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Natural Resources and Political Patronage in Africa: An Ethnicity Level Analysis

Nemera Mamo[1, 2] and Sambit Bhattacharyya[1]

[1] Department of Economics, University of Sussex, UK
[2] SOAS, University of London
n.mamo@sussex.ac.uk, s.bhattacharyya@sussex.ac.uk

Abstract: We investigate the effect of resource discoveries on ethnicity level political patronage in Africa using a large geospatial dataset of 254 ethnic groups in 15 countries over the period 1960 to 2004. We find that the first (or single first) resource discovery in a virgin ethnic homeland increases the share of cabinet posts of that ethnicity. The effect is induced by both expectations and rent. Overall the effect is mainly driven by major mineral discoveries as opposed to oil and gas. The discovery shocks do not trigger monopoly or dominant access to power, autonomy, separatism, and exclusion. Our analysis reveals that point source resource (mineral) rents are far more important political currency than diffuse agricultural commodity rents. Furthermore, by ranking ministries into Top and Bottom levels we find some evidence of window dressing politics. Our results survive a battery of robustness tests and controls.

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1 Introduction

Natural resources have been the economic mainstay of Africa for a long time. A large literature covers the macroeconomic implications of natural resource dependence for the continent (Sachs and Warner, 1997; van der Ploeg, 2011). Natural resources and especially subsoil wealth by definition are more of a 'destiny' than 'enterprise'. In other words, the location of subsoil wealth is determined by geology rather than human endeavour. Typically their distribution under the earth's surface is uneven with some groups, ethnicities, or countries are more fortunate than others to inherit certain types of minerals. Standard theory of political economy would postulate that such variation in resource endowment should have a direct effect on local or ethnicity level economic and political power (Engerman and Sokoloff, 1994). Indeed, one would expect such mechanism to be even more active in Africa as ethnicity is perceived to be the fundamental organising principle of the continent's politics (Easterly and Levine, 1997; Posner, 2005). Yet the micro ethnicity level political consequences of natural resources in Africa remains largely unknown.

It could very well be that natural resources play a decisive role in the power sharing dynamic within the African political system. In other words, ethnicities from resource rich regions empowered by their enhanced economic and political power could demand additional representation in the central government in the form of cabinet posts. The incumbent leader or the ruling elite could respond by ignoring these demands and resorting to coercion. Alternatively, the incumbent elite could also co-opt these resource rich ethnic groups using political patronage. In this paper we empirically test whether the natural resource based patronage mechanism is active in Africa at the ethnicity level. We use a unique dataset on natural resource (minerals, oil and gas) discovery, commodity (minerals and agriculture) prices, ethnic share of cabinet positions, and ethnic access to state executive power. Our data on resource discovery is georeferenced which allows us to find the geolocation of deposits

and reference them to Murdock (1967) map of ethnic homeland in Africa. Furthermore, we are able to identify first discovery within a particular ethnic homeland and distinguish between giant and major deposits depending on their size. We utilise multiple sources such as the US Centre for World Mission (Joshua Project), ethnicity maps of the University of Texas Library, and Murdock (1967) Ethnographic Atlas to geo-reference the political power sharing data sourced from Francois et al. (2015) and the Ethnic Power Relations (EPR) Database. Finally, we also compute ethnicity level mineral and agricultural price indices utilising commodity price data from the IMF, United States Geological Survey (USGS), and Bazzi and Blattman (2014).

We find that first resource (minerals or oil and gas) discovery in a virgin ethnic homeland increases the share of cabinet posts of that ethnicity by 1 percentage point (or 0.2 additional cabinet post) 2 years after the discovery after controlling for ethnicity fixed effects, time varying common shocks, country specific time varying shocks, and co-ethnicity effect of the incumbent leader. This is likely to be an expectation induced positive effect following the discovery news shock which fades away after 4 years. However, a much stronger positive effect reappears 6 years after the discovery shock and remains relevant even 10 years after the shock. In all likelihood, the latter effect is entirely driven by the rent derived from resource extraction which on average starts 6-8 years after discovery. This pattern hardly changes if we focus on single first and major discoveries. We also find that the effect is mainly driven by minerals as opposed to oil and gas.

If the '6 years post discovery' effects are indeed driven by rent then one would expect to see similar effects after a price shock. Indeed we find a similar positive effect up to 5 years after a *point source resource* (minerals) price shock. However, that effect is reversed in the event of a price shock in more *diffuse* agricultural commodities. A positive agricultural commodity price shock reduces the share of cabinet posts for a particular ethnicity. This is

perhaps reflective that rent from *point source resources* (minerals) is far more important political currency relative to rent from agricultural commodities. Moreover, agricultural rent in Africa is far more diffuse than mining rent. The latter is disproportionately more capital intensive whereas the former is typically dominated by smallholders and subsistence. It is worthwhile noting that the owners of capital in the mining sector are a small, well-connected and exclusive group compared to the smallholders in the agricultural sector. Therefore, the handful of well-connected owners of mining rent are relatively easy to co-opt in comparison to the far more numerous smallholders in the agricultural sector.

Do ministerial appointments come with real power or is it merely window dressing? Following Francois et al. (2015), we rank cabinet positions into high and low categories. For example, Defense, Finance, Economy, Foreign Affairs, Trade, Education, etc. are ranked as high level ministerial appointments. In contrast, Environment, Civil Service, Cultural Affairs, Social Service, Youth and Sport are ranked as low level ministerial appointments. We find that the effect of resource discovery and commodity price shocks on both high and low level cabinet positions are positive and statistically significant suggesting that the appointments are not symbolic. These positions come with real power and responsibilities. However, the effect of the discovery shock is greater in low level ministerial appointments as opposed to high level appointments indicating some degree of window dressing politics. Furthermore, we also find evidence of ethnic favoritism. We notice that the co-ethnic brethrens of the national leader receives more cabinet posts relative to the others.

We contribute to the literature by adopting an innovative approach towards geocoding the ethnic share of cabinet posts dataset and relating it to Murdock's Ethnographic Atlas. Furthermore we marry this data with our georeferenced data of resource discovery and commodity prices to estimate the effect of natural resource discovery and price shocks on ethnicity level power politics in Africa. The ethnicity level political consequences of natural

resources in Africa is not widely studied. To the best of our knowledge, our study is the first attempt to systematically analyse these effects using rigorous empirical methods.

Similar to Mamo et al. (2017), our cleanest identification strategy relies on the exclusivity and randomness of the single first discovery of natural resources in a particular ethnic homeland. This refers to the virgin ethnic homelands which receives their one and only resource discovery during the sample period. We use multiple layers of clustering starting from ethnic homeland to country levels to account for cross-sectional and intertemporal dependence. In addition we also use a strategy similar to Cotet and Tsui (2013), Bhattacharyya et al. (2017), and Arezki et al. (2017) which relies on the stochastic nature of the discovery dates of giant and supergiant mineral and oil discoveries. A mineral deposit is coded as giant if it has the capacity to generate at least USD 0.5 billion of annual revenue for 20 years or more accounting for fluctuations in commodity price. A giant oil or/and gas (including condensate) field is a deposit that contains at least a total of 500 million barrels of ultimate recoverable oil or gas equivalent. This would be able to generate an annual revenue stream of approximately USD 0.4 billion under the assumptions that over the sample period the average gestation lag between production and discovery is 5 years, the average price of a barrel is USD 25, and the average discount rate including the country specific risk premium is 10 percent.[3] Therefore, it is reasonable to assume that both the giant oil and mineral discovery shocks are approximately of the same size on average. However, it is important to note that these value calculations are based on parametric assumptions which could be revised in subsequent years.

Exploration effort could drive resource discovery in a country. This may not be an issue in the specifications with the first discovery variable but it could be a source of bias in the specifications based on giant or major discoveries. We do not have ethnic homeland level

[3] Some studies claim that the risk premium augmented discount rate should be as high as 14-15 percent. Arezki at al. (2017) presents a more sophisticated analysis of net present value of giant oil discoveries and find that the median size of a giant discovery is approximately 5-6 percent of GDP.

measures of exploration effort. However, we could be reasonably confident that the country specific time varying effects in our specifications are controlling for exploration effort.

A recent literature study the nature of cabinet post allocations in Africa and its consequences. For example, Arriola (2009) and Roessler (2011) study how cabinet appointments prolong the tenure of an incumbent and influence the risk of political violence. Burgess et al. (2015) and Kramon and Posner (2016) study the motivations behind cabinet post allocations and find ethnic favoritism to be playing a significant part. In contrast, Francois et al. (2015) find ethnic population share to be the prime driver of cabinet post allocation in Africa. None of these studies look into the role of natural resources and especially point source resources which we actively pursue here.

Our work is related to the literature on political resource curse (Robinson et al., 2006; Caselli and Cunningham, 2009). Understanding the impact of natural resources on political outcomes is central to this predominantly cross-country macro literature. However, this literature do not engage with the ethnicity level patronage mechanism following a natural resource shock so common in resource rich African countries. We explicitly study this phenomenon using detailed micro data which undoubtedly moves this literature forward.

A large and predominantly macro literature document the harmful role of ethnic politics in African economic development (Easterly and Levine, 1997; Gennaioli and Rainer, 2007; Michalopoulos and Papaioannou, 2013). These studies by design do not focus on the micro ethnicity level political dynamics.

Finally, our paper is also related to the resource curse literature. Auty (2001), Gylfason (2001) and Sachs and Warner (2001, 2005) note that resource rich countries on average grow much slower than resource poor countries. Subsequent studies have argued that natural resources may lower the economic performance because they strengthen powerful groups, weaken legal frameworks, and foster rent-seeking activities (e.g., Tornell and Lane,

1999; and Besley, 2006). Others have argued whether natural resources are a curse or a blessing depends on country-specific circumstances especially institutional quality (eg., Mehlum et al., 2006; Robinson et al., 2006; Bhattacharyya and Hodler, 2010, 2014; Bhattacharyya and Collier, 2014), natural resource type (Isham et al., 2005) and ethnic fractionalisation (Hodler, 2006).

The remainder of the paper is structured as follows: Section 2 discusses the data and empirical strategy. Section 3 presents evidence on the effects of resource discovery and commodity price shocks on the ethnic share of cabinet posts. It separately examines the effect of point source and agricultural resources using their respective prices. It reports the heterogeneous effects of oil and minerals. It also explores whether the cabinet post allocations are merely window dressing. Section 4 deal with robustness and section 5 concludes.

2 Data and Empirical Strategy

We create a large georeferenced dataset of resource discoveries and political power sharing in Africa of 254 ethnic groups spread over 15 countries over the period 1960 to 2004. We also use some variables from an additional dataset on ethnic power relations which covers up to 206 ethnic groups spread over 36 countries over the period 1960 to 2010. Not all of this data is georeferenced at source and therefore a lot of work went into geocoding them. In what follows, we carefully illustrate the nature and source of our data, the detailed work of geocoding the multi-ethnic power sharing dataset, and the computation of ethnicity level prices of minerals and agricultural commodities. This is followed by a description of the empirical strategy. Table 1 presents summary statistics of all variables.

2.1 Data

Political Power Sharing Datasets

We use two datasets on ethnicity level political power sharing in Africa. The first is a dataset

constructed by Francois et al. (2015) on the ethnic composition of the governing cabinets in post-colonial Africa. Hereinafter we call this the FRT15 dataset. The second dataset is due to Wucherpfennig et al. (2011) which codes the nature and degree of ethnic access to state power. This dataset is known as the Ethnic Power Relations (EPR) dataset.

The Francois, Rainer and Trebbi (FRT15) Dataset

The FRT15 dataset attempts to capture the central role of the executive branch of the government in African polity. They identify the ethnicity of national cabinet ministers in 15 equatorial African countries since independence until the year 2004. However, they do not identify the geolocation of these ethnicities – a task that we undertake here. FRT15's sample covers 45 percent of the African population. Appendix A1 presents a list of countries in their sample and Appendix A3 presents a list of ethnic groups of the same.

FRT15 dataset includes at least one list of government ministers for every calendar year between 1960 and 2004, except for some missing years.[4] It contains information about the cabinet headed by different leaders (often presidents and prime ministers, and occasionally vice-presidents or deputy prime-ministers) who led their respective countries between 1960 and 2004. In addition to the leaders, the dataset lists a vast majority of ministers (as a member of the government, or the cabinet office) with their ethnic identity. FRT15 confirms that they have used the World Biographical Information System (WBIS) database and a variety of internet sources to identify ethnic origin of each government minister. Furthermore, they also confirm using local consultants with expertise on domestic political history and ethnicity to confirm ethnicity of ministers. However, FRT15 are not able to identify all ethnicities and therefore they create the residual "Other" category which is a compilation of unidentified ethnicities (Rainer and Trebbi, 2012).

