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ETHNIC FAVORITISM: AN AXIOM OF POLITICS?

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Abstract

We investigate the prevalence and determinants of ethnic favoritism, i.e., preferential public policies targeted at the political leader's ethnic group. We are the first to study ethnic favoritism in a global sample and to use a broad measure – nighttime light intensity -- that allows capturing the distributive effects of a wide range of policies. We construct two panel datasets with several thousand ethnographic regions from around 140 multi-ethnic countries and annual observations from 1992 to 2013. We find robust evidence for ethnic favoritism: ethnographic regions enjoy 7%-10% more intense nighttime light and 2%-3% higher GDP when being the current political leader's ethnic homeland. We further document that ethnic favoritism is a global phenomenon prevalent both within and outside of Africa; that economic development and better political institutions have at best weak effects on ethnic favoritism; that ethnic favoritism is partly motivated by electoral concerns and extends to linguistically close groups; and that ethnic favoritism does not contribute to sustainable development.

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Ethnic Favoritism: An Axiom of Politics?[*]

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Abstract

We study ethnic favoritism in a global sample and rely on nighttime light intensity to capture a broad range of preferential policies targeted towards the political leaders' ethnic homelands. We construct two panel data sets with several thousand ethnographic regions from around 140 multi-ethnic countries and annual observations from 1992 to 2013. We find robust evidence for ethnic favoritism: nighttime light becomes 7%–10% more intense in the political leaders' ethnic homelands. We document that ethnic favoritism is a global phenomenon not restricted to Africa, poor countries, or autocracies; and that it is partly driven by electoral concerns.

JEL Codes: D72, R11, J15, O43.

Keywords: Ethnic favoritism, political leaders, institutions, elections

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 anecdotal as well as rigorous evidence for ethnic favoritism in many 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 ethnicity of high-level politicians to quantify the extent of ethnic favoritism in Kenya. Thereby, Burgess et al. (2015) focus on road building across districts with different ethnic compositions, and Kramon and Posner (2016) on educational attainments across individuals from different ethnic groups.

Few studies go beyond the level of individual countries.[1] 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 African countries. Moreover, Kramon and Posner (2013) document the pattern of ethnic favoritism in six 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 Africa and study Posner's (2005) axiom of politics at the global level. In particular, we employ two large and diverse samples of multi-ethnic countries from all over the world to study whether ethnic diversity leads to ethnic favoritism both within and outside of 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 recorded by US Air Force weather satellites for the

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[1]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.

years 1992 to 2013. 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.

The units of observation in our analysis are ethnographic regions. We follow Alesina et al. (2016) in using two different samples based on the two most prominent ethnographic maps available. These maps are based on the Ethnologue data and the Geo-Referencing of Ethnic Groups (GREG) project, which has digitalized the classical Soviet Atlas Narodov. Our Ethnolouge-based sample includes 7,653 ethnographic regions from 141 multi-ethnic countries and our GREG-based sample 2,032 ethnographic regions from 137 multi-ethnic countries. The main variables are nighttime light intensity and a variable that indicates whether an ethnographic region is the ethnic homeland of the country's current political leader.

We find that being the political leader's ethnic homeland 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 the 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 an ethnic transition, i.e., prior to a leadership transition associated with a change in the political leader's ethnicity. We thus interpret the positive association between being the political leader's ethnic homeland and nighttime light intensity as evidence for ethnic favoritism. Our baseline estimates imply that ethnographic regions have 7%–8% more intense nighttime light and around 2% higher regional GDP if they are the political leader's ethnic homeland than they would have in the counterfactual situation in which the political leader belonged to another ethnic group. Combining the Ethnologue data with linguistic trees, we show that ethnic favoritism extends to ethnic groups that are linguistically close to the political leader. Moreover, we find that ethnographic regions even have 10% more intense nighttime light and 3% higher regional GDP if they are the political leader's ethnic homeland than they would have if the political leader belonged to a linguistically distant ethnic group.

Our large and diverse sample allows studying possible determinants and the prevalence of ethnic favoritism. We first confirm widespread ethnic favoritism in Africa in our sample that includes more African countries than previous studies. We then show that the preconception that ethnic favoritism is mainly or even

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entirely an African phenomenon is mistaken. Ethnic favoritism seems to be as prevalent outside of Africa as it is in Africa itself. Hence, Posner's axiom of politics holds globally. The prevalence of ethnic favoritism is also not significantly related to the level of economic development or the quality of political institutions. Given that ethnic favoritism seems to be a general phenomenon, we then try to understand why political leaders engage in ethnic favoritism. While altruism towards one's co-ethnics is likely to play a role, we show that ethnic favoritism intensifies around election years in which the political leader's office is contested. Hence, electoral concerns seem to play an important role.

Our results further reveal that nighttime light intensity is back at its normal level already two years after an ethnic transition. Hence, ethnic favoritism does not contribute 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. Our main contributions to this literature are the global sample and the use of nighttime light intensity to capture a broad range of preferential policies targeted towards the political leaders' ethnic homelands. Thereby we also contribute to a recent debate on the role of political institutions: Burgess et al. (2015) find that ethnic favoritism in road building in Kenya disappears if political institutions improve from being autocratic to being anocratic or even democratic.[2] In contrast, Franck and Rainer (2012) and Kramon and Posner (2016) find at best very limited constraining effects of better political institutions on ethnic favoritism. Our global sample and broad measure of ethnic favoritism also suggest at best a limited constraining effect: ethnic favoritism tends to be more prevalent in anocracies than autocracies and to exist even in democracies. We submit that the political leaders' electoral concerns may explain why democratization is often not effective in curbing ethnic favoritism.

More generally, our paper contributes to the literature studying the effects of ethnic divisions on governance and economic development.[3] 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.

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

[3]See Alesina and La Ferrara (2005) for an overview.

Miguel and Gugerty (2005) and Glennerster et al. (2013) study whether ethnic diversity reduces public goods provision. Hjort (2014) finds evidence that ethnic diversity negatively affects workers' productivity. Francois et al. (2014, 2015) study how political leaders in ethnically diverse Sub-Saharan African countries increase their chances of staying in power by sharing the benefits of holding 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. (2016) find inequality between ethnographic regions to be negatively linked to country-wide economic performance. We contribute to this literature by showing that ethnic cleavages 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 diverse countries perform poorly.[4]

Our paper is also related to Hodler and Raschky's (2014a) study on regional favoritism. They also exploit variation in nighttime light intensity within sub-national regions, but focus on administrative districts rather than ethnographic regions, and on the political leaders' birthplaces 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 ethnic favoritism. We show that ethnic favoritism is not driven by favoritism towards the political leaders' birthplaces, suggesting that the two are different phenomena.[5] More importantly, a comparison between our findings and those by Hodler and Raschky (2014a) reveals an interesting difference in the role played by political institutions. They find political institutions to be the most important determinant of the prevalence of birthplace favoritism, while we find the constraining effects of better political institutions on ethnic favoritism to be limited at best. Hence, democratization may be more helpful to curb regional favoritism benefiting relatively small areas around the political leaders' birthplaces than curbing ethnic favoritism, which often benefits relatively large ethnographic regions. In addition, we establish that electoral concerns are one of the motivations for ethnic favoritism, while it seems unlikely that such concerns motivate birthplace favoritism.

The remainder of the paper is organized as follows: section 2 presents anec-

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[4]Our paper further relates to the emerging literature on the role of political leaders in economic development (e.g., Jones and Olken 2005, Kasara 2007, Dreher et al. 2009, and Besley et al. 2011)

[5]Ahlerup and Isaksson (2015) also find birthplace and ethnic favoritism to be independent phenomena in their analysis of survey data from Afrobarometer.

dotal evidence on ethnic favoritism outside of Africa, section 3 the data, section 4 the empirical strategy, section 5 our findings, and section 6 some concluding remarks.

2 Anecdotal evidence

In this section we provide anecdotal evidence for ethnic favoritism in countries from all over the world. We thereby focus on countries outside Africa, as the prevalence of ethnic favoritism in Africa is well documented and as we are the first to study ethnic favoritism in a global sample. The anecdotal evidence from these countries illustrates the various forms that ethnic favoritism can take outside of Africa.

Bolivia: All Bolivian presidents had been Spanish descendants until Evo Morales from the indigenous Aymara ethnic group was elected in December 2006. The day before assuming office in January 2007, he announced that after centuries of injustice and exploitation suffered by Aymaras, Quechuas, and Guaranis, the fate of indigenous people would finally change for good (Postero 2010).

