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# Ethnic Favoritism: An Axiom of Politics?

## Abstract

We investigate the prevalence and determinants of ethnic favoritism, i.e., preferential public policies targeted at the political leader's ethnic group. We construct a panel dataset of 2,022 ethnographic regions from 139 countries with annual observations from 1992 to 2012, and use nighttime light intensity as output measure to capture the distributive effects of a wide range of policies. We find robust evidence for ethnic favoritism: the political leaders' ethnographic regions enjoy 10% higher nighttime light intensity. We further find that ethnic favoritism is a global rather than Sub-Saharan African phenomenon, which is present in poor as well as rich countries; that political institutions have a weak effect on ethnic favoritism; that ethnic favoritism is most prevalent in ethnically fractionalized and segregated countries with long established polities; and that ethnic favoritism does not contribute to sustainable development.

JEL-Code: D720, R110, J150, O430.

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# 1 Introduction

In his study on ethnic politics in Zambia, Posner (2005, p. 97) observes that “[t]he lesson that the President will favor his own ethnic group has become, for many Zambians, an axiom of politics.” Zambia is no exception. There is plenty of circumstantial as well as rigorous evidence for ethnic favoritism in many Sub-Saharan African countries. Kenya is a prominent example. Many citizens and international observers are well aware that both the Kalenjin dominated government around Daniel arap Moi, who was president from 1978 to 2002, and the Kikuyu dominated government around Mwai Kibaki, who was president from 2002 to 2013, engaged in patronage and ethnic favoritism (Wrong, 2009). Recent studies have exploited changes in the presidency to quantify the extent of ethnic favoritism in Kenya. Thereby, Kramon and Posner (2012) focus on educational attainments across individuals from different ethnic groups, and Burgess et al. (2014) on road building across districts with different ethnic compositions.

Few studies go beyond the level of individual countries.<sup>1</sup> Franck and Rainer (2012) are an exception. They find evidence for widespread ethnic favoritism in infant mortality and various educational outcomes in a panel of 18 Sub-Saharan African countries. Moreover, Kramon and Posner (2013) document the pattern of ethnic favoritism in six Sub-Saharan African countries. They show that this pattern varies dramatically across policy areas, and argue that ethnic favoritism in one policy area may often be compensated with rationing in another area. They therefore advise against making general claims about ethnic favoritism based on empirical findings for a single policy area.

We offer a novel approach for studying the prevalence and determinants of ethnic favoritism. Our approach differs in two important ways from the previous literature. First, we go beyond Sub-Saharan Africa and study Posner’s (2005) axiom of politics at the global level. In particular, we employ a large and diverse sample of 139 multi-ethnic countries from all over the world. Even though ethnicity is an elusive concept with different connotations across countries and in different regions of the world, ethnic

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<sup>1</sup>Golden and Min (2013) provide an inventory of more than 150 empirical studies on distributive politics. They find that most studies focus on a single democratic country and a single policy area.

fractions of some sort can be observed in many countries across the globe. It is important to understand whether ethnic fractions lead to ethnic favoritism also outside Sub-Saharan Africa.

Second, we use a broad measure of ethnic favoritism that allows capturing the aggregate distributive effect of a wide range of policies. In particular, we rely on nighttime light intensity. US Air Force Weather Satellites constantly record light intensity, and the National Oceanic and Atmospheric Administration (NOAA) provides annualized data on nighttime light intensity for the years 1992 to 2012. Henderson et al. (2012) and Hodler and Raschky (2014a) document a strong relationship between nighttime light intensity and GDP at the level of countries and subnational regions, respectively. We further use information about political leaders provided by Archigos, and add the ethnicity of all political leaders who were in power from 1988 onwards. We take information on the geographical distribution of ethnic groups from the “Geo-Referencing of Ethnic Groups” (GREG) dataset, which is based on the classical Soviet Atlas Narodov Mira.<sup>2</sup>

Our analysis employs a panel dataset of 2,022 ethnographic regions from 139 countries, and annual observations from 1992 to 2012. The main variables are nighttime light intensity, and a leader ethnicity dummy variable that indicates whether an ethnographic region is the homeland of the ethnic group of the country’s current political leader. We find that this leader ethnicity dummy variable is positively associated with nighttime light intensity after including region fixed effects to control for time-invariant regional characteristics, and country-year dummy variables to control for country-wide changes over time. To address potential endogeneity of the political leader’s ethnicity, we also document that the ethnic homeland of the future political leader does not have significantly more intense nighttime light in the years prior to a leadership transition that changes the political leader’s ethnicity. We thus interpret the positive association between the leader ethnicity dummy variable and nighttime light intensity as evidence for ethnic favoritism. Our estimates imply that ethnographic regions have around 10% more intense nighttime light

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<sup>2</sup>Our reliance on a well-established map of the geographical distribution of ethnic groups certainly represents a pragmatic approach to dealing with the difficulty of ethnicity having different connotations across countries and in different regions of the world.

and roughly 3% higher regional GDP in times in which a member of their ethnic group is the country's political leader than in other times.

Looking at the different regions of the world separately, we find evidence for ethnic favoritism not only in Sub-Saharan Africa, but also in many other regions of the world, including Western Europe and North America. These findings challenge the preconception that ethnic favoritism is mainly or even entirely a Sub-Saharan African phenomenon. Instead they suggest that Posner's axiom of politics holds globally.

Our large and diverse sample also allows studying the heterogeneity of ethnic favoritism along various dimensions. We can thereby investigate the major determinants of ethnic favoritism, and see whether Posner's axiom of politics needs to be taken for granted. We first look at the effect of economic development. We find that the prevalence of ethnic favoritism is unrelated to the level of economic development. This result may be surprising, but it is consistent with our finding of ethnic favoritism in Western Europe and North America.

We next look at political institutions. Standard intuition suggests that ethnic favoritism should be more prevalent in less democratic societies. Franck and Rainer (2012) find limited effects of political institutions on ethnic favoritism in their sample of 18 Sub-Saharan African countries, while Burgess et al. (2014) find that ethnic favoritism in road building in Kenya disappears if political institutions improve from being autocratic to being anocratic or even democratic.<sup>3</sup> Our global sample and broad measure of ethnic favoritism suggests that better political institutions have a tendency to reduce ethnic favoritism, but this effect is weak and non-linear. In particular, we neither find that a change from autocratic to anocratic institutions reduces ethnic favoritism, nor that ethnic favoritism completely disappears when democratic institutions become strong.

While political institutions may be a good proxy for the constraints on the political leaders, the prevalence of ethnic favoritism may also depend on the efficacy of government policies. We use the state antiquity index by Putterman as proxy measure for government efficacy. This index measures state history and is based on the time period during

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<sup>3</sup>Anocracies are regimes that have both autocratic and democratic traits. Many scholars refer to countries with intermediate polity scores as anocracies (see section 2).

which there was a supra-tribal polity within the country's present-day boundaries. While Chanda and Putterman (2007) document that longer state history coincides with higher levels of economic development, we find that longer state history indeed increases ethnic favoritism. These results are not inconsistent: Higher government efficacy due to longer state history may make governments more influential; and governments can use their influence to implement growth-enhancing policies, or to support their ethnic homeland.