As we have noted earlier, FRT15 do not report the geo-coordinates (latitude and

[4] For details on missing years by country see Long Appendix Table A1. Long Appendix Tables A2 and A3 provide further descriptive statistics on FRT15 and EPR datasets.

longitude) of ethnic groups. Therefore, we embark on the task of generating the geo-coordinates of ethnic groups identified in their dataset so that we can match it with our geo-coded data on resource discovery. We do this by mainly utilizing the ethnicity database from the Joshua Project (U.S. Centre for World Mission). The Joshua Project reports the most detailed map of ethnic groups around the world. It receives data from a variety of sources including the Ethnologue, mission agencies, field workers, census data, and surveys. In addition to the Joshua Project, we also search for the latitudes and longitudes of ethnicities in http://www.latlong.net. We are unable to identify the geolocation of some residual ethnic groups using the Joshua Project or http://www.latlong.net. For these ethnic groups, we refer to the country-specific ethnicity maps from the University of Texas Library and internet search. Full details of the ethnicity level geo-coordinates are available from our accompanying dataset. Note that we are able to create a complete geolocation map of ethnic groups in FRT15 except for the residual "Other" categories. These geo-coordinates allow us to create point shapefiles representing ethnic groups as shown in Figure 1. The points are equivalent to the centroids of ethnic groups.

Using Spatial Join in ArcGIS, we join the ethnicities from Figure 1 with Murdock's (1967) ethnolinguistic map as depicted in Figure 2. Murdock's ethnolinguistic map portrays the spatial distributions of ethnicities across Africa. These are polygons representing the settlement regions of ethnic groups. The records in the attribute table store the names of the ethnic groups living in the respective settlement region. Except for the residual "Other" categories, all ethnic groups identified in the FRT15 dataset are spatially joined with the polygon shapefiles.

While spatially joining ethnic groups in FRT15 with Murdock's ethnolinguistic map, more than one point shapefiles in Figure 1 could be geographically joined with a single polygon shapefile in Figure 2. Since FRT15 use a more disaggregated ethnic category

compared to Murdock's map, joining the two datasets by similar name category alone would significantly limit the number of ethnic groups. Furthermore, ethnic groups could be represented by different names when consulting different sources. For example, in Benin or some other neighboring countries, ethnic classifications defined as Adja, Aizo, Goun or Mina can belong to a single ethnic category known as Fon (Rainer and Trebbi, 2012). A plausible reason for such differences could be that several contemporary ethnic classifications (as used by FRT15) originally belong to a single family as reported by Murdock's ethnolinguistic map. Alternatively, old disaggregated ethnic classifications could be represented by a single culture or language group today. To avoid such issues, we join the point shapefiles in Figure 1 with polygon shapefiles in Figure 2 using a spatial perspective.

FRT15 reports 279 ethnic groups including the residual "Other" category whereas we have 261 ethnic groups. This is because we lose 15 ethnic groups as they are coded as "Other" in the FRT15 dataset. Furthermore, we could not generate geo-coordinates of 3 ethnic groups.

In addition to reporting the ethnic share of cabinet positions and the ministers' ethnicity, the FRT15 dataset also reports population size, the largest ethnicity indicator, and the coalition members. The main advantage of FRT15 over all other datasets including the EPR is that power sharing is measured at the individual minister level and each single position is identified. Therefore, it allows us to calculate the share of cabinet positions held by each ethnicity in a country. Furthermore, FRT15 uses a fine classification of ethnicities, which is much closer to the standard ethnicity classifications of Alesina et al. (2003) and Fearon and Laitin (2003).

Ethnic Power Relations (EPR) Dataset

We use the EPR dataset to test the effect of resource discovery and commodity price shocks on ethnic power politics in Africa. EPR codes these categorical variables as: *monopoly* which

denotes exclusive monopoly power of ethnic members in the executive to the exclusion of all other ethnicities, *dominance* which denotes dominant power of ethnic members in the executive with some limited inclusion of other ethnicities who do not have real influence, *excluded* which denotes ethnicity not represented in the central government, *autonomy* which denotes ethnicity elites dominate provincial government, and *separatist* which denotes ethnicity elites dominate a breakaway region. EPR provides annual data on 206 politically relevant ethnicities[5], and their access to executive state power in 39 African countries over the period 1960 to 2010. Appendix A2 presents a list of countries in the EPR sample. Political power in this dataset refers to executive power only, while disregarding legislative and judicial power. The executive power here includes the presidency, the cabinet, and senior or top positions including army command. The nature of the government could be democratic, military dictatorship, one-party or dominant-party state etc. The EPR dataset is georeferenced and Figure 3 presents a locational map of the dataset. However, it does not include information on the leader's ethnicity in a particular country. We create a concordance between the EPR and FRT15 in order to use the latter's leader ethnicity variable. This significantly reduces the effective EPR sample size in our regressions to 14 countries and 64 ethnic groups.[6]

Natural Resources Datasets

We use the following datasets on natural resources in Africa. First, we use the IntierraRMG dataset to compute ethnic specific mineral production. Second, we use data from the Spatial Production Allocation Model (SPAM) compiled by You et al. (2012) to compute ethnic homeland specific agricultural production. Third, we use the MinEx Consulting database to

[5]The inclusion and exclusion of ethnicities is based on the standard definition of Politically Relevant Ethnic Group (PREG). An ethnicity is politically relevant if either at least one significant political actor represents the interests of that group in national politics or if group members are systematically and intentionally discriminated against in the domain of public politics.

[6] Note that the regression results do not change with EPR if we drop the leader ethnicity variable as a control. More on this in section 3.

locate ethnic homeland specific mineral discoveries and we use Horn (2004) to locate ethnic homeland specific oil discoveries. Note that oil discoveries throughout the paper refers to oil and gas discoveries. Figure 4 shows the geographic locations of mineral production and discoveries and oil discoveries. In what follows, we briefly discuss these datasets in turn.

Mineral Production Data

Our aim is to construct ethnic homeland specific mineral price shocks using the mineral production data. We do this by combining the time invariant spatial variation in production of various minerals with time varying data on global metal prices. The IntierraRMG dataset contains annual data on production levels from 548 industrial sized mines in Africa. These mines are georeferenced with point coordinates. Therefore we could match all the mines to their ethnic homeland boundaries thereby constructing ethnic homeland specific mineral production.

Agricultural Production Data

Again our aim is to construct ethnic homeland specific agricultural commodity price shocks using the agricultural production data. The Spatial Production Allocation Model (SPAM) contains time invariant data on agricultural production in the year 2000 for all countries in Africa. It provides 10x10 km grid-level crop production for a range of major agricultural crops across the world. We exploit the time invariant production data of SPAM to construct ethnic homeland specific agricultural commodity production data. We focus on the following crops in the SPAM data: coffee, cotton, groundnuts, maize, rice, soybeans, wheat, sorghum, banana, barley, and sugar because these crops represent a bundle of important export commodities for Africa. Furthermore, it is also easy to get corresponding international price data for these commodities.

Mineral and Oil Discovery Datasets

We obtain the mineral discovery data from MinEx Consulting and oil and gas discovery data

from Horn (2004). Both datasets provide geocoded information about the location and the year of discovery. A giant mineral deposit has the capacity to generate at least USD 0.5 billion of annual revenue for 20 years or more whereas a giant oil or/and gas (including condensate) deposit has the capacity to generate an annual revenue stream of approximately USD 0.4 billion under certain assumptions which we have already mentioned in section 1. A major mineral and oil and gas deposit would be the one generating an annual revenue stream of at least USD 50 million but not as long life as a giant reserve.

MinEx reports 263 discoveries of deposits of 19 minerals[7] from 1950 to 2012 and gold represents about 48% of the discoveries. Horn (2004) reports 59 onshore giant oilfield discoveries over the period 1955 to 2010. The summary statistics about discoveries appear in table 1. Countries are heterogeneous in terms of the number and location of discoveries[8]. Botswana, Burkina Faso, Democratic Republic of Congo, Ghana, Mali, Namibia, South Africa, Tanzania and Zimbabwe experience more than 4 percent share of mineral discoveries individually in the continent over the sample period. In Mike Horn's oil discovery dataset, Libya and Nigeria represents 45.8 percent and 23.7 percent share of oilfield discoveries respectively.

Our aim is to construct mainly two ethnic homeland specific indicators of mineral and oil discovery. We concentrate on first discoveries (i.e., ethnic homeland that did not have any resource discovery or production before). We also code single first discoveries (i.e., ethnic homelands that only had one discovery). Details on coding follows in section 2.2.

Commodity Price Data

We construct ethnic homeland specific commodity price index and commodity price shock variables following the approach of Deaton (1999) and Brückner and Ciccone (2010) in the cross-country growth literature. To calculate ethnic homeland specific commodity price index

[7] The 19 minerals are copper, diamond, fluorite, gold, graphite, lead, manganese, mineral sands, nickel, niobium, PGE, phosphate, platinum, potash, rare earths, silver, uranium, zinc, and zircon.

[8] See Long Appendix tables A4-A6 for details.

(ECPI) we use the following formula.

$$ECPI_{jt} = \sum_{i=1}^{34} \omega_{ij} P_{it} \quad (1)$$

where ω_{ij} is ethnicity *j*'s share of the agricultural or mineral commodity *i* in the ethnic group's total production of the commodity in 2000 (or in a year closest to 2000 in case 2000 data is unavailable) and P_{it} is the annual global price series of commodity *i*. As mentioned above, the mineral production data comes from IntierraRMG and the agricultural production data comes from SPAM. The production data is used to compute production shares of agricultural commodities and minerals. The price data is extracted from the IMF Commodity Prices, United States Geological Survey (USGS) historical commodity prices, and Bazzi and Blattman (2014). All prices are normalized to the initial sample period as the base year.

We construct two separate price indices for mineral and agriculture. The mineral price index includes 21 minerals[9] (aluminium, antimony, bauxite, chromite, cobalt, copper, diamond, gold, graphite, iron, lead, manganese, nickel, platinum group elements (PGE), silver, tantalum, tin, vanadium, vermiculite, zinc and zircon) whereas the agricultural price index includes the 12 agricultural commodities (sorghum, wheat, rice, maize, barley, soy, coffee, cotton, groundnut, oilseeds, banana and sugar). Note that we are unable to construct ethnicity level petroleum price as we do not have geospatial data on oil and gas production.

In addition to the commodity price indices, we construct commodity price shocks as the annual difference in each ethnic specific log commodity price index.

2.2 Empirical Strategy

We aim to estimate the effect of first resource discoveries in an ethnic homeland on that ethnicity's share of cabinet posts. In addition we also estimate the effects of commodity

[9] Note that we have 21 minerals here because we have production data for all of them from IntierraRMG. The mineral discovery data comes from MinEx which covers 19 minerals listed in footnote 6.

(minerals and agriculture) price levels and shocks on ethnicity level political power. In what follows, we describe our models in turn.

The Effects of Natural Resource Discovery

We use the following econometric model to identify the effect of resource discoveries on ethnic power sharing:

$$Power_{jct} = \alpha_j + \beta_t + \eta_{ct} + \sum_{i=0}^{10} \gamma_i RD_{j,t-i} + \lambda Leader_{jct} + \varepsilon_{jct} \quad (2)$$

where $Leader_{jct}$ is an indicator variable taking the value 1 if the country c leader belongs to ethnicity j at time t. This variable captures the leader's co-ethnicity effect on ethnic power sharing. A positive and statistically significant λ coefficient would imply that the leader favours their own ethnicity as is commonly predicted. Indeed we find evidence of ethnic favouritism by incumbent leaders in Africa.

We also control for ethnicity fixed effects α_j, year fixed effects β_t, and country × year fixed effects η_{ct}. Ethnicity fixed effects capture ethnicity specific time invariant unobservables (such as cultural and historical characteristics affecting ethnic political norms and political participation) that might influence the ethnic share of cabinet positions. It could also capture potential systematic differences across ethnicities affecting data recording and reporting. Year or time fixed effects control for time varying common shocks affecting any general association between ethnic share of cabinet positions and natural resources in a given year. For example, this could be global shocks affecting the demand for natural resources. Finally, the country × year fixed effects control for countrywide time varying characteristics affecting both ethnic ministerial appointments and resource discoveries. This could be factors such as exploration effort, changes in national electoral processes, regime transitions, coalition formations, and national economic shocks which are all country specific and time varying.