"Evo cumple" – Evo delivers – was one of the popular slogans surrounding the policies of the new government. Indeed, besides the increased importance given to indigenous culture, language, and symbols, substantial material benefits reached the indigenous population. Natural resource revenues, which boomed after the renegotiations with the multinational companies operating in the country, were used to fund policies targeting the poor indigenous population in the highlands, particularly focusing on literacy, health, road construction, and rural electrification. About USD 480 million were disbursed to fund some 3,900 small infrastructure projects (Farthing and Kohl 2014, Sivak 2008).[6] The positive net effects of these policies has been widely recognized, with substantial increases in literacy rates, a drastic reduction of the maternal mortality rate, and an overall reduction of poverty rates in the countryside (Farthing and Kohl 2014).

Land redistribution and titling explicitly targeted the indigenous population:

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[6]The number of municipalities without a health post, mainly concentrated in the rural and indigenous areas, was more than halved, and the number of health centers and hospitals doubled. Moreover, three cash transfer programs were implemented: a standard conditional cash transfer funding children who stay in school ("Bono Juancito Pinto"), a pension scheme to lift old people out of poverty ("Renta Dignidad"), and a cash transfer for women attending pre- and postnatal care ("Juana Azurduy"). In 2009, the total disbursement in these three cash transfers amounted to close to USD 286 million, about 1.3% of GDP (Laserna 2011).

by 2013 about 157 million acres had been affected, with about 321,000 titles granted mostly to indigenous people and peasants (Farthing and Kohl 2014). The indigenous population was also directly benefitting from a series of reforms in the political and educational systems. The new constitution reserved a quota for indigenous representation in the main political institutions.[7]

The nature and effects of the new government policies, however, have generated several critics. Despite the rhetoric describing the new constitution as plurinational to stress the equal footing on which all ethnic groups stand, the final document gives special relevance to the Aymara communitarian values over other ethnic groups (Albro 2010). Similarly, it is argued that key reforms were guided by Aymara politicians, and that the development model underlying the new government's economic policies has been conceptualized by Aymara intellectuals (Farthing and Kohl 2014).

In the words of Juan del Granado, a human rights lawyer and former mayor of Bolivia's capital La Paz: "Unfortunately the attitude in the government – that 'now it is our turn' – is contradictory to the construction of a new society, and it smacks of vengeance" (cited in Farthing and Kohl 2014). Also other indigenous groups are expressing their discontent, especially among lowland communities, complaining that their interests have been largely ignored.[8]

Hence, Evo Morales' government may have fostered the emergence of new indigenous economic elites associated with the government, but, arguably, it did not change the rules of the political game, plagued by corruption, patronage, and inefficiency. Quoting the disenchanted words of Javier Medina, a Bolivian philosopher: "The face of government may have become more indigenous, mostly Aymara. However, the behaviour and way of managing the state remain the same" (cited in Farthing and Kohl 2014).

Canada: Canada has regular ethnic transition between English and French speaking prime ministers. Important recurrent topics in Canadian politics are the separatist movement in the mainly French-Canadian province of Quebec and the "Western alienation," i.e., the feeling in Alberta and other English speaking

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[7]For example, Felix Patzi, an Aymara sociologist, was named education minister with a clear mandate to increase the presence of indigenous culture in education. This led to the creation of indigenous universities, supported by the government and local communities, with the explicit goal of promoting higher education among the indigenous population.

[8]A Guarani leader said that "[t]hey want to control everything, to do everything according to their culture, the Andean culture. Very little of what we hoped for as indigenous people is being advanced, only the things that Evo wants. No, Evo and his ministers have abandoned us" (cited in Postero 2010).

states in the West that they are side-lined in national politics. The fact that Quebec is the largest beneficiary of the fiscal equalization scheme is often seen as a consequence of the former and as a factor contributing to the latter (Lecours and Béland 2009). Hence, ethnic cleavages clearly play a role in Canadian politics.

Quebec has long been considered a stronghold of the Liberal party. French-Canadians are well represented within the leading ranks of the party, resulting in a number of Canadian prime ministers with Quebecois roots, e.g., Pierre Trudeau, who served as prime minister from 1968 to 1979 and 1980 to 1984. As part of a fiscal stimulus program to counter an economic recession, Quebec received a disproportionate share of those public infrastructure projects.[9] Another prime minster with French-Canadian origin, Jean Chrétien, was involved in a sponsorship scandal that included the misuse and misdirection of public funds. The beneficiaries were mainly firms in Quebec with links to the Liberal Party (Gomery 2005). In both instances, one potential explanation for the preferential treatment of Quebec was that the Franco-Canadian prime ministers wanted to counter the separatist movement in their home province. On the one hand, these efforts were motivated by the federal government's concerns about the national unity of Canada. On the other hand, however, these efforts were also driven by reelection concerns, as the Parti Quebecois, the political arm of the separatist movement, was becoming more powerful in the Liberal Party's electoral stronghold. Hence, French-Canadian prime ministers do favor their ethnographic regions, but it is not always clear whether the preferential policies are the result of altruism towards their co-ethnics, electoral concerns, or patronage along party lines.

Pakistan: Pakistan is a state consisting of ethnic groups that had never been united before the arrival of the British. In fact, the Baluch, Sindhis, and Pashtuns, who had resisted Punjabi incursions into their ancestral homelands for centuries, have found themselves trapped in a political structure dominated by a Punjabi majority and, to a lesser extent, the Urdu-speaking Muslim immigrants from India. These two groups control the armed forces and key political institutions (Harrison 2009).

As a result, ethnic tensions have been simmering throughout Pakistan's history. Many of the tensions are related to Punjabi economic exploitations. One example is the unfavorable deals minorities get for their natural resources: "Al-

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[9]See, e.g., "The pork barrel is by no means a recent invention," *The Globe and Mail*, October 22, 2009.

though gas obtained from Baluchistan accounts for 30 percent of Pakistan's total gas production, Baluchistan consumes only 17 percent of its own output, while the remaining 83 percent goes to the rest of the country, primarily to the Punjab. The central government charges a much lower price for Baluchistan gas than for gas produced in other provinces and pays lower royalties" (Harrison 2009). Another example is the distribution of the Indus River waters between upstream Punjab and downstream Sind: "All of the 19 barrages, 43 canal systems, three major storage dams and 12 link canals that have been built in the upper reaches of the Indus since Partition have either been located in the Punjab or have been designed to benefit agricultural production there. Sind's share of the Indus waters has been drastically reduced since Partition, causing widespread economic devastation. In contrast to an annual flow of over 94 million acre feet of water into the Arabian Sea before Partition, the Indus today often runs dry before it reaches the ocean, and 12 million Sindhi farmers and fishermen have lost their livelihoods" (Harrison 2009).

Many ethnic transitions took place in Pakistan in the late 1980s and the 1990s. Benazir Bhutto, a Sindhi politician, became prime minister in 1988. She abandoned the model of state-led development. The deregulations and privatizations went hand-in-hand with corruption and nepotism, which finally led to her dismissal by the president in 1990 (Burki 1999). The Punjabi politician Mian Nawaz Sharif was elected prime minster in the same year. The main differences in his approach was the provision of public employment for the educated unemployed in urban areas and the building of expensive infrastructure. The main project was a highway from the Islamabad Capital Territory, which borders the province of Punjab, to this province's capital Lahore. This highway only benefitted fellow Punjabis. In 1993, Mian Nawaz Sharif was succeeded by Benazir Bhutto. She was once again followed by Nawaz Sharif before Urdu-speaking Pervez Musharraf took power in a coup d'etat in 1999.

Ukraine: Ethnolinguistic divides have played an important role in the Ukraine ever since its independence in 1991. Rjabtschuk (1992) coined the expression of "two Ukraines." The first Ukraine is found in the West, where the large majority are native Ukrainian speakers. There, people have a strong national identity, and many are oriented towards Western Europe. The second Ukraine is in the East, where many people are native Russian speakers and are oriented towards Russia. The Ukrainian Constitution of 1996 states that "[t]he state language in Ukraine

is the Ukrainian language." It continues that "[t]he State ensures the comprehensive development and functioning of the Ukrainian language in all spheres of social life throughout the entire territory of Ukraine." A particularly strong supporter of the idea that the Ukrainian language is important for strengthening national identity was the Ukrainian speaking Viktor Yushchenko, who was president from 2005 to 2010. He was running campaigns with slogans such as "one nation – one language – one church" or "think in Ukrainian" (Olszanski 2012). He was followed by Russian speaking Viktor Yanukovych from Donetsk in the country's East (and of Belorussian descent), who wanted Russian to become the second state language.