Comparing countries with different ethnic compositions, we find that ethnic segregation and fractionalization both increase ethnic favoritism. The positive effect of ethnic segregation is hardly surprising given our geography-based approach to identifying ethnic favoritism. The positive effect of ethnic fractionalization is however not self-evident, as the estimated effect exclusively depends on countries that experienced ethnic transitions during our sample period. Hence, even among the multi-ethnic countries in which the political leader's ethnicity changes once in a while, ethnic favoritism tends to be most prevalent in countries with many small ethnic groups.

Finally, we study whether nighttime light remains more intense in the ethnic homelands of a former political leader who was recently replaced by a political leader from another ethnic group. We find that nighttime light intensity drops quickly to the level that it would experience if the ethnographic region had never been the political leader's ethnic homeland. This finding suggests that ethnic favoritism does not lead to sustainable development.

Our paper primarily contributes to the literature on ethnic favoritism, which goes back to Bates (1974) and includes the studies discussed above. It is also closely related to Hodler and Raschky's (2014a) study on regional favoritism. They also exploit variation in nighttime light intensity within subnational regions, but focus on administrative districts rather than ethnographic regions, and on the political leaders' birth place rather than their ethnicity. They find strong evidence that political leaders favor the district in which they were born. The main difference of our study is obviously our focus on the ethnic component of favoritism. In a robustness exercise, we show that our results are not driven by favoritism towards the political leader's birth place. More importantly, comparing

these two studies reveals interesting differences between the determinants of ethnic and regional favoritism: First, while Hodler and Raschky (2014a) find no evidence for *regional* favoritism in relatively rich parts of the world including the Americas and Europe, we show that *ethnic* favoritism is not affected by the level of economic development and even prevalent in Latin America, North America and Western Europe. Second, while political institutions are the most important determinant of the prevalence of *regional* favoritism, we find their constraining effects on *ethnic* favoritism to be limited. Hence, democratization may be more helpful to curb *regional* favoritism benefiting relatively small areas around the political leaders' birth places than to curb *ethnic* favoritism, which typically benefits relatively large ethnographic regions.

Moreover, our paper contributes to the literature studying the effects of ethnic divisions on governance and economic development.<sup>4</sup> Easterly and Levine (1997) show that ethnic fractionalization impacts negatively on economic development. Various possible channels have been discussed. La Porta et al. (1999) and Alesina et al. (2003) find that ethnic fractionalization lowers the quality of government, and Alesina and Zhuravskaya (2011) show that ethnic segregation has a particularly strong negative effect on the quality of government. Miguel and Gugerty (2005) and Glennerster et al. (2013) study whether ethnic diversity reduces public goods provision. Francois et al. (2014a,b) study how political leaders in ethnically diverse Sub-Saharan African countries increase their chances to stay in power by sharing the benefits from office, and by regularly replacing their ministers. They argue that these policies are one reason for the poor performance of many ethnically diverse Sub-Saharan African countries. Alesina et al. (2014) find inequality between ethnographic regions to be negatively linked to country-wide economic performance. We contribute to this literature by showing that ethnic fractionalization and segregation raise ethnic favoritism, and that ethnic favoritism does not lead to sustainable development in the targeted regions. These findings suggest that ethnic favoritism is another reason why many ethnically divided countries perform poorly.

In addition, our paper contributes to the emerging literature on the role of political

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<sup>4</sup>See Alesina and La Ferrara (2005) for an overview.

leaders in economic development. In a pioneering study Jones and Olken (2005) find that political leaders can have strong effects on their country's growth performance. Further contributions include Kasara (2007), Dreher et al. (2009), and Besley et al. (2011), as well as the above mentioned studies by Franck and Rainer (2012), Kramon and Posner (2012, 2013), Burgess et al. (2014), and Hodler and Raschky (2014a).

The remainder of the paper is organized as follows: Section 2 presents the data, section 3 the empirical strategy, section 4 our findings, and section 5 some concluding remarks.

## 2 Data

Our units of observation are subnational ethnographic regions as given in the GREG dataset by Weidmann et al. (2010). This dataset is based on the digitalization of the classical Soviet Atlas Narodov Mira. It therefore records the ethnic distribution of the world population in the 1960s. In this dataset, around three quarters of the regions are inhabited by a relatively homogeneous population belonging to one specific ethnic group, and around one quarter of the regions are inhabited by two ethnic groups.<sup>5</sup> We collapse different regions of the same country with the same ethnic composition into a single ethnographic region. Excluding countries with only one ethnographic region, and the (mostly small) countries for which we have no information about their political leaders, we end up with a sample of 139 countries from all over the world.<sup>6</sup> There are 2,022 ethnographic regions in this sample, which implies 14.55 ethnographic regions in an average country.<sup>7</sup> These regions are on average based on 11.55 different ethnic groups.

The identity of political leaders is obtained from the Archigos database, version 3.0, by Goemans et al. (2009). This database provides information on the top political leaders of many countries around the world for many years up to 2011. It includes the exact starting and ending dates of the political leaders' time in power. We add to this database

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<sup>5</sup>We drop the few regions inhabited by three ethnic groups.

<sup>6</sup>Appendix A lists all countries in our sample. Countries excluded due to having only one ethnographic region include Cuba, Denmark, Mauritius, Portugal, Saudi Arabia, and the two Koreas. We also exclude Serbia due to the non-trivial changes in its boundaries during our sample period.

<sup>7</sup>The distribution of the number of ethnographic regions is heavily skewed. In particular, there are a few outliers: Russia has 135 ethnographic regions, Indonesia 119, and India 94.

the ethnic affiliation of all political leaders who were in power for at least 30 days in the years from 1988 to 2011. We match the ethnicity of these political leaders to the ethnic categories in the GREG data using Murdock (1959) for African ethnicities and various web-based sources.<sup>8</sup> This matching allows us to construct the dummy variable  $LeaderEthnicity_{ict}$ , which is equal to 1 if ethnographic region  $i$  is inhabited by the ethnic group of a political leader who was in power for at least 30 days in country  $c$  during year  $t$ , and equal to 0 otherwise.<sup>9</sup> We set  $LeaderEthnicity_{ict}$  to missing if the country's political leader had a foreign ethnicity; if we could not find any information about his ethnicity; or if we could not match his ethnicity to any ethnic category in the GREG dataset.<sup>10</sup>

The National Oceanic and Atmospheric Administration (NOAA) provides annualized data on nighttime light intensity for the years from 1992 to 2012. These data is based on recordings by US Air Force Weather Satellites in evenings during the dark half of the lunar cycle in seasons when the sun sets early. NOAA removes observations affected by cloud coverage, or northern or southern lights, and processes the data by setting readings that are likely to reflect fires, other ephemeral lights, or background noise to zero. The objective is that the reported nighttime light is primarily man-made. NOAA provides the annual data on a scale from 0 to 63 for output pixels that correspond to less than one square kilometer. We calculate the average nighttime light intensity of each ethnographic region for all years from 1992 to 2012 using geographical information system (GIS) software. Our dependent variable  $Light_{ict}$  is the logarithm of the average nighttime light intensity in ethnographic region  $i$  in country  $c$  in year  $t$ .<sup>11</sup>

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<sup>8</sup>One recurrent source has been: <http://www.ethnologue.com>

<sup>9</sup>Given our threshold of 30 days, different ethnic groups may be considered leader ethnicities in country-years with leadership transitions between political leaders from different ethnic groups. Our main results are robust to setting the threshold to 180 days, which ensures that there can be no more than one leader ethnicity in any given country-year.