Our main variable of interest Resource Discovery ($RD_{j,t-i}$) is a dummy variable equal to 1 if a discovery has been made in the year $t-i$ in a particular ethnic homeland and 0 if no discovery has been made and missing for all years beyond 10 years after discovery. The variable exploits random variation in the timing of discoveries to identify the causal effects of natural resources on ethnic political power sharing in Africa. In particular we focus on 'first resource discoveries' in ethnic homelands that never had any resource discovery or resource extraction activities before as a potential identifier. Therefore, ethnic homeland with pre-existing mining or oil drilling activities are dropped from the sample. This offers a clean identification strategy (or a treatment-control perspective) with non-resource ethnic homeland without any discoveries as the comparison group. In other words, this approach compares the treatment group of ethnic homelands with first discoveries with the comparison or control group of non-resource ethnic homelands without any discoveries. This restriction serves three purposes. First, existing resource extraction activities may affect politics in an ethnic homeland and it is difficult to disentangle this effect from the effect of a new discovery in that location. This is not an issue here as we focus on 'first discoveries'. Second, economic agents may arguably anticipate repeated discoveries due to the knowledge of past discoveries and geology thereby contaminating the true effects of a new discovery (Lei and Michaels, 2014). In contrast, the 'first discovery' and its exact timing is much harder to predict for a 'virgin' non-resource ethnic homeland. Third, this approach avoids the risk associated with the potential measurement error arising from the estimated size of discoveries as it focuses on timing rather than size of discoveries. Note that our approach is similar to Smith (2015) and Mamo et al. (2017) both of whom use the 'first discovery' event as an identifier. Furthermore, we use an even cleaner identification strategy with 'single first discovery' as the treatment group. The 'single first discoveries' are ethnic homelands without any history of extractive industries and which had only one discovery in their entire history. It is coded to

take the value 1 for the discovery year and 0 for all other years. All post discovery years are coded as missing. This unique way of coding allows us to estimate the precise timing of effects on politics associated with the different stages of resource extraction.

The dependent variable $Power_{jct}$ indicates ethnicity j's share of cabinet positions in country c in the year t based on the FRT15 dataset. This is our main dependent variable. In addition, we also use binary categorical variables measuring access to power using the EPR dataset. For example, whether a particular ethnicity has monopoly access to power is indicated by a dummy variable which takes the value 1 if indeed an ethnicity has monopoly access and 0 otherwise. We, therefore, use both proportional and dummy dependent variables depending on the context.

The Effects of Commodity Prices

To estimate the effect of commodity price levels and shocks on political power sharing in Africa we use the following models respectively:

$$Power_{jct} = \mu_j + \theta_t + \rho_{ct} + \omega CP_{jt} + \pi Leader_{jct} + \xi_{jct} \quad (3a)$$

$$Power_{jct} = \mu'_j + \theta'_t + \rho'_{ct} + \sum_{i=0,3,5} \omega'_i \Delta CP_{j,t-i} + \pi' Leader_{jct} + \xi'_{jct} \quad (3b)$$

where CP_{jt} is the ethnic homeland specific commodity price index and $\Delta CP_{j,t-i}$ is the change in commodity price (or commodity price shock). Therefore, our main coefficients of interest in these two models are ω and ω'_i. We analyse the effect of commodity price shocks with 0, 3, and 5 year lags which allows sufficient time for the price shocks to have an impact.

3 Evidence

3.1 Natural Resource Discovery and Political Power Sharing

In this section we relate the news shock of first resource discoveries to political power sharing. Resource discoveries as opposed to production are better suited as the start of an

experiment in an event study setup because the ethnic homelands with better unobservable fundamentals could be more likely to enter production. Discoveries are likely to follow a different, less selective model, because they require less capital, and returns are largely driven by the size of the deposit which is unknown exante (Mamo et al., 2017). Certain discoveries may not enter production at all and therefore discoveries could be interpreted as intention-to-treat. Moreover, as we have discussed earlier, the timing of the discovery represents exogenous 'news shock' to economic agents. This element of surprise is particularly likely in the 'first discovery' ethnic homelands, i.e., the ethnic homelands without any resource extraction history prior to the discovery. Finally, the time lapse effect starting from discovery that we offer here allows us to distinguish the political consequences of different stages of resource extraction. Note that there could be significant delays between discovery and start of production as the industrial operation runs through different stages (Arezki et al., 2017; Mamo et al., 2017).

Table 2 displays the results. In Column 1, the coefficients reflect the change in the share of an ethnic group's cabinet share j ={0, 2, 4,..., 10} years after a discovery relative to the pre-discovery era levels and trends in the same in non-resource ethnic homelands in the same year. The coefficient is positive and significant 2 years after discovery. The average cabinet size in our sample is 25 and therefore an ethnicity with a first discovery on average wins $0.007 \times 25 = 0.2$ additional national cabinet posts. In other words, this is approximately 1 percentage point increase in their share of posts. It is unlikely that any resource extraction starts 2 years after discovery therefore we expect this effect to be largely expectation induced. This is perhaps confirmed by the fact that the effect withers away 4 years after discovery. A greater statistically significant positive effect appears 6 years after discovery and stays significant up to 10 years after discovery. The effect after 6 years amount to $0.009 \times 25 = 0.23$ additional cabinet posts which rises to $0.011 \times 25 = 0.275$ after 8 years. This effect is

expected to be rent induced. Industrial activities such as advanced exploration, pre-feasibility, feasibility, and construction are expected to start by that time if the cost-benefit merits a business plan for extraction. These activities would attract some labour, capital and construction activities to the location. Note that we do not have ethnic homeland level resource rent data to precisely estimate the effect of rent. However, using the event study setup we are in a position to make an informed judgement.

More discoveries could follow the first discovery in some ethnic homelands who could behave differently from the rest. Therefore in column 2 we use an even cleaner identification strategy by narrowing down our treatment group to single first discoveries. These are ethnic homelands who only received one discovery in their entire lifetime. The results are similar to column 1.

One could expect heterogeneous effects with respect to the size of resource discoveries. In particular, giant deposits could have a larger effect because of their higher economic value and also that they tend to enter production earlier than the others. Alternatively, the political effects of a major deposit could be greater because geographically they are more widespread than giant deposits. Therefore, they are more visible and the demands for more political representation on the incumbent elite could be far greater from the custodians of major deposits. In columns 3 and 4 we estimate the effects. Giant discovery only appears to have an expectation induced positive effect of 0.225 cabinet posts at the same year as discovery. In contrast, the political effects of major discoveries appear to be far greater and persistent. A major discovery yields 0.225 additional cabinet posts 2 years after discovery which rises to 0.275 additional posts 6 years after discovery and 0.48 additional posts 10 years after discovery. This confirms our second conjecture that the political effects of major discoveries are far more powerful than giant discoveries perhaps due to their geographic reach.

Finally, we administer a placebo or pseudo discovery treatment with an 8 year lag to test whether the effect is a result of pre-existing trend in the treated ethnic homelands. This is done by replacing $\sum_{i=0}^{10} \gamma_i RD_{j,t-i}$ with $\sum_{i=-8}^{-1} \gamma_i RD_{j,t-i}$ in model (2). The placebo test indicates that the parallel trend assumptions are satisfied. The pre-discovery coefficients are small and insignificant. Column 1 in table 3 reports this test. As an alternative, in column 2 we also construct a symmetric 4-year pre- and 4 year post-discovery window using $\sum_{i=-4}^{4} \gamma_i RD_{j,t-i}$. Neither the pre- nor the post-discovery coefficients are significant which is in line with the results in column 1.

In table 4 we test whether the increased representation is indeed power sharing. Resource discoveries could empower one ethnicity over all others and enhance their dominant position. The EPR dataset allows us to distinguish between the different types of access to power in Africa. In columns 1-5 we estimate the effect of first resource discoveries on *monopoly, dominance, exclusion, autonomy,* and *separatism* respectively.[10] None of these variables appear to be affected by resource discovery.

In table 5 we unpack resource discoveries into minerals and oil[11]. Minerals could have more backward and forward linkages with the local economy and hence might encourage local power sharing politics. Oil in contrast is much more capital intensive and often run by the multinationals. Therefore, it might have very little linkages with the local economy and hence strengthen political power of the incumbent. In columns 1 and 2 we focus on minerals and find that mineral discoveries are indeed more conducive towards power sharing politics. In columns 3 and 4 we test the effect of oil discoveries on power sharing. We do not find any statistically significant effect.

[10] These variables are defined in section 2.
[11] Oil here implies oil and gas.

All this allocation of cabinet posts could in fact be window dressing rather than genuine power sharing with the peripheral ethnicities only getting unimportant portfolios. We test window dressing in tables 6 and 7 by relating first resource discoveries to top and bottom cabinet seats respectively. We designate the Presidency/Premiership, Defence, Budget, Commerce, Finance, Treasury, Economy, Agriculture, Justice, and Foreign Affairs portfolio as top cabinet seats. In contrast, we render Education, Energy and Environment, Labour, Civil Service, Aviation and Communication, Art and Cultural Affairs, Democracy and Human Rights, Social Service, Youth and Sport portfolios to be bottom cabinet seats. We find resource discoveries to be positively affecting the share of both top and bottom cabinet posts. However, the effect on the share of bottom level cabinet positions appear to be far greater and statistically stronger than the share of top level cabinet positions. This is indicative of some window dressing politics but not at a blatantly obvious level.

3.2 Commodity Price and Political Power Sharing

In the previous section we have noticed that the effect of resource discovery on political power sharing could be both induced by expectations and rent. If the 6 years post discovery effects are indeed induced by rent then we would expect to see similar effects from commodity prices. In table 8 columns 1 and 2 we focus on the effects of mineral price index and mineral price shocks. Note that we do not have ethnic homeland level data on oil price therefore we focus on mineral price only. In column 1 we do not find any effect of mineral price index. However, in column 2 we find that mineral price shocks in an ethnic homeland increases the cabinet share of the relevant ethnicity up to 5 years after the shock. Agricultural commodity price shock appears to be doing the opposite. It reduces the share of cabinet posts 3 years after the shock. As discussed in section 1, this reflects that rent from point source resources (minerals) is far more potent political currency than rent from agricultural commodities.

In tables 9 and 10 we test whether the effect of these shocks are uniform across top and bottom level cabinet positions respectively. In table 9 we find very little effects on top posts. However, in table 10 the effect on bottom level cabinet posts largely appear to be similar to the average effects reported in table 8. Therefore, from the commodity price perspective the power sharing structure appears to be more window dressing than from the resource discovery perspective.

4 Robustness

We perform a battery of robustness tests of the empirical relationship between resource discovery, commodity price and political power sharing. They deal with nuanced issues relating to single first discovery and clustering. These results are reported in the long appendix to save space. Following is a discussion of these results.

In table 4 we deal with the effect of discovery on the nature of access to power by these ethnicities. We use first discovery as the start of the experiment. An even cleaner treatment would be 'single first discovery'. If we use single first discovery the results do not change.

In tables 2 and 8 we use robust standard errors clustered at the country level. One would expect cross-section association to occur at the country level. Therefore country level clustering is commonly used (see for example, Francois et al., 2015). Nevertheless, we also use ethnic group level clustering and Conley (1999) clustering. With the latter method, standard errors are adjusted to reflect two-dimensional spatial dependence. The spatial correlation is assumed to linearly decrease in distance up to a cut-off of 500km, and ethnic group distances are computed from centroids of the ethnic group polygons. Our table 2 and 8 results are robust to these tests.

5 Conclusions

We investigate the effect of resource discoveries on ethnic level power sharing in Africa and

find that the 'first mineral or oil and gas discovery' in a virgin ethnic homeland increases the share of cabinet posts of that ethnicity 2 years later. This in all likelihood is an expectation induced positive effect following the discovery news shock which fades away after 4 years. However, a much stronger positive effect reappears 6 years after and stays relevant up to 10 years after the shock. This effect is mainly driven by rent. The pattern remains unaffected if we focus on the single first discoveries. Overall the effect is driven by the major discoveries and minerals as opposed to oil and gas. The discovery shocks also promote genuine power sharing by discouraging monopoly or dominant access to power, autonomy, separatism, and exclusion. The power sharing effects are largely similar following a mineral price shock. However, the pattern reverses following an agricultural commodity price shock with cabinet share declining for the respective ethnic group. This is indicative that point source resource (minerals) rents are far more important political currency than agricultural commodity rents. By classifying ministries into Top and Bottom levels according to their status we find evidence of very moderate levels of window dressing politics. All of these results survive the inclusion of ethnicity fixed effects, time varying common shocks, country specific time varying shocks, and co-ethnicity effect of the incumbent leader as control variables.

What are the benefits of political power sharing along ethnic lines? In figures 5-7 we find that a more inclusive cabinet reduces ethnic wars. In particular, we find that time since last ethnic war increases following first time cabinet representation by an ethnic group. Cabinet representation also significantly reduces the probability of a new ethnic war and ethnic war intensity. Therefore, by association one could argue that resource discovery induced political power sharing promotes peace and stability at the ethnicity level.

Finally, what are the potential mechanisms through which resource discovery and resource rent affects political power sharing? There are two key mechanisms at play here. First, natural resources can increase the revenue available to the incumbent to expand state

cabinet sizes, and distribute cabinet positions among politically relevant ethnicities. Second, natural resources can also enhance de facto political power of excluded ethnicities and increase the threat of political violence for the incumbent. By the same token the excluded ethnicities could also demand more representation to secure distributive advantage. The first is a top-down mechanism whereas the second is a bottom-up mechanism. To determine which mechanism is at play here would require more detailed data on the process leading up to cabinet expansion which we do not have here. However, on balance we could surmise that resource discovery induced cabinet expansion is perhaps a mix of both top-down and bottom-up mechanisms.

Appendices

A1. List of Countries (FRT15 sample):

Benin, Cameroon, Congo Dem. Rep., Congo Rep., Cote d'Ivorie, Gabon, Ghana, Guinea, Kenya, Liberia, Nigeria, Sierra Leone, Tanzania, Togo, Uganda.