In the Ukraine, these ethnolinguistic cleavages are paired with the strong role of the oligarchy. In the early 1990s, an oligarchy established itself thanks to rent-seeking methods during the country's slow transition from communism, and from the mid-1990s onwards politicians and oligarchs formed close ties (Aslund 2015, Leitner et al. 2015). Viktor Yanukovych initially appointed several oligarchs from the country's Russian-speaking East to powerful ministries. Over time, he started concentrating power in the hands of family members and Akhmetov, an influential oligarch from Donetsk. They enriched themselves "through energy subsidies, discretionary public procurement, embezzlement from the state, privileged privatization, fraudulent refunds of value-added tax to exporters, extortion, and corporate raiding" (Aslund 2015).

3   Data

Our units of observation are subnational ethnographic regions, and we construct two panel data sets with annual observations from 1992 to 2013. These two data sets are based on two different ethnographic maps. The first map is from the World Language Mapping System and maps the languages described in the Ethnologue (Gordon, 2005), which provides a comprehensive list of the world's known living languages. The second map is from the GREG project by Weidmann et al. (2010), who have digitalized the classical Soviet Atlas Narodov Mira.

These two maps and the underlying data sets differ in various respects: First, Ethnologue defines ethnicity strictly based on language, while the underlying definition in the Atlas Narodov Mira is potentially broader, which might be desirable, but the coding criteria are not well documented (Weidmann et al.,

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2010). Second, Ethnologue reflects the distribution of languages during our sample period, while GREG records the ethnic distribution of the world population in the 1960s. The former has the advantage that we are less likely to assign changes in nighttime light intensity in some parts of the country to the wrong ethnic group(s) and the latter has the advantage that the boundaries between groups cannot possibly be influenced by ethnic favoritism during our sample period. Third, Ethnologue is more disaggregated than GREG. Ethnologue features many more ethnographic regions in Africa, the Americas, and Oceania, and somewhat more in Asia. The exception is Europe, where the number of ethnographic regions per country is roughly similar. We use both these ethnographic maps, because they both have their advantages and disadvantages, and because any pattern that prevails in both data sets is unlikely to result from some peculiar coding or mapping of some ethnic groups.[10]

Ethnographic regions are areas of a country that share the same ethnic composition. We drop the few ethnographic regions with a size of less than ten square kilometers or zero population (according to the population density map introduced below). In both data sets, the resulting share of ethnically homogenous ethnographic regions, i.e., regions inhabited by only one ethnic group, is between 75% and 80%, and the large majority of the remaining ethnographic regions are inhabited by two ethnic groups.[11] 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 141 multi-ethnic countries in the Ethnologue data and 137 multi-ethnic countries in the GREG data. There are 131 multi-ethnic countries from all over the world that feature in both data sets.[12] There are 7,653 ethnographic regions (i.e., on average 54 per country) in the Ethnologue sample and 2,032 ethnographic regions (i.e., on average 15 per country) in the GREG sample.[13]

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[10]Alesina et al. (2016) also use these two ethnographic maps. They provide a complementary discussion of these two maps and the underlying data.

[11]The largest number of ethnic groups in an ethnographic region is 7 in Ethnologue and 3 in GREG.

[12]The most common reason that countries appear in only one data set is that they feature only one ethnographic region according to the other data set. For example, Burundi, Rwanda, and Uruguay are homogenous according to Ethnologue but not according to GREG; while Denmark, Ireland, Madagascar, and Portugal are homogenous according to GREG but not according to Ethnologue. Countries that are homogenous and, therefore, excluded in both data sets include Cuba, Haiti, Iceland, Saudi Arabia, and the two Koreas. Further, we exclude Serbia due to the non-trivial changes of its boundaries during our sample period. In addition, some countries are excluded because the ethnicity of their political leaders is absent in the respective data set (see below).

[13]The distribution of the number of ethnographic regions is heavily skewed. The outliers in

The identity of political leaders is obtained from the Archigos database, version 4.0, 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 2014. It includes the exact starting and ending dates of the political leaders' time in power. We add to this database the ethnic affiliation of all political leaders who were in power for at least 30 days in the years from 1988 to 2014. We match the ethnicity of these political leaders to the ethnic categories in the GREG and the Ethnologue data, respectively, using Murdock (1959), Fearon (2003), and various web-based sources, including Ethnologue. This matching allows us to construct a variable which indicates whether an ethnographic region is the ethnic homeland of the country's current political leader. This variable, $Leader_{ict}$, is equal to $1/n_{ic}$ if the political leader is from one of the n_{ic} ethnic groups living in ethnographic region i of country c and in power throughout year t. In particular, $Leader_{ict} = 1$ for single-ethnic regions populated by the political leader's ethnic group. We set $Leader_{ict}$ to missing if the country's political leader has a foreign ethnicity; if we could not find any information about his ethnicity; if we could not match his ethnicity to any ethnic category in the Ethnologue or GREG data, respectively; or if his ethnicity is unmapped in Ethnologue.[14] We exclude countries with many missing observations.[15]

The National Oceanic and Atmospheric Administration (NOAA) provides annualized data on nighttime light intensity for the years from 1992 to 2013. These data are based on recordings by US Air Force Weather Satellites in evening hours 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

Ethnologue are Papua New Guinea with 725 ethnographic regions, Indonesia with 660, India with 606, and Nigeria with 481. The outliers in GREG are Russia with 136 ethnographic regions, Indonesia with 118, and India with 101.

[14]There are nine political leaders whose ethnicity is missing in both data sets: five leaders with foreign ethnicities (e.g., Alberto Fujimori who is of Japanese origin and was president of Peru) and four leaders for whom we could not find any ethnicity information. In addition, there are some political leaders whose ethnicity we could only match in one of the two data sets, typically Ethnologue, which has on average more ethnic groups per country. For example, Americo-Liberians are listed in Ethnologue (as "Liberian English"), but not in GREG.

[15]Brunei, Djibouti, and Jordan have no political leader with a domestic ethnicity according to GREG and are therefore excluded from this data set. Thailand has many unmapped political leaders according to Ethnologue and is therefore excluded from this data set. We also exclude Moldova, where changes in the coding of the most important political office by Archigos leads to ethnic transitions in the absence of any real changes.

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 2013 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.[16]

Henderson et al. (2012) advocate the use of nighttime light intensity as a measure of economic activity or economic development.[17] 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. 2016).

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 light. 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 light.

As an alternative dependent variable, we also use the logarithm of nighttime light per capita, $Lightpc_{ict}$. We use the population density maps by Gridded Population of the World, version 3. These maps are available for every fifth year, and we interpolate them for the missing years. We then define $Population_{ict}$ as

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[16]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 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.

[17]Earlier studies using nighttime light intensity as a proxy for economic activity include Sutton and Constanza (2002), Doll et al. (2006), and Sutton et al. (2007).

the logarithm of the population in region i of country c in year t, and $Lightpc_{ict} \equiv Light_{ict} - Population_{ict}$.

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}. This is based on expenditure-side real GDP at chained PPPs from Penn World Tables, version 8.1. We measure the quality of political institutions by the polity score from the Polity IV project, which is an aggregate measure based on the constraints on the executive, the openness and competitiveness of executive recruitment, and the competitiveness and regulation of political participation. The polity score ranges from -10 to 10, with the former indicating highly autocratic countries and the latter indicating strong democracies. We use a normalized version of the polity score, $Polity_{ct}$, which ranges from 0 to 1, with higher values indicating more democratic institutions, as well as a set of dummy variables for different types of political institutions. Following common practice, we set $Autocracy_{ct} = 1$ for polity scores below -5, $Anocracy_{ct} = 1$ for polity scores between -5 and 5, and $Democracy_{ct} = 1$ for policy scores above 5.

To look at the effects of elections, we use the National Elections Across Democracy and Autocracy (NELDA) database, version 4, by Hyde and Marinov (2012). We focus on elections in which the office of the incumbent political leader was contested and define the dummy variables $Election_{ct}$ to be equal to one if there was such an election in country c in year t, and zero otherwise.