<sup>10</sup>There are only three political leaders in our sample of 139 countries for whom we could not find information about their ethnicity. There are another three political leaders for whom we could find some information, but could not match it to any ethnic category in the GREG dataset. Further, there are seven political leaders with a foreign ethnicity (e.g., Fujimori who is of Japanese origin and was president of Peru). Brunei and Djibouti have no political leader with a domestic ethnicity according to the GREG dataset during our sample period. We therefore exclude these two countries. We also exclude Moldova, where changes in the coding of the most important political office by Archigos leads to changes in the leader ethnicity in the absence of any real changes.

<sup>11</sup>We log transform the data because the distribution of nighttime light intensity is right-skewed (Henderson et al. 2012, Michalopoulos and Papaioannou 2013, Hodler and Raschky 2014a). We also follow Michalopoulos and Papaioannou (2013, 2014) and Hodler and Raschky (2014a,b) in adding 0.01 to the

Henderson et al. (2012) advocate the use of nighttime light intensity as a measure of economic activity or economic development.<sup>12</sup> They document a relatively strong association between nighttime light intensity and GDP at the country level, and Hodler and Raschky (2014a) provide evidence for a similarly strong association at the level of subnational administrative regions. Given its availability at the local level and its positive association with GDP, nighttime light intensity has become a widely used measure of economic activity or economic development in studies looking at subnational administrative regions (e.g., Hodler and Raschky 2014a,b) as well as ethnographic regions (e.g., Michalopoulos and Papaioannou 2013, 2014, and Alesina et al. 2014).

For our purpose, nighttime light intensity has two further advantages. First, it is measured in the same high quality all over the world, and cannot be politically manipulated by opportunistic political leaders. Second, it is less prone to the concern raised by Kramon and Posner (2013), who advise against making general claims about ethnic favoritism based on output measures capturing only a single policy area. While being far from perfect, changes in nighttime light intensity are likely to capture policy changes in a wide range of policy areas. Roads, medical centers and other public infrastructure projects may well increase the intensity of nighttime lights. In addition, higher transfer payments or lower taxes may lead to more private consumption and higher investments, which may both translate into more intense nighttime lights.

We now turn to variables representing potential determinants of ethnic favoritism. We measure country-wide economic development using the logarithm of real GDP per capita, labelled  $GDP_{ct}$ . It is based on expenditure-side real GDP at chained PPPs from Penn World Tables, version 8.0.

As measure of the strength of political institutions, we use the polity score from the Polity IV project, which measures the constraints on the executive, the openness and competitiveness of executive recruitment, and the competitiveness and regulation of po-

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nighttime light intensity before taking the logarithm. This operation allows us to preserve all the observations without any reported nighttime light, e.g., observations from regions in which the man-made nighttime light remains below the detection limit of the satellites' sensors.

<sup>12</sup>Earlier studies using nighttime light intensity as proxy for economic activity include Sutton and Constanza (2002), Doll et al. (2006), and Sutton et al. (2007).

litical participation. The polity score ranges from -10 to 10, with the former indicating highly autocratic countries and the latter indicating strong democracies. In our analysis, we mainly use a normalized version of the polity score,  $Polity_{ct}$ , which ranges from 0 to 1, with higher values indicating more democratic institutions. We also use dummy variables representing different ranges of the polity score. Some scholars classify countries with a polity score below -5 as autocracies, countries with a score between -5 and 5 as anocracies, and countries with a score above 5 as democracies. Others simply divide between autocracies and democracies, using either -5, 0 or 5 as threshold value. We are largely agnostic about the most appropriate grouping of countries based on polity scores. We therefore use four dummy variables that all represent one quarter of the range. In particular,  $PolityQ1dummy_{ct}$ ,  $PolityQ2dummy_{ct}$ ,  $PolityQ3dummy_{ct}$  and  $PolityQ4dummy_{ct}$  are equal to one if the polity score is less than -5, between -5 and 0, between 0 and 5, and above 5, respectively.

The state antiquity index was first used by Bockstette et al. (2002). It is created by assigning a score to each state for each half decade in the period 1 to 1950 C.E., with larger scores identifying better established states. For each period of fifty years, they assigned points to states with a government above the tribal level, and to states whose historical government was already ruling over today's territory. Hence, this index measures state history, i.e., the persistence of nation-states, kingdoms or empires over longer spans of history in the same location. In states with a longer state history, political leaders can rely on a better established bureaucratic structure to implement their preferred policies. We thus expect state history to have a positive effect on the influence of today's governments in these countries and the efficacy of their policies. We therefore employ  $State\ Antiquity_c$  as proxy for government efficacy.<sup>13</sup>

As summary measures of the ethnic composition of the countries' population, we use the index of ethnic fractionalization by Alesina et al. (2003), and the index of ethnic segregation by Alesina and Zhuravskaya (2011).  $Fractionalization_c$  equals the probability

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<sup>13</sup>Putterman provides various state antiquity indices, which mainly differ in the rates for discounting the influence of the past. Following Bockstette et al. (2002) and Chanda and Putterman (2007), we choose the index based on a discount rate of 5%. Results are similar when using indices based on alternative discount rates.

that two randomly selected individuals from a given country belong to different ethnic groups. It tends to increase in the number of ethnic groups in a country, but disregards their geographical distribution. In contrast, *Segregation<sub>c</sub>* takes the spatial distribution of ethnic groups explicitly into account. It is constructed based on information about the ethnic composition in subnational administrative regions. A higher value implies an ethnically more segregated country, i.e., a country in which ethnic groups live more spatially separated.

Table 1 provides summary statistics for our main variables.

Table 1 about here

Our empirical analysis will primarily exploit ethnic transitions, i.e., transitions in the country's political leadership that are associated with a change in the political leader's ethnicity. In Table 2 we provide further information on ethnic transitions based on our database of political leaders, and some cross-sectional information on the countries that experienced ethnic transitions in the period from 1991 to 2011.