A2. List of Countries (EPR sample):

Angola, Benin, Botswana, Burundi, Cameroon, Central African Republic, Chad, Dem Republic of Congo, Republic of Congo, Cote d'Ivoire, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea Bissau, Kenya, Liberia, Madagascar, Malawi, Mali, Mauritania, Mozambique, Namibia, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, South Africa, Sudan, Togo, Uganda, Zambia, Zimbabwe.

A3: List of Ethnic Groups by Country (FRT15 Sample)

	Benin		**Cameroon**		**Congo-Brazzaville**		**Cote d'Ivoire**		**Gabon**
1	Adja	1	Bamileke	1	Alur	1	Abron	1	Fang
2	Aizo	2	Bamum	2	Azande	2	Agni	2	Kota
3	Anii	3	Banyang	3	Babwa	3	Attie	3	Mbete
4	Bariba	4	Bassa	4	Bemba	4	Baule	4	Myene
5	Boko	5	Fang	5	Bushoong	5	Bete	5	Njebi
6	Dendi	6	Fulani	6	Chokwe	6	Dan	6	Shira
7	Fon	7	Gbaya	7	Enya	7	Gagu	7	Teke
8	Fulani	8	Hausa	8	Komo	8	Kru	8	Tsogo
9	Goun	9	Kanuri	9	Kongo	9	Kulango	9	Vili
10	Lukpa	10	Kotoko	10	Lendu	10	Kweni		
11	Mina	11	Maka	11	Lokele	11	Lagoon		
12	Somba	12	Mambila	12	Luba	12	Lebanese		
13	Yom	13	Mandara	13	Lugbara	13	Lobi		
14	Yoruba	14	Masa	14	Lunda	14	Malinke		
		15	Mbam	15	Mangbetu	15	Ngere		
		16	Mbum	16	Mbandja	16	Senufo		
		17	Tikar	17	Mongo				
		18	Tiv	18	Nande				
		19	Widekum	19	Ngala				
				20	Ngbaka				
				21	Ngbandi				
				22	Rega				
				23	Rwanda				
				24	Shi				
				25	Songe				
				26	Teke				
				27	Tetela				
				28	Yaka				
				29	Yanzi				
	Ghana		**Guinea**		**Kenya**		**Liberia**		**Nigeria**
1	Adangme	1	Fulani	1	Boran	1	Amer-Lib	1	Angas
2	Akyem	2	Kissi	2	Embu	2	Bassa	2	Bura
3	Anyi	3	Kpelle	3	Kalenjin	3	Dan	3	Chamba
4	Asen	4	Malinke	4	Kamba	4	Gbandi	4	Edo
5	Ashanti	5	Mano	5	Kikuyu	5	Gola	5	Fulani
6	Bissa	6	Susu	6	Kisii	6	Grebo	6	Gbari
7	Brong	7	Toma	7	Luhya	7	Kissi	7	Hausa
8	Builsa	8	Yalunka	8	Luo	8	Kpelle	8	Ibibio
9	Dagari			9	Masai	9	Krahn	9	Idoma
10	Dagomba			10	Meru	10	Kru	10	Igbirra
11	Ewe			11	Mijikenda	11	Loma	11	Igbo
12	Fanti			12	Rendille	12	Mandingo	12	Ijaw
13	Ga			13	Somali	13	Mano	13	Kanuri

14	Guang			14	Taita	14	Vai	14	Nupe
15	Konkomba			15	Turkana			15	Tiv
16	Kusasi							16	Yoruba
17	Mamprusi								
18	Nankanse								
19	Nzema								
20	Sisala								
21	Wasa								
	Republic of Congo		**Sierra Leone**		**Tanzania**		**Togo**		**Uganda**
1	Lari	1	Creole	1	Arab	1	Aja	1	Acholi
2	Maka	2	Fulani	2	Bena	2	Akebu	2	Alur
3	Mbete	3	Kissi	3	Chagga	3	Akposo	3	Ankole
4	Mbochi	4	Kono	4	Fipa	4	Ana	4	Ganda
5	Punu	5	Kuranko	5	Gogo	5	Anufo	5	Gisu
6	Sanga	6	Limba	6	Ha	6	Basari	6	Gwere
7	Teke	7	Loko	7	Haya	7	Ewe	7	Kakwa
8	Vili	8	Mandingo	8	Hehe	8	Fon	8	Karamojong
		9	Mende	9	Iramba	9	Fulani	9	Kiga
		10	Sherbro	10	Iraqw	10	Gurma	10	Konjo
		11	Susu	11	Kinga	11	Kabre	11	Kumam
		12	Temne	12	Kuria	12	Konkomba	12	Lango
		13	Yalunka	13	Luguru	13	Lama	13	Lugbara
				14	Luo	14	Mina	14	Madi
				15	Makonde	15	Moba	15	Ndo
				16	Makua	16	Nawdm	16	Nyole
				17	Masai	17	Ngangam	17	Nyoro
				18	Ngindo	18	Ouatchi	18	Padhola
				19	Ngoni	19	Tem	19	Rundi
				20	Nyakyusa			20	Rwanda
				21	Nyamwezi			21	Samia
				22	Nyasa			22	Sebei
				23	Nyiha			23	Soga
				24	Pare			24	Teso
				25	Pogoro			25	Toro
				26	Rangi				
				27	Rundi				
				28	Sagara				
				29	Shambala				
				30	Sukuma				
				31	Swahili				
				32	Turu				
				33	Yao				
				34	Zaramo				
				35	Zigula				

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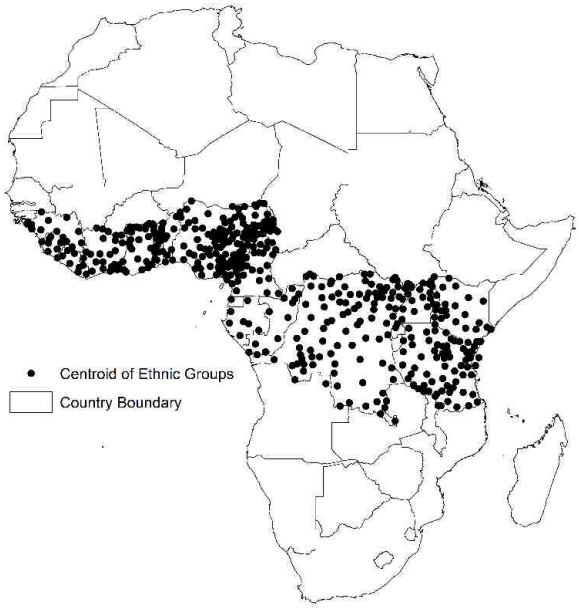
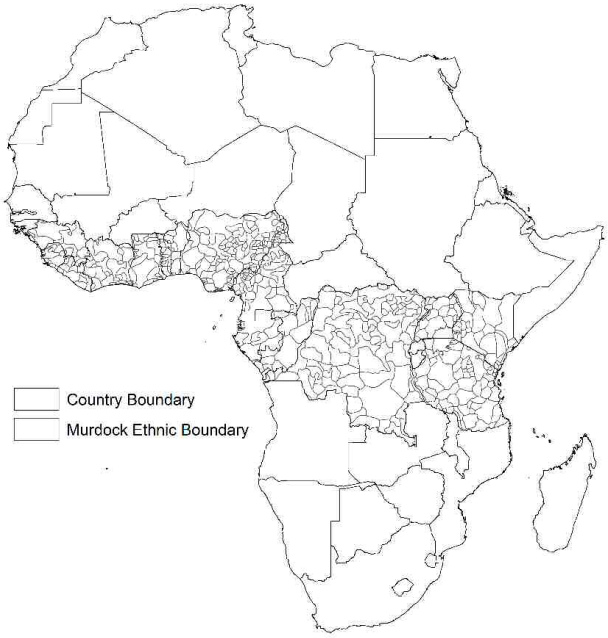
Figure 1: Centroid of Ethnic Groups from FRT15 Dataset



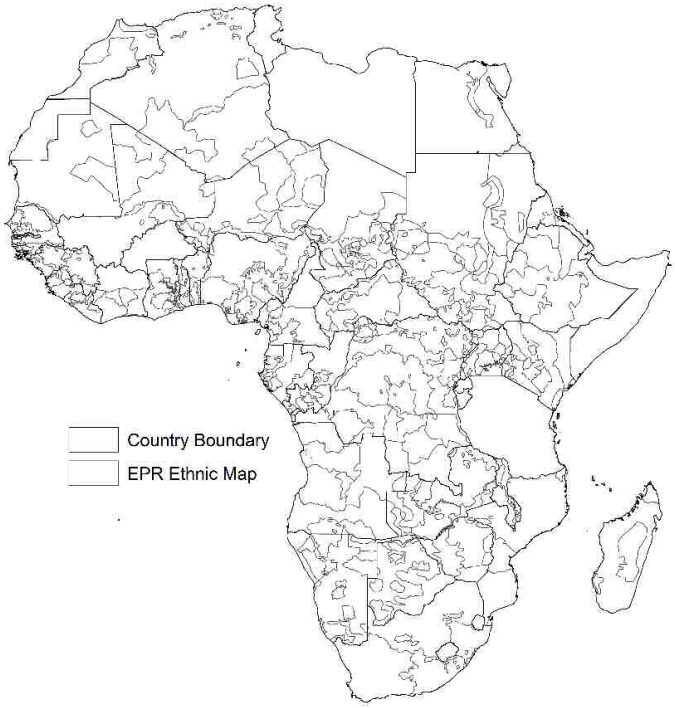
Note: The map shows the centroid of ethnic groups represented in Francois, Rainer and Trebbi (2015) dataset. The geographical coordinates (latitude and longitude) of each ethnic group is collected from Joshua Project (U.S. Centre for World Mission), www.latlong.net, country-specific ethnic maps and internet search. The constitute 15 equatorial African countries: Benin, Cameroon, Cote d'Ivoire, Democratic Republic of Congo, Gabon, Ghana, Guinea, Liberia, Nigeria, Republic of Congo, Sierra Leone, Tanzania, Togo, Kenya, and Uganda.

Figure 2: Ethnic Groups from Murdock Ethnolinguistic Map



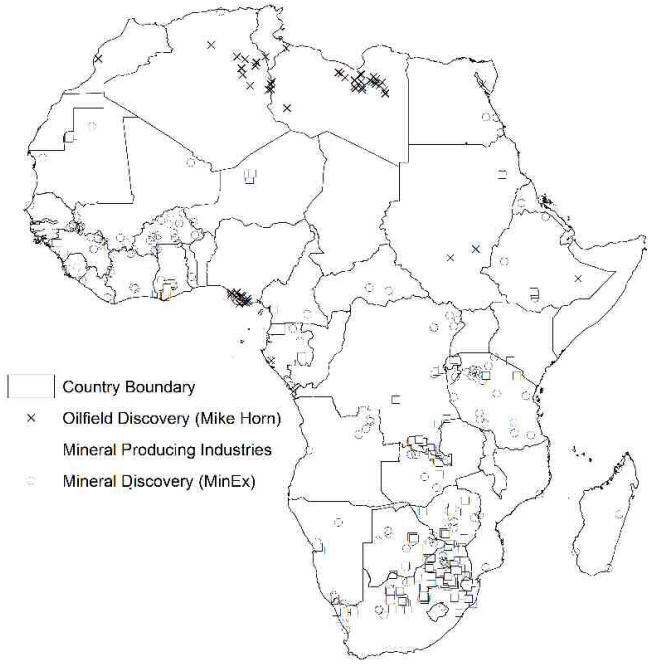
Note: The map portrays the spatial distribution of ethnicities in equatorial African countries based on Murdock map of ethnic boundaries. Polygons for this map were digitized from the book "Africa: Its peoples and Their Culture History" by George Murdock, 1959.