Panels A and B in Table 1 provide summary statistics for the Ethnologue and the GREG data sets, respectively.

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. Table 2 therefore provides information on leadership and ethnic transitions during our sample period as well as some cross-sectional information on the countries that experienced ethnic transitions.

Table 2 about here

An average country in our data has around four leadership transitions and around one ethnic transition in the years from 1992 to 2013. There are 52 countries with ethnic transitions in our Ethnologue data and 45 in our GREG data. The median number of ethnic transitions in these countries is two, and the mean is around

14

three in both data sets. There are 40 countries that have ethnic transitions according to both data sets. Of these, the country with most ethnic transitions is Switzerland with 12, followed by Guinea-Bissau, Liberia, Nigeria, Pakistan, Papua New Guinea, and Sierra Leone with 5 to 7 ethnic transitions each.[18] There are 12 countries that have ethnic transitions only in the Ethnologue data, mostly because ethnic groups are more disaggregated in Ethnologue, and five countries that have ethnic transitions only in the GREG data, because Ethnologue does not map some ethnic groups, e.g., Hindi-speakers in Fiji and Trinidad and Tobago.

Table 2 shows that slightly more than half of the countries with ethnic transitions are in Africa. However, there are ethnic transitions in all other continents as well. We further see that countries with ethnic transitions tend to be poorer than countries without ethnic transitions, but that their political institutions tend to be of similar quality nevertheless. As one would expect among the countries with ethnic transitions, those in Africa tend to be poorer and to have worse political institutions than those elsewhere. Also, countries with ethnic transitions, especially those outside of Africa, have on average more ethnographic regions.[19]

4   Empirical strategy

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

$$Light_{ict} = \alpha_{ic} + \beta_{ct} + \gamma Leader_{ict} + \epsilon_{ict} \tag{1}$$

The inclusion of ethnographic region-fixed effects, represented by the dummy variables α_{ic}, controls for all time-invariant regional characteristics, e.g., climatic, geographic, and historical factors. The set of country-year dummy variables β_{ct} controls for shocks common to all regions of a given country. Given that we identify ethnic favoritism using changes in the political leaders' ethnicities, and

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[18] In Switzerland, a power sharing arrangement ensures that all major political parties and all major ethnic groups are represented in the executive council, and that the individual council members rotate as chairs of the executive council. Bosnia and Herzegovina, which has 20 ethnic transitions according to the GREG data, but none according to the Ethnologue data (where two of the three major ethnic groups are unmapped), has had a similar arrangement since 1998. Our results are not driven by these two countries. If anything, our results become stronger when we exclude these countries, in which the political leaders have little more power than the other members of the executive council.

[19] This difference is mainly due to the high number of regions in India and Indonesia (in both data sets) and in Nigeria and Papua New Guinea (in Ethnologue), which all experienced ethnic transitions.

that these changes are likely associated with changes in country-wide policies, the standard errors ϵ_{ict} should be clustered at least at the ethnic leadership spell-country level. We choose to be conservative and cluster the standard errors ϵ_{ict} at the country level, so that the estimates are robust to possible serial correlation in the data.

The coefficient of interest, γ, measures the effect of $Leader_{ict}$ on $Light_{ict}$. A positive coefficient implies that ethnographic regions have more intense night-time light if a member of their ethnic group(s) is the country's political leader throughout the year than in the counterfactual situation in which the political leader belonged to some other ethnic group. We thus interpret a positive and significant coefficient γ as evidence for ethnic favoritism. Equation (1) implies that coefficient γ is identified by the countries experiencing ethnic transitions during our sample period. We exclude all country-years with ethnic transitions in our main specification, because it is unclear whether or not the ethnic home-lands of political leaders who enter or exist power should be seen as "treated" in these years.[20]

Our interpretation of a positive and significant coefficient γ as evidence for ethnic favoritism would be questionable if our estimates of γ were biased due to the potential endogeneity of the political leader's ethnicity. Suppose, for instance, that ethnic groups which are becoming more economically active were also becoming more likely to provide the country's next political leader. In this case, a positive association between $Leader_{ict}$ and $Light_{ict}$ may not necessarily indicate ethnic favoritism. To address this concern, we document that ethnographic regions that are not yet the ethnic homeland of the political leader, but will shortly become the ethnic homeland of the new political leader, are not having more intense nighttime light in these years than in other years in which they are not the current political leader's ethnic homeland. 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 the scope of ethnic favoritism and in understanding its determinants and the possible motivations of the political leaders. We therefore add to our baseline specification interaction terms between $Leader_{ict}$ and other variables, such as a dummy variable that is equal to one for African countries ($Africa_c$), the level of economic development (GDP_{ct}), the quality of political institutions ($Polity_{ct}$), and an election indicator ($Election_{ct}$). As our

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[20]We show that our results are robust to separately controlling for these ethnographic regions.

baseline specification already contains country-year dummy variables, there is no need to include these country-level variables individually when adding these interaction terms.

5   Empirical results

5.1   Baseline results

Table 3 reports our main results. Panel A shows the results based on the Ethnologue data and panel B those based on the GREG data.

<center>Table 3 about here</center>

We start in column (1) with a specification that includes the country-year dummy variables but not yet the region-fixed effects.[21] The positive and statistically significant coefficient on $Leader_{ict}$ 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 ethnic groups.

We keep the same specification in column (2) but restrict our sample to the countries that experienced ethnic transitions during our sample period. The reason is that all subsequent specifications include region-fixed effects and, therefore, only exploit variation in these countries. The coefficient estimate remains similar in the GREG data but becomes somewhat smaller in the Ethnologue data. Hence, all subsequent estimates exploit variation in a sub-sample of countries in which the difference between economic activities in the political leader's ethnic homeland and elsewhere is relatively modest. If anything, these subsequent estimates are thus rather conservative.

We report the estimates of our main specification, i.e., equation (1), in column (3). The estimated coefficient of interest is 0.068 in the Ethnologue data, 0.074 in the GREG data, and statistically significant in both cases. Hence, ethnographic regions have more intense nighttime light when a member of their ethnic group is the country's political leader than they would have in the counterfactual situation in which the political leader belonged to another ethnic group. We interpret this

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[21]Soumahoro (2015) presents a similar cross-sectional analysis for Africa.

<center>17</center>

finding as evidence for ethnic favoritism. We conjecture that ethnic favoritism tends to be less pronounced in the Ethnologue data, in which ethnic groups tend to be more disaggregated, because ethnic favoritism extends to closely related ethnic groups (as shown below).

The remaining columns of Table 3 present various robustness exercises. In column (4) we drop all ethnographic regions with more than one ethnic group and keep only the homogenous ethnographic regions. The coefficient estimates remain similar in the Ethnologue data but become somewhat smaller and less precisely estimated in the GREG data. The reason for the latter is that, in the GREG data, heterogenous ethnographic regions are six to seven times more likely than homogenous regions to host the political leader's ethnic group. In column (5) we replace the contemporaneous values of $Leader_{ict}$ with their lagged values to allow for a delayed impact of ethnicity-based policies, e.g., infrastructure projects, on nighttime light intensity. The coefficient estimates become somewhat higher and remain statistically significant. In column (6) we replace $Light_{ict}$ with $Lightpc_{ict}$ to address the possibility that changes in the distribution of nighttime light within countries might be driven by changes in the relative population density. The coefficients of interest remain again similar in magnitude and statistically significant. Finally, in column (7) we drop the region-fixed effects but add the lagged dependent variable, $Light_{ict-1}$.[22] The coefficients of interest drop somewhat but remain statistically significant.

These additional estimates and our reliance on two different data sets confirm that ethnographic regions have systematically and robustly more intense nighttime light when being the political leader's ethnic homeland. It is also remarkable that the coefficient estimates are all in a relatively tight range around the baseline estimates reported in column (3).[23] Equation (1) suggests that being the political leader's ethnic homeland increases nighttime light intensity by $100(\exp(\gamma) - 1)\%$. Hence, our baseline estimates of 0.068 and 0.074 suggest an increase in nighttime light intensity by 7.0% or 7.7%, respectively. Henderson

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[22]Our estimates would suffer from the so-called Nickell (1981) bias if we added the lagged dependent variable and kept the region-fixed effects. Angrist and Pischke (2009) therefore propose estimating a specification with fixed effects (but no lagged dependent variable) and one with the lagged dependent variable (but no fixed effects), and document a useful bracketing property of these estimates in case of doubts about the appropriate specification.

