes	yes
group fixed effects	yes	yes	yes
population, urganization and area trends	no	no	yes
Observations	9,107	9,107	9,037
R-squared	0.975	0.990	0.974

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. All regressions use GROWup data at the ethnic homeland level. Light per capita is the amount of night light per capita emitted by the ethnic homeland in that year. Columns (2) and (3) use ethnic group size as a regression weight. Column (3) controls for time trends in urbanization, population and area. "Excluded from power" are powerless, discriminated and self-excluded ethnic groups.

Table 4: Political exclusion and night light (robustness)

	(1)	(2)	(3)	(4)	(5)
VARIABLES	ln(light per capita)	ln(light per capita)	ln(light per capita)	ln(light per capita)	ln(light per capita)
share of years excluded from power	0.000963	-0.167***	-0.0636	-0.143**	-0.194***
	(0.0473)	(0.0534)	(0.0564)	(0.0717)	(0.0548)
share of years excluded from power in weak executive constraints	-0.225***				
	(0.0409)				
share of years excluded from power with low openness		-0.0292			
		(0.0731)			
share of years excluded from power in non-democracy			-0.153***		
			(0.0482)		
share of years excluded from power without competitive elections				-0.0506	
				(0.0811)	
share of years excluded from power with few checks and balances					0.0191
					(0.0414)
country/year fixed effects	yes	yes	yes	yes	
group fixed effects	yes	yes	yes	yes	
Observations	9,232	9,232	9,219	9,219	9,216
R-squared	0.990	0.990	0.990	0.990	0.990

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. All regressions use GROWup data at the ethnic homeland level. Light per capita is the amount of night light per capita emitted by the ethnic homeland in that year. Column (1) defines weak executive constraints by an xconst score smaller than 6. Column (2) defines high openness by xropen=4 in the Polity IV dataset. Column (3) uses a polity2 score of >5 to define democracies. Column (4) uses eiec=7 as a criterion for competitive elections. Column (5) uses the cut-off of 4 or more on the variable checks_lax to define many checks and balances. For sources and definitions see the main text and appendix.

Table A1: Summary Statistics

Panel A: Sample from Alesina, Michalopoulos and Papaioannou (2016)	obs	mean	SD	min	max
Gini (light per capita) across ethnic homelands (GREG data)	173	0.4236	0.2597	0	0.9661
Gini (light per capita) across ethnic homelands (Ethnologue data)	173	0.4463	0.3330	0	0.9820
Inequality in Geography across Ethnic Homelands (PC), GREG	164	0.0000	1.7267	-2.555	5.659
Inequality in Geography across Ethnic Homelands (PC), Ethnologue	164	0.0000	1.7153	-2.670	5.133
share of years under strong executive constraints	163	0.1972	0.3127	0	1
share of years under high openness	163	0.6707	0.3352	0	1
log (settler morgality)	63	4.6776	1.2378	2.1459	7.9862
Panel B: GROWup sample (country level)					
Gini (light per capita) across ethnic homelands	2115	0.1270	0.1584	0.0000	0.7530
share of years under strong executive constraints	2115	0.2799	0.4313	0.0000	1.0000
log (settler morgality)	913	4.8176	1.1546	2.7081	7.9862
Panel C: GROWup sample (ethnic group level)					
ln(light per capita)	9232	-4.3213	2.0291	-19.93	0.97
share of years excluded from power	9232	0.5424	0.4830	0	1
share of years excluded from power in weak (<7) executive constraints	9232	0.4434	0.4765	0	1
share of years excluded from power in weak (<6) executive constraints	9232	0.3883	0.4676	0	1
share of years excluded from power with low openness	9232	0.1124	0.2947	0	1
share of years excluded from power in non-democracy	9232	0.3457	0.4493	0	1
share of years excluded from power without competitive elections	9219	0.2683	0.4154	0	1
share of years excluded from power with few checks and balances	9216	0.2629	0.4050	0	1

Table A2: Strong executive constraints and checks and balances

checks_lax	share of observations with strong executive constraints	number of observations
0	0.03	464
1	0.01	2,387
2	0.29	605
3	0.44	1,196
4	0.61	987
5	0.66	436
6	0.84	117
7+	0.58	108

Note: "checks_lax" is a measure of checks and balances based on Keefer and Stasavage (2003). Strong executive constraints is defined by xconst=7 in the Polity IV dataset.

Table A3: Comparing Veto Player and Executive Constraints

Panel A: Weak constraints but 4+ checks

Country	number of years
Algeria	5
Argentina	15
Bangladesh	10
Belarus	1
Bosnia and Herzegovina	4
Botswana	2
Brazil	19
Colombia	14
Congo	4
Congo (DRC)	6
Dominican Republic	13
Ecuador	10
El Salvador	18
Ethiopia	5
Fiji	13
France	21
Guatemala	1
Guyana	1
Haiti	7
Honduras	8
Indonesia	5
Iraq	2
Korea	13
Liberia	7
Macedonia	3
Madagascar	3
Malawi	15
Malaysia	21
Mauritania	8
Mexico	15
Nepal	8
Nigeria	13
Pakistan	5
Panama	10
Papua New Guinea	21
Paraguay	1
Philippines	16
Poland	3
Romania	11
Russian Federation	15
Senegal	1
Slovakia	5
Sri Lanka	15
Suriname	6
Taiwan	4
Tajikistan	4
Tunisia	1
Uganda	5
Ukraine	12
Venezuela	9
Zambia	6
Zimbabwe	4

Panel B: Strong constraints but <4 checks

Country	number of years
Albania	8
Belarus	3
Belgium	6
Bolivia	3
Botswana	15
Bulgaria	17
Cape Verde	11
Chile	8
Colombia	3
Comoros	8
Costa Rica	9
Croatia	7
Cyprus	13
East Timor	11
Ecuador	2
Estonia	12
Finland	4
Greece	20
Haiti	3
Hungary	10
Israel	6
Italy	9
Jamaica	9
Japan	14
Kenya	5
Kyrgyzstan	2
Latvia	4
Lesotho	12
Lithuania	16
Madagascar	5
Mauritius	18
Moldova, Rep.of	16
Mongolia	21
New Zealand	12
Nicaragua	8
Niger	4
Norway	4
Paraguay	7
Portugal	21
Slovakia	4
Slovenia	5
Solomon Islands	8
South Africa	19
Spain	5
Sweden	4
Switzerland	17
Taiwan	4
Thailand	1
Trinidad and Tobago	12
Turkey	14
United Kingdom	13
Uruguay	8