Table 2 about here

There are 490 leadership transitions in total, and 3.53 in an average country. On the one extreme, there are 16 countries without any leadership transition, as the same political leader stayed in power throughout the sample period. On the other extreme, Bosnia and Herzegovina (henceforth simply Bosnia) and Switzerland both had 20 leadership transitions, followed by Japan with 12, and Latvia and Nepal with 10. 125 of these 490 leadership transitions are ethnic transitions. There are 40 countries with at least one ethnic transition. These 40 countries have on average 3.13 ethnic transitions and 1.25 non-ethnic leadership transitions. The median number of ethnic transitions in these countries is two, but Bosnia had 20 and Switzerland 12, followed by Nigeria and Pakistan with 6. Bosnia and Switzerland are clearly outliers.<sup>14</sup> These two countries have similar inter-ethnic power sharing arrangements, in which all major ethnic groups are represented in the executive council governing the respective country, and in which the individual council

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<sup>14</sup>When excluding Bosnia and Switzerland, the remaining 38 countries with ethnic transitions have on average 2.45 ethnic transitions and 1.08 non-ethnic leadership transitions.

members rotate as chairs of the executive council. As a result, the official political leaders of these two countries have typically only a little more power than the other members of the executive council. We later confirm that our results are not driven by these two countries.

Table 2 also shows that ethnic transitions occur in most regions of the world. Adopting the World Bank country classification, we find 6 countries with ethnic transitions in East Asia and Pacific (EAP), 2 in Eastern Europe and Central Asia (ECA), 4 in Latin America and the Caribbean (LAC), 3 in South Asia (SA), and 22 in Sub-Saharan Africa (SSA). There are also 3 countries with ethnic transitions in countries from the “rich world.”<sup>15</sup> These three countries are Canada, Switzerland and the United Kingdom.<sup>16</sup> There are no ethnic transitions in the Middle East and North Africa (MENA).

Table 2 further shows average values of ethnic fractionalization, polity scores, and the antiquity index for the entire sample as well as various sub-samples. As one would expect, countries with ethnic transitions, in particular those in SSA, tend to be more ethnically fractionalized than other countries. Political institutions, as measured by the polity score, are on average similar in countries with and without ethnic transitions, but they vary strongly across countries with ethnic transitions from different regions of the world. Political institutions are relatively weak in SA and SSA countries with ethnic transitions, but relatively strong in LAC countries with ethnic transitions. All three Western European and North American countries with ethnic transitions even have the highest possible polity score throughout the sample period, indicating strong and mature democracies. In fact, these are the only three countries with ethnic transitions that have the highest possible polity score throughout the sample period. State antiquity is on average somewhat lower in countries with ethnic transitions than in other countries, but this difference is almost exclusively due to SSA countries. Lastly, Table 2 shows that countries with ethnic transitions tend to have more ethnographic regions than other

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<sup>15</sup>We aggregate all countries that are not classified by the World Bank into a single group, which we call the “rich world.” This group includes countries from Western Europe and North America as well as Australia, Japan and New Zealand.

<sup>16</sup>The ethnic transitions in Canada are between English and French speaking prime ministers; those in Switzerland are between French, German and Italian speaking chairs of the executive council; and those in the United Kingdom between English and Scottish prime ministers.

countries. This difference however is driven by Asian rather than African countries with ethnic transitions.

### 3 Empirical Strategy

Our main objective is to explore whether political leaders favor their ethnic homelands during their time in power. We therefore estimate the following equation:

$$Light_{ict} = \alpha_i + \beta_{ct} + \gamma LeaderEthnicity_{ict-1} + \epsilon_{ict} \quad (1)$$

The inclusion of regional fixed-effects, represented by the regional dummy variables  $\alpha_i$ , controls for all time-invariant regional characteristics, e.g., climatic, geographic and historical factors. The set of country-year dummy variables  $\beta_{ct}$  controls for shocks common to all regions of a given country. In our baseline specification, we use the lagged value of our main explanatory variable  $LeaderEthnicity_{ict}$ . The rationale behind this choice is the likely lag needed for ethnicity-based policies, e.g., infrastructure projects, to result in more intense nighttime lights. However, this choice is not crucial, and we document that our results are very similar when employing contemporaneous values of  $LeaderEthnicity_{ict}$ . We conservatively cluster the standard errors  $\epsilon_{ict}$  at the country level.

The coefficient of interest,  $\gamma$ , measures the effect of  $LeaderEthnicity_{ict-1}$  on  $Light_{ict}$ . A positive coefficient implies that ethnographic regions have more intense nighttime light in times in which a member of their ethnic group is the country’s political leader than in other times. We thus interpret a positive and significant coefficient  $\gamma$  as evidence for ethnic favoritism. Our estimate of  $\gamma$  may however be biased due to the potential endogeneity of the political leader’s ethnicity. If, for instance, ethnic groups that are becoming more economically active were also becoming more likely to provide the country’s next political leader, then a positive association between  $LeaderEthnicity_{ict-1}$  and  $Light_{ict}$  may not necessarily indicate ethnic favoritism. To address this concern, we augment our baseline specification with dummy and trend variables for the years in which ethnographic regions are not yet the ethnic homeland of the political leader, but will shortly become the ethnic

homeland of the new political leader. We find that these dummy and trend variables are not statistically significant. Hence, endogeneity does not seem to be a major concern.

Our objectives go beyond establishing the existence of ethnic favoritism. We are also interested in studying in which regions of the world ethnic favoritism is prevalent, and in understanding the determinants of ethnic favoritism. We therefore add to our baseline specification interaction terms between  $LeaderEthnicity_{ict-1}$  and dummy variables for the different regions of the world, and later interaction terms between  $LeaderEthnicity_{ict-1}$  and our measures of economic development ( $GDP_{ct-1}$ ), political institutions ( $Polity_{ct-1}$ ), government efficacy ( $StateAntiquity_c$ ), and the ethnic composition of the country's population ( $Fractionalization_c$  and  $Segregation_c$ ). As our baseline specification already contains country-year dummy variables, there is no need to include the country-level variables as such.

Our last exercise studies the sustainability of economic development induced by ethnic favoritism. In the same vein as our endogeneity tests, we augment our baseline specification with dummy and trend variables capturing the ethnographic regions populated by the ethnic group of the previous political leader during the first few years after an ethnic transition.

## 4 Empirical results

### 4.1 Baseline results

Table 3 reports our main results. We start in column (1) with a specification that includes the country-year dummy variables, but not yet the region fixed effects. The positive and statistically significant coefficient on  $LeaderEthnicity_{ict-1}$  suggests that there is more economic activity and higher levels of economic development in the political leader's ethnic homeland than in other ethnographic regions of the same country in the same year. This finding is consistent with the presence of ethnic favoritism, but does not allow for a causal interpretation because many political leaders may come from relatively rich and urbanized ethnographic regions. We keep the same specification in column (2),

but restrict our sample to the 40 countries that experienced ethnic transitions between 1991 and 2011. The coefficient estimate is similar in magnitude as in the full sample in column (1), which suggests that the relationship between being the political leader's ethnic homeland and having more intense nighttime light is similar in multi-ethnic countries with and without ethnic transitions. This similarity is worth keeping in mind when going to our main specification, which includes region fixed effects and, therefore, only exploits variation in countries that experienced ethnic transitions.

Table 3 about here

We report the estimate of our main specification, i.e., equation (1), in column (3). The estimated coefficient of interest is 0.092 and statistically significant. Hence, ethnographic regions have more intense nighttime light in times in which a member of their ethnic group is the country's political leader than in other times.