[23]As a further robustness test, we use GeoEPR, an ethnographic map by Vogt et al. (2015), which provides information on the power status of the politically relevant ethnic groups. We again find a quantitatively similar effect. In addition, we find that this effect is robust to excluding discriminated groups, and that ethnic favoritism expands to junior partners in government, which is consistent with the finding that ethnic favoritism extends to linguistically close groups (see below).

et al. (2012) report a linear relationship between nighttime light intensity and GDP at the country level and an estimated elasticity of "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 7.0%–7.7% corresponds to an increase in GDP by 2.1%–2.3%, which is a fairly sizeable effect.

5.2   Dynamics around ethnic transitions

We next look at the dynamics of nighttime light intensity around ethnic transitions. Doing so is both important and interesting: it is important to address potential endogeneity concerns, and it is interesting to understand whether new political leaders manage to favor their ethnic homeland already right after an ethnic transition, and whether ethnic favoritism can contribute to sustainable development.

We first construct variables indicating ethnographic regions that are the ethnic homeland of political leaders who enter or exit the highest office: we define $Entry_{ict} = 1/n_{ic}$ if there is an ethnic transition in country c in year t and the entering political leader belongs to one of the n_{ic} ethnic groups living in ethnographic region i, and zero otherwise. Similarly, $Exit_{ict} = 1/n_{ic}$ if there is an ethnic transition in country c in year t and the exiting political leader belongs to an ethnic group living in ethnographic region i, and zero otherwise. In columns (1) and (4) of Table 4 we include ethnic transition years and add these two new variables.

<center>Table 4 about here</center>

The estimates in column (1), which are based on the Ethnologue data, suggest that ethnographic regions which are the political leader's ethnic homeland during parts of the year have more intense nighttime light than if they were not the ethnic homeland of any political leader, but less intense nighttime light than if they were the ethnic homeland of a political leader who stayed in power the entire year. The estimates in column (4), which are based on the GREG data, show the same pattern for ethnographic regions that are the entering political leader's ethnic homeland, but suggest that nighttime light is still as intense in the exiting political leader's ethnic homeland as it would have been if this political leader

<center>19</center>

had stayed in power the entire year. Reassuringly, the coefficient estimates on $Leader_{ict}$ are again similar as in our main specification.

In the remaining columns, we further add variables that capture ethnographic regions populated by the future political leader's ethnic group before an ethnic transition or the past political leader's ethnic group after an ethnic transition. We define $PreEntry1_{ict} = 1/n_{ic}$ ($PreEntry2_{ict} = 1/n_{ic}$) for ethnographic regions that are not the current political leader's ethnic homeland but the ethnic homeland of the political leader entering in year $t+1$ ($t+2$), and zero otherwise; and $PostExit1_{ict} = 1/n_{ic}$ ($PostExit2_{ict} = 1/n_{ic}$) for ethnographic regions that are not the current political leader's ethnic homeland but the ethnic homeland of the political leader who exited in year $t-1$ ($t-2$), and zero otherwise. The coefficient estimates on $PreEntry1_{ict}$ and $PreEntry2_{ict}$ show that nighttime light does not become more intense in the two years before an ethnographic region becomes the political leader's ethnic homeland. This result seems inconsistent with the idea that a rise in economic activity simultaneously increases nighttime light intensity and the chances that an ethnic group gets into power.

The estimates presented in Table 4 are based on ethnic leadership spells of different length, leading to compositional differences between the ethnographic regions that become the political leader's ethnic homeland in two years, one year, or the current year. We therefore complement Table 4 by focusing on a clearly defined set of ethnic transitions without any compositional changes. In particular, we identify all ethnic transitions in which the new political leader's ethnic group was out of power in the five years prior to the transition year and stayed in power in the five subsequent years. There are only few countries with such ethnic transitions, and we consider only ethnic transitions between 1997 and 2008 (as we need information on nighttime light intensity in the five years before and after). We end up with 22 such ethnic transitions in the Ethnologue data and 17 in the GREG data. Figure 1 depicts the development of these political leaders' ethnic homelands throughout these 11-year time windows (with the variable capturing the very first year being omitted). Given the few clusters, the standard errors become unreliable, and we should look primarily at the coefficient estimates. We again see no evidence that the entering political leader's ethnic homeland does better before the new political leader gets into power. Quite to the contrary: it even takes a few years after an ethnic transition before nighttime light intensity starts increasing.

We now switch our focus to the ethnic homeland of the previous political

leader after an ethnic transition. The coefficient estimates suggest that night-time light might still be somewhat more intense in the previous political leader's ethnic homeland in the first year after an ethnic transition but no longer in the second year. This finding strongly suggests 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 (2007) 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 rivalling ethnic groups.

5.3   Ethnic and birthplace favoritism

Hodler and Raschky (2014a) find that political leaders favor their birthplaces. Given that a political leader's birthplace is often located in his ethnic homeland, one might be worried that our results could pick up the effect of rather localized birthplace favoritism rather than broader geography-based ethnic favoritism. We address this concern in Table 5, in which we combine information on the birthplaces and the ethnicities of political leaders.[24]

<div align="center">Table 5 about here</div>

We first drop all country-years in which the country's current political leader is foreign-born or his birthplace information missing. In columns (1) and (4), we estimate our main specification using this slightly smaller sample. The coefficient estimates are similar but somewhat larger than in the full sample.

We now use the political leaders' birthplace information to determine the ethnographic region in which they were born. The variable $LeaderBirth_{ict}$ is equal to one if the country's current political leader was born in ethnographic region i, and zero otherwise. In columns (2) and (5) we replace $Leader_{ict}$ by $LeaderBirth_{ict}$. We find that the coefficient estimates drop and remain at best statistically significant at the 10% level. In columns (3) and (6) we include both variables and find that the coefficient estimates on $Leader_{ict}$ remain large and

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[24]The birthplace information is an updated version of the data set compiled by Hodler and Raschky (2014a).

statistically significant, while those on $LeaderBirth_{ict}$ are considerably smaller and not statistically significant. Hence, ethnic favoritism is more than just a form of birthplace favoritism.[25]

We present complementary evidence in columns (4) and (8). We construct an alternative boundary map for the ethnographic regions. We cut out the ADM2 regions in which the political leaders in our sample were born from the respective ethnographic regions. We then recalculate $Light_{ict}$ for these residual ethnographic regions and estimate our main specification using this modified dependent variable. The coefficient estimate of interest increases in magnitude in both data sets. It also remains statistically significant in the GREG data, but not in the Ethnologue data.[26]

Taken together, these findings strongly suggest that the ethnic favoritism we uncover is not driven by political leaders favoring their birth region.

5.4 Ethnic favoritism across the world

So far the literature on ethnic favoritism has focused on African countries, and there has been a preconception that ethnic favoritism is indeed primarily an African phenomenon. Also, ethnic favoritism has been mainly seen as a problem of relatively poor and weakly institutionalized countries. We have a sample with more African countries than previous studies on ethnic favoritism as well as many countries from all other regions of the world. This large and diverse sample allows testing these preconceptions.

In Table 6 we add various interaction terms between our main explanatory variable ($Leader_{ict}$) and potential determinants of ethnic favoritism. These potential determinants include a dummy variable that is equal to one for African countries ($Africa_c$), our measures of country-wide economic development (GDP_{ct}), and the quality of political institutions ($Polity_{ct}$).

Table 6 about here

The coefficient estimates in columns (1) and (6) show that ethnic favoritism is similarly prevalent within and outside of Africa. Hence, the preconception that

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[25]These results do not imply that ethnic favoritism is stronger than birthplace favoritism, as birthplace favoritism is unlikely to benefit entire ethnographic regions. Indeed, Hodler and Raschky (2014a) provide evidence for birthplace favoritism based on administrative regions at the second subnational level (ADM2 regions) and relatively small grid cells.

[26]The likely reason for this difference is that the ethnographic regions are on average much smaller in the Ethnologue data, such that we cut out entirely a considerable share of ethnographic regions that are a political leader's ethnic homeland.

ethnic favoritism is only an African phenomenon is mistaken. Ethnic favoritism rather seems to be a global axiom of politics. The coefficient estimates in columns (2)–(4) and (7)–(9) suggest that there is a tendency for ethnic favoritism to become less prevalent in more developed and more democratic countries, but these tendencies are not statistically significant in any specification.