Figure 3: Ethnic Groups from EPR Dataset



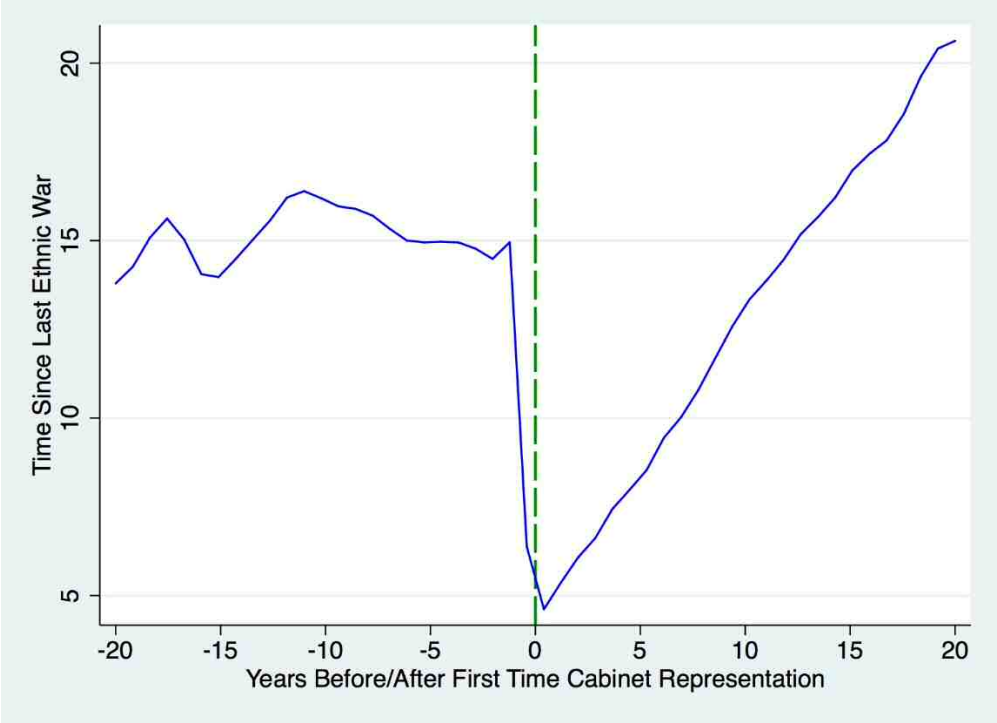
Note: The map shows geo-spatial location of every politically relevant ethnic group that are represented in the EPR dataset. It provides polygons describing their location in each 39 countries.

Figure 4: Geographical Location of Resource Production and Discoveries



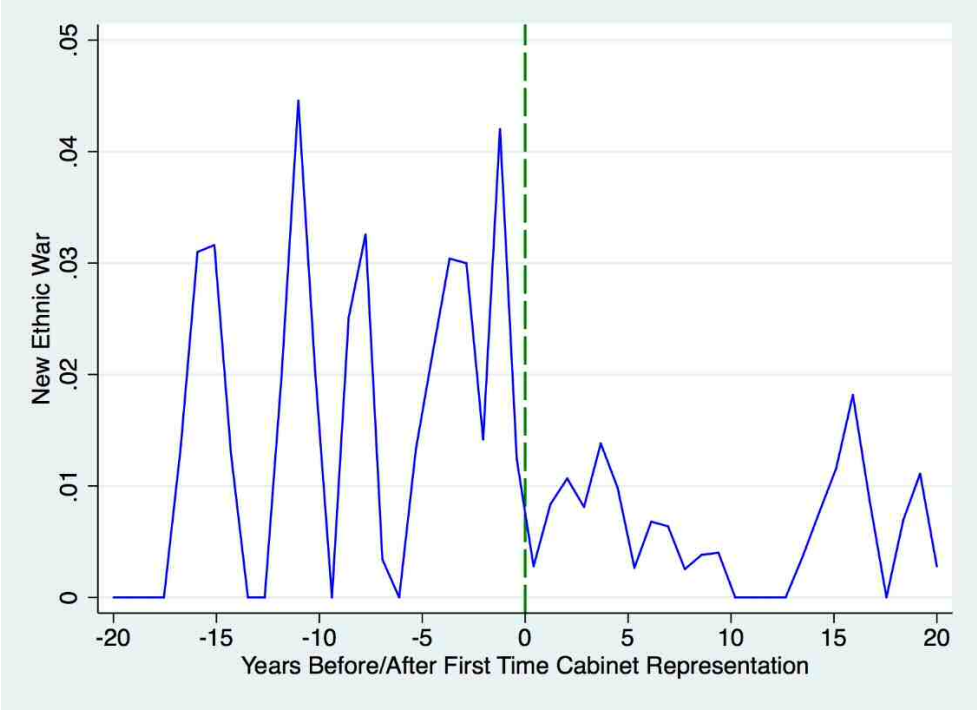
Note: The map shows the geographical location of mineral production, mineral deposit and oilfield discoveries.

Figure 5: Patronage Politics and Time since Last Ethnic War



Notes: This figure is plotted using a nonparametric local regression method conditional on ethnic group fixed effects using Kernel-weighted local polynomial smoothing. Variable on the horizontal axis represents the number of years before and after an ethnic group is represented for the first time by at least one member at the executive or central level over the period 1950 – 2010 based on Ethnic Power Relation (EPR) dataset. Variable on the vertical axis is time since last ongoing ethnic war (1000 battle-deaths per year) using the Expanded Armed Conflict Data (EACD) provided within the EPR dataset.

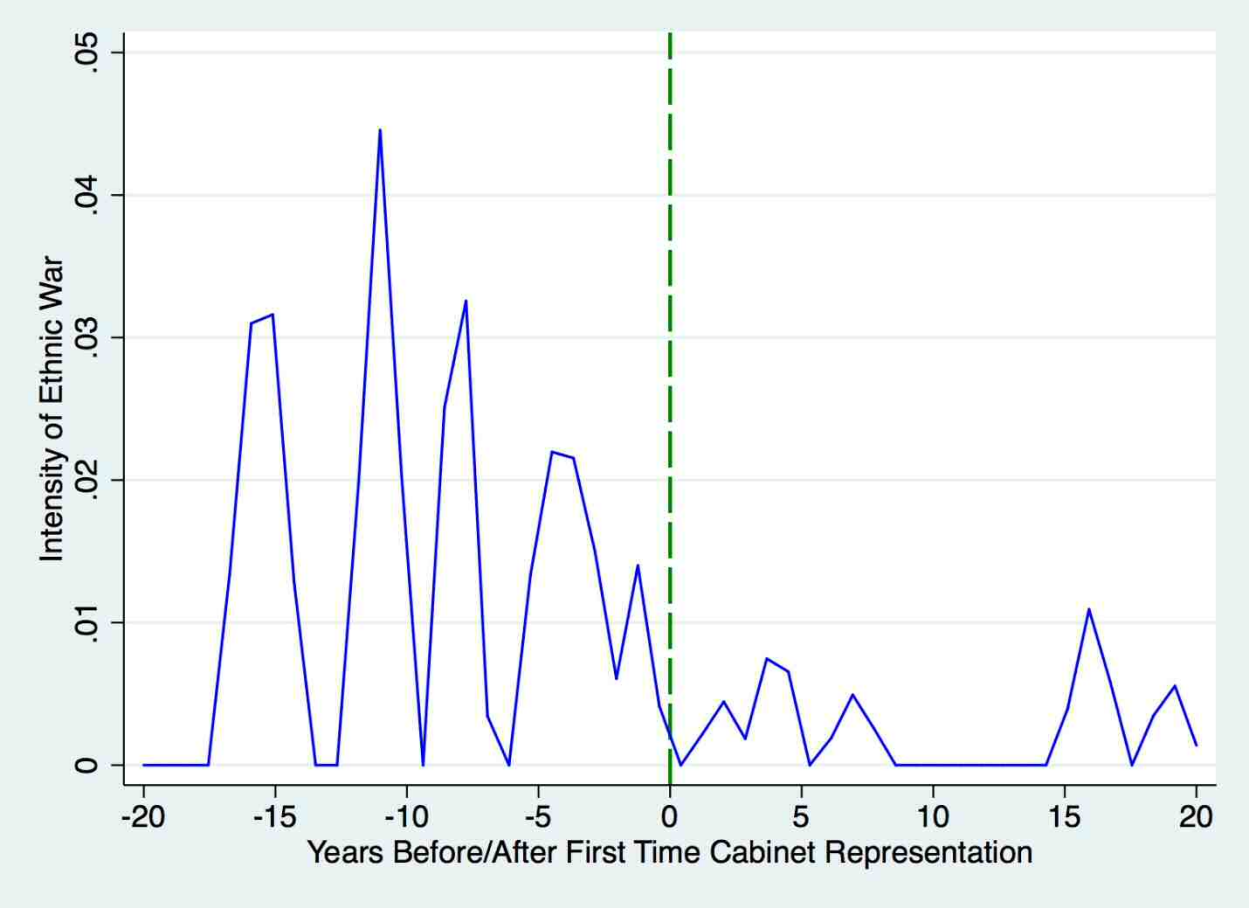
Figure 6: Patronage Politics and New Ethnic War



Notes: This figure is plotted using a nonparametric local regression method conditional on ethnic group fixed effects using Kernel-weighted local polynomial smoothing. Variable on the horizontal axis represents the number of years before and after an ethnic group is represented for the first time by at least one elite at the executive or central level over the period 1950 – 2010 based on Ethnic Power Relation (EPR dataset. Variable on the vertical axis is the likelihood of a new ethnic war (1000 battle-deaths per year) starting using the

Expanded Armed Conflict Data (EACD) provided within EPR dataset.

Figure 7: Patronage Politics and Ethnic War Intensity



Notes: This figure is plotted using a nonparametric local regression method conditional on ethnic group fixed effects using Kernel-weighted local polynomial smoothing. Variable on the horizontal axis represents the number of years before and after an ethnic group is represented for the first time by at least one elite at the executive or central level over the period 1950 – 2010 based on Ethnic Power Relation (EPR dataset. Variable on the vertical axis is the likelihood of an ethnic high intensity war (1000 battle-deaths per year) starting using the Expanded Armed Conflict Data (EACD) provided within EPR dataset.

Table 1: Summary Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max	First Year of Data	Last Year of Data
FRT15 Dataset							
Share of Cabinet Positions	10986	0.056	0.085	0	0.882	1960	2004
Share of Top Cabinet Positions	10986	0.056	0.112	0	1	1960	2004
Share of Low Cabinet Positions	10986	0.056	0.087	0	0.864	1960	2004
Leader's Ethnic Indicator	10986	0.063	0.243	0	1	1960	2004
EPR Dataset							
Power Monopolisation	8891	0.153	0.123	0	1	1950	2010
Power Dominance	8891	0.057	0.231	0	1	1950	2010
Exclusion from Power	8787	0.397	0.489	0	1	1950	2010
Regional Autonomy	8891	0.026	0.160	0	1	1950	2010
Separatist Movement	8891	0.001	0.033	0	1	1950	2010
Natural Resources Discovery and Ethnic Price Indices							
Resource Discovery, t	8868	0.013	0.114	0	1	1950	2012
Resource Discovery, t-2	8868	0.138	0.116	0	1	1950	2012
Resource Discovery, t-4	8868	0.147	0.120	0	1	1950	2012
Resource Discovery, t-6	8868	0.014	0.119	0	1	1950	2012
Resource Discovery, t-8	8868	0.014	0.117	0	1	1950	2012
Resource Discovery, t-10	8868	0.013	0.115	0	1	1950	2012
Ln(Mineral Price Index, t)	2160	-0.147	1.145	-4.467	1.864	1950	2010
Ln(Agricultural Price Index, t)	11520	0.865	0.598	-0.491	2.855	1950	2010
Mineral Price Shock, t	2064	-0.205	0.167	-0.564	0.782	1950	2010
Mineral Price Shock, t-3	1968	-0.023	0.166	-0.564	0.782	1950	2010
Mineral Price Shock, t-5	1872	-0.019	0.168	-0.564	0.782	1950	2010
Agricultural Price Shock, t	11264	0.032	0.195	-0.780	1.155	1950	2010
Agricultural Price Shock, t-3	10752	0.093	0.337	-1.064	1.564	1950	2010
Agricultural Price Shock, t-5	10240	0.153	0.393	-0.825	1.814	1950	2010

Notes: This table reports summary statistics. All the variables are measured at the ethnic homeland level.