The remaining columns of table 3 present various robustness exercises. In column (4) we add region-specific time trends to control for the possibility of different development paths across ethnographic regions within the same country. Leadership transitions and the associated changes in ethnic favoritism are one of the potential reasons for diverging development paths within countries with ethnic transition. The estimated coefficient of interest is therefore likely to underestimate the true effect. Hence, it is not surprising that the estimated coefficient drops by around one quarter, but it is reassuring that it remains statistically significant.

We have argued before that Bosnia and Switzerland are outliers with respect to the number of ethnic transitions and their political systems. We therefore exclude them in column (5), and get a slightly higher coefficient estimate, which is not surprising given the inclusive nature of their political systems.

Hodler and Raschky (2014a) find that political leaders favor their birthplace. Given that a political leader's birthplace is likely to be located in his ethnographic homeland, our results could pick up the effect of rather localized regional favoritism instead of a broader geography-based ethnic favoritism. To account for this potentially confounding effect, we construct an alternative boundary map for the ethnographic regions that cuts out a

circular area with a radius of ten kilometers around each political leader’s birthplace. We then recalculate  $Light_{ict}$  for each ethnographic region and year excluding all these circular birthplace areas, and estimate our main specification using this alternative measure of nighttime light intensity in column (6). We find that the coefficient of interest drops by around 10%, but remains statistically significant. This result suggests that only a relatively small part of the total effect of ethnic favoritism is attributable to birthplace-related regional favoritism.<sup>17</sup>

In column (7) we add the lagged dependent variable,  $Light_{ict-1}$ , to our main specification. We see that the coefficient of interest becomes smaller, but remains statistically significant. This estimate, however, suffers from the so-called Nickell (1981) bias. Following the advice of Angrist and Pischke (2009), we therefore estimate as further robustness exercise a specification with the lagged dependent variable, but no (region) fixed effects. We see in column (8) that the coefficient of interest remains positive and statistically significant.

Finally, in column (9) we replace the lagged values of  $LeaderEthnicity_{ict}$  with their contemporaneous values. We thereby lose one year of observations because the Archigos data on political leaders ends in 2011, so that we can no longer use the nighttime light observations for 2012. The coefficient estimate remains very similar (and becomes even slightly higher). These estimates confirm that ethnographic regions have more intense nighttime light in years in which a member of their ethnic group is the country’s political leader than in other years.

Given the robustness of our main finding, we turn to the economic magnitude of the estimated effect. Equation (1) suggests that being the ethnic homeland of the political leader increase nighttime light intensity by  $100(\exp(\gamma) - 1)\%$ . Hence, our baseline estimate of 0.092 suggests that being the ethnic homeland of the political leader increases nighttime light intensity by 9.6%. Henderson et al. (2012, p. 996) report a linear relationship between nighttime light intensity and GDP at the country level, and an estimated elasticity of

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<sup>17</sup>Another factor contribution to the drop in the coefficient estimate is that cutting out these circular areas removes most of the within-variation in nighttime light intensity in ethnographic region with only one major urban hub in which a political leader was born.

“roughly 0.3.” Looking at this relationship at the level of subnational administrative regions, Hodler and Raschky (2014a) also find an elasticity of around 0.3. Assuming that the elasticity is also around 0.3 at the level of subnational ethnographic regions implies that the increase in nighttime light intensity by 9.6% corresponds to an increase in GDP by roughly 2.9%, which is a fairly sizeable effect.

## 4.2 Addressing endogeneity

To address the potential endogeneity concerns discussed above, we augment equation (1) with dummy and trend variables for the ethnographic regions populated by the future political leader’s ethnic group in the years prior to an ethnic transition. In particular, the dummy variables  $Pre1dummy_{ict}$  and  $Pre3dummy_{ict}$  indicate ethnographic regions populated by the future political leader’s ethnic group in the one year and the three years prior to the ethnic transition. We again present all estimates with lagged and contemporaneous explanatory variables. The results in columns (1), (2), (4) and (5) of table 4 suggest that ethnographic regions populated by the future political leader’s ethnic group are not experiencing significantly more intense nighttime light in the years prior to an ethnic transitions than in other years in which they are not populated by the political leader’s ethnic group.

Table 4 about here

In column (3) and (6) we further add  $Pre3trend_{ict}$ , which captures a linear trend in the ethnographic regions populated by the future political leader’s ethnic group during the three years prior to the ethnic transition. We only find a negligible increase in nighttime light intensity during these years. These non-results suggest that our main findings are not due to endogeneity issues.

## 4.3 Ethnic favoritism across the world

So far the literature on ethnic favoritism has focused on Sub-Saharan African countries, and there has been a preconception that ethnic favoritism is indeed primarily an African

phenomenon. Our large and diverse sample with countries from all over the world allows testing this preconception. In table 5 we therefore interact  $LeaderEthnicity_{ict}$  with dummy variables for all regions of the world (except the Middle East and North Africa, which had no ethnic transition during the sample period).

Table 5 about here

Results are striking. The coefficient estimates are all positive, and many of them are at least marginally statistically significant. Hence, the preconception that ethnic favoritism is only an African phenomenon is mistaken. Ethnic favoritism seems to be a global rather than an African axiom of politics. Table 5 offers further new insights. First, it suggests that ethnic favoritism is most excessive in South Asia, not Sub-Saharan Africa. Second, it provides evidence for ethnic favoritism even in the “rich world,” i.e., in the Western European and North American countries with ethnic transitions.<sup>18</sup> We will come back to this surprising finding of ethnic favoritism in these rich countries with their strong and mature democracies in the next section.

#### 4.4 Determinants of ethnic favoritism

We now use our large and diverse sample to investigate various potential determinants of ethnic favoritism. Many people seem to view ethnic favoritism as an issue that plagues poor countries. However, our finding that ethnic favoritism is prevalent in many regions of the world including Western Europe and North America suggests that this view may be mistaken. In column (1) of table 6 we test whether economic development is a major determinant of ethnic favoritism by adding an interaction term between our main explanatory variable,  $LeaderEthnicity_{ict-1}$ , and our measure of country-wide economic development,  $GDP_{ict-1}$ . We find no evidence that ethnic favoritism is more prevalent in less developed countries.

Table 6 about here

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<sup>18</sup>This result is not driven by Switzerland with its many ethnic transitions. In fact, the estimated coefficient becomes even slightly higher if we exclude Switzerland.

The extent to which political leaders can implement preferential policies towards their ethnic group is intuitively affected by the institutional constraints designed in the political system. The idea is that political leaders may find it relatively easy to choose policies to benefit their co-ethnics in the absence of significant constraints, but may be more difficult, if not impossible, in well functioning democracies with proper constraints on executive power.<sup>19</sup> Recent research has produced mixed results. Franck and Rainer (2012) find that political institutions have only a limited effect on ethnic favoritism in education and health in 18 Sub-Saharan African, while the findings of Burgess et al. (2014) suggest that an improvement from autocratic to anocratic or even democratic institutions leads to the disappearance of ethnic favoritism in road building in Kenya.