The recent literature on ethnic favoritism in Africa has intensively studied the constraining effects of improvements in political institutions. Franck and Rainer (2012) and Kramon and Posner (2016) find very limited effects of political institutions on ethnic favoritism, while Burgess et al. (2015) find that ethnic favoritism disappears in anocracies and democracies. In columns (5) and (10) we take a closer look at the relationship between political institutions and ethnic favoritism in our global sample. The estimates differ somewhat across data sets, but the following two results hold in both: First, the coefficient estimates imply that ethnic favoritism tends to be most prevalent in anocracies, suggesting a potentially non-linear relationship. Second, Wald tests do not allow rejecting the null hypothesis that the coefficients on the three interaction terms are all the same.[27]

The pattern emerging from Table 6 is that ethnic favoritism and, therefore, the salience of ethnic cleavages is a global phenomenon, and that the level of development and the quality of the political institutions have little impact on its prevalence.

5.5 Motives for ethnic favoritism

Given that ethnic favoritism is a general phenomenon, the question arises as to why political leaders tend to favor their co-ethnics. Obviously, political leaders will differ in their motivation. Some leaders may simply be more altruistic towards co-ethnics than towards members of other ethnic groups. Other leaders may support their co-ethnics for strategic reasons, e.g., to improve their chances of staying in power (Padró i Miquel 2007). In this section, we investigate whether electoral concerns may be a common motivation for ethnic favoritism.

Political leaders may target policies towards their ethnic homelands to improve their reelection chances in various ways. First, they could favor their co-ethnics before the election, hoping that doing so will increase turnout and

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[27]We also follow Burgess et al. (2014) in putting democracies and anocracies into one category, which we call $NoAutocracy_{ct}$. In both data sets, the coefficients on $Leader_{ict} \times NoAutocracy_{ct}$ are positive and statistically significantly different from zero (at the 5% level) but not from the coefficients on $Leader_{ict} \times Autocracy_{ct}$.

reduce the support for opposition candidates in their ethnic homelands. In this case, we might observe an increase in nighttime light intensity in the election year or even the year before. Second, political leaders could promise to their co-ethnics that they will reward electoral support with favorable policies after the election. In this case, we would observe an increase in nighttime light intensity after the election.

We look at the possibility of ethnic political business cycles in Table 7.

Table 7 about here

In columns (1) and (4), we add to our main specification interaction terms between $Leader_{ict}$ and lag, contemporaneous, and lead values of $Election_{ct}$, which indicates whether there is an election in which the office of the incumbent political leader is contested. The coefficient estimates on all these interactions terms are positive in both data sets, but the exact pattern differs somewhat across data sets. The Ethnologue-based estimates suggest that the political leaders' ethnic homelands benefit mainly after the election, while the GREG-based estimates suggest that they benefit primarily prior to the election. These findings do not therefore point towards a particular way in which political leaders use ethnic favoritism to improve their reelection chances (or the electoral prospect of their preferred co-ethnic candidate if they do not run for reelection themselves), but they strongly suggest that electoral concerns are a force contributing to ethnic favoritism.[28]

Given that electoral concerns seem to motivate ethnic favoritism in the election year as well as in the previous and the subsequent year, we build a new variable, $Election3_{ct}$, indicating whether there is an election in any of these years. That is, $Election3_{ct} \equiv \max\{Election_{ct-1}, Election_{ct}, Election_{ct+1}\}$. In columns (2) and (5) we use this new variable and again find that ethnic favoritism tends to be higher during the election season. The coefficient estimates on $Leader_{ict}$ become somewhat smaller than in our main specification but remain relatively high and statistically significant nevertheless, implying that electoral concerns are not the only reason for ethnic favoritism. A comparison of the coefficient estimates on $Leader_{ict}$ and the interaction term gives an idea about the relative importance of electoral concerns for ethnic favoritism: during the election season, ethnic favoritism increases by around one quarter in the GREG data and

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[28]Focusing on Africa, Eifert et al. (2010) find that the people's ethnic attachment increases in the period around executive elections. This increase may well result from the increase in ethnic favoritism in this period.

two thirds in the Ethnologue data.[29]

In columns (3) and (6) we check whether ethnic favoritism is more or less prevalent in countries in which a single ethnic group constitutes a majority compared to countries in which no majority group exists. $Majority_c = 1$ is equal to one if more than 50% of the population belong to the same ethnic group, and zero otherwise. To ensure consistency with our ethnographic maps, we use data on the size of ethnic groups from Ethnologue and the classical Soviet Atlas Narodov Mira, respectively.[30] Hence, $Majority_c$ is based on current population estimates in the Ethnologue data but on population estimates from 1959–1961 for the GREG data (and thus unavailable for countries that have partitioned since then). The coefficient estimates suggest that ethnic favoritism tends to be less prevalent in countries with an ethnic majority group, but they are not statistically significant. Ethnic favoritism might be less prevalent in countries with an ethnic majority group, because ethnic divisions often play a less important role in these countries' elections. First, incumbent political leaders from a minority group would typically be ill-advised to make ethnic cleavages salient before an upcoming election in these countries. Second, political leaders from the majority group often run against candidates from the same group, such that focusing on ethnic cleavages would typically also not improve reelection chances.

We conclude that, besides altruistic motives towards co-ethnics, electoral concerns are also a likely motive for ethnic favoritism. This latter finding may explain why democratization may not be effective in curbing ethnic favoritism.

5.6 Exploiting linguistic distances

We finally exploit the fact that Ethnologue provides a linguistic tree indicating the relation between all ethnolinguistic groups.[31] We construct the linguistic distance between any two ethnic groups following the approach by Putterman and Weil (2010) and focus on the linguistic distance of any ethnic group from the ethnic group of the country's current political leader.[32] In our sample, the

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[29]We have also investigated whether the effects of elections on ethnic favoritism are stronger in democracies than in anocracies or even autocracies. However, the estimates in the required specifications with triple interaction terms are generally far from statistically significant. Hence, our data do not allow concluding that ethnic political business cycles vary in the quality of political institutions.

[30]We thank Nils Weidman for providing us with the latter data.

[31]We thank Stelios Michalopoulos for suggesting this extension at the NBER 2015 Political Economy Workshop.

[32]In a linguistic tree, each language is characterized by a series of nodes. Putterman and Weil (2010, Appendix C) define the linguistic distance between any pair of languages i, j as

average linguistic distance from the political leader's ethnicity is 0.59 (with a standard deviation of 0.39). We construct dummy variables representing various ranges of this distance: $DistanceX_{ict} = 1$ if the linguistic distance is between $(X-1)/10$ and $X/10$ for $X = \{0, 1, 2, ..., 5\}$.

We use these dummy variables as explanatory variables in column (1) of Table 8.

Table 8 about here

These estimates are interesting for various reasons. First, they show that the extent to which the political leaders support their ethnic homeland is larger than the main specification implies. In particular, the coefficient estimate on $Distance0_{ict}$ of 0.100 implies that the ethnic homeland of the political leader has 10% more intense nighttime light and around 3% more economic activity than it would have in a counterfactual situation of a political leader with a linguistic distance larger than 0.5. Second, the estimates show that ethnic favoritism extends to linguistically close groups. In particular, the coefficient estimates on $Distance1_{ict}$ and $Distance2_{ict}$ are still relatively large and statistically significant, and even the coefficient estimates on $Distance3_{ict}$ and $Distance4_{ict}$ are still considerably above zero (but not statistically significant). This pattern strengthens our causal interpretation. The major endogeneity concern is that new political leaders may come from ethnographic regions that have become more economically active in recent years. We have shown in section 5.2 that the nighttime light dynamics around ethnic transitions do not support this scenario. Complementarily, the finding that linguistically close groups benefit also does not support this scenario, as it seems even less likely that political leaders get into power because linguistically close groups have become economically more active.

We next replace all the distance variables with the interaction terms of these variables with both $Election3_{ict}$ and $(1 - Election3_{ict})$. That is, we separate the effects in years around elections and in other years. We report the coefficient estimates on these interaction terms in columns (2a) and (2b). We find that ethnic favoritism towards the ethnographic regions of linguistically close groups also increases during the election season. Moreover, the effect even tends to decrease relatively less fast in linguistic distances during the election season. Hence, electoral concerns may play a relatively more important role for ethnic

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$1 - \sqrt{2m^c_{i,j}/(m_i + m_j)}$, where m_i is the number of nodes of language i, and $m^c_{i,j}$ the number of common nodes of languages i and j.

favoritism towards relatively close groups than for ethnic favoritism towards the political leader's own group. This pattern is consistent with the idea that the political leader's altruism is higher towards his own ethnic group than towards relatively close but still different groups.