Table 2: Resource Discoveries and Ethnic Group Cabinet Share

Resource Discovery, t-j	First Discoveries	Single, First Discovery	Giant Discoveries	Major Discoveries
	(1)	(2)	(3)	(4)
j=0	0.005	0.005	0.009**	0.002
	(0.004)	(0.003)	(0.004)	(0.004)
j=2	0.007**	0.006**	0.002	0.009***
	(0.003)	(0.002)	(0.005)	(0.002)
j=4	0.006	0.006	0.007	0.004
	(0.004)	(0.004)	(0.006)	(0.004)
j=6	0.009**	0.009**	0.006	0.011**
	(0.003)	(0.004)	(0.005)	(0.005)
j=8	0.011***	0.012**	0.01	0.013**
	(0.004)	(0.004)	(0.005)	(0.005)
j=10	0.012**	0.015**	0.005	0.019**
	(0.004)	(0.005)	(0.007)	(0.007)
Leader Group	0.072***	0.072***	0.076***	0.073***
	(0.012)	(0.013)	(0.010)	(0.014)
Year Fixed Effects	Yes	Yes	Yes	Yes
Ethnic Fixed Effects	Yes	Yes	Yes	Yes
Country x Year FE	Yes	Yes	Yes	Yes
Observations	8172	7968	5351	6255
R-squared	0.776	0.765	0.780	0.762
Sample Period	1960-2004	1960-2004	1960-2004	1960-2004
N(Countries)	15	15	15	15
N(Ethnic Groups)	254	247	160	178

Notes: The table reports the effect of resource (minerals and oil) discoveries on the ethnic group share of cabinet positions in a panel of ethnicity-year observations. Ethnic homeland with pre-existing mining or oil drilling activities were dropped from the regression. In column (1), the variable of interest Resource Discovery, t-j is a dummy variable equal to 1 if a giant or major mineral or oil deposit was discovered j years ago, 0 if no discovery has been made and missing for every post-discovery year j > 10. In column (2), the dummies are set to missing the year a second discovery was made in the same district. In column (3) and (4), the dummy refers to giant and major deposit discoveries respectively. Because of the 10-year lag, the discoveries and the number of observations referred to by each dummy variable may vary. All regressions include year, ethnic and country-year fixed effects. We also control for Leader Group (an indicator function for a national leader's ethnicity*)* to control for leadership co-ethnicity effect on ethnic political power sharing. Robust standard errors in parentheses are clustered by country. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Table 3: Placebo Test for Pre-Trends in Ethnic Group Cabinet Share

	Resource Discovery, t-j	First Discoveries (1)	First Discoveries (2)
Pre-Discovery	*j=-8*	-0.006	
		(0.008)	
	j=-7	-0.005	
		(0.008)	
	j=-6	-0.004	
		(0.006)	
	j=-5	0.0002	
		(0.005)	
	j=-4	0.001	-0.00003
		(0.005)	(0.003)
	j=-3	0.001	-0.010
		(0.013)	(0.010)
	j=-2	0.012	0.001
		(0.021)	(0.013)
	j=-1	-0.007	-0.012
		(0.024)	(0.013)
Post-Discovery	*j=0*		-0.022
			(0.015)
	j=1		-0.007
			(0.021)
	j=2		-0.011
			(0.013)
	j=3		-0.026
			(0.005)
	j=4		-0.021
			(0.017)
	Leader Group	0.071***	0.076***
		(0.010)	(0.015)
	Year Fixed Effects	Yes	Yes
	Ethnic Fixed Effects	Yes	Yes
	Country x Year Fixed Effects	Yes	Yes
	F-test of joint significance (Prob > F)	0.000	0.000
	Observations	4581	4375
	R-squared	0.748	0.759
	N(Countries)	12	12
	N(Ethnic Groups)	112	110

Notes: The table tests for pre-treatment effects of natural resource discoveries on ethnic group cabinet share (shown in Table 2). In Column (1), we use information on discoveries post-2004 as pre-treatment (pre-discovery) windows. In Column (2), we apply symmetric pre-discovery and post-discovery windows by showing trends in cabinet allocations 4-years pre-/post-discovery for discoveries that were made between 2000 and 2008. All regressions include year, ethnic group, and country-year fixed effects. We also control for Leader Group (an indicator function for a national leader's ethnicity*)* to control for leadership co-ethnicity effect on ethnic political power sharing. Robust standard errors in parentheses are clustered by country. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Table 4: Resource Discoveries and Ethnic Power Relations (EPR)

Resource Discovery, t-j	Monopoly (1)	Dominance (2)	Excluded (3)	Autonomy (4)	Separatist (5)
j=0	-3.3×10^{-17}	0.029	-0.154	-0.021	0.007
	(1.7×10^{-17})	(0.052)	(0.151)	(0.031)	(0.006)
j=2	-3×10^{-17}	-0.019	-0.086	-0.055	0.007
	(2.1×10^{-17})	(0.029)	(0.132)	(0.068)	(0.007)
j=4	-2×10^{-18}	-0.025	-0.046	-0.055	0.008
	(2.9×10^{-17})	(0.037)	(0.099)	(0.068)	(0.008)
j=6	1.2×10^{-17}	-0.053	0.037	0.036	0.009
	(2.7×10^{-17})	(0.041)	(0.079)	(0.039)	(0.008)
j=8	3.5×10^{-17}	-0.007	0.055	-0.023	0.009
	(3×10^{-17})	(0.022)	(0.081)	(0.031)	(0.008)
j=10	1.3×10^{-17}	-0.023	0.110	-0.040	0.009
	(3.2×10^{-17})	(0.038)	(0.095)	(0.050)	(0.008)
Leader Group	-2×10^{-17}*	0.044	-0.241**	-0.016	-0.005
	(7.9×10^{-18})	(0.058)	(0.100)	(0.022)	(0.005)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Ethnic Fixed Effects	Yes	Yes	Yes	Yes	Yes
Country x Year FE	Yes	Yes	Yes	Yes	Yes
Observations	2280	2280	2280	2280	2280
R-squared	0.999	0.756	0.807	0.473	0.199
Sample Period	1960-2004	1960-2004	1960-2004	1960-2004	1960-2004
N(Countries)	14	14	14	14	14
N(Ethnic Groups)	64	64	64	64	64

Notes: The table reports the effect of resource (minerals and oil) discoveries on ethnic power relations based on the EPR dataset in a panel of ethnicity-year observations. Ethnic homeland with pre-existing mining or oil drilling activities were dropped from the regression. The variable of interest Resource Discovery, t-j is a dummy variable equal to 1 if a giant or major mineral deposit or oilfield was discovered j years ago, 0 if no discovery has been made and missing for every post-discovery year j > 10. In columns (1) – (5), the dependent variable represents categorical variables measuring access to power in the EPR dataset: monopoly, dominance, excluded, autonomy, and separatist. All regressions include year, ethnic group, and country-year fixed effects. We also control for Leader Group (an indicator function for a national leader's ethnicity*)* to control for leadership co-ethnicity effect on ethnic political power sharing. Robust standard errors in parentheses are clustered by country. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Table 5: Unpacking Natural Resource Discoveries: Mineral and Oilfield

	Mineral Discovery		Oilfield Discovery	
Resource Discovery, t-j	**First Discoveries**	**Single, First Discovery**	**First Discoveries**	**Single, First Discovery**
	(1)	**(2)**	**(3)**	**(4)**
j=0	0.006	0.006	0.006	0.005
	(0.004)	(0.004)	(0.006)	(0.006)
j=2	0.007**	0.007**	0.013	0.007
	(0.002)	(0.003)	(0.012)	(0.009)
j=4	0.006	0.006	0.011	0.011
	(0.004)	(0.004)	(0.009)	(0.012)
j=6	0.009**	0.009**	0.016	0.020
	(0.003)	(0.003)	(0.012)	(0.015)
j=8	0.013***	0.014***	0.010	0.010
	(0.003)	(0.004)	(0.014)	(0.013)
j=10	0.014***	0.015**	0.011	0.023
	(0.005)	(0.005)	(0.007)	(0.015)
Leader Group	0.066***	0.066***	0.087***	0.089***
	(0.013)	(0.013)	(0.012)	(0.013)
Year Fixed Effects	Yes	Yes	Yes	Yes
Ethnic Fixed Effects	Yes	Yes	Yes	Yes
Country x Year FE	Yes	Yes	Yes	Yes
Observations	7608	7502	4037	3952
R-squared	0.777	0.774	0.776	0.746
Sample Period	1960-2004	1960-2004	1960-2004	1960-2004
N(Countries)	15	15	12	12
N(Ethnic Groups)	227	225	114	109

Notes: The table reports the separate effects of mineral and oilfield discoveries on an ethnic group's share of cabinet positions in a panel of ethnic-year observations. Ethnic homeland with pre-existing mining or oil drilling activities were dropped from the regression. In columns (1), the variable of interest Resource Discovery, t-j is a dummy variable equal to 1 if mineral deposit was discovered j years ago, 0 if no discovery has been made and missing for every post-discovery year j > 10. In column (2), the dummies are set to missing the year a second discovery was made in the same district. In columns (3) and (4), we repeat the experiment with oilfield discoveries. Because of the 10-year lag and the discoveries, the sample size may vary. All regressions include year, ethnic group, and country-year fixed effects. We also control for Leader Group (an indicator function for a national leader's ethnicity*)* to control for leadership co-ethnicity effect on ethnic political power sharing. Robust standard errors in parentheses are clustered by country. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Table 6: Resource Discoveries and Ethnic Share of Top Cabinet Posts

Resource Discovery, t-j	First Discoveries	Single, First Discovery	Giant Discoveries	Major Discoveries
	(1)	(2)	(3)	(4)
j=0	0.006	0.006	0.006	0.006
	(0.007)	(0.006)	(0.009)	(0.01)
j=2	0.007	0.006	0.011	0.004
	(0.007)	(0.007)	(0.01)	(0.007)
j=4	0.008	0.011**	0.008	0.007
	(0.005)	(0.005)	(0.007)	(0.009)
j=6	0.010**	0.013***	0.0024	0.017*
	(0.005)	(0.004)	(0.006)	(0.005)
j=8	0.006	0.005	0.009	0.007
	(0.006)	(0.005)	(0.01)	(0.006)
j=10	0.010	0.009	0.002	0.019**
	(0.008)	(0.008)	(0.01)	(0.008)
Leader Group	0.164***	0.165***	0.156***	0.170***
	(0.012)	(0.012)	(0.017)	(0.016)
Year Fixed Effects	Yes	Yes	Yes	Yes
Ethnic Fixed Effects	Yes	Yes	Yes	Yes
Country x Year FE	Yes	Yes	Yes	Yes
Observations	8172	7968	5351	6255
R-squared	0.657	0.644	0.643	0.645
Sample Period	1960-2004	1960-2004	1960-2004	1960-2004
N(Countries)	15	15	15	15
N(Ethnic Groups)	254	247	160	178

Notes: The table reports the effect of mineral and oilfield discoveries on an ethnic group's share of top cabinet positions in a panel of ethnic-year observations. Dependent variable in columns (1) - (4) denote the share of top cabinet posts: Presidency/Premiership, Defense, Budget, Commerce, Finance, Treasury, Economy, Agriculture, Justice, and Foreign. Ethnic homeland with pre-existing mining or oil drilling activities were dropped from the regression. In column (1), the variable of interest Resource Discovery, t-j is a dummy variable equal to 1 if a giant or major mineral deposit or oilfield was discovered j years ago, 0 if no discovery has been made and missing for every post-discovery year j > 10. In column (2), the dummies are set to missing the year a second discovery was made in the same district. In column (3) and (4), the dummy refers to giant and major discoveries respectively. Because of the 10-year lag, the discoveries and numbers referred to by each dummy variable may vary. All regressions include year, ethnic group, and country-year fixed effects. We also control for Leader Group (an indicator function for a national leader's ethnicity) to control for leadership co-ethnicity effect on ethnic political power sharing. Robust standard errors in parentheses are clustered by country. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Table 7: Resource Discoveries and Ethnic Share of Bottom Cabinet Posts

Resource Discovery, t-j	First Discoveries	Single, First Discovery	Giant Discoveries	Major Discoveries
	(1)	(2)	(3)	(4)
j=0	0.005	0.005	0.011*	0.001
	(0.004)	(0.004)	(0.006)	(0.004)
j=2	0.009**	0.009**	0.003	0.013***
	(0.004)	(0.004)	(0.007)	(0.003)
j=4	0.006	0.005	0.011	0.002
	(0.005)	(0.005)	(0.007)	(0.006)
j=6	0.010**	0.011***	0.008	0.009**
	(0.004)	(0.004)	(0.007)	(0.004)
j=8	0.014***	0.015***	0.011	0.016**
	(0.005)	(0.005)	(0.009)	(0.007)
j=10	0.014**	0.018**	0.011	0.017**
	(0.005)	(0.006)	(0.009)	(0.008)
Leader Group	0.025*	0.027*	0.025*	0.025
	(0.014)	(0.014)	(0.012)	(0.016)
Year Fixed Effects	Yes	Yes	Yes	Yes
Ethnic Fixed Effects	Yes	Yes	Yes	Yes
Country x Year FE	Yes	Yes	Yes	Yes
Observations	8172	7968	5351	6255
R-squared	0.614	0.607	0.623	0.594
Sample Period	1960-2004	1960-2004	1960-2004	1960-2004
N(Countries)	15	15	15	15
N(Ethnic Groups)	254	247	160	178

Notes: This table reports the effect of mineral and oilfield discoveries on an ethnic group's share of top cabinet positions in a panel of ethnic-year observations. Dependent variable in columns (1) - (4) is the share of low cabinet positions which includes Education, Energy and Environment, Labour, Civil Service, Aviation and Communication, Art and Cultural Affairs, Democracy and Human Rights, Social Service, Youth and Sport. Ethnic homeland with pre-existing mining or oil drilling activities were dropped from the regression. In column (1), the variable of interest Resource Discovery, t-j is a dummy variable equal to 1 if a giant or major mineral deposit or oilfield was discovered j years ago, 0 if no discovery has been made and missing for every post-discovery year j > 10. In column (2), the dummies are set to missing the year a second discovery was made in the same district. In column (3) and (4), the dummy refers to giant and major discoveries respectively. Because of the 10-year lag, the discoveries and numbers referred to by each dummy variable may vary. All regressions include year, ethnic group, and country-year fixed effects. We also control for Leader Group (an indicator function for a national leader's ethnicity*)* to control for leadership co-ethnicity effect on ethnic political power sharing. Robust standard errors in parentheses are clustered by country. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Table 8: Effect of Global Commodity Prices on Ethnic Group Cabinet Share