We can contribute to this important debate thanks to our broad measure of ethnic favoritism and our global sample covering a large range of different political institutions. In column (2) we interact our main explanatory variable with  $Polity_{ct-1}$ . The negative coefficient on the interaction term suggests that political institutions indeed have a tendency to reduce ethnic favoritism. However, this coefficient is marginally insignificant and considerably smaller in absolute values than the coefficient on  $LeaderEthnicity_{ict-1}$ , which suggests that there may be ethnic favoritism even in countries with strong democratic institutions.

We further investigate the role of political institutions by employing interaction terms with our four dummy variables representing different ranges of the polity score. The results in column (3) suggest the following non-linear pattern: Ethnic favoritism is high in autocracies ( $PolityQ1dummy_{ct-1} = 1$ ) and anocracies ( $PolityQ2dummy_{ct-1} = 1$  or  $PolityQ3dummy_{ct-1} = 1$ ). The coefficient estimates suggest that being the ethnic homeland of the political leader in an autocratic or anocratic country increases nighttime light intensity by 14% to 18%, and GDP by 4% to 5%. Ethnic favoritism is lower in countries with democratic institutions ( $PolityQ4dummy_{ct-1} = 1$ ), but it does not disappear. The coefficient estimate suggests that being the ethnic homeland of a political leader in a democratic country still increases nighttime light intensity by 5% to 6%, and GDP by 2%.

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<sup>19</sup>The same prediction follows from the theoretical model of Burgess et al. (2014).

Table 5 suggests that this latter result is not just driven by countries with polity scores close to 5, but also by Western European and North American countries with the highest possible polity score of 10. Hence, an improvement from autocratic to anocratic institutions will typically not reduce ethnic favoritism, and even an improvement to democratic institutions may not lead to the disappearance of ethnic favoritism.

Our results are broadly in line with those of Franck and Rainer (2012). They suggest that the optimistic finding of Burgess et al. (2014) on ethnic favoritism in road building in Kenya may not carry over to other countries and policy areas. Comparing our results with those of Hodler and Raschky (2014a) may help to understand why political institutions are no panacea for curbing ethnic favoritism. Hodler and Raschky (2014a) find a strong negative effect of political institutions on favoritism towards the political leaders' districts of birth, which are typically much smaller than ethnographic regions. Hence, democratic institutions make it impossible or unattractive for political leaders to choose policies targeted towards a relatively small group of people around their birth place, possibly because such policies would disgruntle most voters, while they still allow for policies that benefit relatively large ethnographic regions, as such policies may help to secure the electoral support of the political leaders' co-ethnics.

We now turn to the hypothesis that ethnic favoritism becomes more intense when the efficacy of government policies increases. In column (4) of Table 6 we therefore interact our main explanatory variable with *StateAntiquity<sub>c</sub>*. The coefficient estimate on the interaction term is high, but not highly statistically significant, providing some support for our hypothesis. We will come back to this result below.

In columns (5) and (6) we include interaction terms with our two variables capturing important aspects in the ethnic composition of the countries' population. We see that both ethnic fractionalization and ethnic segregation increase ethnic favoritism. The positive effect of ethnic segregation had to be expected given our geography-based approach to identifying ethnic favoritism. The positive effect of ethnic fractionalization is not self-evident. Remember that these estimates exclusively depend on countries that experienced ethnic transitions from 1991 to 2011. Hence, the estimates suggest that ethnic favoritism

is more prevalent in more ethnically fractionalized countries, even among the typically quite fractionalized countries that experience ethnic transitions.

After having looked at all these different potential determinants of ethnic favoritism separately, we look at them jointly in columns (7) and (8), and also in column (9) where we use contemporaneous rather than lagged values of our explanatory variables.<sup>20</sup> We find that state antiquity, ethnic fractionalization and ethnic segregation are all robust determinants of ethnic favoritism. The strong effect of state antiquity confirms that government efficacy may be more important than the political institutions in determining the extent of ethnic favoritism. Hence, while disputing neither that weak governments are undesirable for many reasons, nor that democratic institutions are desirable for many reasons, it seems that weakening governments would be more helpful to curb ethnic favoritism than strengthening democratic institutions.

#### 4.5 Does ethnic favoritism foster sustainable development?

Cynically considered, ethnic favoritism would not be all that bad if the local economic benefits induced by ethnically targeted policies persisted after ethnic transitions. In other words, provided a reasonable turnover in the political leader's ethnicity (which is far from being a realistic assumption for a number of multi-ethnic countries), ethnic favoritism may simply imply that economic development occurs in sequential shifts, tracking closely the political leaders' ethnic background. To answer the question whether ethnic favoritism may indeed foster sustainable development, we augment our baseline specification with the dummy variables  $Post1dummy_{ict}$  and  $Post3dummy_{ict}$ . They are equal to one in ethnographic regions populated by the ethnic group of the previous political leader during the very first year and the first three years after an ethnic transition. In addition,  $Post3trend_{ict}$  captures the development during the three years after the ethnic transition. We again start with lagged values of the explanatory variables. The results in columns (1) to (3) of table 7 suggest that ethnographic regions populated by the previous political leader's ethnic group are not experiencing more intense nighttime light in the few years

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<sup>20</sup>We also present results without the index of ethnic segregation, because including this index considerably reduces the sample size.

after the ethnic transition than in other years in which these regions are not populated by the political leader’s ethnic group.

Table 7 about here

In columns (4) to (6) we run the same specifications with contemporaneous values of the explanatory variables. Results differ because there is more intense nighttime light in the previous political leader’s ethnic homeland in the very first year after an ethnic transition. Notice that this time lag is perfectly consistent with our argument for using lagged explanatory variables put forward in section 3. The findings in column (6) confirm that there is a substantial drop in nighttime light intensity after the very first year following an ethnic transition.

The findings in table 7 clearly suggest that ethnic favoritism does not foster sustainable development. A possible reason could be that most public funds flowing to the political leader’s ethnic homeland are used for consumption purposes rather than investments in infrastructure. Padró i Miquel (2006) presents a theoretical model predicting that the political leader would deliberately refrain from investments in infrastructure, because his co-ethnics are more likely to support him when their benefits depend on his continued presence in power. Another possible reason could be that investments into the political leader’s ethnic homeland do not receive sufficient follow-up funding from successors belonging to different ethnic groups.

## 5 Conclusions

Motivated by the questions whether, where and when ethnic favoritism is an axiom of politics, we have presented a novel approach to study the prevalence and determinants of ethnic favoritism. Unlike the previous literature, we have studied ethnic favoritism at the global level using a panel of 2,022 subnational ethnographic regions from 139 countries. Moreover, we have taken seriously Kramon and Posner’s (2013) warning against generalizations based on findings for a single policy area, and used an output measure – nighttime light intensity – that captures the aggregate distributional effect of a wide

range of policies. We find strong evidence for ethnic favoritism: the ethnographic regions populated by the political leaders' ethnic group enjoy on average 10% higher nighttime light intensity, and 3% higher GDP.