6 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 two panel data sets with several thousand subnational ethnographic regions from around 140 multi-ethnic 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: ethnographic regions enjoy on average 7%–10% higher nighttime light intensity and 2%–3% higher GDP when being the political leader's ethnic homeland.

Thanks to our large and diverse sample, we have gained interesting new insights into the prevalence and determinants of ethnic favoritism. First, even though ethnic favoritism is prevalent in Africa, it is not just an African axiom of politics. It is a global axiom of politics, which is prevalent within and outside of Africa and in poor as well as rich countries. Second, the constraining effects of sound political institutions are limited. Hence, democratization is in general no panacea for curbing ethnic favoritism. Third, electoral concerns contribute to ethnic favoritism, which may explain why democratization is no panacea. Finally, 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 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.[33]

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[33]Dickens (2016) and Mueller and Tapsoba (2016) already apply our novel approach in their

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Tables

Table 1: Summary statistics

Variable	Observations	Mean	Standard Deviation (overall, between, within)	Min.	Max.
			A. Ethnologue		
$Light_{ict}$	147,825	-2.50	2.48, 2.37, 0.66	-4.61	4.14
$Leader_{ict}$	147,825	0.05	0.17, 0.16, 0.06	0	1
GDP_{ct}	120,541	7.98	1.24, 1.20, 0.30	5.29	11.16
$Polity_{ct}$	141,164	0.65	0.30, 0.25, 0.15	0	1
$Election_{ct}$	135,050	0.16	0.36, 0.08, 0.36	0	1
			B. GREG		
$Light_{ict}$	41,416	-1.50	2.37, 2.30, 0.59	-4.61	4.08
$Leader_{ict}$	41,416	0.14	0.29, 0.27, 0.09	0	1
GDP_{ct}	35,700	8.27	1.15, 1.13, 0.27	5.29	10.88
$Polity_{ct}$	39,546	0.63	0.32, 0.29, 0.13	0	1
$Election_{ct}$	37,487	0.17	0.38, 0.08, 0.37	0	1

Notes: Summary statistics based on annual data for ethnographic regions from 1992-2013, based on the Ethnologue and the GREG sample used in our main specification (Table 3, column (3)).

Table 2: Information on countries with ethnic transitions

	(1) Countries	(2) Leadership transitions	(3) Ethnic transitions	(4) GDP_{ct}	(5) $Polity_{ct}$	(6) Ethnographic regions
			A. Ethnologue			
Entire sample	141	4.05 (3.0)	1.09 (0.0)	8.44 (8.31)	0.67 (0.75)	54.28 (13.0)
Countries with ethnic transitions	52	4.17 (3.0)	2.96 (2.0)	7.83 (7.46)	0.66 (0.70)	85.37 (31.5)
in Africa	28	3.39 (3.0)	2.79 (2.0)	7.00 (6.98)	0.56 (0.60)	59.79 (35.5)
elsewhere	24	5.08 (4.0)	3.17 (2.0)	8.51 (8.58)	0.78 (0.86)	115.21 (12.5)
			B. GREG			
Entire sample	137	4.22 (3.0)	0.99 (0.0)	8.40 (8.31)	0.66 (0.74)	14.83 (9.0)
Countries with ethnic transitions	45	4.51 (3.0)	3.02 (2.0)	7.82 (7.60)	0.64 (0.64)	18.42 (13.0)
in Africa	25	3.20 (3.0)	2.44 (2.0)	7.05 (7.05)	0.54 (0.55)	13.56 (12.0)
elsewhere	20	6.15 (4.0)	3.75 (2.5)	8.81 (8.58)	0.77 (0.85)	24.50 (15.5)

Notes: Table is based on our data on political leaders for 1992–2013. Column (1) indicates the number of countries in the respective sample. Column (2) indicates the average (median) number leadership transitions in the respective sample. Column (3) indicates the average (median) number leadership transitions associated with a change in the political leader's ethnicity in the respective sample. Column (4) and (5) indicate the average (median) of GDP_{ct} and $Polity_{ct}$ in the respective sample (see text in Section 3 for definitions of GDP_{ct} and $Polity_{ct}$). Column (6) indicates the average (median) number of ethnographic regions in the countries of the respective sample according to the respective ethnographic map.

Table 3: Ethnic favoritism: Baseline results

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
				A. Ethnologue			
$Leader_{ict}$	1.319***	0.921*	0.068***	0.070**		0.070***	0.061***
	(0.278)	(0.500)	(0.022)	(0.030)		(0.023)	(0.021)
$Leader_{ict-1}$					0.072***		
					(0.022)		
$Light_{ict-1}$							0.948***
							(0.005)
Region fixed effects	no	no	yes	yes	yes	yes	no
Country-year dummy variables	yes	yes	yes	yes	yes	yes	yes
R-squared	0.468	0.382	0.265	0.265	0.267	0.202	0.941
Observations	147,825	77,603	147,825	115,279	147,617	147,825	141,394
Number of countries	141	52	141	141	141	141	141
				B. GREG			
$Leader_{ict}$	1.648***	1.605***	0.074**	0.047		0.066**	0.051***
	(0.158)	(0.331)	(0.029)	(0.031)		(0.029)	(0.007)
$Leader_{ict-1}$					0.082***		
					(0.028)		
$Light_{ict-1}$							0.967***
							(0.003)
Region fixed effects	no	no	yes	yes	yes	yes	no
Country-year dummy variables	yes	yes	yes	yes	yes	yes	yes
R-squared	0.524	0.439	0.490	0.497	0.492	0.421	0.968
Observations	41,416	15,290	41,416	30,884	41,284	41,416	39,544
Number of countries	137	43	137	137	137	137	137
Dependent variable	$Light_{ict}$	$Light_{ict}$	$Light_{ict}$	$Light_{ict}$	$Light_{ict}$	$Lightpc_{ict}$	$Light_{ict}$
Sample restriction	no	Ethnic transitions	no	Homogenous regions	no	no	no

Notes: Columns (3)-(6) report fixed effect estimates, and columns (1), (2) and (7) standard OLS estimates using annual data for ethnographic regions of multi-ethnic countries (according to the respective ethnographic map) from 1992–2013, excluding country-years with ethnic transitions. Dependent variable is $Light_{ict}$, except in column (6) where it is $Lightpc_{ict}$. Column (2) excludes countries without ethnic transitions, and column (4) ethnographic regions with more than one ethnic group. Standard errors are adjusted for clustering at the country level. ***, **, * indicate significance at the 1, 5 and 10%-level, respectively.

Table 4: Transitional dynamics

	Ethnologue			GREG		
	(1)	(2)	(3)	(4)	(5)	(6)
$PreEntry2_{ict}$			-0.040			0.020
			(0.081)			(0.028)
$PreEntry1_{ict}$		-0.046	-0.019		0.001	0.006
		(0.062)	(0.048)		(0.029)	(0.034)
$Entry_{ict}$	0.024	0.025	0.035	0.014	0.024	0.027
	(0.026)	(0.031)	(0.038)	(0.029)	(0.034)	(0.038)
$Leader_{ict}$	0.059**	0.061**	0.062*	0.076***	0.087***	0.094***
	(0.024)	(0.026)	(0.031)	(0.026)	(0.026)	(0.027)
$Exit_{ict}$	0.029	0.032	0.037	0.060*	0.070*	0.094**
	(0.027)	(0.032)	(0.036)	(0.034)	(0.040)	(0.043)
$PostExit1_{ict}$		-0.007	-0.019		0.033	0.017
		(0.047)	(0.053)		(0.038)	(0.044)
$PostExit2_{ict}$			-0.042			0.019
			(0.043)			(0.028)
Region fixed effects	yes	yes	yes	yes	yes	yes
Country-year dummy variables	yes	yes	yes	yes	yes	yes
R-squared	0.259	0.259	0.257	0.490	0.490	0.481
Observations	162,083	161,916	152,370	43,670	43,651	41,299
Number of countries	141	141	141	137	137	137

Notes: Table reports fixed effect estimates using annual data for ethnographic regions of multi-ethnic countries (according to the respective ethnographic map) from 1992–2013. Dependent variable is $Light_{ict}$. Standard errors are adjusted for clustering at the country level. ***, **, * indicate significance at the 1, 5 and 10%-level, respectively.