	(1)	(2)	(3)	(4)
Mineral Price Index, t	0.006			
	(0.004)			
Mineral Price Shock, t		0.021**		
		(0.009)		
Mineral Price Shock, t-3		0.029*		
		(0.015)		
Mineral Price Shock, t-5		0.021**		
		(0.009)		
Agricultural Price Index, t			0.003	
			(0.007)	
Agricultural Price Shock, t				-0.006*
				(0.002)
Agricultural Price Shock, t-3				0.002
				(0.003)
Agricultural Price Shock, t-5				-0.003
				(0.004)
Leader Group	0.097***	0.102***	0.096***	0.096***
	(0.022)	(0.029)	(0.018)	(0.018)
Year Fixed Effects	Yes	Yes	Yes	Yes
Ethnic Fixed Effects	Yes	Yes	Yes	Yes
Country x Year FE	Yes	Yes	Yes	Yes
Observations	2040	1801	10790	9845
R-squared	0.83	0.84	0.77	0.77
Sample Period	1960-2004	1960-2004	1960-2004	1960-2004
N(Countries)	12	12	15	15
N(Ethnic Groups)	48	48	258	256

Notes: The table reports the effect of global mineral and agricultural prices on an ethnic group's share of cabinet positions in a panel of ethnic-year observations. In column (1), the variable of interest is the ethnicity specific contemporaneous Mineral Price Index, t. In column (2), the mineral price shock is calculated as the annual difference in each ethnic specific log mineral price index. In column (3), the variable of interest is Agricultural Price Index, t which is the ethnic specific contemporaneous agricultural price index. In column (4), the agricultural price shock is calculated as the annual difference in each ethnic specific log agricultural price index. We also control for Leader Group (an indicator function for a national leader's ethnicity*)* to control for leadership co-ethnicity effect on ethnic political power sharing. Robust standard errors in parentheses are clustered by country. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Table 9: Global Commodity Prices and Ethnic Share of Top Cabinet Seats

	(1)	(2)	(3)	(4)
Mineral Price Index, t	0.015*			
	(0.008)			
Mineral Price Shock, t		0.020		
		(0.027)		
Mineral Price Shock, t-3		0.014		
		(0.009)		
Mineral Price Shock, t-5		0.033		
		(0.044)		
Agricultural Price Index, t			-0.004	
			(0.014)	
Agricultural Price Shock, t				-0.007
				(0.007)
Agricultural Price Shock, t-3				-0.002
				(0.004)
Agricultural Price Shock, t-5				-0.004
				(0.007)
Leader Group	0.192***	0.181***	0.184***	0.186***
	(0.028)	(0.028)	(0.015)	(0.015)
Year Fixed Effects	Yes	Yes	Yes	Yes
Ethnic Fixed Effects	Yes	Yes	Yes	Yes
Country x Year FE	Yes	Yes	Yes	Yes
Observations	2040	1801	10790	9845
R-squared	0.668	0.673	0.650	0.649
Sample Period	1960-2004	1960-2004	1960-2004	1960-2004
N(Countries)	12	12	15	15
N(Ethnic Groups)	48	48	258	256

Notes: The table reports the effect of global mineral and agricultural prices on ethnic group share of top cabinet positions in a panel of ethnic-year observations. Dependent variable in columns (1) - (4) denote the share of top cabinet posts: Presidency/Premiership, Defense, Budget, Commerce, Finance, Treasury, Economy, Agriculture, Justice, and Foreign. In column (1), the variable of interest Mineral Price Index, t indicates ethnic specific contemporaneous mineral price index. In column (2), the mineral price shock is calculated as the annual difference in each ethnic specific log mineral price index. In column (3), the variable of interest Agricultural Price Index, t indicates ethnic specific contemporaneous agricultural price index. In column (4), the agricultural price shock is calculated as the annual difference in each ethnic specific log agricultural price index. We also control for Leader Group (an indicator function for a national leader's ethnicity*)* to control for leadership co-ethnicity effect on ethnic political power sharing. Robust standard errors in parentheses are clustered by country. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Table 10: Global Commodity Prices and Ethnic Share of Low Cabinet Seats

	(1)	(2)	(3)	(4)
Mineral Price Index, t	0.002			
	(0.005)			
Mineral Price Shock, t		0.007		
		(0.008)		
Mineral Price Shock, t-3		0.022*		
		(0.011)		
Mineral Price Shock, t-5		0.008*		
		(0.004)		
Agricultural Price Index, t			0.005	
			(0.006)	
Agricultural Price Shock, t				-0.005
				(0.003)
Agricultural Price Shock, t-3				0.003
				(0.003)
Agricultural Price Shock, t-5				-0.001
				(0.003)
Leader Group	0.045**	0.062**	0.047**	0.047**
	(0.019)	(0.027)	(0.018)	(0.019)
Year Fixed Effects	Yes	Yes	Yes	Yes
Ethnic Fixed Effects	Yes	Yes	Yes	Yes
Country x Year FE	Yes	Yes	Yes	Yes
Observations	2040	1801	10790	9845
R-squared	0.712	0.734	0.630	0.637
Sample Period	1960-2004	1960-2004	1960-2004	1960-2004
N(Countries)	12	12	15	15
N(Ethnic Groups)	48	48	258	256

Notes: The table reports the effect of global mineral and agricultural prices on ethnic group share of low cabinet positions in a panel of ethnic-year observations. Dependent variable in columns (1) - (4) denote the share of low cabinet positions: Education, Energy and Environment, Labour, Civil Service, Aviation and Communication, Art and Cultural Affairs, Democracy and Human Rights, Social Service, Youth and Sport. In column (1), the variable of interest is the ethnicity specific contemporaneous Mineral Price Index, t. In column (2), the mineral price shock is calculated as the annual difference in each ethnic specific log mineral price index. In column (3), the variable of interest is ethnicity specific contemporaneous Agricultural Price Index, t. In column (4), the agricultural price shock is calculated as the annual difference in each ethnic specific log agricultural price index. We also control for Leader Group (an indicator function for a national leader's ethnicity*)* to control for leadership co-ethnicity effect on ethnic political power sharing. Robust standard errors in parentheses are clustered by country. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Long Appendix (NOT FOR PUBLICATION)

Table A1: Summary Statistics of FRT15 Dataset

Country	Time Period Covered	Years Missing	Number of Leaders in in Power	Number of Government-Ministers	Average Size of Government	Number of Ethnic Groups
Benin	1960-2004	1969,1975	10	730	16	15
Cameroon	1960-2004	1969,1975	2	1445	33	21
Congo-Brazzaville	1960-2004	1969,1975	7	918	20	10
Cote d'Ivoire	1960-2004	1975	4	1256	28	17
DRC	1961-2004	1972,1974	4	1352	31	30
Gabon	1960-2004	1975	2	1173	27	10
Ghana	1960-2004	1975	9	1140	25	22
Guinea	1960-2004	1975	2	1213	27	9
Kenya	1964-2004	1975	3	1010	25	16
Liberia	1960-2004	1975	10	938	21	15
Nigeria	1961-2004	1975	11	1499	34	17
Sierra Leone	1960-2004	1972, 1975	9	1109	25	14
Tanzania	1965-2004	1972, 1974	3	1016	25	37
Togo	1960-2004	1975	3	757	17	20
Uganda	1963-2004	1972, 1974	6	1037	25	26

Source: Rainer and Trebbi, 2012.

Table A2: List of Countries and Share of Ethnic Groups in FRT15 and EPR Dataset

Country	Share of Ethnic Groups	Country	Share of Ethnic Groups	Country	Share of Ethnic Groups
FRT15 Dataset					
Benin	5.36	Gabon	3.45	Nigeria	6.13
Cameroon	7.28	Ghana	8.05	Sierra Leone	4.98
Cote d'Ivoire	6.13	Guinea	3.07	Tanzania	13.41
Congo	3.07	Kenya	5.75	Togo	7.28
DRC	11.11	Liberia	5.36	Uganda	9.58
EPR Dataset					
Algeria	1.10	Ethiopia	6.41	Mozambique	1.21
Angola	2.02	Gabon	2.46	Namibia	2.13
Benin	2.29	Gambia	2.07	Niger	3.44
Botswana	0.51	Ghana	3.64	Nigeria	3.44
Burundi	1.10	Guinea	1.79	Rwanda	1.10
Cameroon	3.44	Guinea Bissau	1.66	Senegal	2.87
CAR	1.66	Kenya	4.32	Sierra Leone	1.65
Chad	2.88	Liberia	2.51	South Africa	2.06
Congo	3.77	Madagascar	1.15	Sudan	8.04
Cote d'Ivoire	2.87	Malawi	3.70	Togo	1.15
DRC	7.46	Mali	1.15	Uganda	4.09
Egypt	1.37	Mauritania	1.72	Zambia	3.70
Eritrea	0.40	Morocco	0.62	Zimbabwe	1.02

Notes: Share of ethnic groups represents a country's share of ethnicities over the sample period. CAR = Central African Republic, DRC = Democratic Republic of Congo

Table A3: Ethnic Coalition in Africa based on FRT15 Dataset

Country	Mean Coalition Size	Min Coalition Size	Max Coalition Size	Number of Ethnic Groups	Mean Proportion
Benin	7.5	4	10	14	53.6
Cameroon	11.7	8	15	19	61.6
Cote d'Ivoire	9.5	5	12	16	59.4
Congo	6.6	4	8	8	82.5
DRC	14.6	8	20	29	50.3
Gabon	6.9	4	8	9	76.7
Ghana	9.5	6	14	21	45.2
Guinea	5.11	4	7	8	63.9
Kenya	10.9	8	12	15	72.7
Liberia	7.4	2	12	14	52.8
Nigeria	11.3	7	15	16	70.6
Sierra Leone	7.7	5	10	13	59.2
Tanzania	15.8	10	20	35	45.1
Togo	8.9	5	13	19	46.8
Uganda	12.1	9	18	25	48.4

Notes: This is based on our geocoded and digitized sample of FRT15 dataset. Mean Coalition Size: mean size of politically relevant ethnicities represented at the centre over the sample period. Min Coalition Size: minimum number of politically relevant ethnicities represented at the centre over the sample period. Max Coalition Size: maximum number of politically relevant ethnicities represented at the centre over the sample period. Ethnic Groups: politically relevant ethnicities. Mean Proportion: mean percentage of politically relevant ethnicities represented at the centre or share ministerial level cabinet positions. DRC = Democratic Republic of Congo

Table A4: Descriptive Statistics of Primary Commodity

MinEx Mineral Resource Discovery			
Primary Metal	**Share**	**Largest Country**	**Country Share**
Copper	0.10	DRC	0.48
Diamonds	0.05	Angola and Botswana	0.28
Fluorite	0.004	South Africa	1
Gold	0.48	South Africa	0.22
Graphite	0.004	Tanzania	1
Lead	0.004	South Africa	1
Manganese	0.03	South Africa	0.62
Mineral Sands	0.03	Madagascar, Mozambique, Sierra Leone and South Africa	0.25
Nickel	0.09	South Africa, Tanzania and Zimbabwe	0.16
Niobium	0.01	Gabon and Tanzania	0.50
PGE	0.07	South Africa	0.94
Phosphate	0.004	Congo	1
Platinum	0.01	South Africa	0.75
Potash	0.01	Congo	1
Rare Earths	0.01	South Africa	0.67
Silver	0.004	South Africa	1
Uranium	0.05	Namibia	0.50
Zinc	0.02	Namibia and South Africa	0.40
Zircon	0.01	Madagascar and Senegal	0.50
Mike Horn Oilfield Discovery			
Field Type	**Share**	**Largest Country**	**Country Share**
Oil	0.78	Libya	0.522
Gas	0.22	Algeria	0.538

Notes: Sample Period: 1950-2012. Primary Metal: primary mine deposit discovered. Field Type: the type of deposits- oilfields or natural gas fields. Share: share of primary commodity in the total sample of the discovery. Largest Country: country with the largest share of the primary mine discovered. Country Share: share of the country in the total sample. DRC = Democratic Republic of Congo

Table A5: Descriptive Statistics of MinEx Mineral Discovery

Country	Discovery	Max Discovery	Share	Country	Discovery	Max Discovery	Share
Algeria	1	1	0.004	Liberia	3	1	0.01
Angola	5	1	0.02	Madagascar	4	1	0.02
Botswana	11	2	0.04	Mali	13	3	0.05
Burkina Faso	17	3	0.07	Mauritania	2	1	0.01
Burundi	1	1	0.004	Mozambique	3	2	0.01
Cameroon	1	1	0.004	Namibia	12	2	0.05
CAR	2	1	0.01	Niger	4	1	0.02
DRC	19	3	0.07	Rep of Congo	3	1	0.1
Cote d'Ivoire	7	1	0.03	Senegal	6	2	0.02
Egypt	3	1	0.01	Sierra Leone	2	1	0.01
Eritrea	1	1	0.004	South Africa	67	4	0.03
Ethiopia	3	1	0.01	Sudan	1	1	0.004
Gabon	4	1	0.02	Tanzania	21	3	0.1
Ghana	13	2	0.05	Togo	1	1	0.004
Guinea	9	3	0.03	Zambia	7	2	0.03
Lesotho	1	1	0.004	Zimbabwe	10	2	0.04

Notes: Country: country which discovered mineral deposit. Discovery: total number of discoveries in the country over the sample period. Max Discovery: maximum number of yearly discoveries in the country over the sample period. Share: country's share of mineral discovery in the African continent over the sample period.