Thanks to our large and diverse sample, we have gained interesting new insights on the prevalence and determinants of ethnic favoritism: First, ethnic favoritism is not simply an African, but a global axiom of politics. It is prevalent in most regions of the world, and in poor as well as rich countries. Second, the constraining effects of political institutions are weak. Hence, improvements in political institutions are in general no panacea for curbing ethnic favoritism. Third, ethnic favoritism seems to increase in state history and, therefore, arguably in government efficacy. But low government efficacy is obviously also no panacea, as it would impede the implementation of sensible policies as well. Lastly, the regional economic benefits of ethnic favoritism are just temporary. Hence, ethnic favoritism does not contribute to sustainable development.

At first glance, these findings draw a rather pessimistic picture. However, future research exploring different mechanisms by which political institutions and state history may impact on ethnic favoritism could lead to more insights and point towards possible policy interventions that may help to curb ethnic favoritism. We are confident that our novel approach relying on satellite data of nighttime light intensity and ethnographic regions from many countries from all over the world can be usefully employed to tackle these and other questions.

## Appendix

This appendix lists all 139 countries in our sample: Afghanistan, Albania, Algeria, Angola, Argentina, Armenia, Australia, Austria, Azerbaijan, Bangladesh, Belarus, Belgium, Belize, Benin, Bhutan, Bolivia, Bosnia and Herzegovina, Botswana, Brazil, Bulgaria, Burkina Faso, Burundi, Cambodia, Cameroon, Canada, Central African Republic, Chad, Chile, China, Colombia, Congo, Costa Rica, Croatia, Cyprus, Czech Republic, Democratic Republic of the Congo, Ecuador, Egypt, El Salvador, Equatorial Guinea, Eritrea, Estonia, Ethiopia, Fiji, Finland, France, Gabon, Gambia, Georgia, Germany, Ghana, Greece, Guatemala, Guinea, Guinea-Bissau, Guyana, Honduras, Hungary, India, Indonesia, Iran, Iraq, Israel, Italy, Ivory Coast, Japan, Jordan, Kazakhstan, Kenya, Kyrgyzstan, Laos, Latvia, Liberia, Libya, Lithuania, Macedonia, Malawi, Malaysia, Mali, Mauritania, Mexico, Mongolia, Morocco, Mozambique, Myanmar, Namibia, Nepal, Netherlands, New Zealand, Nicaragua, Niger, Nigeria, Norway, Oman, Pakistan, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Romania, Russia, Rwanda, Senegal, Sierra Leone, Slovakia, Slovenia, Solomon Islands, South Africa, Spain, Sri Lanka, Sudan, Suriname, Swaziland, Sweden, Switzerland, Syria, Taiwan, Tajikistan, Tanzania, Thailand, Togo, Trinidad and Tobago, Tunisia, Turkey, Turkmenistan, Uganda, Ukraine, United Arab Emirates, United Kingdom, United States of America, Uruguay, Uzbekistan, Venezuela, Vietnam, Yemen, Zambia, Zimbabwe.

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# Tables

Table 1: Descriptive Statistics (1992-2012)

Variable	Observations	Mean	Standard Deviation (overall, between, within)	Min.	Max.
$Light_{ict}$	41,645	-1.53	2.37, 2.30, 0.58	-4.61	4.08
$LeaderEthnicity_{ict-1}$	41,645	0.21	0.41, 0.39, 0.12	0	1
$GDP_{ct-1}$	39,553	8.24	1.16, 1.13, 0.29	5.03	10.88
$Polity_{ct-1}$	40,723	0.62	0.32, 0.28, 0.14	0	1
$StateAntiquity_c$	39,745	0.50	0.23, 0.23, 0.00	0.02	0.96
$Fractionalization_c$	41,160	0.52	0.23, 0.23, 0.00	0.01	0.93
$Segregation_c$	24,940	0.13	0.10, 0.10, 0.00	0.00	0.39

Table 2: Information on ethnic transitions (1991–2011)

	Countries	Leadership transitions	Ethnic transitions	Ethnic fractionalization	Polity scores	State antiquity	Ethnographic regions
Entire sample	139	3.53	0.90	0.48	3.00	0.45	14.55
Countries with ethnic transitions	40	4.38	3.13	0.67	3.08	0.37	19.13
in East Asia and Pacific (EAP)	6	4.67	2.50	0.50	4.48	0.36	35.33
in Eastern Europe and Central Asia (EAC)	2	11.50	10.50	0.55	3.23	0.49	11.00
in Latin America and Caribbean (LAC)	4	3.50	1.50	0.69	7.89	0.50	10.50
in South Asia (SA)	3	5.00	4.00	0.63	2.19	0.70	44.67
in Sub-Saharan Africa (SSA)	22	3.14	2.50	0.76	1.20	0.27	14.05
in the “rich world”	3	8.67	5.33	0.45	10.00	0.60	15.33

Notes: “Countries” indicates the number of countries in the respective (sub)samples. “Leadership/Ethnic transitions” indicates the average number of leadership/ethnic transitions from 1991 to 2011 in the countries of the respective (sub)samples. “Ethnic fractionalization” indicates the average (time-invariant) value of the corresponding index in the countries of the respective (sub)samples. “Polity scores” indicates the polity scores averaged first over the period from 1991 to 2011 and then over the countries in the respective (sub)samples. “State antiquity” indicates the average (time-invariant) value of the corresponding index in the countries of the respective (sub)samples. “Ethnographic regions” indicates the average number of ethnographic regions in the countries of the respective (sub)samples. There was no ethnic transition in the Middle East and North Africa from 1991 to 2011.

Table 3: Main results

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<i>Leader Ethnicity</i> <sub>ict-1</sub>	1.252***	1.275***	0.092**	0.070**	0.096**	0.082**	0.056***	0.040***	
	(0.136)	(0.304)	(0.029)	(0.027)	(0.030)	(0.030)	(0.016)	(0.007)	
<i>Leader Ethnicity</i> <sub>ict</sub>									0.095**
									(0.029)
<i>Light</i> <sub>ict-1</sub>							0.438***	0.966***	
							(0.030)	(0.003)	
Region fixed effects	no	no	yes	yes	yes	yes	yes	no	yes
Country-year dummy variables	yes	yes	yes	yes	yes	yes	yes	yes	yes
Region-specific time trends	no	no	no	yes	no	no	no	no	no
Countries with ethnic transitions only?	no	yes	no	no	no	no	no	no	no
Bosnia and Switzerland excluded?	no	no	no	no	yes	no	no	no	no
Circular birthplace areas removed?	no	no	no	no	no	yes	no	no	no
R-squared	0.531	0.438	0.480	0.661	0.478	0.479	0.571	0.968	0.468
Observations	41,645	15,518	41,645	41,645	41,393	41,645	39,737	39,737	39,737
Number of countries	139	40	139	139	137	139	139	139	139

Notes: Dependent variable is *Light*<sub>ict</sub>, but in column (6) it is calculated after removing circular areas with a radius of 10km around the birthplaces of political leaders (see section 4.1 for details). Fixed effect regressions (except for columns (1), (2) and (8), which are standard OLS) using annual data for ethnographic regions between 1992 and 2012. Standard errors are adjusted for clustering at the country level. \*\*\*, \*\*, \* indicate significance at the 1, 5 and 10%-level, respectively.