Table 5: Ethnic favoritism is not birthplace favoritism

	Ethnologue				GREG			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$Leader_{ict}$	0.074**		0.064**	0.078	0.086***		0.081**	0.092***
	(0.031)		(0.032)	(0.052)	(0.029)		(0.033)	(0.027)
$LeaderBirth_{ict}$		0.042*	0.027			0.036	0.011	
		(0.025)	(0.026)			(0.029)	(0.033)	
Region fixed effects	yes	yes	yes	yes	yes	yes	yes	yes
Country-year dummy variables	yes	yes	yes	yes	yes	yes	yes	yes
R-squared	0.260	0.260	0.260	0.259	0.480	0.480	0.480	0.478
Observations	137,161	137,161	137,161	134,642	39,189	39,189	39,189	38,971
Number of countries	139	139	139	139	136	136	136	136
SN2 birth regions clipped	no	no	no	yes	no	no	no	yes

Notes: Table reports fixed effect estimates using annual data for ethnographic regions of multi-ethnic countries (according to the respective ethnographic map) from 1992–2013, excluding country-years with ethnic transitions or with political leaders whose birth place were abroad or are unknown. Dependent variable is $Light_{ict}$, but in columns (4) and (8) we have dropped the ADM2 birth regions of any political leader during our sample period from the respective ethnographic region(s) before calculating average regional nighttime light intensity (see text for details). Standard errors are adjusted for clustering at the country level. ***, **, * indicate significance at the 1, 5 and 10%-level, respectively.

Table 6: Ethnic favoritism across the world

	Ethnologue					GREG				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
$Leader_{ict}$	0.060***	0.363	0.096	0.453		0.079*	0.199	0.138*	0.182	
	(0.018)	(0.263)	(0.082)	(0.381)		(0.043)	(0.269)	(0.078)	(0.445)	
$Leader_{ict} \times Africa_c$	0.020			-0.053		-0.010			-0.027	
	(0.047)			(0.078)		(0.058)			(0.105)	
$Leader_{ict} \times GDP_{ct}$		-0.038		-0.045			-0.016		-0.000	
		(0.034)		(0.048)			(0.035)		(0.052)	
$Leader_{ict} \times Polity_{ct}$			-0.050	-0.033				-0.103	-0.128	
			(0.101)	(0.113)				(0.104)	(0.110)	
$Leader_{ict} \times Democracy_{ct}$					0.051**					0.029
					(0.024)					(0.036)
$Leader_{ict} \times Anocracy_{ct}$					0.088					0.127**
					(0.058)					(0.061)
$Leader_{ict} \times Autocracy_{ct}$					0.043					0.116
					(0.080)					(0.075)
Region fixed effects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Country-year dummy variables	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
R-squared	0.265	0.262	0.264	0.261	0.264	0.490	0.470	0.491	0.469	0.491
Observations	147,825	120,541	141,164	115,137	141,164	41,416	35,700	39,546	34,442	39,546
Number of countries	141	131	134	125	134	137	127	131	122	131

Notes: Table reports fixed effect estimates using annual data for ethnographic regions of multi-ethnic countries (according to the respective ethnographic map) from 1992–2013, excluding country-years with ethnic transitions. Dependent variable is $Light_{ict}$. Standard errors are adjusted for clustering at the country level. ***, **, * indicate significance at the 1, 5 and 10%-level, respectively.

Table 7: Motivations for ethnic favoritism

	Ethnologue			GREG		
	(1)	(2)	(3)	(4)	(5)	(6)
$Leader_{ict}$	0.052**	0.052**	0.083***	0.067**	0.070**	0.099***
	(0.025)	(0.024)	(0.026)	(0.034)	(0.033)	(0.033)
$Leader_{ict} \times Election_{ct+1}$	0.020			0.031*		
	(0.016)			(0.017)		
$Leader_{ict} \times Election_{ct}$	0.031*			0.016		
	(0.017)			(0.020)		
$Leader_{ict} \times Election_{ct-1}$	0.045**			0.016		
	(0.019)			(0.015)		
$Leader_{ict} \times Election3_{ct}$		0.034**			0.016	
		(0.015)			(0.015)	
$Leader_{ict} \times Majority_c$			-0.069			-0.045
			(0.044)			(0.073)
Region fixed effects	yes	yes	yes	yes	yes	yes
Country-year dummy variables	yes	yes	yes	yes	yes	yes
R-squared	0.239	0.239	0.265	0.453	0.453	0.498
Observations	127,913	127,913	147,825	35,621	35,621	36,395
Number of countries	136	136	141	133	133	112

Notes: Table reports fixed effect estimates using annual data for ethnographic regions of multi-ethnic countries (according to the respective ethnographic map) from 1992–2013, excluding country-years with ethnic transitions. Dependent variable is $Light_{ict}$. Standard errors are adjusted for clustering at the country level. ***, **, * indicate significance at the 1, 5 and 10%-level, respectively.

Table 8: Ethnic favoritism and linguistic distances

	Ethnologue		
	(1)	(2a)	(2b)
Interacted with:	−	$Election3_{ct}$	$(1 - Election3_{ct})$
$Distance0_{ict}$	0.100***	0.117***	0.090**
	(0.035)	(0.034)	(0.039)
$Distance1_{ict}$	0.078*	0.086**	0.063
	(0.040)	(0.038)	(0.041)
$Distance2_{ict}$	0.063**	0.090***	0.049
	(0.030)	(0.032)	(0.037)
$Distance3_{ict}$	0.034	0.066	0.043
	(0.044)	(0.042)	(0.046)
$Distance4_{ict}$	0.039	0.065	0.013
	(0.040)	(0.040)	(0.048)
$Distance5_{ict}$	0.015	0.009	-0.013
	(0.032)	(0.033)	(0.034)
Region fixed effects	yes	yes	
Country-year dummy variables	yes	yes	
R-squared	0.265	0.239	
Observations	147,825	127,913	
Number of countries	141	136	

Notes: Table reports fixed effect estimates using annual data for ethnographic regions of multi-ethnic countries (according to Ethnologue) from 1992–2013, excluding country-years with ethnic transitions. Dependent variable is $Light_{ict}$. Columns (2a) and (2b) report coefficient estimates on different interaction terms from the same regression. Standard errors are adjusted for clustering at the country level. ***, **, * indicate significance at the 1, 5 and 10%-level, respectively.

Figures

Figure 1: Time windows around ethnic transitions
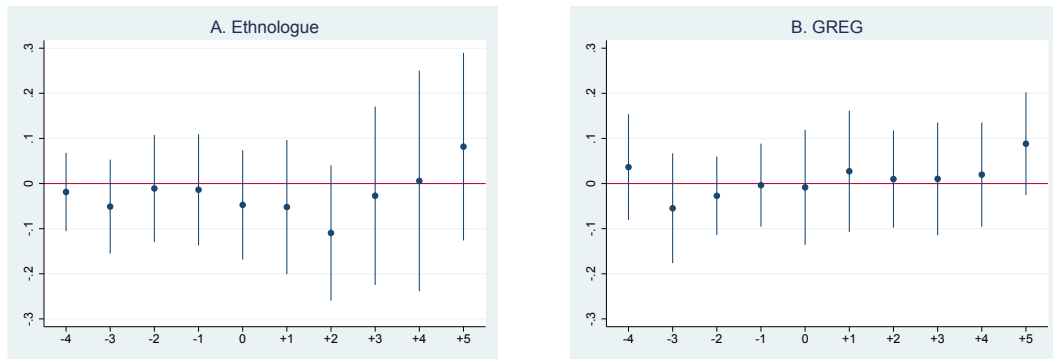
Notes: Figures are based on 11-year time windows around ethnic transitions in which the new political leader is from an ethnic group that was out of power in the previous five years, and stayed in power in the subsequent five years. The coefficient estimates indicate his ethnic homeland in the years prior to the ethnic transition (-4,-3,-2,-1, with -5 being omitted), the year of the ethnic transition (0), and the years thereafter (+1,+2,+3,+4,+5). The estimates include region-fixed effects and country-year dummy variables. Standard errors are adjusted for clustering at the country level. Vertical lines indicate 95% confidence intervals.