Table A6: Descriptive Statistics of Mike Horn Oilfield Discovery

Country	Discovery	Max Discovery	Share
Algeria	11	2	0.18
Egypt	1	1	0.02
Ethiopia	1	1	0.02
Gabon	1	1	0.02
Libya	27	5	0.5
Morocco	1	1	0.02
Nigeria	14	4	0.2
Rep of Congo	1	1	0.02
Sudan	2	1	0.03

Notes: Country: country which discovered oilfield deposit. Discovery: total number of discoveries in the country over the sample period. Max Disc: maximum number of yearly discoveries in the country over the sample period. Share: country's share of oil and gas discoveries in the African continent over the sample period.

With Single First Discovery

Table A7: Resource Discoveries and Ethnic Power Relations (EPR)

Resource Discovery, t-j	Monopoly (1)	Dominance (2)	Excluded (3)	Autonomy (4)	Separatist (5)
j=0	-3×10^{-18}	0.031	-0.130	-0.026	0.006
	(4.1×10^{-18})	(0.052)	(0.149)	(0.037)	(0.006)
j=2	-3×10^{-18}	-0.029	-0.002	-0.039	0.006
	(7.1×10^{-18})	(0.035)	(0.100)	(0.051)	(0.006)
j=4	9.1×10^{-18}	-0.040	0.075	-0.041	0.008
	(9.1×10^{-18})	(0.045)	(0.084)	(0.053)	(0.008)
j=6	3.4×10^{-18}	-0.049	0.108	-0.042	0.008
	(9.5×10^{-18})	(0.054)	(0.100)	(0.055)	(0.008)
j=8	5.3×10^{-18}	-0.026	0.063	-0.022	0.009
	(1.2×10^{-17})	(0.031)	(0.063)	(0.029)	(0.009)
j=10	1.9×10^{-17}	-0.045	0.145	-0.048	0.009
	(1.6×10^{-17})	(0.055)	(0.103)	(0.058)	(0.009)
Leader Group	-7.2×10^{-17}	0.049	-0.225*	-0.017	-0.005
	(3.9×10^{-17})	(0.066)	(0.108)	(0.024)	(0.005)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Ethnic Fixed Effects	Yes	Yes	Yes	Yes	Yes
Country x Year FE	Yes	Yes	Yes	Yes	Yes
Observations	2241	2241	2241	2241	2241
R-squared	0.999	0.759	0.810	0.498	0.200
Sample Period	1960-2004	1960-2004	1960-2004	1960-2004	1960-2004
N(Countries)	14	14	14	14	14
N(Ethnic Groups)	64	64	64	64	64

Notes: This table reports the effect of mineral and oilfield discoveries on ethnic power relations based on the EPR dataset in a panel of ethnic-year observations. Ethnic homeland with pre-existing mining or oil drilling activities were dropped from the regression. The variable of interest Resource Discovery, t-j is single (first discovery): dummy variable equal to 1 if a giant or major mineral deposit or oilfield was discovered j years ago, 0 if no discovery has been made and missing for every post-discovery year j > 10. **The dummies are set to be missing the year a second discovery was made in the same district.** In columns (1) – (5), the dependent variable represents categorical variables measuring access to power in the EPR dataset: monopoly, dominance, excluded, autonomy, and separatist. All regressions include year, ethnic group, and country-year fixed effects. We also control for Leader Group (an indicator function for a national leader's ethnicity*)* to control for leadership co-ethnicity effect on ethnic political power sharing. Robust standard errors in parentheses are clustered by country. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Clustering

Table A8: Effect of Resource Discoveries on Ethnic Group Cabinet Share

Resource Discovery, t-j	First Discoveries	Single, First Discovery	Giant Discoveries	Major Discoveries
	(1)	(2)	(3)	(4)
j=0	0.005	0.005	0.009*	0.002
	(0.004)	(0.004)	(0.005)	(0.005)
j=2	0.007*	0.006	0.002	0.009**
	(0.004)	(0.004)	(0.006)	(0.004)
j=4	0.006	0.006	0.007	0.004
	(0.005)	(0.005)	(0.008)	(0.005)
j=6	0.009**	0.009*	0.006	0.011**
	(0.005)	(0.005)	(0.008)	(0.005)
j=8	0.011**	0.012**	0.010	0.013*
	(0.005)	(0.005)	(0.008)	(0.007)
j=10	0.012**	0.015**	0.006	0.019**
	(0.006)	(0.007)	(0.009)	(0.008)
Leader Group	0.072***	0.072***	0.076***	0.073***
	(0.010)	(0.011)	(0.011)	(0.011)
Year Fixed Effects	Yes	Yes	Yes	Yes
Ethnic Fixed Effects	Yes	Yes	Yes	Yes
Year x Country FE	Yes	Yes	Yes	Yes
Observations	8172	7968	5351	6255
R-squared	0.77	0.76	0.78	0.76
Sample Period	1960-2004	1960-2004	1960-2004	1960-2004
N(Countries)	15	15	15	15
N(Ethnic Groups)	254	247	160	178

Notes: This table reports the effect of mineral and oilfield discoveries on ethnic group share of cabinet positions in a panel of ethnic-year observations. Ethnic homeland with pre-existing mining or oil drilling activities were dropped from the regression. In column (1), the variable of interest Resource Discovery, t-j is a dummy variable equal to 1 if a giant or major mineral deposit or oilfield was discovered j years ago, 0 if no discovery has been made and missing for every post-discovery year j > 10. In column (2), the dummies are set to missing the year a second discovery was made in the same district. In column (3) and (4), the dummy refers to giant and major deposit discoveries respectively. Because of the 10-year lag, the discoveries and numbers referred to by each dummy variable may vary. All regressions include year, ethnic group, and country-year fixed effects. We also control for Leader Group (an indicator function for a national leader's ethnicity*)* to control for leadership co-ethnicity effect on ethnic political power sharing. **Robust standard errors in parentheses are clustered by ethnic groups.** ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Table A9: Effect of Global Commodity Prices on Ethnic Group Cabinet Share

	(1)	(2)	(3)	(4)
Mineral Price Index, t	0.006			
	(0.000)			
Mineral Price Shock, t		0.021		
		(0.014)		
Mineral Price Shock, t-3		0.029**		
		(0.015)		
Mineral Price Shock, t-5		0.021**		
		(0.010)		
Agricultural Price Index, t			0.003	
			(0.008)	
Agricultural Price Shock, t				-0.006
				(0.004)
Agricultural Price Shock, t-3				0.002
				(0.003)
Agricultural Price Shock, t-5				-0.003
				(0.003)
Leader Group	0.097	0.102***	0.096***	0.096***
	(0.000)	(0.019)	(0.016)	(0.016)
Year Fixed Effects	Yes	Yes	Yes	Yes
Ethnic Fixed Effects	Yes	Yes	Yes	Yes
Country x Year FE	Yes	Yes	Yes	Yes
Observations	2040	1801	10790	9845
R-squared	0.851	0.861	0.770	0.771
Sample Period	1960-2004	1960-2004	1960-2004	1960-2004
N(Countries)	12	12	15	15
N(Ethnic Groups)	48	48	258	256

Notes: This table reports the effect of global mineral and agricultural prices on ethnic group share of cabinet positions in a panel of ethnic-year observations. In column (1), the variable interest of Mineral Price Index, t indicates ethnic specific contemporaneous mineral price index. In column (2), the mineral price shock is calculated as the annual difference in each ethnic specific log mineral price index. In column (3), the variable interest of Agricultural Price Index, t indicates ethnic specific contemporaneous agricultural price index. In column (4), the agricultural price shock is calculated as the annual difference in each ethnic specific log agricultural price index. We also control for Leader Group (an indicator function for a national leader's ethnicity*)* to control for leadership co-ethnicity effect on ethnic political power sharing. **Robust standard errors in parentheses are clustered by ethnic groups.** ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Table A10: Effect of Resource Discoveries on Ethnic Group Cabinet Share

Resource Discovery, t-j	First Discoveries	Single, First Discovery	Giant Discoveries	Major Discoveries
	(1)	(2)	(3)	(4)
j=0	0.005*	0.005*	0.009**	0.002
	(0.003)	(0.003)	(0.004)	(0.004)
j=2	0.007**	0.006**	0.002	0.009***
	(0.003)	(0.003)	(0.004)	(0.004)
j=4	0.006*	0.006*	0.007	0.004
	(0.003)	(0.004)	(0.005)	(0.004)
j=6	0.009***	0.009***	0.006	0.011***
	(0.002)	(0.003)	(0.004)	(0.003)
j=8	0.011***	0.012***	0.010**	0.013***
	(0.003)	(0.003)	(0.005)	(0.004)
j=10	0.012***	0.014***	0.006	0.019***
	(0.003)	(0.004)	(0.005)	(0.004)
Leader Group	0.072***	0.072***	0.076***	0.073***
	(0.005)	(0.005)	(0.006)	(0.006)
Year Fixed Effects	Yes	Yes	Yes	Yes
Ethnic Fixed Effects	Yes	Yes	Yes	Yes
Country x Year FE	Yes	Yes	Yes	Yes
Observations	8172	7968	5351	6255
R-squared	0.843	0.835	0.845	0.830
Sample Period	1960-2004	1960-2004	1960-2004	1960-2004
N(Countries)	15	15	15	15
N(Ethnic Groups)	254	247	160	178

Notes: This table reports the effect of mineral and oilfield discoveries on ethnic group share of cabinet positions in a panel of ethnic-year observations. Ethnic homeland with pre-existing mining or oil drilling activities were dropped from the regression. In column (1), the variable of interest Resource Discovery, t-j is a dummy variable equal to 1 if a giant or major mineral deposit or oilfield was discovered j years ago, 0 if no discovery has been made and missing for every post-discovery year j > 10. In column (2), the dummies are set to missing the year a second discovery was made in the same district. In column (3) and (4), the dummy refers to giant and major deposit discoveries respectively. Because of the 10-year lag, the discoveries and numbers referred to by each dummy variable may vary. All regressions include year, ethnic group, and country-year fixed effects. We also control for Leader Group (an indicator function for a national leader's ethnicity*)* to control for leadership co-ethnicity effect on ethnic political power sharing. **Standard errors are adjusted to reflect two-dimensional spatial dependence as modelled in Conley (1999). The spatial correlation is assumed to linearly decrease in distance up to a cut-off of 500km, and ethnic group distances are computed from centroids of the ethnic group polygons.** ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Table A11: Effect of Global Commodity Prices on Ethnic Group Cabinet Share

	(1)	(2)	(3)	(4)
Mineral Price Index, t	0.008***			
	(0.001)			
Mineral Price Shock, t		0.009		
		(0.007)		
Mineral Price Shock, t-3		0.016**		
		(0.007)		
Mineral Price Shock, t-5		0.011*		
		(0.007)		
Agricultural Price Index, t			0.001	
			(0.002)	
Agricultural Price Shock, t				-0.005
				(0.003)
Agricultural Price Shock, t-3				0.001
				(0.003)
Agricultural Price Shock, t-5				-0.002
				(0.002)
Leader Group	0.101***	0.095***	0.095***	0.094***
	(0.009)	(0.009)	(0.005)	(0.005)
Year Fixed Effects	Yes	Yes	Yes	Yes
Ethnic Fixed Effects	Yes	Yes	Yes	Yes
Country x Year FE	Yes	Yes	Yes	Yes
Observations	2040	1801	10790	9845
R-squared	0.905	0.903	0.840	0.840
Sample Period	1960-2004	1960-2004	1960-2004	1960-2004
N(Countries)	12	12	15	15
N(Ethnic Groups)	48	48	258	256

Notes: This table reports the effect of global mineral and agricultural prices on ethnic group share of cabinet positions in a panel of ethnic-year observations. In column (1), the variable interest of Mineral Price Index, t indicates ethnic specific contemporaneous mineral price index. In column (2), the mineral price shock is calculated as the annual difference in each ethnic specific log mineral price index. In column (3), the variable interest of Agricultural Price Index, t indicates ethnic specific contemporaneous agricultural price index. In column (4), the agricultural price shock is calculated as the annual difference in each ethnic specific log agricultural price index. We also control for Leader Group (an indicator function for a national leader's ethnicity*)* to control for leadership co-ethnicity effect on ethnic political power sharing. **Standard errors are adjusted to reflect two-dimensional spatial dependence as modelled in Conley (1999). The spatial correlation is assumed to linearly decrease in distance up to a cut-off of 500km, and ethnic group distances are computed from centroids of the ethnic group polygons.** ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.