Table 4: Assessing potential endogeneity concerns

	(1)	(2)	(3)	(4)	(5)	(6)
<i>LeaderEthnicity<sub>ict</sub></i>	0.103** (0.032)	0.107** (0.040)	0.107** (0.041)	0.103** (0.032)	0.107* (0.042)	0.107* (0.042)
<i>Pre1dummy<sub>ict</sub></i>	0.053 (0.034)			0.026 (0.032)		
<i>Pre3dummy<sub>ict</sub></i>		0.049 (0.033)	0.040 (0.028)		0.038 (0.026)	0.035 (0.023)
<i>Pre3trend<sub>ict</sub></i>			0.009 (0.017)			0.003 (0.019)
Explanatory variables lagged?	yes	yes	yes	no	no	no
Region fixed effects	yes	yes	yes	yes	yes	yes
Country-year dummy variables	yes	yes	yes	yes	yes	yes
R-squared	0.471	0.407	0.407	0.455	0.415	0.415
Observations	38,964	34,850	34,850	37,244	33,136	33,136
Number of countries	139	139	139	139	139	139

Notes: Dependent variable is  $Light_{ict}$ . Fixed effect regressions using annual data for ethnographic regions between 1992 and 2012. Standard errors are adjusted for clustering at the country level. \*\*\*, \*\*, \* indicate significance at the 1, 5 and 10%-level, respectively.

Table 5: Ethnic favoritism across the world

	(1)	(2)
$LeaderEthnicity_{ict} \times EAP_c$	0.092 (0.115)	0.090 (0.099)
$LeaderEthnicity_{ict} \times ECA_c$	0.041 (0.021)	0.029* (0.013)
$LeaderEthnicity_{ict} \times LAC_c$	0.094* (0.045)	0.086* (0.040)
$LeaderEthnicity_{ict} \times SA_c$	0.255* (0.118)	0.280* (0.130)
$LeaderEthnicity_{ict} \times SSA_c$	0.066* (0.027)	0.067* (0.026)
$LeaderEthnicity_{ict} \times RW_c$	0.041*** (0.004)	0.036 (0.021)
Explanatory variables lagged?	yes	no
Region fixed effects	yes	yes
Country-year dummy variables	yes	yes
R-squared	0.480	0.469
Observations	41,645	39,737
Number of countries	139	139

Notes: Dependent variable is  $Light_{ict}$ . Fixed effect regressions using annual data for ethnographic regions between 1992 and 2012.  $EAP_c$ ,  $EAC_c$ ,  $LAC_c$ ,  $SA_c$ ,  $SSA_c$  and  $RW_c$  are dummy variables equal to one for countries from East Asia and the Pacific, Eastern Europe and Central Asia, Latin America and the Caribbean, South Asia, Sub-Saharan Africa, and the “rich world,” respectively. There was no ethnic transition in the Middle East and North Africa from 1991 to 2011. Standard errors are adjusted for clustering at the country level. \*\*\*, \*\*, \* indicate significance at the 1, 5 and 10%-level, respectively.

Table 6: Determinants of ethnic favoritism

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<i>LeaderEthnicity<sub>ict</sub></i>	0.102	0.187**		-0.012	-0.086	-0.026	-0.116	-0.185	-0.202
	(0.163)	(0.066)		(0.041)	(0.067)	(0.040)	(0.211)	(0.256)	(0.265)
<i>LeaderEthnicity<sub>ict</sub> × GDP<sub>ct</sub></i>	-0.001						-0.005	0.010	0.005
	(0.020)						(0.020)	(0.027)	(0.028)
<i>LeaderEthnicity<sub>ict</sub> × Polity<sub>ct</sub></i>		-0.129					-0.111	-0.176	-0.154
		(0.079)					(0.089)	(0.128)	(0.126)
<i>LeaderEthnicity<sub>ict</sub> × PolityQ1dummy<sub>ct</sub></i>			0.149*						
			(0.061)						
<i>LeaderEthnicity<sub>ict</sub> × PolityQ2dummy<sub>ct</sub></i>			0.162*						
			(0.062)						
<i>LeaderEthnicity<sub>ict</sub> × PolityQ3dummy<sub>ct</sub></i>			0.134**						
			(0.049)						
<i>LeaderEthnicity<sub>ict</sub> × PolityQ4dummy<sub>ct</sub></i>			0.063*						
			(0.031)						
<i>LeaderEthnicity<sub>ict</sub> × StateAntiquity<sub>c</sub></i>				0.271*			0.340**	0.278***	0.267**
				(0.122)			(0.124)	(0.075)	(0.087)
<i>LeaderEthnicity<sub>ict</sub> × Fractionalization<sub>c</sub></i>					0.263**		0.303*	0.219*	0.314**
					(0.096)		(0.133)	(0.095)	(0.096)
<i>LeaderEthnicity<sub>ict</sub> × Segregation<sub>c</sub></i>						0.889**		0.624*	0.596*
						(0.313)		(0.248)	(0.289)
Explanatory variables lagged?	yes	no							
Region fixed effects	yes	yes							
Country-year dummy variables	yes	yes							
R-squared	0.482	0.484	0.484	0.479	0.483	0.516	0.484	0.521	0.513
Observations	39,553	40,723	40,723	39,745	41,160	24,940	37,604	23,779	22,698
Number of countries	128	137	137	126	137	71	118	68	68

Notes: Dependent variable is *Light<sub>ict</sub>*. Fixed effect regressions using annual data for ethnographic regions between 1992 and 2012. Standard errors are adjusted for clustering at the country level. \*\*\*, \*\*, \* indicate significance at the 1, 5 and 10%-level, respectively.

Table 7: Ethnic favoritism and sustainable development?

	(1)	(2)	(3)	(4)	(5)	(6)
<i>LeaderEthnicity</i> <sub>ict</sub>	0.094** (0.031)	0.088** (0.030)	0.088** (0.030)	0.106** (0.034)	0.107** (0.035)	0.108** (0.035)
<i>Post1dummy</i> <sub>ict</sub>	0.002 (0.036)			0.070 (0.049)		
<i>Post3dummy</i> <sub>ict</sub>		-0.037 (0.032)	-0.024 (0.041)		0.020 (0.043)	0.075 (0.050)
<i>Post3trend</i> <sub>ict</sub>			-0.014 (0.014)			-0.059* (0.026)
Explanatory variables lagged?	yes	yes	yes	no	no	no
Region fixed effects	yes	yes	yes	yes	yes	yes
Country-year dummy variables	yes	yes	yes	yes	yes	yes
R-squared	0.481	0.458	0.458	0.469	0.452	0.453
Observations	41,395	36,570	36,570	39,565	36,570	36,570
Number of countries	139	139	139	139	139	139

Notes: Dependent variable is *Light*<sub>ict</sub>. Fixed effect regressions using annual data for ethnographic regions between 1992 and 2012. Standard errors are adjusted for clustering at the country level. \*\*\*, \*\*, \* indicate significance at the 1, 5 and 10%-level, respectively.